2016 Statewide Highway Shoulder Soil Evaluation Results Report
Oregon Department of Transportation

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Contents

1.0 INTRODUCTION 1
1.1 Report Organization 1
2.0 BACKGROUND 2
2.1 Hazardous Constituents in Shoulder soil 2
2.2 Management of Oregon Highway Shoulder Soil 2
2.3 Oregon Clean Fill Criteria 2
2.4 2015 Shoulder Soil Sampling 3
2.5 2016 Sampling Program Scope 4
2.5.1 2016 Sampling Scope Development 4
2.5.2 Regulatory Coordination and Associated Modifications 5
3.0 2016 Shoulder Soil Sampling 7
3.1 Pre-Sampling Activities 7
3.2 Soil Sampling Procedures 8
3.3 Laboratory Analytical Program 8
4.0 Evaluation of Shoulder Soil Data 10
4.1 Statewide Shoulder Soil Dataset 10
4.2 Basin and Range 11
4.2.1 Lead and Benzo(a)pyrene Concentrations in Soil 11
4.2.2 Lead Predictors 12
4.2.3 Benzo(a)pyrene Predictors 13
4.3 Blue Mountains 13
4.3.1 Lead and Benzo(a)pyrene Concentrations in Soil 13
4.3.2 Lead Predictors 14
4.3.3 Benzo(a)pyrene Predictors 15
4.4 Deschutes Columbia 15
4.4.1 Lead and Benzo(a)pyrene Concentrations in Soil 15
4.4.2 Lead Predictors 17
4.4.3 Benzo(a)pyrene Predictors 17
4.5 Other Physiographic Provinces 17

4.5.1 Cascade Range 17
4.5.2 Coast Range 17
4.5.3 High Lava Plains 18
4.5.4 Klamath Mountains 18
4.5.5 Owyhee Uplands 19
4.5.6 Portland Basin 19
4.5.7 South Willamette Valley 19
5.0 CONCLUSIONS 21
6.0 RECOMMENDATIONS 22
6.1 Region-Specific Management of Highway Shoulder Soil 22
6.1.1 Basin and Range, Blue Mountains, and Deschutes Columbia Physiographic Provinces 22
6.1.2 High Lava Plains and Owyhee Uplands 22
6.1.3 Western Oregon 23
6.2 Management of Highway Shoulder Soil That Does Not Meet Clean Fill Criteria 24
6.3 Guidance for Future Highway Shoulder Soil Sampling 24
6.4 Clean Fill Criterion for Portland Basin 25
7.0 REFERENCES 26
8.0 CLOSING 28

Tables

Table 1 Samples Collected During 2016 Sampling Program
Table 2 2016 Shoulder Soil Sampling Analytical Results - Lead and PAHs
Table 3 Number of Samples in the Shoulder Soil Database
Table 4 Summary Statistics of Lead and Benzo(a)pyrene by Physiographic Province

Figures

Figure 1 Highway Shoulder Soil Sampling Locations - Complete Dataset
Figure 2 2016 Highway Shoulder Soil Sampling Locations
Figure 3 Shoulder Soil Data Lead Box Plots
Figure 4 Shoulder Soil Data Benzo(a)pyrene Box Plots

Appendices

Appendix A Field Notes
Appendix B Laboratory Data Reports and Data Quality Review
Appendix C 2016 Highway Shoulder Soil Data Statistical Evaluation – Supporting Information
Appendix D Highway Shoulder Soil Database

1.0 INTRODUCTION

This 2016 Highway Shoulder Soil Evaluation Results Report (Results Report) has been prepared by Cascadia Associates, LLC (Cascadia) as requested by the Oregon Department of Transportation (ODOT) and as detailed in Contract No. B33811. This Results Report describes the scope of the 2016 highway shoulder soil sampling program, methods and procedures, analytical results, and presents an evaluation of the statewide highway shoulder soil dataset. The 2016 highway shoulder soil sampling activities were conducted to assist ODOT, in coordination with the Oregon Department of Environmental Quality (DEQ), to determine the likelihood that highway shoulder soil generated during roadway construction and improvement projects will meet DEQ clean fill criteria (DEQ, 2014) or other applicable criteria, and to ultimately develop a management plan for beneficial uses of soil that does not meet clean fill criteria. The results of this study may be used by ODOT as a basis for modifying ODOT Directive GE 14-01(D) (e.g., limiting the need for soil sampling), for designing future studies to further reduce the scope of Directive GE 14-01(D), or to assist in the development of beneficial use determinations in coordination with DEQ.

The draft Results Report was provided to DEQ on April 19, 2017. Following a meeting with ODOT on May 3, 2017, DEQ provided feedback on the Results Report in a May 24, 2017 Memorandum *Review of 2016 Statewide Shoulder Soil Evaluation Results Report* (DEQ, 2017). DEQ feedback has been incorporated into this report.

1.1 REPORT ORGANIZATION

This report is divided into seven primary sections. Each section is summarized below.

- Section 2 provides project background including the presence of hazardous substances in highway shoulder soil in Oregon and elsewhere (Section 2.1); current ODOT procedures for management of highway shoulder soil (Section 2.2); a description of the 2015 statewide shoulder soil evaluation (Section 2.3); and 2016 sampling program scope development (Section 2.4).
- Section 3 presents the 2016 soil sampling program details including pre-sampling activities (Section 3.1); sampling methods and procedures (Section 3.2); and the laboratory analytical program and results (Section 3.3).
- Section 4 presents an evaluation of the 2016 data, along with previously collected data, including comparisons to DEQ clean fill criteria, data trends, and statistics.
- Section 5 presents conclusions following the 2016 sampling program.
- Section 6 proposes recommendations for next steps.
- Section 7 lists report references.

2.0 BACKGROUND

The following subsections provide background for this project, including the presence of traffic-related constituents in highway shoulder soil, a description of the 2015 shoulder soil sampling effort and results, and development of the 2016 highway shoulder soil sampling scope.

2.1 HAZARDOUS CONSTITUENTS IN SHOULDER SOIL

Elevated concentrations of traffic-related hazardous constituents are widespread in shoulder soil in many parts of the world, including Oregon. In most cases, the impacted soil poses no threat to human health and the environment when it is in-place (i.e., on the shoulders of highways). However, during highway construction projects, it is often necessary to excavate and export soil. If exported soil is disposed of or reused in sensitive locations (e.g., wetlands or residential areas), constituents in soil could potentially pose a risk to human and ecological health. Therefore, a management plan for shoulder soil is necessary.

2.2 MANAGEMENT OF OREGON HIGHWAY SHOULDER SOIL

Currently, highway shoulder soil under ODOT's jurisdiction is managed under ODOT Directive GE 14-01(D) (ODOT, 2014). As detailed in the directive, soil excavated from the surface to 1.5 feet below the ground surface (bgs) within the ODOT right-of-way must be characterized prior to export from the construction area. This often involves collection and laboratory analysis of soil samples. Soil that meets DEQ clean fill criteria can be managed unrestricted (e.g., used as fill for other construction projects). Excavated soil that does not meet clean fill criteria requires special management as solid waste (e.g., reuse through a solid waste letter of authorization from DEQ). In practice, soil that does not meet clean fill criteria is often disposed of at licensed landfills, leading to increased construction costs, reduced landfill capacity, and reductions in project sustainability metrics. The analysis of soil samples and the disposal fees required for compliance with ODOT Directive GE14-01(D) can be cumbersome and cost prohibitive to many roadway construction and improvement projects.

2.3 OREGON CLEAN FILL CRITERIA

The DEQ clean fill criteria are conservative standards intended to be protective of human and ecological health under most potential exposure scenarios (DEQ, 2014). The clean fill criterion for lead varies between 18 to 36 milligrams per kilogram (mg/kg) based on physiographic province. With the exception of the Portland Basin physiographic province, the clean fill criteria for lead are equal to (and derived) from the Oregon naturally occurring background metals concentrations (DEQ, 2013). By comparison, the statewide DEQ Risk Based Concentrations (RBCs) for the residential and occupational lead direct contact exposure pathways are 400 mg/kg and 800 mg/kg, respectively. RBCs are defined by DEQ as "the concentration of a chemical in a given medium (e.g., air, soil, or groundwater) which corresponds to the acceptable risk level for a defined exposure," (DEQ, 2003).

The clean fill criterion for benzo(a)pyrene is 0.015 mg/kg, which is equal to the DEQ RBC for residential exposure. The RBCs for occupational and excavation worker exposure to benzo(a)pyrene are 0.29 mg/kg and 67 mg/kg, respectively. The minimum DEQ Level II Screening Level Value (an ecological screening value) for benzo(a)pyrene in soil is 125 mg/kg.

As shown by the comparisons presented above, under many scenarios (e.g., non-residential uses), soil that does not meet clean fill screening criteria may pose no significant risk to human and ecological health. The Oregon Clean Fill Guidance (DEQ, 2014) recognizes that disposal of mildly contaminated roadside soil is not an optimal use of limited landfill capacity. Consequently, the guidance notes that if statistical analyses of soil data do not show that "the material is substantially like clean fill" interested parties should "explore other disposal options such as site-specific or material-specific disposal determinations (solid waste letter authorization, permit exemption, mine reclamation material, restricted beneficial use as fill, or restricted uses such as use as fill at Cleanup sites with deed restrictions, etc.)." In this report, the term "clean fill" is used to describe soil that meets DEQ clean fill criteria outlined in the DEQ *Clean Fill Determinations – Internal Management Directive* (DEQ, 2014).

The evaluation in this report was conducted using current clean fill criteria and RBCs. If clean fill criteria or RBCs are modified in the future, the data will be re-evaluated to confirm that concentrations of constituents in soil do not result in unacceptable risk to human receptors under given exposure scenarios.

2.4 2015 SHOULDER SOIL SAMPLING

In 2015, as an initial step in understanding roadside soil quality in Oregon, soil chemical data from 64 ODOT roadway projects were evaluated. The goal of the evaluation was to develop a general understanding of the types, magnitude, and extent of constituents in shoulder soil and to identify data gaps that could potentially be resolved through a supplemental sampling effort. Data gaps that were identified included the influence of sampling variables (e.g., depth of sample collected, physiographic province, distance from edge of pavement, and average annual daily traffic [AADT]) on the detected concentrations of constituents of interest (COIs). To address these data gaps and to expand the soil dataset, a shoulder soil sampling effort was conducted in May 2015 to improve the understanding of the distribution of constituents in shoulder soil. The locations of the samples collected for the 64 ODOT projects and the 2015 sampling effort (collectively, the "ODOT soil dataset") are shown on Figure 1.

During the 2015 evaluation of the ODOT soil dataset, data were classified based on the sampling variables, when available. As detailed in the *ODOT State-Wide Highway Shoulder Soil Data Analysis* (Apex, 2015; the "Shoulder Soil Evaluation Report"), lead and benzo(a)pyrene were determined to be the only two constituents that were both traffic-related and regularly exceeded clean fill criteria. These constituents have been identified as traffic-related constituents in a number of other studies in the United States and other countries.

The 2015 evaluation included numerous other constituents, including metals (antimony, chromium, copper, lead, mercury, selenium, and zinc); other polycyclic aromatic hydrocarbons (PAHs); pesticides; polychlorinated biphenyls (PCBs); and volatile organic compounds (VOCs). The other constituents detected in shoulder soil were determined to be either: (1) not traffic related, or (2) possibly traffic related (e.g., selenium and nickel), but consistently below the clean fill criteria. Based on these findings, lead and benzo(a)pyrene only were carried forward as constituents of concern (COC) for the 2016 shoulder soil evaluation.

The data and analysis presented in the Shoulder Soil Evaluation Report were useful for improving the understanding of the distribution of constituents in shoulder soil; however, the data were not sufficient to develop a predictive model of the distribution of constituents in soil that would provide a level of certainty necessary to modify ODOT Directive GE 14-01(D). Consequently, the Shoulder Soil Evaluation Report recommended the following next steps:

- Develop a better understanding of the magnitude and extent of lead and benzo(a)pyrene in shoulder soil through the collection and analysis of soil samples in underrepresented areas of the state or with underrepresented characteristics (e.g., depth, distance from the pavement, etc.)
- Develop region-specific soil management criteria; and
- Coordinate with DEQ on alternative(s) to the clean-fill criteria.

2.5 2016 SAMPLING PROGRAM SCOPE

The *Sampling and Analysis Plan – Statewide Highway Shoulder Soil Evaluation* was prepared and submitted to ODOT, following statistical evaluation of the pre-2016 ODOT lead and benzo(a)pyrene dataset and coordination with ODOT and DEQ, as described in the following subsections (Cascadia, 2016).

2.5.1 2016 Sampling Scope Development

To develop the next phase of sampling, the ODOT shoulder soil lead and benzo(a)pyrene dataset was evaluated with random forest and classification tree models, using the R programming language (R Core Team, 2015). The goal of this evaluation was to determine how the sampling variable (e.g., sampling depth, distance from pavement) or combination of variables influence the dataset and which combination of these variables are most likely to result in lead and benzo(a)pyrene concentrations below the clean fill criteria.

To facilitate evaluation of the dataset, four sampling variables (physiographic province, distance from the edge of pavement, depth bgs, and AADT) that were demonstrated during the 2015 shoulder soil data evaluation to affect constituent concentrations in soil were categorized (e.g., depth intervals, distance intervals, etc.) and coded in the database accordingly.

Data that could not be classified by each of the four key variables (i.e., sampling details were missing or unknown) were excluded from the evaluation. If lead or benzo(a)pyrene was analyzed but not detected, only the samples with laboratory reporting limits equal to or less than the clean

fill criteria were included in the evaluation. Samples that exhibited non-detectable concentrations, but with reporting limits greater than the clean fill criteria were excluded from the dataset.

Individual classification trees (Hothorn et al., 2006b) for lead and benzo(a)pyrene were generated. Classification trees present the combinations of sampling variables that have the strongest correlation with a pass (i.e., sampling results less than or equal to the clean fill criteria) or fail (i.e., sampling results greater than the clean fill criteria) result in the analytical data. The classification trees demonstrated that samples collected in the Basin and Range, Blue Mountains, High Lava Plains, and Cascade Mountain physiographic provinces are very likely (more than 80% chance) to meet the clean fill criterion for lead.

The ODOT soil dataset did not have balanced representation of all levels across all predictor variables. For example, in some provinces, only samples within 15 feet of the pavement were represented in the database. In those cases, inferences about the effect of distance from pavement could not be made. Thus, graphical and tabular summaries were used to identify the candidate areas (physiographic province, distance from roadway, and/or depth categories) that appeared most likely to meet the clean fill criteria. Based on these evaluations, the following soil from the following sample groups was found to exhibit COC concentrations that were usually well below the clean fill criteria (based on the 90% upper confidence limit [UCL] of the data).

- Basin and Range physiographic province, all depths, distances from pavement, all AADTs;
- Deschutes Columbia physiographic province, all depths, distance from pavement of greater than 15 feet, and all AADTs; and
- Blue Mountains physiographic province, all depths, distance from pavement of greater than 15 feet, and all AADTs.

These areas were targeted for the collection and analysis of additional soil data that would be used to develop a predictive model of lead and benzo(a)pyrene concentrations in soil.

Based on the statistical characteristics (mean, variance, and distributional form) displayed by the previously collected data, a sample size of 25 was expected to sufficiently characterize the concentration distributions in soil with a suitable level of confidence that the mean concentration was consistently below the clean fill criteria.

2.5.2 Regulatory Coordination and Associated Modifications

Representatives of ODOT, DEQ, and Cascadia met in April and May 2016 to discuss the results of previous ODOT shoulder soil studies, identify possible management options for shoulder soil that does not meet clean fill criteria, and to develop methods appropriate for characterizing shoulder soil. An outcome of those meetings was DEQ's May 4, 2016 memorandum - *Concepts for ODOT Road Shoulder Materials Management Project*. The DEQ memorandum included the following:

- Soil should be characterized using a stratified systematic random sampling program that considers covariates such as depth, distance from shoulder, and physiographic province (e.g., the classification tree random forest model discussed above).

- Pesticides, VOCs, and PCBs are not important constituents in shoulder soil. PAHs, particularly benzo(a)pyrene, are important constituents. While lead is likely the most important constituent in roadside soil, DEQ stated that analysis of the full EPA target analyte list (TAL) of metals would be useful for classification modeling, even though most of the TAL metals have not been identified as COCs.
- Sample collection and analysis using incremental sampling methods (ISM) should be considered to reduce data variability and to reduce non-detect analytical results.
- It may be possible to manage shoulder soil based on a predictive model, under which, shoulder soil could be classified into two or more management categories (e.g., solid waste or clean fill). The predictive model should find a balance between simple linear models (relatively inflexible) and complex high variance models (very flexible but not useful for generalizing future data). DEQ recommended use of a decision trees model, enhanced by random forest methodology. Among the software packages recommended by DEQ was R (R Core Team, 2015).

While not memorialized in the May 4, 2016 memorandum, another outcome of the meetings was the identification of several options for managing excavated shoulder soil that does not meet clean fill criteria. These options include mine reclamation fill, non-residential construction fill, and disposal as solid waste.

A draft Sampling and Analysis Plan (SAP) was submitted to DEQ on July 27, 2016 and DEQ reviewed the draft SAP and provided comments on August 2, 2016. Based on those comments and a follow-up meeting on August 8, 2016, the following changes were incorporated into the sampling program or data evaluation:

- Soil samples were analyzed for the primary pollutant list of PAHs in addition to benzo(a)pyrene.
- ISM processing techniques (i.e., grinding and subsampling the grab sample volume) were incorporated into the sampling program, as detailed further in Section 3.3. Composite ISM sampling can be beneficial for reducing data variability and providing a relatively unbiased estimate of the soil sample concentration mean at a particular location, the pre-2016 ODOT dataset is comprised of discrete (i.e., non-ISM) samples. Because composite ISM samples would be difficult to evaluate statistically alongside the existing discrete soil sampling data, ISM sampling was not conducted, only ISM laboratory processing techniques were used.

Additionally, DEQ recommended using mean chemical concentrations instead of the 90% UCL of the mean for development of the predictive model for shoulder soil. DEQ noted in their comments "The 90% UCL is set as the exposure estimator for risk assessments under OAR-340-122-0084. This was done to minimize the possibility of the estimated sample mean underestimating the true mean. However, for this project, a risk assessment is not being performed, so requirements in OAR-340-122-0084 do not need to be met. Moreover, the OAR allows for another criterion, if acceptable to DEQ. For this sampling and analysis plan, DEQ recommends using the mean instead of the 90% UCL for shoulder soils that will be removed and mixed."

3.0 2016 SHOULDER SOIL SAMPLING

The 2016 shoulder soil sampling program was conducted in October 2016 and included sample collection in the Basin and Range, Blue Mountains, and Deschutes Columbia physiographic provinces as shown on Table 1. As discussed in Section 2.5.1, these three physiographic provinces were selected for additional sampling in 2016 because:

- A significant number of soil samples had already been collected, and therefore, a significant portion of the characterization was complete;
- The collection of additional samples from these provinces would result in a statistically sufficient dataset (i.e., 25 samples in each distance and depth category, sufficient for characterizing the distribution and mean concentration) and was compatible with the scope and budget of the 2016 shoulder soil sampling program; and
- Previously collected data suggested that lead and benzo(a)pyrene concentrations in shoulder soil within most depth and/or distance categories were below clean fill criteria. Thus, additional soil characterization in these areas was relatively likely to demonstrate that soil along highways in a significant portion of the State of Oregon meets clean fill criteria.

The following sections describe the pre-sampling activities, methods and procedures for the sampling, laboratory analytical program, and results.

3.1 PRE-SAMPLING ACTIVITIES

Prior to the initiating the soil sampling field work, Cascadia coordinated with the permit specialists in ODOT Districts 9 through 12, where sampling was to occur, to receive authorization to conduct the sampling activities.

A project-specific health and safety plan was prepared including standard operating procedures for the sampling. The Health and Safety Plan (HASP) was included as Appendix B of the SAP. In addition to the traffic control requirements detailed in the SAP, sample location marking and sampling were performed in accordance with the *Oregon Temporary Traffic Control Handbook* (ODOT, 2016).

Following receipt of ODOT authorization, the proposed sampling locations were marked and the coordinates of each location were recorded using a Global Positioning System instrument. Sampling locations were selected at locations with more than 30 feet of ODOT right-of-way beyond the edge of pavement, safe from traffic hazards (i.e., locations with sufficient sight distance), not exhibiting indications of contamination (e.g., staining), with no obvious signs of imported fill, and not adjacent to potential contaminant source areas (e.g., industrial facilities). After the proposed sample locations were marked, Cascadia coordinated with Oregon One-Call and each location was cleared of subsurface utilities.

3.2 SOIL SAMPLING PROCEDURES

Soil sampling was conducted between October 11 and 27, 2016. Upon arrival at each sampling location, the work area was delineated with traffic cones and a "Shoulder Work Ahead" sign was deployed, in accordance with the traffic control plan.

A total of 462 soil samples were collected from 150 borings completed at 71 sampling locations. Sampling locations are shown on Figure 2. Borings were completed at one or more of the following distances from the edge of pavement at each location: 0 to 15 feet, 15 to 30 feet, and greater than 30 feet. At each boring location, a 1.5-foot-deep boring was advanced using a stainless-steel hand auger and other hand tools, as necessary. Discrete soil samples were collected from one or more of the following depth intervals: 0 to 0.5 foot, 0.5 to 1.0 foot, and 1.0 to 1.5 feet bgs.

For each sample collected, sampling location details were recorded on field forms, included in Appendix A. Recorded details include distance from roadway, elevation relative to pavement and drainage ditch (if present), number of travel lanes, presence of nearby galvanized structure or railroad, soil type, soil color, vegetation present, evidence of recent construction or soil work, and highway mile marker.

Soil samples were placed in laboratory-supplied sample containers. Soil samples were named according to the sample location (including physiographic province, depth, and distance from pavement) and labeled accordingly. For example, the first soil sample collected in the Blue Mountains physiographic province at a depth of 0 to 0.5 foot bgs and greater than 30 feet from the edge of pavement was named BR-01->30' (0-0.5'). Field duplicates were collected with approximately 5 percent of the samples. Samples were placed directly in a cooler and stored on ice prior to transportation to the analytical laboratory.

3.3 LABORATORY ANALYTICAL PROGRAM

The soil samples were submitted to Apex Labs of Tigard, Oregon, for processing and analysis. Samples were frozen upon receipt to preserve the laboratory hold time. Samples were removed from frozen storage and brought to room temperature prior to processing. Samples were then processed following Apex Labs Representative Sampling Methodology (RSM) standard operating procedures (SOP). As noted in the laboratory report case narratives, sample handling per this Apex Labs SOP is consistent with the national Interstate Technology and Regulatory Council (ITRC) ISM and professionally recognized multi-increment sample (MIS) guidance documents. The Apex RSM protocols used included air-drying soil samples and cool grinding of the entire sample to form a well-mixed sample of approximate 50-micron diameter particles.

Following processing, the samples were analyzed for lead by EPA method 6020A and PAHs by EPA method 8270D-SIM. Laboratory data reports and a data quality review are included in Appendix B.

The laboratory results for the 2016 sampling program are presented on Table 2, along with the DEQ clean fill criteria. As shown in Table 2, lead and benzo(a)pyrene concentrations were detected in a limited number of samples at concentrations that exceed clean fill criteria. Further evaluation

of the lead and benzo(a)pyrene concentrations in the 2016 dataset and ODOT complete dataset is presented in Section 4.

Two PAHs, in addition to benzo(a)pyrene, were detected at concentrations that exceed clean fill criteria. Naphthalene, was detected in 1 of 462 samples at a concentration just slightly above the clean fill criterion (0.0892 mg/kg vs. 0.087 mg/kg criterion). One naphthalene exceedance out of 462 samples (i.e., 0.2% of samples) indicates that naphthalene is not a contaminant of concern in highway shoulder soil. Dibenzofuran was detected above the clean fill criterion of 2 µg/kg in 13 out of 462 samples, or 2.8% of samples. Of the 13 samples with exceedances, five were collected at the same sampling location (BM-21), indicating a localized source of dibenzofuran at that sampling location. Because dibenzofuran was detected infrequently and when detected, is detected at low concentrations (ranging from 2.14 to 17.9 µg/kg), further evaluation of dibenzofuran is not needed. No additional PAHs were detected above clean fill criteria.

Following review of the draft Results Report, DEQ requested that, in addition to benzo(a)pyrene concentrations, ODOT also evaluate concentrations of benzo(a)pyrene equivalents compared to clean fill criteria (DEQ, 2017). Benzo(a)pyrene equivalent concentrations for the Basin and Range, Blue Mountains, and Deschutes Columbia datasets were calculated using the toxic equivalency factors for carcinogenic PAHs in the Oregon DEQ *Human Health Risk Assessment Guidance* and are presented in Table 2 (DEQ, 2010).

4.0 EVALUATION OF SHOULDER SOIL DATA

The following sections describe the statewide highway shoulder soil dataset (Section 4.1); present an evaluation of lead and benzo(a)pyrene data for highway shoulder soil in the Basin and Range, Blue Mountains, and Deschutes Columbia physiographic provinces (i.e., the focus of the 2016 shoulder soil sampling program; Sections 4.2 through 4.4); and discuss lead and benzo(a)pyrene concentrations in highway shoulder soil in other Oregon physiographic provinces (Section 4.5).

4.1 STATEWIDE SHOULDER SOIL DATASET

Table 3 shows the number of shoulder soil samples collected and analyzed for lead and benzo(a)pyrene in each physiographic province, and in each of the three depth (0-0.5, 0.5 – 1, and 1 to 1.5 feet) and distance (<15, 15-30, and >30 feet) categories. Samples with missing location details (e.g., depth and distance from pavement), samples collected deeper than 1.5 feet, and samples collected over depth interval more than 0.5 foot are not included. Samples for which sufficient descriptive data are available have been collected in eight of the ten Oregon physiographic provinces; data are not available for the Klamath Mountains and Owyhee Uplands provinces.

As shown Table 3, 1,067 lead and 842 benzo(a)pyrene usable shoulder soil samples[1] have been collected statewide. These sample counts include samples collected for ODOT construction projects, the 2015 data gap sampling effort, and the 2016 sampling program. As shown in Table 3, the size of the sample dataset varies significantly between physiographic provinces. For example, in the Cascade Range province, lead data are available for a total of four samples. In the Basin and Range province, lead data are available for a total of 232 samples. As a result of the 2016 sampling effort, the Basin and Range, Blue Mountains, and Deschutes Columbia province datasets are more robust and sample counts are generally more consistent across predictor variable categories (e.g., depth bgs) than datasets for other provinces.

The following sections discuss the results of the data evaluation for the eight physiographic provinces: Basin and Range, Blue Mountains, Cascade Range, Coast Range, Deschutes Columbia, High Lava Plains, Portland Basin, and South Willamette Basin.

Data are not presented for the Klamath Mountains and Owyhee Uplands physiographic provinces because data are unavailable or, if available, are missing sampling information (i.e., predictor variable details). Box and whisker plots for lead and benzo(a)pyrene are presented in Figures 3 and 4, respectively. Summary statistics for each physiographic province are presented in Table 4, including the number of samples collected, number of non-detects, median, mean, 90% UCL

[1] Samples considered useable for this effort are those with sampling depth and distance from pavement specified, and with detection limits below the clean fill criteria.

concentration, and standard deviation for each depth and distance category.[2] The box and whisker plots and summary statistics are discussed in additional detail below by physiographic province.

Because the Basin and Range, Blue Mountains, and Deschutes Columbia province datasets are more complete and generally balanced across the sampling depth and distance from pavement categories, these data have been evaluated more thoroughly. The evaluation of the lead and benzo(a)pyrene data for these provinces is discussed below, in Sections 4.2 through 4.4. Additional discussion of the statistical methods used to evaluate the data, as well as tabular and graphical summaries of the data (e.g., individual classification trees) are presented in Appendix C.

As requested by DEQ, benzo(a)pyrene equivalent concentrations for the Basin and Range, Blue Mountains, and Deschutes Columbia datasets were compared to 0.015 mg/kg clean fill criteria to confirm that data trends for benzo(a)pyrene equivalents are consistent with the trends observed for benzo(a)pyrene. Tables 4.2-2 through 4.2-3, 4.3-2, and 4.4-2 through 4.4-3 show the number of benzo(a)pyrene equivalents concentrations in Basin and Range, Blue Mountains, and Deschutes Columbia physiographic provinces, respectively, that exceed clean fill criteria. As shown below, a small number of samples in the Basin and Range and Deschutes Columbia physiographic provinces contain benzo(a)pyrene equivalent concentrations greater than the clean fill criterion, but contain benzo(a)pyrene concentrations less than clean fill criterion. For the Blue Mountains physiographic province, no samples contain benzo(a)pyrene equivalent concentrations exceeding the clean fill criterion that did not already exceed clean fill criterion for benzo(a)pyrene. This evaluation did not change the data trends and associated conclusions for these three physiographic provinces.

4.2 BASIN AND RANGE

The Basin and Range dataset consists of 232 samples, which are generally evenly distributed across depth, distance from pavement, and applicable AADT categories, as shown in Table C-1 and C-2 in Appendix C.

4.2.1 Lead and Benzo(a)pyrene Concentrations in Soil

The concentrations of lead and benzo(a)pyrene in Basin and Range highway shoulder soil are consistently below clean fill criteria in all depth and distance categories. Of the Basin and Range province samples collected and analyzed for lead, 94 percent contained lead concentrations below the clean fill criterion, as shown in Table 4.2-1 below.

[2] Table 4 includes all samples collected in each physiographic province, including those with unknown sampling depth and distance and those with detection limits above clean fill criteria.

Table 4.2-1. Summary of Results for Basin and Range Province for Lead

Concentrations Relative to Clean Fill Criteria	Number of Samples	Percentage of Samples
Greater Than	15	6
Less Than or Equal to	217	94
Total	232	100

Of the samples collected in the Basin and Range province and analyzed for benzo(a)pyrene, 97 percent contained concentrations below the clean fill criterion, as shown below. Note that 10 samples with non-detect results for benzo(a)pyrene had laboratory detection limits greater than the clean fill criteria and are not included in the 222-sample total above or in Table 4.2-2.

Table 4.2-2. Summary of Results for Basin and Range Province for Benzo(a)pyrene

Concentrations Relative to Clean Fill Criteria	Number of Samples	Percentage of Samples
Greater Than	5	3
Less Than or Equal to	217	97
Total	222	100

Table 4.2-3. Summary of Results for Basin and Range Province for Benzo(a)pyrene Equivalents

Concentrations Relative to Clean Fill Criteria	Number of Samples	Percentage of Samples
Greater Than	14	6
Less Than or Equal to	208	94
Total	222	100

The mean, median, and upper quartile concentrations of lead and benzo(a)pyrene are well below the clean fill criteria (Table 4). Uncertainty in the mean estimates is reflected in the 90% UCLs[3] shown in Table 4. These values are also generally below the clean fill criteria, providing additional assurance that the true mean is below the screening level.

4.2.2 Lead Predictors

While the vast majority of samples collected in the Basin and Range physiographic province contained lead concentrations below the screening criterion, the associated classification tree

[3] Confidence intervals for the mean are reported for both the parametric Student's-t estimate, and the non-parametric Chebyshev estimate. Based on Shapiro-Wilk's goodness-of-fit test for normality ($\alpha = 0.05$) and skewness and kurtosis summary statistics, very few of the data groups appeared to be approximately normally distributed. The non-parametric Chebyshev's interval is always applicable, although it is a conservative upper bound for the mean estimate, often providing greater than 90% coverage.

shows that AADT was the only variable that is a significant predictor of lead concentrations exceeding the clean fill criterion (Figure C-8 in Appendix C). That is, shoulder soil samples collected on highways with AADT of 2,500 or less contained lead concentrations below clean fill the criterion in 98 percent of samples, whereas samples collected from highways with AADTs greater than 2,501 vehicles contained lead concentrations below the clean fill criterion in 86 percent of samples collected. The lead results by AADT category for the Basin and Range Province are shown in Table 4.2-3 below.

Table 4.2-3. Summary of Lead Results for Basin and Range Province by AADT Category

Concentrations Relative to Clean Fill Criteria	AADT Category				Total
	1 (0-1,000)	2 (1,001-2,500)	3 (2,501-5,000)	4 (5,001-10,000)	
Greater Than	2	0	3	10	15
Less Than or Equal to	96	38	57	26	217
Total	98	38	60	36	232

4.2.3 Benzo(a)pyrene Predictors

The five benzo(a)pyrene samples (out of 222 collected with sufficiently low detection limits) from the Basin and Range province that exceeded the clean fill criterion were randomly distributed across depth, distance from pavement, and AADT categories. Thus, the classification tree shown on Figure C-11 does not identify any variable as a predictor of benzo(a)pyrene concentrations exceeding the clean fill criterion.

4.3 BLUE MOUNTAINS

Similar to the other physiographic provinces sampled during the 2016 program, the 230 samples that have been collected in the Blue Mountains physiographic province are generally evenly distributed across depth, distance from pavement, and applicable AADT categories, as shown in Table C-1 and C-2.

4.3.1 Lead and Benzo(a)pyrene Concentrations in Soil

Concentrations of lead and benzo(a)pyrene in Blue Mountains highway shoulder soil are consistently below clean fill criteria, as shown in Figures 3 and 4, respectively. As shown in Table 4.3-1, 87 percent of the samples contained lead concentrations below the clean fill criterion.

Table 4.3-1. Summary of Results for Blue Mountains Province for Lead

Concentrations Relative to Clean Fill Criteria	Number of Samples	Percentage of Samples
Greater Than	31	13
Less Than or Equal to	199	87
Total	230	100

Of the 201 samples collected and analyzed for benzo(a)pyrene, 97 percent of samples contained concentrations below the clean fill criterion. Note that 29 samples with non-detect results for benzo(a)pyrene had laboratory detection limits greater than the screening level and are not included in the percentages in Table 4.3-2.

Table 4.3-2. Summary of Results for Blue Mountains Province for Benzo(a)pyrene and Benzo(a)pyrene Equivalents

Concentrations Relative to Clean Fill Criteria	Number of Samples	Percentage of Samples
Greater Than	7	3
Less Than or Equal to	194	97
Total	201	100

The mean, median, and upper quartile concentrations of lead and benzo(a)pyrene are consistently below the clean fill criteria, except for the upper quartile concentrations of lead in the 0 to 15-foot distance interval. The upper quartile lead concentrations are similar to the screening criterion concentration. Uncertainty in the mean estimates is reflected in the 90% UCLs (Table 4). These upper bound estimates for the mean are also generally below the clean fill criteria, with a few exceptions. These exceptions coincide with the predictions made from the classification tree model discussed below.

4.3.2 Lead Predictors

Although few samples in the Blue Mountains physiographic province contained lead concentrations above the screening criterion, the classification tree shows that distance from pavement is the only statistically significant predictor of lead concentrations exceeding the clean fill criterion (Figure C-9). As shown in Table 4.3-3 below, shoulder soil samples within 15 feet of the edge of pavement contained lead concentrations below the clean fill criterion in 74 percent of samples collected, whereas samples collected between 15 and 30 feet or greater than 30 feet from the edge of pavement are more likely to contain lead at concentrations below the clean fill criterion (89 percent and 96 percent, respectively).

Table 4.3-3. Summary of Results for Blue Mountains Province for Lead by Depth and Distance from Pavement

	Number of Samples				Percentages			
Distance from Pavement Categories (Feet from Pavement)	**1 (<15')**	**2 (15-30')**	**3 (>30')**	**Total**	**1 (<15')**	**2 (15-30')**	**3 (>30')**	**Total**
Greater Than	20	8	3	31	26%	11%	4%	13%
Less Than or Equal to	57	68	74	199	74%	89%	96%	87%
Total	77	76	77	230	100%	100%	100%	100%

4.3.3 Benzo(a)pyrene Predictors

A very small number of Blue Mountains shoulder soil samples exhibited benzo(a)pyrene concentrations that exceed the clean fill criterion (7 out of 201 samples). Samples that exceed the benzo(a)pyrene criterion appear to be randomly distributed across depth, distance from pavement, and AADT categories. Based on the very few exceedances of the benzo(a)pyrene criterion, no variable is a clear predictor of elevated benzo(a)pyrene concentrations in soil. The classification tree results are shown on Figure C-12.

4.4 DESCHUTES COLUMBIA

As shown in Tables C-1 and C-2, the 236 lead and 217 benzo(a)pyrene samples collected in the Deschutes Columbia physiographic province are generally evenly distributed across depth, distance from pavement, and applicable AADT categories. Because Interstate 84 and Oregon Hwy 97, cross the Deschutes Columbia province, some higher AADT categories are included in the Deschutes Columbia dataset. Note that 19 samples with non-detect results for benzo(a)pyrene had laboratory detection limits greater than the clean fill criteria and are not included in the 217 sample total for benzo(a)pyrene samples in this province.

4.4.1 Lead and Benzo(a)pyrene Concentrations in Soil

Concentrations of lead and benzo(a)pyrene in Deschutes Columbia highway shoulder soil are consistently below clean fill criteria, with the exception of the samples collected within 15 feet of the pavement (all depths) and, to a lesser extent, the samples collected from the surface to 0.5 feet bgs between 15 and 30 feet from the pavement surface (Figures 3 and 4).

Within 15 feet of the pavement surface, 60 percent of samples exceeded the clean fill criterion for lead (49 out of 81 samples; Table 4.4-1) and 26 percent exceeded the benzo(a)pyrene clean fill criterion (16 out of 62 samples; Table 4.4-2). In the shallow depth interval between 15 and 30 feet from the pavement surface, 38 percent and 19 percent of samples exceeded the lead and benzo(a)pyrene clean fill criteria, respectively. In other distance and depth intervals, 94 percent and 93 percent of samples were below clean fill criteria for lead and benzo(a)pyrene, respectively.

Table 4.4-1: Summary of Results for Deschutes Columbia Province for Lead by Depth and Distance from Pavement

Distance from Pavement Category (Feet):	**1 (< 15')**			**2 (15-30')**			**3 (> 30')**			
Depth Interval Category (Feet bgs):	**1 (<0.5')**	**2 (0.5-1')**	**4 (1-1.5')**	**1 (<0.5')**	**2 (0.5-1')**	**4 (1-1.5')**	**1 (<0.5')**	**2 (0.5-1')**	**4 (1-1.5')**	**Total**
Greater Than Clean Fill Criteria	15	18	16	10	5	0	3	0	0	67
Less Than or Equal to Clean Fill Criteria	9	6	17	16	20	26	22	27	26	169
Total	24	24	33	26	25	26	25	27	26	236

Table 4.4-2: Summary of Results for Deschutes Columbia Province for Benzo(a)pyrene by Depth and Distance from Pavement

Distance from Pavement Category (Feet):	1 (< 15')			2 (15-30')			3 (> 30')			
Depth Interval Category (Feet bgs):	**1 (<0.5')**	**2 (0.5-1')**	**4 (1-1.5')**	**1 (<0.5')**	**2 (0.5-1')**	**4 (1-1.5')**	**1 (<0.5')**	**2 (0.5-1')**	**4 (1-1.5')**	**Total**
Greater Than Clean Fill Criteria	5	6	5	5	2		3	3		29
Less Than or Equal to Clean Fill Criteria	13	12	21	21	23	26	22	24	26	188
Total	18	18	26	26	25	26	25	27	26	217

Table 4.4-3: Summary of Results for Deschutes Columbia Province for Benzo(a)pyrene Equivalents by Depth and Distance from Pavement

Distance from Pavement Category (Feet):	1 (< 15')			2 (15-30')			3 (> 30')			
Depth Interval Category (Feet bgs):	**1 (<0.5')**	**2 (0.5-1')**	**4 (1-1.5')**	**1 (<0.5')**	**2 (0.5-1')**	**4 (1-1.5')**	**1 (<0.5')**	**2 (0.5-1')**	**4 (1-1.5')**	**Total**
Greater Than Clean Fill Criteria	5	7	5	8	2	2	3	4	2	38
Less Than or Equal to Clean Fill Criteria	13	11	21	18	23	24	22	23	24	179
Total	18	18	26	26	25	26	25	27	26	217

The mean and median concentrations of lead in soil samples collected within 15 feet of the pavement (all depths) are equal to or exceed the clean fill criterion, as shown on Figure 3 and Table 4. The mean and median lead concentrations in shallow soil (0 to 0.5-foot depth) between 15 and 30 feet from the pavement surface also exceed the clean fill criterion. When uncertainty in the mean estimates as reflected by the 90% UCLs (Table 4) is considered, no additional groups of samples (i.e., depth and distance from pavement categories) are expected to have mean concentrations above the clean fill criterion for lead.

Mean concentrations of benzo(a)pyrene were generally more favorable, with only the mean concentration in the 0.5 to 1-foot depth interval within 15 feet of the pavement surface exceeding the clean fill criterion. For benzo(a)pyrene, the 90% UCL indicates that three additional groups of samples may have mean concentrations above the clean fill criterion. These are the samples from the 0 to 0.5-foot depth interval within 30 feet of the pavement, and from the surface to 0.5-foot and 1 to 1.5-foot depth intervals within 15 feet of the pavement.

4.4.2 Lead Predictors

Distance from pavement and sample depth are significant predictor variables influencing lead concentrations in Deschutes Columbia soil, as shown on the associated classification tree (Figure C-10) and as discussed in Section 4.4.1. That is, the greater distance from pavement and greater depth of sample, the more likely the lead concentration would be below the clean fill criterion.

4.4.3 Benzo(a)pyrene Predictors

The classification tree for benzo(a)pyrene is similar to the lead classification tree, although fewer benzo(a)pyrene concentrations exceed the clean fill criterion. For example, only 29 out of 217 benzo(a)pyrene concentrations in Deschutes Columbia soil exceed the clean fill criterion.

4.5 OTHER PHYSIOGRAPHIC PROVINCES

Dataset sizes for the seven other Oregon physiographic provinces vary as do the apparent concentrations relative to clean fill criteria. This section summarizes the existing dataset in each remaining physiographic province and the lead and benzo(a)pyrene concentration trends, if any, observed in those datasets.

When interpreting the initial trends, it is important to note that significant data gaps are present in the seven remaining physiographic provinces because the datasets do not have balanced representation of all levels across all predictor variables. Optimally, a dataset of at least 25 samples in each depth and distance category (i.e., 225 samples per province) would be available for analysis.

In some provinces, for example, only samples within 0 to 15 feet of the pavement are represented in the database, so inference about the effect of distance from pavement cannot be made in this case.

4.5.1 Cascade Range

The Cascade Range dataset contains four lead samples that can be categorized into the depth and distance intervals, as shown on Table 4. Additional data were available, but no distance/depth information was available for the data or the samples were collected over a large (>1-foot depth interval). No benzo(a)pyrene samples that could be characterized by depth and distance have been collected in the Cascade Range.

As shown on Figure 3, the four samples for this province were collected within 15 feet from the pavement and this small dataset shows a tendency to be below clean fill criterion for lead. It is important to note that this trend is based on a very small number of samples. Additional sampling and analysis would be necessary to develop a statistically sufficient dataset that could be used to infer whether concentrations of lead and benzo(a)pyrene in soil in this province are above or below clean fill criteria.

4.5.2 Coast Range

The Coast Range dataset contains lead and benzo(a)pyrene data for 40 samples that can be categorized into predictor variable categories.

As shown on Figures 3 and 4, all of the lead and benzo(a)pyrene samples in this province were collected within 15 feet from the pavement. The lead concentrations (mean, median, and 90% UCL) are typically above clean fill criterion, whereas the benzo(a)pyrene concentrations are typically below clean fill criterion, as shown in Table 4. Additional sampling and analysis would be necessary to evaluate lead and benzo(a)pyrene concentrations in soil more than 15 feet from the pavement.

While the lead concentrations in Coast Range soil within 15 feet of the pavement commonly exceed the clean fill criterion, it is important to note that the median, mean, and 90% UCL lead concentrations are below the residential RBC for lead of 400 mg/kg. Only one of 40 samples contains a lead concentration above the residential RBC (420 mg/kg). These data indicate that, in the Coast Range, the lead concentrations in soil are protective of human health under DEQ's most restrictive residential use standard.

4.5.3 High Lava Plains

The High Lava Plains physiographic province dataset contains 31 lead and benzo(a)pyrene samples that can be categorized into predictor variable categories. As shown on Figures 3 and 4, lead and benzo(a)pyrene samples were collected across a range of depth and distance categories, but the majority of the samples (19 samples) were collected within 15 feet from the pavement surface.

Benzo(a)pyrene was detected in only one out of 31 samples collected; that concentration exceeded the clean fill criterion. The mean lead concentrations are below the clean fill criterion, but the 90% UCL lead concentration in the less than 15-foot distance interval are above the clean fill criterion. Additional sampling and analysis would be necessary to evaluate lead and benzo(a)pyrene concentrations in soil across predictor variable categories.

Like the Coast Range province, all lead concentrations in the High Lava Plains dataset are below the DEQ residential RBC of 400 mg/kg, indicating that the soil would not pose a risk to human health if it were transported and used in a residential setting.

4.5.4 Klamath Mountains

The Klamath Mountains province dataset consist of eleven soil samples. Predictor information (e.g., depth and distance from the pavement surface) are unavailable for these samples. Thus, the dataset is insufficient for evaluating roadside soil quality.

To provide an evenly distributed, statistically sufficient dataset that could be used to predict lead and benzo(a)pyrene shoulder soil concentrations, approximately 225 samples would be need to be collected across predictor variable categories. A first step toward development of such a database could be the collection of a smaller number of samples distributed across predictor variable categories. If the initial trends appeared promising (i.e., data are often below clean fill criteria or other alternative management criteria in all or a subset of categories), additional samples could be collected to confirm these trends.

4.5.5 Owyhee Uplands

No lead or benzo(a)pyrene data are present in the Owyhee Upland physiographic province. The collection and analysis of soil data (i.e., approximately 225 samples) is necessary to establish lead and benzo(a)pyrene trends in soil.

The Owyhee Uplands physiographic province abuts the Basin and Range and Blue Mountains physiographic provinces, which have been demonstrated to contain lead and benzo(a)pyrene in shoulder soil at concentrations less than clean fill criteria. Based on the similar AADT categories and clean fill criterion for lead (30 mg/kg) in the Owyhee Uplands province, relative to the Basin and Range and Blue Mountain provinces, it is likely that the concentrations of lead and benzo(a)pyrene would meet the clean fill criteria.

4.5.6 Portland Basin

The Portland Basin dataset includes 189 lead soil samples and 107 benzo(a)pyrene soil samples (Table 4). Of these, the vast majority (172 lead samples and 93 benzo(a)pyrene samples) were collected within 15 feet of the pavement.

As shown on Figure 4, benzo(a)pyrene concentrations are typically above the clean fill criterion in the Portland Basin samples. The mean concentrations of benzo(a)pyrene in all depth and distance categories with sufficient data for mean calculation, are above the clean fill criterion. Similarly, the mean lead concentrations in soil are above the clean fill criterion in every depth and distance category with sufficient data to calculate a mean, except the 1- to 1.5-foot interval less than 15 feet from the pavement (Figure 3).

Soil in the Portland Basin (particularly within 15 feet of the pavement) commonly contains lead and benzo(a)pyrene concentrations that exceed clean fill criteria. Unlike other physiographic provinces in Oregon, the clean fill criterion for lead is not based on the background metals concentration. While the background concentration for lead in the Portland Basin is 79 mg/kg, the clean fill criterion for lead is much lower, at 28 mg/kg. The mean lead concentrations in soil in all depth and distance categories are below 79 mg/kg, and only 22 percent of lead concentrations are above 79 mg/kg. Based on the size of the Portland Basin dataset, it is unlikely that additional sampling and analysis would lead to an alternative conclusion.

Due to the elevated concentrations of lead and benzo(a)pyrene concentrations in Portland Basin soil, relative to clean fill criteria, alternative screening criteria should be considered for future soil management efforts. For example, the mean and 90% UCL concentrations for lead and benzo(a)pyrene in soil, in all depth and distance categories, are less than the RBC for construction worker exposure. These observations suggest that Portland Basin soil could be safely managed at a non-residential/non-commercial facility (e.g., a mine reclamation site).

4.5.7 South Willamette Valley

The South Willamette Valley dataset includes lead data for 105 soil samples and benzo(a)pyrene data for 93 soil samples. Similar to the Portland Basin, the majority of these samples (65 lead samples and 62 benzo(a)pyrene samples) were collected within 15 feet of the pavement.

As shown in Figure 3, the lead concentrations typically exceed the clean fill criterion in the samples collected within 15 feet of the pavement. The mean concentrations of lead in samples collected deeper than 0.5 feet and greater than 15 feet from the pavement are less than clean fill criterion. Benzo(a)pyrene was not detected above the laboratory detection limit in most samples collected in the South Willamette Valley province. As shown in Figure 4, the limited number of benzo(a)pyrene concentrations that exceed the clean fill criterion were detected in the 0 to 0.5-foot depth interval, within 15 feet of the pavement.

Similar to the Portland Basin, the dataset for the Willamette Valley, especially within 15 feet of the pavement, is large. It is unlikely that additional sampling and analysis would generate data that would indicate that soil within 15 feet of the pavement meets clean fill criteria. The data set for soil more than 15 feet from the pavement is significantly smaller. It is possible that additional testing and analysis of soil more than 15 feet from the pavement may indicate that concentration trends in those areas.

While the lead and benzo(a)pyrene concentrations in Willamette Valley soil within 15 feet of the pavement commonly exceed the clean fill criteria, it is important to note that the mean, 90% UCL, and maximum lead and benzo(a)pyrene concentrations in all depth categories are below the RBC for construction worker exposure.

5.0 CONCLUSIONS

Following completion of the 2016 highway shoulder soil sampling program, statistically significant and balanced datasets for lead and benzo(a)pyrene concentrations in shoulder soil have been developed for the Basin and Range, Blue Mountains, and Deschutes Columbia physiographic provinces. The following summarizes conclusions for these physiographic provinces, as well as the remaining provinces in Oregon, as to how the data compare to clean fill criteria and other risk-based screening criteria.

- Highway shoulder soil in the Basin and Range and Blue Mountains physiographic provinces typically contains lead and benzo(a)pyrene at concentrations less than clean fill criteria.
- In the Deschutes Columbia physiographic province, highway shoulder soil typically contains lead and benzo(a)pyrene concentrations that are less than clean fill criteria, with the exception of soil within 15 feet of the pavement and shallow soil (surface to 6 inches bgs) within 30 feet of the pavement.
- While the datasets are limited for the Portland Basin and South Willamette Valley, concentrations of lead and benzo(a)pyrene in highway shoulder soil in these provinces generally exceed clean fill criteria; however, concentrations in these provinces are nearly always lower than construction worker RBCs.
- The soil datasets for the Cascade Range, Coast Range, High Lava Plains, Klamath Mountains, and Owyhee Uplands physiographic provinces are limited insufficient to draw conclusions regarding lead and benzo(a)pyrene concentrations in shoulder soil. While the dataset in the High Lava Plains physiographic province is limited, the mean concentrations of lead and benzo(a)pyrene in the dataset are below clean fill criteria. The Coast Range dataset is also limited in extent, but the mean and 90% UCL concentrations of lead and benzo(a)pyrene in that province dataset are below residential RBCs. Little to no shoulder soil data are available for the remaining physiographic provinces (Coast Range, Klamath Mountains, and Owyhee Uplands).

Recommendations, based on the evaluation of the statewide highway shoulder soil dataset, are provided in Section 6.

6.0 RECOMMENDATIONS

The following recommendations have been developed based on the evaluation of the statewide shoulder soil dataset, and are intended to improve the management of highway shoulder soil in Oregon. We recommend that ODOT solicits feedback from DEQ as modifications to soil management procedures are developed.

6.1 REGION-SPECIFIC MANAGEMENT OF HIGHWAY SHOULDER SOIL

Highway shoulder soil in Oregon is currently managed in accordance with ODOT Directive GE 14-01(D). That directive assumes that the upper 1.5 feet of soil adjacent to ODOT highways does not meet Oregon clean fill criteria, and, in the absence of contradictory data, requires that exported soil be managed as solid waste. The evaluation presented herein indicates that shoulder soil in some areas of Oregon consistently meets clean fill criteria. Consequently, ODOT Directive GE 14-01(D) should be modified. Specific recommendations for modifications to ODOT Directive GE 14-01(D) are presented below.

6.1.1 Basin and Range, Blue Mountains, and Deschutes Columbia Physiographic Provinces

Highway shoulder soil in the Basin and Range, Blue Mountains, and Deschutes Columbia physiographic provinces has been adequately characterized. With the exception of soil within 15 feet of the pavement (all depths) and surface soil (0 to 6 inches bgs) within 30 feet of the pavement in the Deschutes Columbia physiographic province, lead and benzo(a)pyrene (and benzo(a)pyrene equivalent) concentrations in highway shoulder soil in these three physiographic provinces are consistently below clean fill criteria. Additionally, lead and benzo(a)pyrene concentrations in shoulder soil are consistently below occupational RBCs.

Therefore, unless there is reason to believe that soil is impacted by hazardous substances (e.g., known nearby sources of hazardous substances or field indications of contamination), soil in these three provinces can likely be managed as clean fill, without additional testing. Soil in the above referenced intervals in the Deschutes Columbia physiographic province (i.e., soil within 15 feet of the pavement or surface soil within 30 feet of the pavement) can be managed in accordance with ODOT Directive GE 14-01(D) or as discussed in Section 6.2.

6.1.2 High Lava Plains and Owyhee Uplands

Limited shoulder soil data are available for the High Lava Plains physiographic province and no data are available for the Owyhee Uplands physiographic province; therefore, a statistical evaluation was not performed for soil in these provinces. However, the concentrations of lead and benzo(a)pyrene in shoulder soil in these provinces are expected to be similar to the concentrations in highway shoulder soil in the Basin and Range, Blue Mountains, and Deschutes Columbia physiographic provinces (i.e., generally less than clean fill criteria) because these provinces all exhibit similar traffic and physiographic characteristics.

Traffic volumes in the High Lava Plains and the Owyhee Uplands physiographic provinces are very low (less than 2,500 AADT), except for a segment of Highway 97 near the City of Bend. Lead and benzo(a)pyrene concentrations in highway shoulder soil in the Basin and Range, Blue Mountains, and Deschutes Columbia physiographic provinces along highways that exhibited similarly low traffic volumes (i.e., less than 2,500 AADT) generally meet the clean fill criteria.

The natural background concentrations for lead in the High Lava Plains (21 mg/kg) and the Owyhee Uplands (30 mg/kg) provinces are similar to the natural background concentrations in the contiguous Blue Mountains (21 mg/kg) and Basin and Range provinces (29 mg/kg). Lead concentrations in the Basin and Range and Blue Mountains province are nearly always less than the corresponding background concentrations.

While the dataset for the High Lava Plains is limited, the data that are available indicate that the mean concentrations of lead and benzo(a)pyrene in highway shoulder soil are below the clean fill criteria. As shown on Figure 1, the High Lava Plains soil data were collected adjacent to highways that exhibit relatively high traffic volumes for the region (e.g., greater than 15,000 AADT), and therefore, the High Lava Plains soil data likely offer a conservative representation of lead and benzo(a)pyrene concentrations in highway shoulder soil within this province.

Overall, the limited data that are available, when considered with the similar physiographic and traffic conditions, suggest that highway shoulder soil in the High Lava Plains and the Owyhee Uplands meets clean fill criteria. We recommend that ODOT solicit input from DEQ regarding the characterization of shoulder soil in the High Lava Plains and the Owyhee Uplands provinces, and specifically to develop a region-wide highway shoulder soil management plan.

6.1.3 Western Oregon

Highway shoulder soil datasets in the western portion of Oregon (Cascade Range, Coast Range, Klamath Mountains, Portland Basin, and South Willamette Valley physiographic provinces) are limited, or are characterized by soil concentrations that do not meet clean fill criteria.

While soil in some parts of western Oregon commonly exceeds clean fill criteria for lead and/or benzo(a)pyrene, that soil very rarely exceeds RBCs for worker health. Only 0.5 percent of lead results (2 samples out of 338) and 5.6 percent of benzo(a)pyrene results (10 samples out of 180) of samples collected in western Oregon exceed the occupational RBCs and no concentrations exceed the construction worker RBCs. These results indicate that: (1) in-place shoulder soil, in general, poses no significant risk to human health, and (2) when exported, shoulder soil in western Oregon can be safely reused for non-residential applications.

We recommend that ODOT coordinate with DEQ to determine if additional soil analysis and evaluation may be useful for further characterizing selected areas of western Oregon (e.g., the Coast Range or Klamath Mountains). The objective of additional characterization would be to determine if highway shoulder soil in selected areas of western Oregon meets clean fill criteria, like some eastern Oregon physiographic provinces.

We also recommend that ODOT coordinate to develop alternatives for management of highway shoulder soil that does not meet clean fill criteria. Section 6.2 presents some soil management alternatives.

6.2 MANAGEMENT OF HIGHWAY SHOULDER SOIL THAT DOES NOT MEET CLEAN FILL CRITERIA

Currently, in Oregon, exported soil that does not meet clean fill criteria is managed as solid waste. Solid waste must be disposed of at a licensed disposal facility or under a Solid Waste Letter of Authorization (SWLA) that is issued by DEQ. These management requirements can add significant costs to highway construction projects and are contrary to the DEQ strategy for solid waste prevention.

Exported highway shoulder soil is a desirable, valuable material that can be reused in a manner that will not create an adverse impact to public health, safety, welfare, or the environment. Consequently, exported soil can likely be managed under a DEQ beneficial use determination (BUD). Beneficial use determinations provide an alternative to management of soil as a solid waste. Beneficial use determinations fall into two categories: (1) standing BUDs, and (2) case-specific BUDs.

No standing BUD is in effect that would apply to Oregon highway shoulder soil. We recommend that ODOT pursue a case-specific BUD for management of highway shoulder soil. The specific details of the case-specific BUD would be developed in coordination with DEQ; however, we recommend that the case-specific BUD be developed to provide as broad coverage as possible (e.g., shoulder soil in general) and to provide as wide a range of reuse options as possible (e.g., non-residential fill, mine reclamation, etc.) for soil not meeting clean fill criteria.

6.3 GUIDANCE FOR FUTURE HIGHWAY SHOULDER SOIL SAMPLING

The C*lean Fill Determinations – Internal Management Directive* guidance provides the general framework and threshold chemical concentrations for characterization of soil as clean fill (DEQ, 2014). The *Clean Fill Determinations – Internal Management Directive* guidance regarding the number and locations of samples that should be collected for soil characterization is extremely limited. This limited guidance causes uncertainty and can result in the mischaracterization of soil quality at highway shoulder construction projects. For example, guidance is not provided for characterizing stockpiles (e.g., number and type of samples per volume of stockpile), nor is guidance provided for characterizing soil in which constituent concentrations vary with depth. Also, data collected during this study indicate that constituent concentrations in highway shoulder soil can exhibit significant variability within a small area. Data variability can pose challenges for soil characterization and reuse planning.

We recommend that the ODOT develop standard operating procedures for the collection and analysis of shoulder soil samples and when using the *Clean Fill Determinations – Internal Management Directive*. Standard operating procedures will ensure consistency in sample collection, processing, and analysis. At a minimum, standard operating procedures should include:

- Sampling methods;
- Frequency and number of samples to be collected;
- Recommended sampling depths;
- Field screening methods (i.e., staining, odor);
- Recording sampling details (e.g., depth intervals, distance from pavement, and geographic coordinates, etc.);
- Laboratory sample processing (e.g., ISM methodologies including drying, grinding, and subsampling); and
- Laboratory methods and reporting limit goals.

6.4 CLEAN FILL CRITERION FOR PORTLAND BASIN

In our opinion, the clean fill criterion for lead in the Portland Basin region in the *DEQ Clean Fill Determinations – Internal Management Directive* should be reviewed, and possibly modified. With the exception of the Portland Basin physiographic province, the Oregon clean-fill criteria for lead are equal to the naturally occurring background concentrations as determined by DEQ (DEQ, 2013). DEQ concluded that the background concentration of lead in the Portland Basin is 79 mg/kg (DEQ, 2013); however, in *Clean Fill Determinations – Internal Management Directive* DEQ established a clean fill criterion of 28 mg/kg for lead in the Portland Basin. The clean fill criterion for lead is approximately one-third the background concentration. For consistency, we recommend that the clean fill criterion for lead in the Portland Basin be increased to 79 mg/kg, consistent with the background concentration.

While DEQ concluded in the *Clean Fill Determinations – Internal Management Directive* that the background lead concentration may be elevated due to anthropogenic contributions, the background concentration of 79 mg/kg is still well below the most conservative RBC for residential exposure of 400 mg/kg, and therefore, is protective of human health. Even though the Portland Basin background lead concentration is above some ecological risk-based criteria, reuse of shoulder soil containing up to 79 mg/kg of lead within the Portland Basin should not result in increased risk to ecological receptors.

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8.0 CLOSING

We trust that the information presented in this Results Report meets your current requirements. Should you have any questions, or concerns, please do not hesitate to contact the undersigned.

We appreciate the opportunity to be of service to ODOT on this project. If you have any questions or comments regarding this report, please contact the undersigned at (503) 906-6577.

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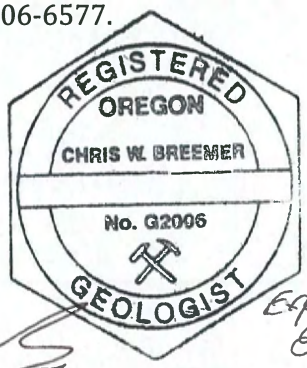

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TABLES

Table 1
Samples Collected During 2016 Sampling Program
Statewide Highway Shoulder Soil Evaluation Results Report

Physiographic Province	Distance from Pavement (feet)	Sample Depth Interval (feet bgs)		
		0-0.5	0.5-1	1-1.5
Basin and Range	0-15	15	15	14
	15-30	26	24	25
	>30	28	25	25
Blue Mountains	0-15	0	0	0
	15-30	19	19	19
	>30	26	25	26
Deschutes Columbia	0-15	0	0	0
	15-30	22	21	22
	>30	21	23	22

Notes:

1. bgs = Below the ground surface

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Table 2
2016 Shoulder Soil Sampling Analytical Results - Lead and PAHs
Statewide Highway Shoulder Soil Evaluation Results Report

Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Lead	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene Equivalents [15.]	Benzo(a)pyrene	Benzo(b)fluoranthene
					mg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Basin and Range Physiographic Province														
BR-01-0-15' (0-0.5')	10/11/2016	BR-01	0-15	0-0.5	**3.55**	<3.78	<3.78	<1.89	<1.89	<1.89	<3.78	**0.0273**	<1.89	<1.89
BR-01-0-15' (0.5-1')	10/11/2016	BR-01	0-15	0.5-1	**3.85**	<3.93	<3.93	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96
BR-01-0-15' (1-1.5')	10/11/2016	BR-01	0-15	1-1.5	**11.2**	<3.89	<3.89	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95
BR-01-15-30' (0-0.5')	10/11/2016	BR-01	15-30	0-0.5	**3.97**	<3.97	<3.97	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
BR-01-15-30' (0.5-1')	10/11/2016	BR-01	15-30	0.5-1	**4.16**	<3.81	<3.81	<1.90	<1.90	<1.90	<3.81	<1.90	<1.90	<1.90
BR-01-15-30' (1-1.5')	10/11/2016	BR-01	15-30	1-1.5	**3.69**	<3.88	<3.88	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94
BR-01->30' (0-0.5')	10/11/2016	BR-01	>30	0-0.5	**15.5**	<3.93	<3.93	<1.97	<1.97	<1.97	<3.93	**0.0206**	<1.97	<1.97
BR-01->30' (0.5-1')	10/11/2016	BR-01	>30	0.5-1	**3.59**	<4.00	<4.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
BR-01->30' (1-1.5')	10/11/2016	BR-01	>30	1-1.5	**2.84**	<4.05	<4.05	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BR-02-15-30' (0-0.5')	10/11/2016	BR-02	15-30	0-0.5	**5.54**	<3.85	<3.85	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92
BR-02-15-30' (0-0.5') DUP	10/11/2016	BR-02	15-30	0-0.5	**5.73**	<4.13	<4.13	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06
BR-02-15-30' (0.5-1')	10/11/2016	BR-02	15-30	0.5-1	**5.03**	<4.01	<4.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01
BR-02-15-30' (1-1.5')	10/11/2016	BR-02	15-30	1-1.5	**4.41**	<3.80	<3.80	<1.90	<1.90	<1.90	<1.90	<1.90	<1.90	<1.90
BR-02->30' (0-0.5')	10/11/2016	BR-02	>30	0-0.5	**4.48**	<3.83	<3.83	<1.92	<1.92	<1.92	<1.92	**0.00275**	<1.92	<1.92
BR-02->30' (0.5-1')	10/11/2016	BR-02	>30	0.5-1	**2.8**	<3.91	<3.91	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95
BR-02->30' (1-1.5')	10/11/2016	BR-02	>30	1-1.5	**2.72**	<4.04	<4.04	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02
BR-03-15-30' (0-0.5')	10/11/2016	BR-03	15-30	0-0.5	**6.00**	<4.07	<4.07	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BR-03-15-30' (0.5-1')	10/11/2016	BR-03	15-30	0.5-1	**7.33**	<3.89	<3.89	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94
BR-03-15-30' (1-1.5')	10/11/2016	BR-03	15-30	1-1.5	**7.24**	<3.97	<3.97	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
BR-03->30' (0-0.5')	10/11/2016	BR-03	>30	0-0.5	**6.70**	<4.00	<4.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
BR-03->30' (0.5-1')	10/11/2016	BR-03	>30	0.5-1	**6.48**	<4.30	<4.30	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15
BR-03->30' (1-1.5')	10/11/2016	BR-03	>30	1-1.5	**6.71**	<4.34	<4.34	<2.17	<2.17	<2.17	<2.17	<2.17	<2.17	<2.17
BR-04-0-15' (0-0.5')	10/11/2016	BR-04	0-15	0-0.5	**12.3**	<3.98	<3.98	<1.99	<1.99	<1.99	<3.98	**0.0328**	<1.99	<1.99
BR-04-0-15' (0.5-1')	10/11/2016	BR-04	0-15	0.5-1	**23.5**	<9.89	<9.89	<4.95	<4.95	<4.95	<9.89	**0.0692**	<4.95	<4.95
BR-04-0-15' (1-1.5')	10/11/2016	BR-04	0-15	1-1.5	**17.0**	<10.0	<10.0	<5.02	<5.02	<5.02	<5.02	<5.02	<5.02	<5.02
BR-04-15-30' (0-0.5')	10/11/2016	BR-04	15-30	0-0.5	**17.5**	<4.01	<4.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01
BR-04-15-30' (0.5-1')	10/11/2016	BR-04	15-30	0.5-1	**7.13**	<4.05	<4.05	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BR-04-15-30' (1-1.5')	10/11/2016	BR-04	15-30	1-1.5	**6.96**	<4.06	<4.06	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BR-04->30' (0-0.5')	10/11/2016	BR-04	>30	0-0.5	**6.04**	<4.03	<4.03	<2.01	<2.01	<2.01	<4.03	<2.01	<2.01	<2.01
BR-04->30' (0.5-1')	10/11/2016	BR-04	>30	0.5-1	**15.1**	<4.07	<4.07	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BR-04->30' (1-1.5')	10/11/2016	BR-04	>30	1-1.5	**6.56**	<4.06	<4.06	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BR-05-15-30' (0-0.5')	10/11/2016	BR-05	15-30	0-0.5	**12.1**	<4.09	<4.09	<2.05	<2.05	<2.05	<4.09	**0.2536**	<2.05	**2.26 J**
BR-05-15-30' (0.5-1')	10/11/2016	BR-05	15-30	0.5-1	**5.90**	<4.06	<4.06	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BR-05-15-30' (1-1.5')	10/11/2016	BR-05	15-30	1-1.5	**3.58**	<4.07	<4.07	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04
BR-05->30 (0-0.5')	10/11/2016	BR-05	>30	0-0.5	**6.60**	<4.05	<4.05	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02
BR-05->30 (0.5-1')	10/11/2016	BR-05	>30	0.5-1	**5.81**	<4.05	<4.05	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BR-05->30' (1-1.5')	10/11/2016	BR-05	>30	1-1.5	**5.23**	<4.06	<4.06	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BR-06-0-15' (0-0.5')	10/11/2016	BR-06	0-15	0-0.5	**10.3**	<4.10	<4.10	<2.05	<2.05	<2.05	<4.41	**0.3328**	<2.05	**2.79 J**
BR-06-0-15' (0.5-1')	10/11/2016	BR-06	0-15	0.5-1	**5.07**	<4.14	<4.14	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07
BR-06-0-15' (1-1.5')	10/11/2016	BR-06	0-15	1-1.5	**4.57**	<4.15	<4.15	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07
BR-06-15-30' (0-0.5')	10/11/2016	BR-06	15-30	0-0.5	**3.34**	<3.80	<3.80	<1.90	<1.90	<1.90	<1.90	<1.90	<1.90	<1.90
BR-06-15-30' (0.5-1')	10/11/2016	BR-06	15-30	0.5-1	**3.79**	<3.70	<3.70	<1.85	<1.85	<1.85	<1.85	<1.85	<1.85	<1.85
BR-06-15-30' (1-1.5')	10/11/2016	BR-06	15-30	1-1.5	**2.95**	<3.97	<3.97	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98
BR-06->30' (0-0.5')	10/11/2016	BR-06	>30	0-0.5	**3.62**	<3.52	<3.52	<1.76	<1.76	<1.76	<1.76	<1.76	<1.76	<1.76
BR-06->30' (0.5-1')	10/11/2016	BR-06	>30	0.5-1	**3.64**	<3.86	<3.86	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93
BR-06->30' (1-1.5')	10/11/2016	BR-06	>30	1-1.5	**2.92**	<3.56	<3.56	<1.78	<1.78	<1.78	<1.78	<1.78	<1.78	<1.78
BR-06->30' (1-1.5') DUP	10/11/2016	BR-06	>30	1-1.5	**2.99**	<3.58	<3.58	<1.79	<1.79	<1.79	<1.79	<1.79	<1.79	<1.79
BR-07-0-15' (0-0.5')	10/11/2016	BR-07	0-15	0-0.5	**3.51**	<3.73	<3.73	<1.87	<1.87	<1.87	<3.73	<1.87	<1.87	<1.87
Oregon Clean Fill Screening Level					29	738	310,000	29,000	--	29,000	150	--	15	150

Refer to notes at end of table.

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Table 2
2016 Shoulder Soil Sampling Analytical Results - Lead and PAHs
Statewide Highway Shoulder Soil Evaluation Results Report

Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Benzo(g,h,i)perylene µg/kg	Benzo(k)fluoranthene µg/kg	Chrysene µg/kg	Dibenz(a,h)anthracene µg/kg	Indeno(1,2,3-cd)pyrene µg/kg
Basin and Range Physiographic Province									
BR-01-0-15' (0-0.5')	10/11/2016	BR-01	0-15	0-0.5	**2.73 J**	<1.89	<3.78	<1.89	<1.89
BR-01-0-15' (0.5-1')	10/11/2016	BR-01	0-15	0.5-1	<1.96	<1.96	<1.96	<1.96	<1.96
BR-01-0-15' (1-1.5')	10/11/2016	BR-01	0-15	1-1.5	<1.95	<1.95	<1.95	<1.95	<1.95
BR-01-15-30' (0-0.5')	10/11/2016	BR-01	15-30	0-0.5	<1.99	<1.99	<1.99	<1.99	<1.99
BR-01-15-30' (0.5-1')	10/11/2016	BR-01	15-30	0.5-1	<1.90	<1.90	<3.81	<1.90	<1.90
BR-01-15-30' (1-1.5')	10/11/2016	BR-01	15-30	1-1.5	<1.94	<1.94	<1.94	<1.94	<1.94
BR-01->30' (0-0.5')	10/11/2016	BR-01	>30	0-0.5	**2.06 J**	<1.97	<3.93	<1.97	<1.97
BR-01->30' (0.5-1')	10/11/2016	BR-01	>30	0.5-1	<2.00	<2.00	<2.00	<2.00	<2.00
BR-01->30' (1-1.5')	10/11/2016	BR-01	>30	1-1.5	<2.03	<2.03	<2.03	<2.03	<2.03
BR-02-15-30' (0-0.5')	10/11/2016	BR-02	15-30	0-0.5	<1.92	<1.92	<1.92	<1.92	<1.92
BR-02-15-30' (0-0.5') DUP	10/11/2016	BR-02	15-30	0-0.5	<2.06	<2.06	<2.06	<2.06	<2.06
BR-02-15-30' (0.5-1')	10/11/2016	BR-02	15-30	0.5-1	<2.01	<2.01	<2.01	<2.01	<2.01
BR-02-15-30' (1-1.5')	10/11/2016	BR-02	15-30	1-1.5	<1.90	<1.90	<1.90	<1.90	<1.90
BR-02->30' (0-0.5')	10/11/2016	BR-02	>30	0-0.5	<1.92	<1.92	**2.75 J**	<1.92	<1.92
BR-02->30' (0.5-1')	10/11/2016	BR-02	>30	0.5-1	<1.95	<1.95	<1.95	<1.95	<1.95
BR-02->30' (1-1.5')	10/11/2016	BR-02	>30	1-1.5	<2.02	<2.02	<2.02	<2.02	<2.02
BR-03-15-30' (0-0.5')	10/11/2016	BR-03	15-30	0-0.5	<2.03	<2.03	<2.03	<2.03	<2.03
BR-03-15-30' (0.5-1')	10/11/2016	BR-03	15-30	0.5-1	<1.94	<1.94	<3.89	<1.94	<1.94
BR-03-15-30' (1-1.5')	10/11/2016	BR-03	15-30	1-1.5	<1.99	<1.99	<1.99	<1.99	<1.99
BR-03->30' (0-0.5')	10/11/2016	BR-03	>30	0-0.5	<2.00	<2.00	<2.00	<2.00	<2.00
BR-03->30' (0.5-1')	10/11/2016	BR-03	>30	0.5-1	<2.15	<2.15	<2.15	<2.15	<2.15
BR-03->30' (1-1.5')	10/11/2016	BR-03	>30	1-1.5	<2.17	<2.17	<2.17	<2.17	<2.17
BR-04-0-15' (0-0.5')	10/11/2016	BR-04	0-15	0-0.5	**3.28 J**	<1.99	<3.98	<1.99	<1.99
BR-04-0-15' (0.5-1')	10/11/2016	BR-04	0-15	0.5-1	**6.92 J**	<4.95	<9.89	<4.95	<4.95
BR-04-0-15' (1-1.5')	10/11/2016	BR-04	0-15	1-1.5	<5.02	<5.02	<10.0	<5.02	<5.02
BR-04-15-30' (0-0.5')	10/11/2016	BR-04	15-30	0-0.5	<2.01	<2.01	<2.01	<2.01	<2.01
BR-04->30' (0.5-1')	10/11/2016	BR-04	>30	0.5-1	<2.03	<2.03	<2.03	<2.03	<2.03
BR-04-15-30' (1-1.5')	10/11/2016	BR-04	15-30	1-1.5	<2.03	<2.03	<2.03	<2.03	<2.03
BR-04->30' (0-0.5')	10/11/2016	BR-04	>30	0-0.5	<2.01	<2.01	<4.03	<2.01	<2.01
BR-04->30' (0.5-1')	10/11/2016	BR-04	>30	0.5-1	<2.03	<2.03	<2.03	<2.03	<2.03
BR-04->30' (1-1.5')	10/11/2016	BR-04	>30	1-1.5	<2.03	<2.03	<2.03	<2.03	<2.03
BR-05-15-30' (0-0.5')	10/11/2016	BR-05	15-30	0-0.5	**2.76 J**	<2.05	<4.09	<2.05	<2.05
BR-05-15-30' (0.5-1')	10/11/2016	BR-05	15-30	0.5-1	<2.03	<2.03	<2.03	<2.03	<2.03
BR-05-15-30' (1-1.5')	10/11/2016	BR-05	15-30	1-1.5	<2.04	<2.04	<2.04	<2.04	<2.04
BR-05->30 (0-0.5')	10/11/2016	BR-05	>30	0-0.5	<2.02	<2.02	<2.02	<2.02	<2.02
BR-05->30 (0.5-1')	10/11/2016	BR-05	>30	0.5-1	<2.03	<2.03	<2.03	<2.03	<2.03
BR-05->30' (1-1.5')	10/11/2016	BR-05	>30	1-1.5	<2.03	<2.03	<2.03	<2.03	<2.03
BR-06-0-15' (0-0.5')	10/11/2016	BR-06	0-15	0-0.5	**5.38**	<2.05	<4.71	<2.05	<2.05
BR-06-0-15' (0.5-1')	10/11/2016	BR-06	0-15	0.5-1	<2.07	<2.07	<2.07	<2.07	<2.07
BR-06-0-15' (1-1.5')	10/11/2016	BR-06	0-15	1-1.5	<2.07	<2.07	<2.07	<2.07	<2.07
BR-06-15-30' (0-0.5')	10/11/2016	BR-06	15-30	0-0.5	<1.90	<1.90	<1.90	<1.90	<1.90
BR-06-15-30' (0.5-1')	10/11/2016	BR-06	15-30	0.5-1	<1.85	<1.85	<1.85	<1.85	<1.85
BR-06-15-30' (1-1.5')	10/11/2016	BR-06	15-30	1-1.5	<1.98	<1.98	<1.98	<1.98	<1.98
BR-06->30' (0-0.5')	10/11/2016	BR-06	>30	0-0.5	<1.76	<1.76	<1.76	<1.76	<1.76
BR-06->30' (0.5-1')	10/11/2016	BR-06	>30	0.5-1	<1.93	<1.93	<1.93	<1.93	<1.93
BR-06->30' (1-1.5')	10/11/2016	BR-06	>30	1-1.5	<1.78	<1.78	<1.78	<1.78	<1.78
BR-06->30' (1-1.5') DUP	10/11/2016	BR-06	>30	1-1.5	<1.79	<1.79	<1.79	<1.79	<1.79
BR-07-0-15' (0-0.5')	10/11/2016	BR-07	0-15	0-0.5	<1.87	<1.87	<3.73	<1.87	<1.87
Oregon Clean Fill Screening Level					--	1,100	14,000	15	150

Refer to notes at end of table.

Cascadia Associates, LLC

Table 2
2016 Shoulder Soil Sampling Analytical Results - Lead and PAHs
Statewide Highway Shoulder Soil Evaluation Results Report

Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Lead	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene Equivalents [15.]	Benzo(a)pyrene	Benzo(b)fluoranthene
					mg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Basin and Range Physiographic Province														
BR-07-0-15' (0.5-1')	10/11/2016	BR-07	0-15	0.5-1	**2.83**	<3.64	<3.64	<1.82	<1.82	<1.82	<3.64	<1.82	<1.82	<1.82
BR-07-0-15' (1-1.5')	10/11/2016	BR-07	0-15	1-1.5	**5.58**	<3.86	<3.86	<1.93	<1.93	<1.93	<4.82	<1.93	<1.93	<3.86
BR-07-15-30' (0-0.5')	10/11/2016	BR-07	15-30	0-0.5	**6.57**	<3.99	<3.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
BR-07-15-30' (0.5-1')	10/11/2016	BR-07	15-30	0.5-1	**3.31**	<4.01	<4.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01
BR-07-15-30' (1-1.5')	10/11/2016	BR-07	15-30	1-1.5	**3.16**	<3.74	<3.74	<1.87	<1.87	<1.87	<1.87	<1.87	<1.87	<1.87
BR-07->30' (0-0.5')	10/11/2016	BR-07	>30	0-0.5	**2.96**	<3.83	<3.83	<1.91	<1.91	<1.91	<1.91	<1.91	<1.91	<1.91
BR-07->30' (0.5-1')	10/11/2016	BR-07	>30	0.5-1	**2.33**	<3.87	<3.87	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93
BR-07->30' (1-1.5')	10/11/2016	BR-07	>30	1-1.5	**2.92**	<3.88	<3.88	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94
BR-08-15-30' (0-0.5')	10/11/2016	BR-08	15-30	0-0.5	**3.59**	<3.96	<3.96	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98
BR-08-15-30' (0.5-1')	10/11/2016	BR-08	15-30	0.5-1	**2.88**	<3.98	<3.98	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
BR-08-15-30' (1-1.5')	10/11/2016	BR-08	15-30	1-1.5	**2.58**	<3.86	<3.86	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93
BR-08->30' (0-0.5')	10/11/2016	BR-08	>30	0-0.5	**5.07**	<4.13	<4.13	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06
BR-08->30' (0.5-1')	10/11/2016	BR-08	>30	0.5-1	**4.01**	<4.06	<4.06	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BR-08->30' (1-1.5')	10/11/2016	BR-08	>30	1-1.5	**3.57**	<3.92	<3.92	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96
BR-09-15-30' (0-0.5')	10/12/2016	BR-09	15-30	0-0.5	**12.3**	<4.08	<4.08	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04
BR-09-15-30' (0.5-1')	10/12/2016	BR-09	15-30	0.5-1	**8.46**	<3.99	<3.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
BR-09-15-30' (1-1.5')	10/12/2016	BR-09	15-30	1-1.5	**7.35**	<4.11	<4.11	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05
BR-09->30' (0-0.5')	10/12/2016	BR-09	>30	0-0.5	**8.45**	<4.05	<4.05	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02
BR-09->30' DUP (0-0.5')	10/12/2016	BR-09	>30	0-0.5	**9.97**	<4.05	<4.05	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02
BR-09->30' (0.5-1')	10/12/2016	BR-09	>30	0.5-1	**8.76**	<4.04	<4.04	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02
BR-09->30' (1-1.5')	10/12/2016	BR-09	>30	1-1.5	**8.29**	<3.98	<3.98	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
BR-10-0-15' (0-0.5')	10/12/2016	BR-10	0-15	0-0.5	**13.1**	<20.0	<20.0	<10.0	<10.0	<10.0	<10.0	**16.9**	**14.1 J**	**24.6 M-02**
BR-10-0-15' (0.5-1')	10/12/2016	BR-10	0-15	0.5-1	**13.8**	<4.06	<4.06	<2.03	<2.03	<2.03	<19.6	**11.6**	**10.2 J**	**11.9 J**
BR-10-0-15' (1-1.5')	10/12/2016	BR-10	0-15	1-1.5	**11.6**	<4.03	<4.03	<2.01	<2.01	<2.01	<8.36	**0.494**	<4.03	**4.70 M-02**
BR-10-15-30' (0-0.5')	10/12/2016	BR-10	15-30	0-0.5	**10.5**	<4.00	<4.00	<2.00	<2.00	<2.00	<4.80	**0.275**	<2.00	**2.75 J**
BR-10-15-30' (0.5-1')	10/12/2016	BR-10	15-30	0.5-1	**8.53**	<3.94	<3.94	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97
BR-10-15-30' (1-1.5')	10/12/2016	BR-10	15-30	1-1.5	**6.8**	<4.14	<4.14	<2.07	<2.07	<2.07	<4.14	<2.07	<2.07	<2.07
BR-10->30' (0-0.5')	10/12/2016	BR-10	>30	0-0.5	**9.26**	<4.06	<4.06	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BR-10->30' (0-0.5') DUP	10/12/2016	BR-10	>30	0-0.5	**10.2**	<3.90	<3.90	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95
BR-10->30' (0.5-1')	10/12/2016	BR-10	>30	0.5-1	**9.29**	<4.06	<4.06	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BR-10->30' (1-1.5')	10/12/2016	BR-10	>30	1-1.5	**8.17**	<4.11	<4.11	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05
BR-11-0-15' (0-0.5')	10/12/2016	BR-11	0-15	0-0.5	**9.19**	<9.97	<9.97	<4.99	<4.99	<4.99	<44.9	**22.2**	**19.4 J**	**25.0 M-02**
BR-11-0-15' (0.5-1')	10/12/2016	BR-11	0-15	0.5-1	**14.2**	<3.98	<3.98	<1.99	<1.99	<1.99	<4.28	**3.157**	<1.99	**4.36 M-02**
BR-11-0-15' (1-1.5')	10/12/2016	BR-11	0-15	1-1.5	**17.3**	<3.78	<3.78	<1.89	<1.89	<1.89	<6.33	**7.49**	**2.34 J**	**6.09 M-02**
BR-11-15-30' (0-0.5')	10/12/2016	BR-11	15-30	0-0.5	**14.8**	<3.97	<3.97	<1.98	<1.98	<1.98	<4.56	**0.371**	<1.98	**3.34 J**
BR-11-15-30' (0.5-1')	10/12/2016	BR-11	15-30	0.5-1	**7.88**	<3.90	<3.90	<1.95	<1.95	<1.95	<4.58	**0.419**	<1.95	**3.85 J**
BR-11-15-30' (1-1.5')	10/12/2016	BR-11	15-30	1-1.5	**9.77**	<3.81	<3.81	<1.90	<1.90	<1.90	<3.81	**0.254**	<1.90	**2.30 J**
BR-11->30' (0-0.5')	10/12/2016	BR-11	>30	0-0.5	**8.92**	<4.08	<4.08	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04
BR-11->30' (0.5-1')	10/12/2016	BR-11	>30	0.5-1	**8.05**	<3.96	<3.96	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98
BR-11->30' (1-1.5')	10/12/2016	BR-11	>30	1-1.5	**9.88**	<4.09	**4.49 J**	<2.04	<2.04	<2.04	**3.64 J**	**6.35**	**4.82**	**8.62 M-02**
BR-12-0-15' (0-0.5')	10/12/2016	BR-12	0-15	0-0.5	**5.5**	<19.1	<19.1	<9.57	<9.57	<9.57	<19.1	**0.171**	<9.57	<9.57
BR-12-0-15' (0.5-1')	10/12/2016	BR-12	0-15	0.5-1	**4.46**	<3.81	<3.81	<1.91	<1.91	<1.91	<3.81	**0.240**	<1.91	<1.91
BR-12-0-15' (1-1.5')	10/12/2016	BR-12	0-15	1-1.5	**3.55**	<3.83	<3.83	<1.92	<1.92	<1.92	<3.83	**0.032**	<1.92	<1.92
BR-12-15-30' (0-0.5')	10/12/2016	BR-12	15-30	0-0.5	**9.69**	<3.99	<3.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
BR-12-15-30' (0.5-1')	10/12/2016	BR-12	15-30	0.5-1	**8.13**	<4.04	<4.04	<2.02	<2.02	<2.02	<6.36	**3.01**	**2.54 J**	**4.05 M-02**
BR-12->30' (0-0.5')	10/12/2016	BR-12	>30	0-0.5	**10.8**	<4.01	<4.01	<2.00	<2.00	<2.00	<4.01	<2.00	<2.00	<2.00
BR-12->30' (0.5-1')	10/12/2016	BR-12	>30	0.5-1	**8.9**	<4.04	<4.04	<2.02	<2.02	<2.02	<4.24	**12.7**	**7.31**	**12.0 M-02**
BR-13-15-30' (0-0.5')	10/12/2016	BR-13	15-30	0-0.5	**11.3**	<4.14	<4.14	<2.07	<2.07	<2.07	<4.14	<2.07	<2.07	<2.07
BR-13-15-30' (0.5-1')	10/12/2016	BR-13	15-30	0.5-1	**15.8**	<3.95	<3.95	<1.98	<1.98	<1.98	<3.95	<1.98	<1.98	<1.98
Oregon Clean Fill Screening Level					29	738	310,000	29,000	--	29,000	150	--	15	150

Refer to notes at end of table.

Cascadia Associates, LLC

Table 2
2016 Shoulder Soil Sampling Analytical Results - Lead and PAHs
Statewide Highway Shoulder Soil Evaluation Results Report

Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Benzo(g,h,i)perylene µg/kg	Benzo(k)fluoranthene µg/kg	Chrysene µg/kg	Dibenz(a,h)anthracene µg/kg	Indeno(1,2,3-cd)pyrene µg/kg
Basin and Range Physiographic Province									
BR-07-0-15' (0.5-1')	10/11/2016	BR-07	0-15	0.5-1	<1.82	<1.82	<3.64	<1.82	<1.82
BR-07-0-15' (1-1.5')	10/11/2016	BR-07	0-15	1-1.5	<3.86	<1.93	<4.82	<1.93	<1.93
BR-07-15-30' (0-0.5')	10/11/2016	BR-07	15-30	0-0.5	<1.99	<1.99	<3.99	<1.99	<1.99
BR-07-15-30' (0.5-1')	10/11/2016	BR-07	15-30	0.5-1	<2.01	<2.01	<2.01	<2.01	<2.01
BR-07-15-30' (1-1.5')	10/11/2016	BR-07	15-30	1-1.5	<1.87	<1.87	<1.87	<1.87	<1.87
BR-07->30' (0-0.5')	10/11/2016	BR-07	>30	0-0.5	<1.91	<1.91	<1.91	<1.91	<1.91
BR-07->30' (0.5-1')	10/11/2016	BR-07	>30	0.5-1	<1.93	<1.93	<1.93	<1.93	<1.93
BR-07->30' (1-1.5')	10/11/2016	BR-07	>30	1-1.5	<1.94	<1.94	<1.94	<1.94	<1.94
BR-08-15-30' (0-0.5')	10/11/2016	BR-08	15-30	0-0.5	<1.98	<1.98	<3.96	<1.98	<1.98
BR-08-15-30' (0.5-1')	10/11/2016	BR-08	15-30	0.5-1	<1.99	<1.99	<1.99	<1.99	<1.99
BR-08-15-30' (1-1.5')	10/11/2016	BR-08	15-30	1-1.5	<1.93	<1.93	<1.93	<1.93	<1.93
BR-08->30' (0-0.5')	10/11/2016	BR-08	>30	0-0.5	<2.06	<2.06	<2.06	<2.06	<2.06
BR-08->30' (0.5-1')	10/11/2016	BR-08	>30	0.5-1	<2.03	<2.03	<2.03	<2.03	<2.03
BR-08->30' (1-1.5')	10/11/2016	BR-08	>30	1-1.5	<1.96	<1.96	<1.96	<1.96	<1.96
BR-09-15-30' (0-0.5')	10/12/2016	BR-09	15-30	0-0.5	<2.04	<2.04	<2.04	<2.04	<2.04
BR-09-15-30' (0.5-1')	10/12/2016	BR-09	15-30	0.5-1	<1.99	<1.99	<1.99	<1.99	<1.99
BR-09-15-30' (1-1.5')	10/12/2016	BR-09	15-30	1-1.5	<2.05	<2.05	<2.05	<2.05	<2.05
BR-09->30' (0-0.5')	10/12/2016	BR-09	>30	0-0.5	<2.02	<2.02	<2.02	<2.02	<2.02
BR-09->30' DUP (0-0.5')	10/12/2016	BR-09	>30	0-0.5	<2.02	<2.02	<2.02	<2.02	<2.02
BR-09->30' (0.5-1')	10/12/2016	BR-09	>30	0.5-1	<2.02	<2.02	<2.02	<2.02	<2.02
BR-09->30' (1-1.5')	10/12/2016	BR-09	>30	1-1.5	<1.99	<1.99	<1.99	<1.99	<1.99
BR-10-0-15' (0-0.5')	10/12/2016	BR-10	0-15	0-0.5	**27.8**	<10.0	**74.9 M-02**	<10.0	<10.0
BR-10-0-15' (0.5-1')	10/12/2016	BR-10	0-15	0.5-1	**21.4**	<9.82	<19.6	<9.82	<9.82
BR-10-0-15' (1-1.5')	10/12/2016	BR-10	0-15	1-1.5	<40.3	**2.37 J**	<9.07	<40.3	<40.3
BR-10-15-30' (0-0.5')	10/12/2016	BR-10	15-30	0-0.5	<40.0	<2.00	<5.30	<40.0	<40.0
BR-10-15-30' (0.5-1')	10/12/2016	BR-10	15-30	0.5-1	<1.97	<1.97	<1.97	<1.97	<1.97
BR-10-15-30' (1-1.5')	10/12/2016	BR-10	15-30	1-1.5	<41.4	<2.07	<4.14	<41.4	<41.4
BR-10->30' (0-0.5')	10/12/2016	BR-10	>30	0-0.5	<40.6	<2.03	<2.03	<40.6	<40.6
BR-10->30' (0-0.5') DUP	10/12/2016	BR-10	>30	0-0.5	<1.95	<1.95	<1.95	<1.95	<1.95
BR-10->30' (0.5-1')	10/12/2016	BR-10	>30	0.5-1	<40.6	<2.03	<2.03	<40.6	<40.6
BR-10->30' (1-1.5')	10/12/2016	BR-10	>30	1-1.5	<2.05	<2.05	<2.05	<2.05	<2.05
BR-11-0-15' (0-0.5')	10/12/2016	BR-11	0-15	0-0.5	**34.0**	<10.0	<54.8	<10.0	<10.0
BR-11-0-15' (0.5-1')	10/12/2016	BR-11	0-15	0.5-1	**10.1**	<1.99	<4.58	**2.62 J**	<1.99
BR-11-0-15' (1-1.5')	10/12/2016	BR-11	0-15	1-1.5	**11.5**	**1.94 J**	<6.99	**4.21**	**1.92 J**
BR-11-15-30' (0-0.5')	10/12/2016	BR-11	15-30	0-0.5	**3.69 J**	<1.98	<5.06	<1.98	<1.98
BR-11-15-30' (0.5-1')	10/12/2016	BR-11	15-30	0.5-1	**3.40 J**	<1.95	<4.97	<1.95	<1.95
BR-11-15-30' (1-1.5')	10/12/2016	BR-11	15-30	1-1.5	**2.35 J**	<1.90	<3.81	<1.90	<1.90
BR-11->30' (0-0.5')	10/12/2016	BR-11	>30	0-0.5	<2.04	<2.04	<2.04	<2.04	<2.04
BR-11->30' (0.5-1')	10/12/2016	BR-11	>30	0.5-1	<1.98	<1.98	<1.98	<1.98	<1.98
BR-11->30' (1-1.5')	10/12/2016	BR-11	>30	1-1.5	**2.66 J**	<2.04	**10.1 M-02**	<2.04	**2.69 J**
BR-12-0-15' (0-0.5')	10/12/2016	BR-12	0-15	0-0.5	**17.1 J**	<9.57	<19.1	<9.57	<9.57
BR-12-0-15' (0.5-1')	10/12/2016	BR-12	0-15	0.5-1	**4.77**	<1.91	<3.81	<1.91	**1.92 J**
BR-12-0-15' (1-1.5')	10/12/2016	BR-12	0-15	1-1.5	**3.23 J**	<1.92	<3.83	<1.92	<1.92
BR-12-15-30' (0-0.5')	10/12/2016	BR-12	15-30	0-0.5	<1.99	<1.99	<3.99	<1.99	<1.99
BR-12-15-30' (0.5-1')	10/12/2016	BR-12	15-30	0.5-1	**6.59**	<2.02	<6.87	<2.02	<2.02
BR-12->30' (0-0.5')	10/12/2016	BR-12	>30	0-0.5	<2.00	<2.00	<4.01	<2.00	<2.00
BR-12->30' (0.5-1')	10/12/2016	BR-12	>30	0.5-1	**8.59**	**3.37 J**	<25.1	**4.07**	<2.02
BR-13-15-30' (0-0.5')	10/12/2016	BR-13	15-30	0-0.5	<2.07	<2.07	<4.14	<2.07	<2.07
BR-13-15-30' (0.5-1')	10/12/2016	BR-13	15-30	0.5-1	<1.98	<1.98	<3.95	<1.98	<1.98
Oregon Clean Fill Screening Level					--	1,100	14,000	15	150

Refer to notes at end of table.

Cascadia Associates, LLC

Table 2
2016 Shoulder Soil Sampling Analytical Results - Lead and PAHs
Statewide Highway Shoulder Soil Evaluation Results Report

Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Lead	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene Equivalents [15.]	Benzo(a)pyrene	Benzo(b)fluoranthene
					mg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Basin and Range Physiographic Province														
BR-13-15-30' (1-1.5')	10/12/2016	BR-13	15-30	1-1.5	**18.6**	<4.04	<4.04	<2.02	<2.02	<2.02	<6.16	**0.2915**	<2.02	**2.58 J**
BR-13->30' (0-0.5')	10/12/2016	BR-13	>30	0-0.5	**20.6**	<3.96	<3.96	<1.98	<1.98	<1.98	<3.96	<1.98	<1.98	<1.98
BR-13->30' (0.5-1')	10/12/2016	BR-13	>30	0.5-1	**8.47**	<3.97	<3.97	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
BR-13->30' (1-1.5')	10/12/2016	BR-13	>30	1-1.5	**6.76**	<4.06	<4.06	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BR-14-0-15' (0-0.5')	10/12/2016	BR-14	0-15	0-0.5	**11.9**	<29.3	<29.3	<14.7	<14.7	<14.7	<14.7	<14.7	<14.7	<14.7
BR-14-0-15' (0.5-1')	10/12/2016	BR-14	0-15	0.5-1	**14.3**	<29.6	<29.6	<14.8	<14.8	<14.8	<14.8	<14.8	<14.8	<14.8
BR-14-0-15' (1-1.5')	10/12/2016	BR-14	0-15	1-1.5	**10.3**	<3.78	<3.78	<1.89	<1.89	<1.89	<1.89	**0.0255**	<1.89	<1.89
BR-14-15-30' (0-0.5')	10/12/2016	BR-14	15-30	0-0.5	**8.30**	<3.88	<3.88	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94
BR-14-15-30' (0.5-1')	10/12/2016	BR-14	15-30	0.5-1	**6.58**	<3.97	<3.97	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
BR-14-15-30' (1-1.5')	10/12/2016	BR-14	15-30	1-1.5	**6.26**	<3.81	<3.81	<1.91	<1.91	<1.91	<1.91	<1.91	<1.91	<1.91
BR-14->30' (0-0.5')	10/12/2016	BR-14	>30	0-0.5	**9.95**	<4.03	<4.03	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01
BR-14->30' (0.5-1')	10/12/2016	BR-14	>30	0.5-1	**11.8**	<3.88	<3.88	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94
BR-14->30' (1-1.5')	10/12/2016	BR-14	>30	1-1.5	**9.10**	<3.88	<3.88	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94
BR-15-15-30' (0-0.5')	10/12/2016	BR-15	15-30	0-0.5	**8.39**	<4.00	<4.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
BR-15-15-30' (0.5-1')	10/12/2016	BR-15	15-30	0.5-1	**5.22**	<3.90	<3.90	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95
BR-15-15-30' (1-1.5')	10/12/2016	BR-15	15-30	1-1.5	**4.44**	<4.07	<4.07	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04
BR-15->30' (0-0.5')	10/12/2016	BR-15	>30	0-0.5	**8.65**	<4.12	<4.12	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06
BR-15->30' (0.5-1')	10/12/2016	BR-15	>30	0.5-1	**3.77**	<3.98	<3.98	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
BR-15->30' (1-1.5')	10/12/2016	BR-15	>30	1-1.5	**3.79**	<3.88	<3.88	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94
BR-16-0-15' (0-0.5')	10/12/2016	BR-16	0-15	0-0.5	**1.02**	<9.67	<9.67	<4.83	<4.83	<4.83	<9.67	<4.83	<4.83	<4.83
BR-16-0-15' (0.5-1')	10/12/2016	BR-16	0-15	0.5-1	**3.82**	<19.0	<19.0	<9.50	<9.50	<9.50	<23.7	**2.86**	<9.50	**15.8 J**
BR-16-0-15' (1-1.5')	10/12/2016	BR-16	0-15	1-1.5	**11.2**	<11.9	<11.9	<5.94	<5.94	<5.94	<23.8	**22.1**	**10.6 J**	**17.1 M-02**
BR-16-15-30' (0-0.5')	10/12/2016	BR-16	15-30	0-0.5	**4.01**	<4.19	**5.14 J**	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09
BR-16-15-30' (0.5-1')	10/12/2016	BR-16	15-30	0.5-1	**3.53**	<3.99	<3.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
BR-16-15-30' (1-1.5')	10/12/2016	BR-16	15-30	1-1.5	**3.09**	<4.23	<4.23	<2.11	<2.11	<2.11	<2.11	<2.11	<2.11	<2.11
BR-16->30' (0-0.5')	10/12/2016	BR-16	>30	0-0.5	**3.93**	<4.29	<4.29	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15
BR-16->30' (0.5-1')	10/12/2016	BR-16	>30	0.5-1	**3.50**	<4.11	<4.11	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06
BR-16->30' (1-1.5')	10/12/2016	BR-16	>30	1-1.5	**4.15**	<4.01	<4.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01
BR-17-0-15' (0-0.5')	10/13/2016	BR-17	0-15	0-0.5	**2.45**	<3.71	<3.71	<1.85	<1.85	<1.85	<1.85	<1.85	<1.85	<1.85
BR-17-0-15' (0.5-1')	10/13/2016	BR-17	0-15	0.5-1	**2.42**	<3.72	<3.72	<1.86	<1.86	<1.86	<3.72	<1.86	<1.86	<1.86
BR-17-0-15' (1-1.5')	10/13/2016	BR-17	0-15	1-1.5	**7.61**	<29.0	<29.0	<14.5	<14.5	<14.5	<36.2	**1.96**	<14.5	**16.4 J**
BR-17-15-30' (0-0.5')	10/13/2016	BR-17	15-30	0-0.5	**31.0**	<28.5	<28.5	<14.2	<14.2	<14.2	<28.5	**0.198**	<14.2	<14.2
BR-17-15-30' (0.5-1')	10/13/2016	BR-17	15-30	0.5-1	**26.1**	<29.3	<29.3	<14.6	<14.6	<14.6	<14.6	**0.149**	<14.6	<14.6
BR-17-15-30' (1-1.5')	10/13/2016	BR-17	15-30	1-1.5	**24.0 J2**	<28.9	<28.9	<14.5	<14.5	<14.5	<14.5	<14.5	<14.5	<14.5
BR-17-15-30' (1-1.5') DUP	10/13/2016	BR-17	15-30	1-1.5	**8.64 J2**	<4.12	<4.12	<2.06	<2.06	<2.06	<2.06	**0.646**	<2.06	**3.69 J**
BR-17->30' (0-0.5')	10/13/2016	BR-17	>30	0-0.5	**31.3**	<29.7	<29.7	<14.9	<14.9	<14.9	<44.6	**2.47**	<14.9	**21.5 J**
BR-17->30' (0.5-1')	10/13/2016	BR-17	>30	0.5-1	**16.4**	<4.03	<4.03	<2.02	<2.02	<2.02	**2.13 J**	**5.08**	**3.58 J**	**8.19 M-02**
BR-17->30' (1-1.5')	10/13/2016	BR-17	>30	1-1.5	**11.2**	<4.02	<4.02	<2.01	<2.01	<2.01	<2.01	**0.824**	<2.01	**5.00 M-02**
BR-18-15-30' (0-0.5')	10/13/2016	BR-18	15-30	0-0.5	**17.0**	<18.7	<18.7	<9.37	<9.37	<9.37	<18.7	<9.37	<9.37	<9.37
BR-18-15-30' (0.5-1')	10/13/2016	BR-18	15-30	0.5-1	**6.84**	<3.85	<3.85	<1.92	<1.92	<1.92	<5.77	**0.370**	<1.92	**3.40 J**
BR-18-15-30' (1-1.5')	10/13/2016	BR-18	15-30	1-1.5	**6.62**	<3.71	<3.71	<1.85	<1.85	<1.85	<4.64	**0.276**	<1.85	**2.50 J**
BR-18->30' (0-0.5')	10/13/2016	BR-18	>30	0-0.5	**66.1**	<4.10	<4.10	<2.05	<2.05	<2.05	<4.10	**5.19**	**3.77 J**	**9.38 M-02**
BR-18->30' (0.5-1')	10/13/2016	BR-18	>30	0.5-1	**7.83**	<3.87	<3.87	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93
BR-18->30' (1-1.5')	10/13/2016	BR-18	>30	1-1.5	**5.13**	<3.86	<3.86	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93
BR-19-15-30' (0-0.5')	10/13/2016	BR-19	15-30	0-0.5	**10.3**	<3.88	<3.88	<1.94	<1.94	<1.94	<4.85	**0.285**	<1.94	**2.47 J**
BR-19-15-30' (0.5-1')	10/13/2016	BR-19	15-30	0.5-1	**4.22**	<3.90	<3.90	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95
BR-19-15-30' (1-1.5')	10/13/2016	BR-19	15-30	1-1.5	**4.22**	<4.04	<4.04	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02
BR-19->30' (0-0.5')	10/13/2016	BR-19	>30	0-0.5	**6.28**	<3.90	<3.90	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95
BR-19->30' (0.5-1')	10/13/2016	BR-19	>30	0.5-1	**6.14**	<3.91	<3.91	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95
Oregon Clean Fill Screening Level					29	738	310,000	29,000	--	29,000	150	--	15	150

Refer to notes at end of table.

Cascadia Associates, LLC

Table 2
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Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Benzo(g,h,i)perylene µg/kg	Benzo(k)fluoranthene µg/kg	Chrysene µg/kg	Dibenz(a,h)anthracene µg/kg	Indeno(1,2,3-cd)pyrene µg/kg
Basin and Range Physiographic Province									
BR-13-15-30' (1-1.5')	10/12/2016	BR-13	15-30	1-1.5	**3.35 J**	<2.02	<6.76	<2.02	<2.02
BR-13->30' (0-0.5')	10/12/2016	BR-13	>30	0-0.5	<1.98	<1.98	<3.96	<1.98	<1.98
BR-13->30' (0.5-1')	10/12/2016	BR-13	>30	0.5-1	<1.99	<1.99	<1.99	<1.99	<1.99
BR-13->30' (1-1.5')	10/12/2016	BR-13	>30	1-1.5	<2.03	<2.03	<2.03	<2.03	<2.03
BR-14-0-15' (0-0.5')	10/12/2016	BR-14	0-15	0-0.5	<14.7	<14.7	<14.7	<14.7	<14.7
BR-14-0-15' (0.5-1')	10/12/2016	BR-14	0-15	0.5-1	<14.8	<14.8	<14.8	<14.8	<14.8
BR-14-0-15' (1-1.5')	10/12/2016	BR-14	0-15	1-1.5	**2.55 J**	<1.89	<1.89	<1.89	<1.89
BR-14-15-30' (0-0.5')	10/12/2016	BR-14	15-30	0-0.5	<1.94	<1.94	<1.94	<1.94	<1.94
BR-14-15-30' (0.5-1')	10/12/2016	BR-14	15-30	0.5-1	<1.99	<1.99	<1.99	<1.99	<1.99
BR-14-15-30' (1-1.5')	10/12/2016	BR-14	15-30	1-1.5	<1.91	<1.91	<1.91	<1.91	<1.91
BR-14->30' (0-0.5')	10/12/2016	BR-14	>30	0-0.5	<2.01	<2.01	<2.01	<2.01	<2.01
BR-14->30' (0.5-1')	10/12/2016	BR-14	>30	0.5-1	<1.94	<1.94	<1.94	<1.94	<1.94
BR-14->30' (1-1.5')	10/12/2016	BR-14	>30	1-1.5	<1.94	<1.94	<1.94	<1.94	<1.94
BR-15-15-30' (0-0.5')	10/12/2016	BR-15	15-30	0-0.5	<2.00	<2.00	<2.00	<2.00	<2.00
BR-15-15-30' (0.5-1')	10/12/2016	BR-15	15-30	0.5-1	<1.95	<1.95	<1.95	<1.95	<1.95
BR-15-15-30' (1-1.5')	10/12/2016	BR-15	15-30	1-1.5	<2.04	<2.04	<2.04	<2.04	<2.04
BR-15->30' (0-0.5')	10/12/2016	BR-15	>30	0-0.5	<2.06	<2.06	<2.06	<2.06	<2.06
BR-15->30' (0.5-1')	10/12/2016	BR-15	>30	0.5-1	<1.99	<1.99	<1.99	<1.99	<1.99
BR-15->30' (1-1.5')	10/12/2016	BR-15	>30	1-1.5	<1.94	<1.94	<1.94	<1.94	<1.94
BR-16-0-15' (0-0.5')	10/12/2016	BR-16	0-15	0-0.5	<4.83	<4.83	<9.67	<4.83	<4.83
BR-16-0-15' (0.5-1')	10/12/2016	BR-16	0-15	0.5-1	**26.8**	<9.50	<23.7	<9.50	**10.1 J**
BR-16-0-15' (1-1.5')	10/12/2016	BR-16	0-15	1-1.5	**28.6**	**6.96 J**	<26.7	**8.75 J**	**6.64 J**
BR-16-15-30' (0-0.5')	10/12/2016	BR-16	15-30	0-0.5	<2.09	<2.09	<2.09	<2.09	<2.09
BR-16-15-30' (0.5-1')	10/12/2016	BR-16	15-30	0.5-1	<1.99	<1.99	<1.99	<1.99	<1.99
BR-16-15-30' (1-1.5')	10/12/2016	BR-16	15-30	1-1.5	<2.11	<2.11	<2.11	<2.11	<2.11
BR-16->30' (0-0.5')	10/12/2016	BR-16	>30	0-0.5	<2.15	<2.15	<2.15	<2.15	<2.15
BR-16->30' (0.5-1')	10/12/2016	BR-16	>30	0.5-1	<2.06	<2.06	<2.06	<2.06	<2.06
BR-16->30' (1-1.5')	10/12/2016	BR-16	>30	1-1.5	<2.01	<2.01	<2.01	<2.01	<2.01
BR-17-0-15' (0-0.5')	10/13/2016	BR-17	0-15	0-0.5	<1.85	<1.85	<3.71	<1.85	<1.85
BR-17-0-15' (0.5-1')	10/13/2016	BR-17	0-15	0.5-1	<1.86	<1.86	<3.72	<1.86	<1.86
BR-17-0-15' (1-1.5')	10/13/2016	BR-17	0-15	1-1.5	**32.1**	<14.5	<36.2	<14.5	<14.5
BR-17-15-30' (0-0.5')	10/13/2016	BR-17	15-30	0-0.5	**19.8 J**	<14.2	<28.5	<14.2	<14.2
BR-17-15-30' (0.5-1')	10/13/2016	BR-17	15-30	0.5-1	**14.9 J**	<14.6	<29.3	<14.6	<14.6
BR-17-15-30' (1-1.5')	10/13/2016	BR-17	15-30	1-1.5	<14.5	<14.5	<28.9	<14.5	<14.5
BR-17-15-30' (1-1.5') DUP	10/13/2016	BR-17	15-30	1-1.5	**3.18 J**	<2.06	**3.70 J**	<2.06	**2.41 J**
BR-17->30' (0-0.5')	10/13/2016	BR-17	>30	0-0.5	**31.9**	<14.9	<52.1	<14.9	<14.9
BR-17->30' (0.5-1')	10/13/2016	BR-17	>30	0.5-1	**7.00**	<2.02	**8.28 M-02**	<2.02	**3.90 J**
BR-17->30' (1-1.5')	10/13/2016	BR-17	>30	1-1.5	**3.95 J**	<2.01	**4.69 M-02**	<2.01	**2.80 J**
BR-18-15-30' (0-0.5')	10/13/2016	BR-18	15-30	0-0.5	<9.37	<9.37	<23.4	<9.37	<9.37
BR-18-15-30' (0.5-1')	10/13/2016	BR-18	15-30	0.5-1	**3.01 J**	<1.92	<6.73	<1.92	<1.92
BR-18-15-30' (1-1.5')	10/13/2016	BR-18	15-30	1-1.5	**2.56 J**	<1.85	<5.56	<1.85	<1.85
BR-18->30' (0-0.5')	10/13/2016	BR-18	>30	0-0.5	**6.71**	**3.14 J**	<15.4	<2.05	**3.81 J**
BR-18->30' (0.5-1')	10/13/2016	BR-18	>30	0.5-1	<1.93	<1.93	<1.93	<1.93	<1.93
BR-18->30' (1-1.5')	10/13/2016	BR-18	>30	1-1.5	<1.93	<1.93	<1.93	<1.93	<1.93
BR-19-15-30' (0-0.5')	10/13/2016	BR-19	15-30	0-0.5	**3.76 J**	<1.94	<5.83	<1.94	<1.94
BR-19-15-30' (0.5-1')	10/13/2016	BR-19	15-30	0.5-1	<1.95	<1.95	<3.90	<1.95	<1.95
BR-19-15-30' (1-1.5')	10/13/2016	BR-19	15-30	1-1.5	<2.02	<2.02	<2.02	<2.02	<2.02
BR-19->30' (0-0.5')	10/13/2016	BR-19	>30	0-0.5	<1.95	<1.95	<1.95	<1.95	<1.95
BR-19->30' (0.5-1')	10/13/2016	BR-19	>30	0.5-1	<1.95	<1.95	<1.95	<1.95	<1.95
Oregon Clean Fill Screening Level					--	1,100	14,000	15	150

Refer to notes at end of table.

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2016 Shoulder Soil Sampling Analytical Results - Lead and PAHs
Statewide Highway Shoulder Soil Evaluation Results Report

Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Lead	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene Equivalents [15.]	Benzo(a)pyrene	Benzo(b)fluoranthene
					mg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Basin and Range Physiographic Province														
BR-19->30' (1-1.5')	10/13/2016	BR-19	>30	1-1.5	**5.70**	<3.73	<3.73	<1.87	<1.87	<1.87	<1.87	<1.87	<1.87	<1.87
BR-20-15-30' (0-0.5')	10/13/2016	BR-20	15-30	0-0.5	**44.2**	<29.0	<29.0	<14.5	<14.5	<14.5	<50.7	**17.0**	**14.7 J**	**19.3 J**
BR-20-15-30' (0.5-1')	10/13/2016	BR-20	15-30	0.5-1	**57.6**	<28.7	<28.7	<14.3	<14.3	<14.3	<50.2	**19.7**	**17.2 J**	**21.8 J**
BR-20-15-30' (1-1.5')	10/13/2016	BR-20	15-30	1-1.5	**46.6**	<19.0	<19.0	<9.51	<9.51	<9.51	<19.0	**0.126**	<9.51	<9.51
BR-20->30' (0-0.5')	10/13/2016	BR-20	>30	0-0.5	**14.1**	<4.03	<4.03	<2.02	<2.02	<2.02	<2.02	**0.235**	<2.02	**2.35 J**
BR-20->30' (0.5-1')	10/13/2016	BR-20	>30	0.5-1	**5.35**	<3.80	<3.80	<1.90	<1.90	<1.90	<1.90	<1.90	<1.90	<1.90
BR-20->30' (1-1.5')	10/13/2016	BR-20	>30	1-1.5	**9.19**	<3.87	<3.87	<1.94	<1.94	<1.94	<3.87	<1.94	<1.94	<1.94
BR-21-0-15' (0-0.5')	10/13/2016	BR-21	0-15	0-0.5	**160**	<29.3	<29.3	<14.7	**33.6**	<14.7	<14.7	**4.05**	<14.7	**38.0 M-02**
BR-21-0-15' (0.5-1')	10/13/2016	BR-21	0-15	0.5-1	**25.4**	<8.00	<8.00	<4.00	**6.98 J**	<4.00	<8.00	**14.5**	**11.9**	**18.9 M-02**
BR-21-0-15' (1-1.5')	10/13/2016	BR-21	0-15	1-1.5	**29.3**	<4.15	<4.15	<2.07	**7.75**	**3.33 J**	**3.34 J**	**5.53**	**3.53 J**	**11.9 M-02**
BR-21-15-30' (0-0.5')	10/13/2016	BR-21	15-30	0-0.5	**27.6**	**5.65 J**	**10.9**	<2.02	**15.4**	**11.6**	**8.46 M-02**	**12.6**	**7.18**	**34.8 M-02**
BR-21-15-30' (0.5-1')	10/13/2016	BR-21	15-30	0.5-1	**27.9**	**5.16 J**	**9.90**	<1.98	**15.4**	**11.9**	**10.5 M-02**	**16.1**	**9.33**	**43.4 M-02**
BR-21-15-30' (1-1.5')	10/13/2016	BR-21	15-30	1-1.5	**10.1**	<3.93	<3.93	<1.97	**4.40**	**3.59 J**	**3.2 J**	**4.37**	**2.42 J**	**11.8 M-02**
BR-21->30' (0-0.5')	10/13/2016	BR-21	>30	0-0.5	**15.1**	**4.21 J**	**8.37**	<2.00	**12.0**	**7.51**	**6.40 M-02**	**8.38**	**4.53**	**24.7 M-02**
BR-21->30' (0.5-1')	10/13/2016	BR-21	>30	0.5-1	**4.91**	<4.02	<4.02	<2.01	<2.01	<2.01	<2.01	**0.575**	<2.01	**3.58 J**
BR-21->30' (1-1.5')	10/13/2016	BR-21	>30	1-1.5	**4.10**	<3.93	<3.93	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97
BR-22-0-15' (0-0.5')	10/13/2016	BR-22	0-15	0-0.5	**3.52**	<4.01	<4.01	<2.01	<2.01	<2.01	<4.01	**0.028**	<2.01	<2.01
BR-22-0-15' (0.5-1')	10/13/2016	BR-22	0-15	0.5-1	**2.53**	<3.86	<3.86	<1.93	<1.93	<1.93	<1.93	**0.259**	<1.93	**2.18 J**
BR-22-0-15' (1-1.5')	10/13/2016	BR-22	0-15	1-1.5	**4.53**	<3.87	<3.87	<1.93	<1.93	<1.93	<6.77	**0.884**	<1.93	**4.75**
BR-22-15-30' (0-0.5')	10/13/2016	BR-22	15-30	0-0.5	**9.57**	<3.95	<3.95	<1.97	<1.97	<1.97	**3.34 J**	**4.81**	**3.07 J**	**8.51 M-02**
BR-22-15-30' (0.5-1')	10/13/2016	BR-22	15-30	0.5-1	**5.45**	<3.84	<3.84	<1.92	<1.92	<1.92	<1.92	**0.273**	<1.92	**2.71 J**
BR-22-15-30' (1-1.5')	10/13/2016	BR-22	15-30	1-1.5	**4.78**	<3.92	<3.92	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96
BR-22->30' (0-0.5')	10/13/2016	BR-22	>30	0-0.5	**6.83**	<4.11	<4.11	<2.06	<2.06	<2.06	**2.66 J**	**1.30**	<2.06	**6.39 M-02**
BR-22->30' (0.5-1')	10/13/2016	BR-22	>30	0.5-1	**6.04**	<3.98	<3.98	<1.99	<1.99	<1.99	**2.18 J**	**3.35**	**2.10 J**	**6.23 M-02**
BR-22->30' (1-1.5')	10/13/2016	BR-22	>30	1-1.5	**5.08**	<3.99	<3.99	<1.99	<1.99	<1.99	<1.99	**0.650**	<1.99	**3.89 J**
BR-23-0-15' (0-0.5')	10/13/2016	BR-23	0-15	0-0.5	**13.4**	<11.4	<11.4	<5.71	<5.71	<5.71	<5.71	**12.0**	**8.37 J**	**22.3 M-02**
BR-23-0-15' (0.5-1')	10/13/2016	BR-23	0-15	0.5-1	**16.2**	<11.1	<11.1	<5.57	<5.57	<5.57	<5.57	**9.34**	**6.36 J**	**18.2 M-02**
BR-23-15-30' (0-0.5')	10/13/2016	BR-23	15-30	0-0.5	**41.1**	<11.9	<11.9	<5.95	<5.95	<5.95	**10.8 J**	**15.9**	**11.6 J**	**19.5 M-02**
BR-23-15-30' (0.5-1')	10/13/2016	BR-23	15-30	0.5-1	**132**	<4.04	**4.42 J**	<2.02	<2.02	<2.02	**6.42 M-02**	**18.8**	**11.6**	**19.7 M-02**
BR-23-15-30' (1-1.5')	10/13/2016	BR-23	15-30	1-1.5	**90.4**	<30.4	<30.4	<15.2	<15.2	<15.2	<30.4	36.75	**32.6**	**34.1 M-02**
BR-23->30' (0-0.5')	10/13/2016	BR-23	>30	0-0.5	**27.7**	<9.86	<9.86	<4.93	<4.93	<4.93	<14.8	6.9097	**5.31 J**	**10.0 M-02**
BR-23->30' (0.5-1')	10/13/2016	BR-23	>30	0.5-1	**119**	<3.91	**4.17 J**	<1.96	**2.18 J**	**4.58**	**19.2 M-02**	**46.0**	**29.2**	**47.0 M-02**
BR-23->30' (1-1.5')	10/13/2016	BR-23	>30	1-1.5	**7.56**	<9.41	<9.41	<4.70	<4.70	<4.70	<4.70	**1.12**	<4.70	<4.70
BR-24-0-15' (0-0.5')	10/14/2016	BR-24	0-15	0-0.5	**7.11**	<47.7	<47.7	<23.9	<23.9	<23.9	<59.7	**3.81**	<23.9	**38.1 J**
BR-24-0-15' (0.5-1')	10/14/2016	BR-24	0-15	0.5-1	**16.0**	<27.7	<27.7	<13.8	<13.8	<13.8	<27.7	**1.82**	<13.8	**15.5 J**
BR-24-0-15' (1-1.5')	10/14/2016	BR-24	0-15	1-1.5	**3.26**	<3.59	<3.59	<1.79	<1.79	<1.79	<8.07	**5.26**	**2.56 J**	**4.08 M-02**
BR-24-15-30' (0-0.5')	10/14/2016	BR-24	15-30	0-0.5	**7.58**	<19.2	<19.2	<9.62	<9.62	<9.62	<33.7	**28.2**	**14.9 J**	**25.9 M-02**
BR-24-15-30' (0.5-1')	10/14/2016	BR-24	15-30	0.5-1	**7.60**	<19.6	<19.6	<9.82	<9.82	<9.82 Q-42	<44.2	**34.7**	**19.0 J Q-42**	**31.2 M-02**
BR-24-15-30' (1-1.5')	10/14/2016	BR-24	15-30	1-1.5	**9.56**	<29.9	<29.9	<15.0	<15.0	<15.0	<49.9	<15.0	<15.0	<15.0
BR-24->30' (0-0.5')	10/14/2016	BR-24	>30	0-0.5	**3.78**	<3.80	<3.80	<1.90	<1.90	<1.90	<1.90	<1.90	<1.90	<1.90
BR-24->30' (0.5-1')	10/14/2016	BR-24	>30	0.5-1	**4.31**	<4.02	<4.02	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01
BR-24->30' (1-1.5')	10/14/2016	BR-24	>30	1-1.5	**4.23**	<3.82	<3.82	<1.91	<1.91	<1.91	<1.91	<1.91	<1.91	<1.91
BR-25-0-15' (0-0.5')	10/14/2016	BR-25	0-15	0-0.5	**10.9**	<7.90	<7.90	<3.95	<3.95	<3.95	<7.90	<3.95	<3.95	<3.95
BR-25-0-15' (0.5-1')	10/14/2016	BR-25	0-15	0.5-1	**14.7**	<3.97	<3.97	<1.98	<1.98	<1.98	<1.98	**0.027**	<1.98	<1.98
BR-25-0-15' (1-1.5')	10/14/2016	BR-25	0-15	1-1.5	**18.5**	<28.5	<28.5	<14.2	<14.2	<14.2	<14.2	<14.2	<14.2	<14.2
BR-25-15-30' (0-0.5')	10/14/2016	BR-25	15-30	0-0.5	**9.05**	<29.2	<29.2	<14.6	<14.6	<14.6	<29.2	<14.6	<14.6	<14.6
BR-25-15-30' (0.5-1')	10/14/2016	BR-25	15-30	0.5-1	**4.39**	<3.63	<3.63	<1.82	<1.82	<1.82	<1.82	<1.82	<1.82	<1.82
BR-25-15-30' (1-1.5')	10/14/2016	BR-25	15-30	1-1.5	**3.56**	<4.01	<4.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01
BR-25->30' (0-0.5')	10/14/2016	BR-25	>30	0-0.5	**6.64**	<26.7	<26.7	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3	<13.3
BR-25->30' (0.5-1')	10/14/2016	BR-25	>30	0.5-1	**6.52**	<11.1	<11.1	<5.54	<5.54	<5.54	<5.54	<5.54	<5.54	<5.54
BR-25->30' (1-1.5')	10/14/2016	BR-25	>30	1-1.5	**3.90**	<28.0	<28.0	<14.0	<14.0	<14.0	<14.0	<14.0	<14.0	<14.0
Oregon Clean Fill Screening Level					29	738	310,000	29,000	--	29,000	150	--	15	150

Refer to notes at end of table.

Cascadia Associates, LLC

Table 2
2016 Shoulder Soil Sampling Analytical Results - Lead and PAHs
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Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Benzo(g,h,i)perylene µg/kg	Benzo(k)fluoranthene µg/kg	Chrysene µg/kg	Dibenz(a,h)anthracene µg/kg	Indeno(1,2,3-cd)pyrene µg/kg
Basin and Range Physiographic Province									
BR-19->30' (1-1.5')	10/13/2016	BR-19	>30	1-1.5	<1.87	<1.87	<1.87	<1.87	<1.87
BR-20-15-30' (0-0.5')	10/13/2016	BR-20	15-30	0-0.5	**33.4**	<14.5	<50.7	<14.5	<14.5
BR-20-15-30' (0.5-1')	10/13/2016	BR-20	15-30	0.5-1	**32.6**	<14.3	<50.2	<14.3	<14.3
BR-20-15-30' (1-1.5')	10/13/2016	BR-20	15-30	1-1.5	**12.6 J**	<9.51	<23.8	<9.51	<9.51
BR-20->30' (0-0.5')	10/13/2016	BR-20	>30	0-0.5	<2.02	<2.02	<4.03	<2.02	<2.02
BR-20->30' (0.5-1')	10/13/2016	BR-20	>30	0.5-1	<1.90	<1.90	<1.90	<1.90	<1.90
BR-20->30' (1-1.5')	10/13/2016	BR-20	>30	1-1.5	<1.94	<1.94	<3.87	<1.94	<1.94
BR-21-0-15' (0-0.5')	10/13/2016	BR-21	0-15	0-0.5	**21.2 J**	<14.7	**37.6 M-02**	<14.7	<14.7
BR-21-0-15' (0.5-1')	10/13/2016	BR-21	0-15	0.5-1	**13.4**	**11.6 M-02**	<20.0	<4.00	**5.06 J**
BR-21-0-15' (1-1.5')	10/13/2016	BR-21	0-15	1-1.5	**4.92**	**2.54 J**	**10.5 M-02**	<2.07	**3.86 J**
BR-21-15-30' (0-0.5')	10/13/2016	BR-21	15-30	0-0.5	**11.4**	**8.09 M-02**	**34.3 M-02**	<2.02	**8.8**
BR-21-15-30' (0.5-1')	10/13/2016	BR-21	15-30	0.5-1	**12.9**	**9.54 M-02**	**38.5 M-02**	<1.98	**11.3**
BR-21-15-30' (1-1.5')	10/13/2016	BR-21	15-30	1-1.5	**4.25**	**2.76 J**	**11.3 M-02**	<1.97	**3.67 J**
BR-21->30' (0-0.5')	10/13/2016	BR-21	>30	0-0.5	**7.31**	**5.23 M-02**	**25.3 M-02**	<2.00	**5.89**
BR-21->30' (0.5-1')	10/13/2016	BR-21	>30	0.5-1	<2.01	<2.01	**3.11 J**	<2.01	**2.14 J**
BR-21->30' (1-1.5')	10/13/2016	BR-21	>30	1-1.5	<1.97	<1.97	<1.97	<1.97	<1.97
BR-22-0-15' (0-0.5')	10/13/2016	BR-22	0-15	0-0.5	**2.78 J**	<2.01	<4.01	<2.01	<2.01
BR-22-0-15' (0.5-1')	10/13/2016	BR-22	0-15	0.5-1	**4.05**	<1.93	<1.93	<1.93	<1.93
BR-22-0-15' (1-1.5')	10/13/2016	BR-22	0-15	1-1.5	**9.88**	<1.93	<6.77	<1.93	**3.10 J**
BR-22-15-30' (0-0.5')	10/13/2016	BR-22	15-30	0-0.5	**5.93**	**2.29 J**	**6.95 M-02**	<1.97	**4.66**
BR-22-15-30' (0.5-1')	10/13/2016	BR-22	15-30	0.5-1	<1.92	<1.92	**2.18 J**	<1.92	<1.92
BR-22-15-30' (1-1.5')	10/13/2016	BR-22	15-30	1-1.5	<1.96	<1.96	<1.96	<1.96	<1.96
BR-22->30' (0-0.5')	10/13/2016	BR-22	>30	0-0.5	**4.47**	**2.15 J**	**5.37 M-02**	<2.06	**3.22 J**
BR-22->30' (0.5-1')	10/13/2016	BR-22	>30	0.5-1	**4.50**	<1.99	**4.93 M-02**	<1.99	**3.64 J**
BR-22->30' (1-1.5')	10/13/2016	BR-22	>30	1-1.5	**2.72 J**	<1.99	**3.22 J**	<1.99	**2.31 J**
BR-23-0-15' (0-0.5')	10/13/2016	BR-23	0-15	0-0.5	**21.6**	<5.71	**21.8 M-02**	<5.71	**11.9**
BR-23-0-15' (0.5-1')	10/13/2016	BR-23	0-15	0.5-1	**19.4**	<5.57	**19.7 M-02**	<5.57	**9.47 J**
BR-23-15-30' (0-0.5')	10/13/2016	BR-23	15-30	0-0.5	**20.1**	**6.34 J**	**21.2 M-02**	<5.95	**9.55 J**
BR-23-15-30' (0.5-1')	10/13/2016	BR-23	15-30	0.5-1	**16.5**	**6.57 M-02**	**16.0 M-02**	**3.35 J**	**9.53**
BR-23-15-30' (1-1.5')	10/13/2016	BR-23	15-30	1-1.5	**33.6**	**31.6 M-02**	**88.0 M-02**	<15.2	<15.2
BR-23->30' (0-0.5')	10/13/2016	BR-23	>30	0-0.5	**9.87**	<4.93	<14.8	<4.93	**5.01 J**
BR-23->30' (0.5-1')	10/13/2016	BR-23	>30	0.5-1	**25.6**	**15.5 M-02**	**28.6 M-02**	**7.73**	**20.00**
BR-23->30' (1-1.5')	10/13/2016	BR-23	>30	1-1.5	**28.8**	<4.70	<4.70	<4.70	**8.31 J**
BR-24-0-15' (0-0.5')	10/14/2016	BR-24	0-15	0-0.5	<59.7	<23.9	<59.7	<23.9	<23.9
BR-24-0-15' (0.5-1')	10/14/2016	BR-24	0-15	0.5-1	**26.7 J**	<13.8	<27.7	<13.8	<13.8
BR-24-0-15' (1-1.5')	10/14/2016	BR-24	0-15	1-1.5	**5.91**	<1.79	<8.07	**2.23 J**	<1.79
BR-24-15-30' (0-0.5')	10/14/2016	BR-24	15-30	0-0.5	**33.6**	<9.62	<33.7	**10.4 J**	<9.62
BR-24-15-30' (0.5-1')	10/14/2016	BR-24	15-30	0.5-1	**36.3**	<9.82	<44.2	**12.2 J**	<9.82
BR-24-15-30' (1-1.5')	10/14/2016	BR-24	15-30	1-1.5	<49.9	<15.0	<49.9	<49.9	<49.9
BR-24->30' (0-0.5')	10/14/2016	BR-24	>30	0-0.5	<1.90	<1.90	<1.90	<1.90	<1.90
BR-24->30' (0.5-1')	10/14/2016	BR-24	>30	0.5-1	<2.01	<2.01	<2.01	<2.01	<2.01
BR-24->30' (1-1.5')	10/14/2016	BR-24	>30	1-1.5	<1.91	<1.91	<1.91	<1.91	<1.91
BR-25-0-15' (0-0.5')	10/14/2016	BR-25	0-15	0-0.5	<3.95	<3.95	<7.90	<3.95	<3.95
BR-25-0-15' (0.5-1')	10/14/2016	BR-25	0-15	0.5-1	**2.69 J**	<1.98	<1.98	<1.98	<1.98
BR-25-0-15' (1-1.5')	10/14/2016	BR-25	0-15	1-1.5	<14.2	<14.2	<14.2	<14.2	<14.2
BR-25-15-30' (0-0.5')	10/14/2016	BR-25	15-30	0-0.5	<14.6	<14.6	<29.2	<14.6	<14.6
BR-25-15-30' (0.5-1')	10/14/2016	BR-25	15-30	0.5-1	<1.82	<1.82	<3.63	<1.82	<1.82
BR-25-15-30' (1-1.5')	10/14/2016	BR-25	15-30	1-1.5	<2.01	<2.01	<2.01	<2.01	<2.01
BR-25->30' (0-0.5')	10/14/2016	BR-25	>30	0-0.5	<13.3	<13.3	<13.3	<13.3	<13.3
BR-25->30' (0.5-1')	10/14/2016	BR-25	>30	0.5-1	<5.54	<5.54	<5.54	<5.54	<5.54
BR-25->30' (1-1.5')	10/14/2016	BR-25	>30	1-1.5	<14.0	<14.0	<14.0	<14.0	<14.0
Oregon Clean Fill Screening Level					--	1,100	14,000	15	150

Refer to notes at end of table.

Cascadia Associates, LLC

Table 2
2016 Shoulder Soil Sampling Analytical Results - Lead and PAHs
Statewide Highway Shoulder Soil Evaluation Results Report

Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Lead mg/kg	1-Methylnaphthalene µg/kg	2-Methylnaphthalene µg/kg	Acenaphthene µg/kg	Acenaphthylene µg/kg	Anthracene µg/kg	Benz(a)anthracene µg/kg	Benzo(a)pyrene Equivalents [15.] µg/kg	Benzo(a)pyrene µg/kg	Benzo(b)fluoranthene µg/kg
Blue Mountain Physiographic Province														
BM-01-15-30' (0-0.5')	10/20/2016	BM-01	15-30	0-0.5	**27.7**	<29.7	<29.7	<14.8	<14.8	<14.8	<14.8	**2.21**	<14.8	**20.2 J**
BM-01-15-30' (0.5-1')	10/20/2016	BM-01	15-30	0.5-1	**14.1**	<9.97	<9.97	<4.98	<4.98	<4.98	<4.98	<4.98	<4.98	<4.98
BM-01-15-30' (1-1.5')	10/20/2016	BM-01	15-30	1-1.5	**7.14**	<4.15	<4.15	<2.08	<2.08	<2.08	<2.08	**0.662**	<2.08	**3.13 J**
BM-01->30' (0-0.5')	10/20/2016	BM-01	>30	0-0.5	**9.10**	<10.4 J1	<10.4 J1	<5.22 J1	<5.22 J1	<5.22 J1	<5.22 J1	<5.22 J1	<5.22 J1	<5.22 J1
BM-01->30' (0.5-1')	10/20/2016	BM-01	>30	0.5-1	**6.92**	<4.10	<4.10	<2.05	<2.05	<2.05	**3.67 J**	**0.672**	<2.05	**3.00 J**
BM-01->30' (1-1.5')	10/20/2016	BM-01	>30	1-1.5	**5.96**	<4.17	<4.17	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09
BM-02-15-30' (0-0.5')	10/20/2016	BM-02	15-30	0-0.5	**11.9**	<4.08	<4.08	<2.04	<2.04	<2.04	**2.13 J**	**6.26**	**4.69**	**13.2 M-02**
BM-02-15-30' (0.5-1')	10/20/2016	BM-02	15-30	0.5-1	**16.5**	<4.07	<4.07	<2.04	<2.04	<2.04	<2.04	**4.50**	**3.48 J**	**6.05 M-02**
BM-02-15-30' (1-1.5')	10/20/2016	BM-02	15-30	1-1.5	**9.70**	<9.46	<9.46	<4.73	<4.73	<4.73	<9.46	<4.73	<4.73	<4.73
BM-02->30' (0-0.5')	10/20/2016	BM-02	>30	0-0.5	**12.3**	<3.98	<3.98	<1.99	<1.99	<1.99	<1.99	**0.636**	<1.99	**3.33 J**
BM-02->30' (0.5-1')	10/20/2016	BM-02	>30	0.5-1	**6.72**	<4.21	<4.21	<2.10	<2.10	<2.10	<2.10	**0.640**	<2.10	**3.27 J**
BM-02->30' (1-1.5')	10/20/2016	BM-02	>30	1-1.5	**7.24**	<4.14	<4.14	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07
BM-03-15-30' (0-0.5')	10/20/2016	BM-03	15-30	0-0.5	**7.51**	<7.78	<7.78	<3.89	<3.89	<3.89	<11.7	**1.55**	<3.89	**7.91 M-02**
BM-03-15-30' (0.5-1')	10/20/2016	BM-03	15-30	0.5-1	**6.68**	<4.14	<4.14	<2.07	<2.07	<2.07	<4.14	**0.235**	<2.07	**2.08 J**
BM-03-15-30' (1-1.5')	10/20/2016	BM-03	15-30	1-1.5	**6.76**	<4.22	<4.22	<2.11	<2.11	<2.11	<4.22	<2.11	<2.11	<2.11
BM-03->30' (0-0.5')	10/20/2016	BM-03	>30	0-0.5	**7.56**	<3.94	<3.94	<1.97	<1.97	<1.97	<6.10	**0.777**	<1.97	**4.16 M-02**
BM-03->30' (0.5-1')	10/20/2016	BM-03	>30	0.5-1	**7.82**	<4.48	<4.48	<2.24	<2.24	<2.24	<4.48	**0.273**	<2.24	**2.38 J**
BM-03->30' (1-1.5')	10/20/2016	BM-03	>30	1-1.5	**9.27**	<4.24	<4.24	<2.12	<2.12	<2.12	<4.24	**0.242**	<2.12	**2.14 J**
BM-04-15-30' (0-0.5')	10/24/2016	BM-04	15-30	0-0.5	**6.46**	<3.85	<3.85	<1.93	<1.93	<1.93	<3.85	<1.93	<1.93	<1.93
BM-04-15-30' (0.5-1')	10/24/2016	BM-04	15-30	0.5-1	**3.05**	<4.01	<4.01	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
BM-04-15-30' (1-1.5')	10/24/2016	BM-04	15-30	1-1.5	**2.46**	<3.88	<3.88	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94
BM-04-15-30' (1-1.5') DUP	10/24/2016	BM-04	15-30	1-1.5	**2.54**	<3.99	<3.99	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
BM-04->30' (0-0.5')	10/24/2016	BM-04	>30	0-0.5	**11.9**	<3.99	<3.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
BM-04->30' (0.5-1')	10/24/2016	BM-04	>30	0.5-1	**9.57**	<4.23	<4.23	<2.11	<2.11	<2.11	<2.11	<2.11	<2.11	<2.11
BM-04->30' (1-1.5')	10/24/2016	BM-04	>30	1-1.5	**7.21**	<4.27	<4.27	<2.14	<2.14	<2.14	<2.14	<2.14	<2.14	<2.14
BM-05->30' (0-0.5')	10/24/2016	BM-05	>30	0-0.5	**9.55**	<4.19	<4.19	<2.09	**3.50 J**	<2.09	**7.86 M-02**	**20.1**	**15.6**	**20.9 M-02**
BM-05->30' (0.5-1')	10/24/2016	BM-05	>30	0.5-1	**5.77**	**7.29 J**	**8.91**	<1.94	<1.94	<1.94	**2.97 J**	**5.10**	**3.85 J**	**6.36 M-02**
BM-05->30' (1-1.5')	10/24/2016	BM-05	>30	1-1.5	**3.05**	<4.03	<4.03	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02
BM-06-15-30' (0-0.5')	10/24/2016	BM-06	15-30	0-0.5	**8.41**	<3.97	<3.97	<1.99	<1.99	<1.99	**3.16 J**	**8.62**	**6.56**	**9.62 M-02**
BM-06-15-30' (0.5-1')	10/24/2016	BM-06	15-30	0.5-1	**4.53**	<3.80	<3.80	<1.90	<1.90	<1.90	<1.90	<1.90	<1.90	<1.90
BM-06-15-30' (0.5-1') DUP	10/24/2016	BM-06	15-30	0.5-1	**4.71**	<4.03	<4.03	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01
BM-06-15-30' (1-1.5')	10/24/2016	BM-06	15-30	1-1.5	**4.72**	<3.89	<3.89	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95
BM-06->30' (0-0.5')	10/24/2016	BM-06	>30	0-0.5	**7.54**	<3.82	<3.82	<1.91	<1.91	<1.91	**2.03 J**	**4.56**	**3.53 J**	**4.87 M-02**
BM-06->30' (0.5-1')	10/24/2016	BM-06	>30	0.5-1	**3.95**	<3.98	<3.98	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
BM-06->30' (1-1.5')	10/24/2016	BM-06	>30	1-1.5	**3.86**	<3.95	<3.95	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97
BM-07-15-30' (0-0.5')	10/24/2016	BM-07	15-30	0-0.5	**37.0**	<4.10	<4.10	<2.05	**3.43 J**	**2.78 J**	**19.9 M-02**	**48.2**	**33.0**	**32.5 M-02**
BM-07-15-30' (0.5-1')	10/24/2016	BM-07	15-30	0.5-1	**23.8**	<3.95	<3.95	<1.97	**3.07 J**	**9.14**	**26.1 M-02**	**44.5**	**30.0**	**40.9 M-02**
BM-07-15-30' (1-1.5')	10/24/2016	BM-07	15-30	1-1.5	**6.54**	<3.82	<3.82	<1.91	<1.91	<1.91	<1.91	2.22	**2.22 J**	<1.91
BM-07->30' (0-0.5')	10/24/2016	BM-07	>30	0-0.5	**15.4**	<4.07	<4.07	<2.03	<2.03	<2.03	**2.20 J**	**4.50**	**3.15 J**	**6.63 M-02**
BM-07->30' (0.5-1')	10/24/2016	BM-07	>30	0.5-1	**10.0**	<3.59	<3.59	<1.80	<1.80	<1.80	<1.80	<1.80	<1.80	<1.80
BM-07->30' (1-1.5')	10/24/2016	BM-07	>30	1-1.5	**8.16**	<4.15	<4.15	<2.08	<2.08	<2.08	<2.08	<2.08	<2.08	<2.08
BM-08-15-30' (0-0.5')	10/24/2016	BM-08	15-30	0-0.5	**8.68**	<9.76	<9.76	<4.88	<4.88	<4.88	<4.88	**0.052**	<4.88	<4.88
BM-08-15-30' (0.5-1')	10/24/2016	BM-08	15-30	0.5-1	**16.0**	<3.93	<3.93	<1.96	<1.96	<1.96	<1.96	**0.032**	<1.96	<1.96
BM-08-15-30' (1-1.5')	10/24/2016	BM-08	15-30	1-1.5	**10.6**	<3.96	<3.96	<1.98	<1.98	<1.98	<1.98	**0.224**	<1.98	**1.99 J**
BM-08->30' (0-0.5')	10/24/2016	BM-08	>30	0-0.5	**11.6**	<4.07	<4.07	<2.03	<2.03	<2.03	<4.07	<2.03	<2.03	<2.03
BM-08->30' (0.5-1')	10/24/2016	BM-08	>30	0.5-1	**7.65**	<4.15	<4.15	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07
BM-08->30' (1-1.5')	10/24/2016	BM-08	>30	1-1.5	**6.71**	<4.13	<4.13	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07
BM-09->30' (0-0.5')	10/24/2016	BM-09	>30	0-0.5	**37.3**	<3.98	<3.98	<1.99	<1.99	<1.99	<1.99	**0.426**	<1.99	**3.94 J**
BM-09->30' (0.5-1')	10/24/2016	BM-09	>30	0.5-1	**52.1**	<3.86	<3.86	<1.93	<1.93	<1.93	<3.86	**0.275**	<1.93	**2.49 J**
Oregon Clean Fill Screening Level					21	738	310,000	29,000	--	29,000	150	--	15	150

Refer to notes at end of table.

Cascadia Associates, LLC

Table 2
2016 Shoulder Soil Sampling Analytical Results - Lead and PAHs
Statewide Highway Shoulder Soil Evaluation Results Report

Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Benzo(g,h,i)perylene µg/kg	Benzo(k)fluoranthene µg/kg	Chrysene µg/kg	Dibenz(a,h)anthracene µg/kg	Indeno(1,2,3-cd)pyrene µg/kg
Blue Mountain Physiographic Province									
BM-01-15-30' (0-0.5')	10/20/2016	BM-01	15-30	0-0.5	**16.9 J**	<14.8	**16.6 J**	<14.8	<14.8
BM-01-15-30' (0.5-1')	10/20/2016	BM-01	15-30	0.5-1	<4.98	<4.98	<4.98	<4.98	<4.98
BM-01-15-30' (1-1.5')	10/20/2016	BM-01	15-30	1-1.5	**2.95 J**	<2.08	<2.08	<2.08	**3.19 J**
BM-01->30' (0-0.5')	10/20/2016	BM-01	>30	0-0.5	<5.22 J1	<5.22 J1	<5.22 J1	<5.22 J1	<5.22 J1
BM-01->30' (0.5-1')	10/20/2016	BM-01	>30	0.5-1	<2.05	<2.05	**4.56 M-02**	<2.05	<2.05
BM-01->30' (1-1.5')	10/20/2016	BM-01	>30	1-1.5	<2.09	<2.09	<2.09	<2.09	<2.09
BM-02-15-30' (0-0.5')	10/20/2016	BM-02	15-30	0-0.5	<20.4	**2.27 J**	**14.5 M-02**	<20.4	<20.4
BM-02-15-30' (0.5-1')	10/20/2016	BM-02	15-30	0.5-1	**6.91**	<2.04	**8.49 M-02**	<2.04	**3.39 J**
BM-02-15-30' (1-1.5')	10/20/2016	BM-02	15-30	1-1.5	<4.73	<4.73	<9.46	<4.73	<4.73
BM-02->30' (0-0.5')	10/20/2016	BM-02	>30	0-0.5	**3.67 J**	<1.99	**4.05 M-02**	<1.99	**2.62 J**
BM-02->30' (0.5-1')	10/20/2016	BM-02	>30	0.5-1	**2.62 J**	<2.10	<2.10	<2.10	**2.87 J**
BM-02->30' (1-1.5')	10/20/2016	BM-02	>30	1-1.5	<2.07	<2.07	<2.07	<2.07	<2.07
BM-03-15-30' (0-0.5')	10/20/2016	BM-03	15-30	0-0.5	**12.8**	<3.89	<11.7	<3.89	**6.28 J**
BM-03-15-30' (0.5-1')	10/20/2016	BM-03	15-30	0.5-1	**2.70 J**	<2.07	<4.14	<2.07	<2.07
BM-03-15-30' (1-1.5')	10/20/2016	BM-03	15-30	1-1.5	<2.11	<2.11	<4.22	<2.11	<2.11
BM-03->30' (0-0.5')	10/20/2016	BM-03	>30	0-0.5	**6.45**	<1.97	<6.89	<1.97	**2.96 J**
BM-03->30' (0.5-1')	10/20/2016	BM-03	>30	0.5-1	**3.46 J**	<2.24	<4.48	<2.24	<2.24
BM-03->30' (1-1.5')	10/20/2016	BM-03	>30	1-1.5	**2.79 J**	<2.12	<5.29	<2.12	<2.12
BM-04-15-30' (0-0.5')	10/24/2016	BM-04	15-30	0-0.5	<1.93	<1.93	<3.85	<1.93	<1.93
BM-04-15-30' (0.5-1')	10/24/2016	BM-04	15-30	0.5-1	<2.00	<2.00	<2.00	<2.00	<2.00
BM-04-15-30' (1-1.5')	10/24/2016	BM-04	15-30	1-1.5	<1.94	<1.94	<1.94	<1.94	<1.94
BM-04-15-30' (1-1.5') DUP	10/24/2016	BM-04	15-30	1-1.5	<2.00	<2.00	<2.00	<2.00	<2.00
BM-04->30' (0-0.5')	10/24/2016	BM-04	>30	0-0.5	<1.99	<1.99	<1.99	<1.99	<1.99
BM-04->30' (0.5-1')	10/24/2016	BM-04	>30	0.5-1	<2.11	<2.11	<2.11	<2.11	<2.11
BM-04->30' (1-1.5')	10/24/2016	BM-04	>30	1-1.5	<2.14	<2.14	<2.14	<2.14	<2.14
BM-05->30' (0-0.5')	10/24/2016	BM-05	>30	0-0.5	**17.7**	**6.59 M-02**	**12.6 M-02**	<2.09	**13.2**
BM-05->30' (0.5-1')	10/24/2016	BM-05	>30	0.5-1	**3.51 J**	**2.41 J**	**4.43 M-02**	<1.94	**2.50 J**
BM-05->30' (1-1.5')	10/24/2016	BM-05	>30	1-1.5	<2.02	<2.02	<2.02	<2.02	<2.02
BM-06-15-30' (0-0.5')	10/24/2016	BM-06	15-30	0-0.5	**9.12**	**3.45 J**	**5.91 M-02**	<1.99	**6.47**
BM-06-15-30' (0.5-1')	10/24/2016	BM-06	15-30	0.5-1	<1.90	<1.90	<1.90	<1.90	<1.90
BM-06-15-30' (0.5-1') DUP	10/24/2016	BM-06	15-30	0.5-1	<2.01	<2.01	<2.01	<2.01	<2.01
BM-06-15-30' (1-1.5')	10/24/2016	BM-06	15-30	1-1.5	<1.95	<1.95	<1.95	<1.95	<1.95
BM-06->30' (0-0.5')	10/24/2016	BM-06	>30	0-0.5	**3.93**	**2.06 J**	**3.17 J**	<1.91	**2.74 J**
BM-06->30' (0.5-1')	10/24/2016	BM-06	>30	0.5-1	<1.99	<1.99	<1.99	<1.99	<1.99
BM-06->30' (1-1.5')	10/24/2016	BM-06	>30	1-1.5	<1.97	<1.97	<1.97	<1.97	<1.97
BM-07-15-30' (0-0.5')	10/24/2016	BM-07	15-30	0-0.5	**35.7**	**7.07 M-02**	**51.2 M-02**	**7.50**	**19.8**
BM-07-15-30' (0.5-1')	10/24/2016	BM-07	15-30	0.5-1	**28.8**	**13.1 M-02**	**31.6 M-02**	**5.19**	**21.9**
BM-07-15-30' (1-1.5')	10/24/2016	BM-07	15-30	1-1.5	<1.91	<1.91	<1.91	<1.91	<1.91
BM-07->30' (0-0.5')	10/24/2016	BM-07	>30	0-0.5	**5.59**	<2.03	**7.24 M-02**	<2.03	**4.03 J**
BM-07->30' (0.5-1')	10/24/2016	BM-07	>30	0.5-1	<1.80	<1.80	<1.80	<1.80	<1.80
BM-07->30' (1-1.5')	10/24/2016	BM-07	>30	1-1.5	<2.08	<2.08	<2.08	<2.08	<2.08
BM-08-15-30' (0-0.5')	10/24/2016	BM-08	15-30	0-0.5	**5.22 J**	<4.88	<4.88	<4.88	<4.88
BM-08-15-30' (0.5-1')	10/24/2016	BM-08	15-30	0.5-1	**3.17 J**	<1.96	<1.96	<1.96	<1.96
BM-08-15-30' (1-1.5')	10/24/2016	BM-08	15-30	1-1.5	**2.51 J**	<1.98	<1.98	<1.98	<1.98
BM-08->30' (0-0.5')	10/24/2016	BM-08	>30	0-0.5	<2.03	<2.03	<4.07	<2.03	<2.03
BM-08->30' (0.5-1')	10/24/2016	BM-08	>30	0.5-1	<2.07	<2.07	<2.07	<2.07	<2.07
BM-08->30' (1-1.5')	10/24/2016	BM-08	>30	1-1.5	<2.07	<2.07	<2.07	<2.07	<2.07
BM-09->30' (0-0.5')	10/24/2016	BM-09	>30	0-0.5	**2.66 J**	<1.99	**5.65 M-02**	<1.99	<1.99
BM-09->30' (0.5-1')	10/24/2016	BM-09	>30	0.5-1	**2.63 J**	<1.93	<4.82	<1.93	<1.93
Oregon Clean Fill Screening Level					--	1,100	14,000	15	150

Refer to notes at end of table.

Cascadia Associates, LLC

Table 2
2016 Shoulder Soil Sampling Analytical Results - Lead and PAHs
Statewide Highway Shoulder Soil Evaluation Results Report

Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Lead	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene Equivalents [15.]	Benzo(a)pyrene	Benzo(b)fluoranthene
					mg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Blue Mountain Physiographic Province														
BM-09->30' (1-1.5')	10/24/2016	BM-09	>30	1-1.5	**29.8**	<3.81	<3.81	<1.91	<1.91	<1.91	<1.91	**0.267**	<1.91	**2.44 J**
BM-10-15-30' (0-0.5')	10/25/2016	BM-10	15-30	0-0.5	**22.1**	<4.15	<4.15	<2.08	<2.08	<2.08	<4.15	**10.7**	**5.17**	**11.4 M-02**
BM-10-15-30' (0.5-1')	10/25/2016	BM-10	15-30	0.5-1	**15**	<3.96	<3.96	<1.98	<1.98	<1.98	<6.94	**2.82**	**2.05 J**	**4.16 M-02**
BM-10-15-30' (1-1.5')	10/25/2016	BM-10	15-30	1-1.5	**29.4**	<11.8	<11.8	<5.90	<5.90	<5.90	<64.9	**35.3**	**16.0**	**29.7 M-02**
BM-10->30' (0-0.5')	10/25/2016	BM-10	>30	0-0.5	**11**	<4.24	<4.24	<2.12	<2.12	<2.12	<2.12	<2.12	<2.12	<2.12
BM-10->30' (0.5-1')	10/25/2016	BM-10	>30	0.5-1	**7.81**	<4.23	<4.23	<2.12	<2.12	<2.12	<2.12	<2.12	<2.12	<2.12
BM-10->30' (1-1.5')	10/25/2016	BM-10	>30	1-1.5	**7.52**	<4.26	<4.26	<2.13	<2.13	<2.13	<2.13	<2.13	<2.13	<2.13
BM-11-15-30' (0-0.5')	10/25/2016	BM-11	15-30	0-0.5	**19.7**	<3.90	<3.90	<1.95	<1.95	<1.95	<5.86	**3.85**	**3.05 J**	**4.50 M-02**
BM-11-15-30' (0.5-1')	10/25/2016	BM-11	15-30	0.5-1	**16.2**	<3.83	<3.83	<1.91	<1.91	<1.91	<11.5	**5.43**	**2.65 J**	**5.33 M-02**
BM-11-15-30' (1-1.5')	10/25/2016	BM-11	15-30	1-1.5	**12.8**	<3.85	<3.85	<1.92	<1.92	<1.92	<3.85	**0.030**	<1.92	<1.92
BM-11->30' (0-0.5')	10/25/2016	BM-11	>30	0-0.5	**14.3**	<4.15	<4.15	<2.08	<2.08	<2.08	<4.15	<2.08	<2.08	<2.08
BM-11->30' (0.5-1')	10/25/2016	BM-11	>30	0.5-1	**8.36**	<4.16	<4.16	<2.08	<2.08	<2.08	<2.08	<2.08	<2.08	<2.08
BM-11->30' (1-1.5')	10/25/2016	BM-11	>30	1-1.5	**6.37**	<4.16	<4.16	<2.08	<2.08	<2.08	<2.08	<2.08	<2.08	<2.08
BM-12-15-30' (0-0.5')	10/25/2016	BM-12	15-30	0-0.5	**8.52**	<4.08	<4.08	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04
BM-12-15-30' (0-0.5') DUP	10/25/2016	BM-12	15-30	0-0.5	**11.0**	<4.08	<4.08	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04
BM-12-15-30' (0.5-1')	10/25/2016	BM-12	15-30	0.5-1	**4.9**	<4.09	<4.09	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05
BM-12-15-30' (1-1.5')	10/25/2016	BM-12	15-30	1-1.5	**5.76**	<4.08	<4.08	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04
BM-12->30' (0-0.5')	10/25/2016	BM-12	>30	0-0.5	**11.9**	<4.08	<4.08	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04
BM-12->30' (0.5-1')	10/25/2016	BM-12	>30	0.5-1	**5.70**	<4.07	<4.07	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BM-12->30' (1-1.5')	10/25/2016	BM-12	>30	1-1.5	**5.51**	<4.08	<4.08	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04
BM-13-15-30' (0-0.5')	10/25/2016	BM-13	15-30	0-0.5	**8.58**	<4.21	<4.21	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10
BM-13-15-30' (0.5-1')	10/25/2016	BM-13	15-30	0.5-1	**6.92**	<4.20	<4.20	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10
BM-13-15-30' (1-1.5')	10/25/2016	BM-13	15-30	1-1.5	**6.05**	<4.15	<4.15	<2.08	<2.08	<2.08	<2.08	<2.08	<2.08	<2.08
BM-13->30' (0-0.5')	10/25/2016	BM-13	>30	0-0.5	**7.72**	<4.09	<4.09	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05
BM-13->30' (0.5-1')	10/25/2016	BM-13	>30	0.5-1	**7.15**	<4.16	<4.16	<2.08	<2.08	<2.08	<2.08	<2.08	<2.08	<2.08
BM-13->30' (1-1.5')	10/25/2016	BM-13	>30	1-1.5	**6.46**	<4.18	<4.18	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09
BM-14->30' (0-0.5')	10/25/2016	BM-14	>30	0-0.5	**8.94**	**6.98 J**	**9.84**	<2.06	<2.06	<2.06	**2.73 J**	**3.81**	**2.79 J**	**4.61 M-02**
BM-14->30' (0.5-1')	10/25/2016	BM-14	>30	0.5-1	**7.84**	<4.11	<4.11	<2.05	<2.05	<2.05	**2.10 J**	**0.50**	<2.05	2.86
BM-14->30' (1-1.5')	10/25/2016	BM-14	>30	1-1.5	**6.42**	<4.09	<4.09	<2.04	<2.04	<2.04	**2.70 J**	**2.81**	**2.17 J**	**3.47**
BM-15->30' (0-0.5')	10/25/2016	BM-15	>30	0-0.5	**12.3**	<4.32	<4.32	<2.16	<2.16	<2.16	<2.16	<2.16	<2.16	<2.16
BM-15->30' (0.5-1')	10/25/2016	BM-15	>30	0.5-1	**10.3**	<4.34	<4.34	<2.17	<2.17	<2.17	<2.17	<2.17	<2.17	<2.17
BM-15->30' (1-1.5')	10/25/2016	BM-15	>30	1-1.5	**10.5**	<4.36	<4.36	<2.18	<2.18	<2.18	<2.18	<2.18	<2.18	<2.18
BM-16-15-30' (0-0.5')	10/25/2016	BM-16	15-30	0-0.5	**7.54**	<4.12	<4.12	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06
BM-16-15-30' (0.5-1')	10/25/2016	BM-16	15-30	0.5-1	**5.07**	<4.13	<4.13	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06
BM-16-15-30' (1-1.5')	10/25/2016	BM-16	15-30	1-1.5	**5.88**	<4.12	<4.12	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06
BM-16->30' (0-0.5')	10/25/2016	BM-16	>30	0-0.5	**5.57**	<4.11	<4.11	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05
BM-16->30' (0.5-1')	10/25/2016	BM-16	>30	0.5-1	**5.83**	<4.11	<4.11	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06
BM-16->30' (1-1.5')	10/25/2016	BM-16	>30	1-1.5	**6.29**	<4.13	<4.13	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07
BM-17->30' (0-0.5')	10/26/2016	BM-17	>30	0-0.5	**6.21**	<4.07	<4.07	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BM-17->30' (0.5-1')	10/26/2016	BM-17	>30	0.5-1	**5.03**	<4.08	<4.08	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04
BM-17->30' (1-1.5')	10/26/2016	BM-17	>30	1-1.5	**4.16**	<4.05	<4.05	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02
BM-17->30' (1-1.5') DUP	10/26/2016	BM-17	>30	1-1.5	**4.11**	<4.05	<4.05	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BM-18-15-30' (0-0.5')	10/26/2016	BM-18	15-30	0-0.5	**7.52**	<4.09	<4.09	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04
BM-18-15-30' (0.5-1')	10/26/2016	BM-18	15-30	0.5-1	**4.94**	<4.10	<4.10	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05
BM-18-15-30' (1-1.5')	10/26/2016	BM-18	15-30	1-1.5	**3.28**	<4.11	<4.11	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06
BM-18->30' (0-0.5')	10/26/2016	BM-18	>30	0-0.5	**8.90**	<4.11	<4.11	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06
BM-18->30' (0.5-1')	10/26/2016	BM-18	>30	0.5-1	**6.33**	<3.98	<3.98	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
BM-18->30' (1-1.5')	10/26/2016	BM-18	>30	1-1.5	**4.48**	<4.12	<4.12	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06
BM-19-15-30' (0-0.5')	10/26/2016	BM-19	15-30	0-0.5	**6.19**	<4.19	<4.19	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09
Oregon Clean Fill Screening Level					21	738	310,000	29,000	--	29,000	150	--	15	150

Refer to notes at end of table.

Cascadia Associates, LLC

Table 2
2016 Shoulder Soil Sampling Analytical Results - Lead and PAHs
Statewide Highway Shoulder Soil Evaluation Results Report

Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Benzo(g,h,i)perylene µg/kg	Benzo(k)fluoranthene µg/kg	Chrysene µg/kg	Dibenz(a,h)anthracene µg/kg	Indeno(1,2,3-cd)pyrene µg/kg
Blue Mountain Physiographic Province									
BM-09->30' (1-1.5')	10/24/2016	BM-09	>30	1-1.5	**2.07 J**	<1.91	**2.57 J**	<1.91	<1.91
BM-10-15-30' (0-0.5')	10/25/2016	BM-10	15-30	0-0.5	**17.1**	**2.35 J**	<12.5	**3.46 J**	**6.88**
BM-10-15-30' (0.5-1')	10/25/2016	BM-10	15-30	0.5-1	**6.69**	<1.98	<7.93	<1.98	**2.88 J**
BM-10-15-30' (1-1.5')	10/25/2016	BM-10	15-30	1-1.5	**41.4**	<5.90	<73.8	14.1	**17.8**
BM-10->30' (0-0.5')	10/25/2016	BM-10	>30	0-0.5	<2.12	<2.12	<2.12	<2.12	<2.12
BM-10->30' (0.5-1')	10/25/2016	BM-10	>30	0.5-1	<2.12	<2.12	<2.12	<2.12	<2.12
BM-10->30' (1-1.5')	10/25/2016	BM-10	>30	1-1.5	<2.13	<2.13	<2.13	<2.13	<2.13
BM-11-15-30' (0-0.5')	10/25/2016	BM-11	15-30	0-0.5	**7.99**	<1.95	<5.86	<1.95	**2.70 J**
BM-11-15-30' (0.5-1')	10/25/2016	BM-11	15-30	0.5-1	**5.73**	<1.91	<13.4	**2.19 J**	<1.91
BM-11-15-30' (1-1.5')	10/25/2016	BM-11	15-30	1-1.5	**3.02 J**	<1.92	<3.85	<1.92	<1.92
BM-11->30' (0-0.5')	10/25/2016	BM-11	>30	0-0.5	<2.08	<2.08	<4.15	<2.08	<2.08
BM-11->30' (0.5-1')	10/25/2016	BM-11	>30	0.5-1	<2.08	<2.08	<2.08	<2.08	<2.08
BM-11->30' (1-1.5')	10/25/2016	BM-11	>30	1-1.5	<2.08	<2.08	<2.08	<2.08	<2.08
BM-12-15-30' (0-0.5')	10/25/2016	BM-12	15-30	0-0.5	<2.04	<2.04	<2.04	<2.04	<2.04
BM-12-15-30' (0-0.5') DUP	10/25/2016	BM-12	15-30	0-0.5	<2.04	<2.04	<2.04	<2.04	<2.04
BM-12-15-30' (0.5-1')	10/25/2016	BM-12	15-30	0.5-1	<2.05	<2.05	<2.05	<2.05	<2.05
BM-12-15-30' (1-1.5')	10/25/2016	BM-12	15-30	1-1.5	<2.04	<2.04	<2.04	<2.04	<2.04
BM-12->30' (0-0.5')	10/25/2016	BM-12	>30	0-0.5	<2.04	<2.04	<2.04	<2.04	<2.04
BM-12->30' (0.5-1')	10/25/2016	BM-12	>30	0.5-1	<2.03	<2.03	<2.03	<2.03	<2.03
BM-12->30' (1-1.5')	10/25/2016	BM-12	>30	1-1.5	<2.04	<2.04	<2.04	<2.04	<2.04
BM-13-15-30' (0-0.5')	10/25/2016	BM-13	15-30	0-0.5	<2.10	<2.10	<2.10	<2.10	<2.10
BM-13-15-30' (0.5-1')	10/25/2016	BM-13	15-30	0.5-1	<2.10	<2.10	<2.10	<2.10	<2.10
BM-13-15-30' (1-1.5')	10/25/2016	BM-13	15-30	1-1.5	<2.08	<2.08	<2.08	<2.08	<2.08
BM-13->30' (0-0.5')	10/25/2016	BM-13	>30	0-0.5	<2.05	<2.05	<2.05	<2.05	<2.05
BM-13->30' (0.5-1')	10/25/2016	BM-13	>30	0.5-1	<2.08	<2.08	<2.08	<2.08	<2.08
BM-13->30' (1-1.5')	10/25/2016	BM-13	>30	1-1.5	<2.09	<2.09	<2.09	<2.09	<2.09
BM-14->30' (0-0.5')	10/25/2016	BM-14	>30	0-0.5	**3.26 J**	<2.06	**4.28 M-02**	<2.06	**2.50 J**
BM-14->30' (0.5-1')	10/25/2016	BM-14	>30	0.5-1	<2.05	<2.05	**2.05 J**	<2.05	<2.05
BM-14->30' (1-1.5')	10/25/2016	BM-14	>30	1-1.5	**2.46 J**	<2.04	**2.96 J**	<2.04	<2.04
BM-15->30' (0-0.5')	10/25/2016	BM-15	>30	0-0.5	<2.16	<2.16	<2.16	<2.16	<2.16
BM-15->30' (0.5-1')	10/25/2016	BM-15	>30	0.5-1	<2.17	<2.17	<2.17	<2.17	<2.17
BM-15->30' (1-1.5')	10/25/2016	BM-15	>30	1-1.5	<2.18	<2.18	<2.18	<2.18	<2.18
BM-16-15-30' (0-0.5')	10/25/2016	BM-16	15-30	0-0.5	<2.06	<2.06	<2.06	<2.06	<2.06
BM-16-15-30' (0.5-1')	10/25/2016	BM-16	15-30	0.5-1	<2.06	<2.06	<2.06	<2.06	<2.06
BM-16-15-30' (1-1.5')	10/25/2016	BM-16	15-30	1-1.5	<2.06	<2.06	<2.06	<2.06	<2.06
BM-16->30' (0-0.5')	10/25/2016	BM-16	>30	0-0.5	<2.05	<2.05	<2.05	<2.05	<2.05
BM-16->30' (0.5-1')	10/25/2016	BM-16	>30	0.5-1	<2.06	<2.06	<2.06	<2.06	<2.06
BM-16->30' (1-1.5')	10/25/2016	BM-16	>30	1-1.5	<2.07	<2.07	<2.07	<2.07	<2.07
BM-17->30' (0-0.5')	10/26/2016	BM-17	>30	0-0.5	<2.03	<2.03	<2.03	<2.03	<2.03
BM-17->30' (0.5-1')	10/26/2016	BM-17	>30	0.5-1	<2.04	<2.04	<2.04	<2.04	<2.04
BM-17->30' (1-1.5')	10/26/2016	BM-17	>30	1-1.5	<2.02	<2.02	<2.02	<2.02	<2.02
BM-17->30' (1-1.5') DUP	10/26/2016	BM-17	>30	1-1.5	<2.03	<2.03	<2.03	<2.03	<2.03
BM-18-15-30' (0-0.5')	10/26/2016	BM-18	15-30	0-0.5	<2.04	<2.04	<2.04	<2.04	<2.04
BM-18-15-30' (0.5-1')	10/26/2016	BM-18	15-30	0.5-1	<2.05	<2.05	<2.05	<2.05	<2.05
BM-18-15-30' (1-1.5')	10/26/2016	BM-18	15-30	1-1.5	<2.06	<2.06	<2.06	<2.06	<2.06
BM-18->30' (0-0.5')	10/26/2016	BM-18	>30	0-0.5	<2.06	<2.06	<2.06	<2.06	<2.06
BM-18->30' (0.5-1')	10/26/2016	BM-18	>30	0.5-1	<1.99	<1.99	<1.99	<1.99	<1.99
BM-18->30' (1-1.5')	10/26/2016	BM-18	>30	1-1.5	<2.06	<2.06	<2.06	<2.06	<2.06
BM-19-15-30' (0-0.5')	10/26/2016	BM-19	15-30	0-0.5	<2.09	<2.09	<2.09	<2.09	<2.09
Oregon Clean Fill Screening Level					--	1,100	14,000	15	150

Refer to notes at end of table.

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Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Lead	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene Equivalents [15.]	Benzo(a)pyrene	Benzo(b)fluoranthene
					mg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Blue Mountain Physiographic Province														
BM-19-15-30' (0.5-1')	10/26/2016	BM-19	15-30	0.5-1	**6.07**	<4.24	<4.24	<2.12	<2.12	<2.12	<2.12	<2.12	<2.12	<2.12
BM-19-15-30' (1-1.5')	10/26/2016	BM-19	15-30	1-1.5	**5.78**	<4.04	<4.04	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02
BM-19->30' (0-0.5')	10/26/2016	BM-19	>30	0-0.5	**4.25**	<4.04	<4.04	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02
BM-19->30' (0.5-1')	10/26/2016	BM-19	>30	0.5-1	**4.11**	<4.08	<4.08	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04
BM-19->30' (1-1.5')	10/26/2016	BM-19	>30	1-1.5	**3.45**	<4.09	<4.09	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04
BM-20-15-30' (0-0.5')	10/26/2016	BM-20	15-30	0-0.5	**1.27**	<4.06	<4.06	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BM-20-15-30' (0.5-1')	10/26/2016	BM-20	15-30	0.5-1	**0.84**	<4.06	<4.06	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BM-20-15-30' (1-1.5')	10/26/2016	BM-20	15-30	1-1.5	**0.593**	<4.05	<4.05	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BM-20->30' (0-0.5')	10/26/2016	BM-20	>30	0-0.5	**1.48**	<4.06	<4.06	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BM-20->30' (0.5-1')	10/26/2016	BM-20	>30	0.5-1	**0.729**	<4.06	<4.06	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BM-20->30' (1-1.5')	10/26/2016	BM-20	>30	1-1.5	**0.825**	<4.05	<4.05	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BM-21-15-30' (0-0.5')	10/26/2016	BM-21	15-30	0-0.5	**4.75**	<3.98	<3.98	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
BM-21-15-30' (0.5-1')	10/26/2016	BM-21	15-30	0.5-1	**2.19**	<4.12	<4.12	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06
BM-21-15-30' (1-1.5')	10/26/2016	BM-21	15-30	1-1.5	**2.43**	<4.11	<4.11	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06
BM-21->30' (0-0.5')	10/26/2016	BM-21	>30	0-0.5	**4.43**	<4.26	<4.26	<2.13	<2.13	<2.13	<2.13	**2.16**	**2.16 J**	<2.13
BM-21->30' (0.5-1')	10/26/2016	BM-21	>30	0.5-1	**3.86**	<4.00	<4.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
BM-21->30' (1-1.5')	10/26/2016	BM-21	>30	1-1.5	**3.15**	<4.16	<4.16	<2.08	<2.08	<2.08	<2.08	<2.08	<2.08	<2.08
BM-22->30' (0-0.5')	10/27/2016	BM-22	>30	0-0.5	**3.14**	<4.08	<4.08	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04
BM-22->30' (0-0.5') DUP	10/27/2016	BM-22	>30	0-0.5	**2.92**	<4.08	<4.08	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04
BM-22->30' (0.5-1')	10/27/2016	BM-22	>30	0.5-1	**1.42**	<4.06	<4.06	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BM-22->30' (1-1.5')	10/27/2016	BM-22	>30	1-1.5	**1.31**	<4.07	<4.07	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04
BM-23-15-30' (0-0.5')	10/27/2016	BM-23	15-30	0-0.5	**5.37**	<3.99	<3.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
BM-23-15-30' (0.5-1')	10/27/2016	BM-23	15-30	0.5-1	**2.01**	<3.90	<3.90	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95
BM-23-15-30' (1-1.5')	10/27/2016	BM-23	15-30	1-1.5	**1.26**	<4.09	<4.09	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05
BM-23->30' (0-0.5')	10/27/2016	BM-23	>30	0-0.5	**1.99**	<3.80	<3.80	<1.90	<1.90	<1.90	<1.90	<1.90	<1.90	<1.90
BM-23->30' (0.5-1')	10/27/2016	BM-23	>30	0.5-1	**3.02**	<3.93	<3.93	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97
BM-23->30' (1-1.5')	10/27/2016	BM-23	>30	1-1.5	**3.01**	<3.83	<3.83	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92
BM-24-15-30' (0-0.5')	10/27/2016	BM-24	15-30	0-0.5	**14.9**	<3.93	<3.93	<1.96	<1.96	<1.96	**2.14 J**	**4.40**	**3.46 J**	**4.49 M-02**
BM-24-15-30' (0.5-1')	10/27/2016	BM-24	15-30	0.5-1	**4.34**	<3.84	<3.84	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92
BM-24-15-30' (1-1.5')	10/27/2016	BM-24	15-30	1-1.5	**4.24**	<4.06	<4.06	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BM-24->30' (0-0.5')	10/27/2016	BM-24	>30	0-0.5	**5.65**	<4.09	<4.09	<2.04	<2.04	<2.04	<4.09	**2.33**	**2.08 J**	**2.48 J**
BM-24->30' (0.5-1')	10/27/2016	BM-24	>30	0.5-1	**3.05**	<4.05	<4.05	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
BM-24->30' (1-1.5')	10/27/2016	BM-24	>30	1-1.5	**3.48**	<3.90	<3.90	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95
BM-25->30' (0-0.5')	10/27/2016	BM-25	>30	0-0.5	**15.7**	<3.86	<3.86	<1.93	<1.93	<1.93	<6.76	**2.65**	**2.25 J**	**3.76 J**
BM-25->30' (0.5-1')	10/27/2016	BM-25	>30	0.5-1	**7.22**	<3.94	<3.94	<1.97	<1.97	<1.97	<3.94	**2.63**	**2.37 J**	**2.64 J**
BM-25->30' (1-1.5')	10/27/2016	BM-25	>30	1-1.5	**5.71**	<3.79	<3.79	<1.90	<1.90	<1.90	<1.90	<1.90	<1.90	<1.90
Oregon Clean Fill Screening Level					21	738	310,000	29,000	--	29,000	150	--	15	150

Refer to notes at end of table.

Cascadia Associates, LLC

Table 2
2016 Shoulder Soil Sampling Analytical Results - Lead and PAHs
Statewide Highway Shoulder Soil Evaluation Results Report

Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Benzo(g,h,i)perylene µg/kg	Benzo(k)fluoranthene µg/kg	Chrysene µg/kg	Dibenz(a,h)anthracene µg/kg	Indeno(1,2,3-cd)pyrene µg/kg
Blue Mountain Physiographic Province									
BM-19-15-30' (0.5-1')	10/26/2016	BM-19	15-30	0.5-1	<2.12	<2.12	<2.12	<2.12	<2.12
BM-19-15-30' (1-1.5')	10/26/2016	BM-19	15-30	1-1.5	<2.02	<2.02	<2.02	<2.02	<2.02
BM-19->30' (0-0.5')	10/26/2016	BM-19	>30	0-0.5	<2.02	<2.02	<2.02	<2.02	<2.02
BM-19->30' (0.5-1')	10/26/2016	BM-19	>30	0.5-1	<2.04	<2.04	<2.04	<2.04	<2.04
BM-19->30' (1-1.5')	10/26/2016	BM-19	>30	1-1.5	<2.04	<2.04	<2.04	<2.04	<2.04
BM-20-15-30' (0-0.5')	10/26/2016	BM-20	15-30	0-0.5	<2.03	<2.03	<2.03	<2.03	<2.03
BM-20-15-30' (0.5-1')	10/26/2016	BM-20	15-30	0.5-1	<2.03	<2.03	<2.03	<2.03	<2.03
BM-20-15-30' (1-1.5')	10/26/2016	BM-20	15-30	1-1.5	<2.03	<2.03	<2.03	<2.03	<2.03
BM-20->30' (0-0.5')	10/26/2016	BM-20	>30	0-0.5	<2.03	<2.03	<2.03	<2.03	<2.03
BM-20->30' (0.5-1')	10/26/2016	BM-20	>30	0.5-1	<2.03	<2.03	<2.03	<2.03	<2.03
BM-20->30' (1-1.5')	10/26/2016	BM-20	>30	1-1.5	<2.03	<2.03	<2.03	<2.03	<2.03
BM-21-15-30' (0-0.5')	10/26/2016	BM-21	15-30	0-0.5	<1.99	<1.99	<1.99	<1.99	<1.99
BM-21-15-30' (0.5-1')	10/26/2016	BM-21	15-30	0.5-1	<2.06	<2.06	<2.06	<2.06	<2.06
BM-21-15-30' (1-1.5')	10/26/2016	BM-21	15-30	1-1.5	<2.06	<2.06	<2.06	<2.06	<2.06
BM-21->30' (0-0.5')	10/26/2016	BM-21	>30	0-0.5	<2.13	<2.13	<2.13	<2.13	<2.13
BM-21->30' (0.5-1')	10/26/2016	BM-21	>30	0.5-1	<2.00	<2.00	<2.00	<2.00	<2.00
BM-21->30' (1-1.5')	10/26/2016	BM-21	>30	1-1.5	<2.08	<2.08	<2.08	<2.08	<2.08
BM-22->30' (0-0.5')	10/27/2016	BM-22	>30	0-0.5	<2.04	<2.04	<2.04	<2.04	<2.04
BM-22->30' (0-0.5') DUP	10/27/2016	BM-22	>30	0-0.5	<2.04	<2.04	<2.04	<2.04	<2.04
BM-22->30' (0.5-1')	10/27/2016	BM-22	>30	0.5-1	<2.03	<2.03	<2.03	<2.03	<2.03
BM-22->30' (1-1.5')	10/27/2016	BM-22	>30	1-1.5	<2.04	<2.04	<2.04	<2.04	<2.04
BM-23-15-30' (0-0.5')	10/27/2016	BM-23	15-30	0-0.5	<1.99	<1.99	<1.99	<1.99	<1.99
BM-23-15-30' (0.5-1')	10/27/2016	BM-23	15-30	0.5-1	<1.95	<1.95	<1.95	<1.95	<1.95
BM-23-15-30' (1-1.5')	10/27/2016	BM-23	15-30	1-1.5	<2.05	<2.05	<2.05	<2.05	<2.05
BM-23->30' (0-0.5')	10/27/2016	BM-23	>30	0-0.5	<1.90	<1.90	<1.90	<1.90	<1.90
BM-23->30' (0.5-1')	10/27/2016	BM-23	>30	0.5-1	<1.97	<1.97	<1.97	<1.97	<1.97
BM-23->30' (1-1.5')	10/27/2016	BM-23	>30	1-1.5	<1.92	<1.92	<1.92	<1.92	<1.92
BM-24-15-30' (0-0.5')	10/27/2016	BM-24	15-30	0-0.5	**4.57**	<1.96	**3.38 J**	<1.96	**2.27 J**
BM-24-15-30' (0.5-1')	10/27/2016	BM-24	15-30	0.5-1	<1.92	<1.92	<1.92	<1.92	<1.92
BM-24-15-30' (1-1.5')	10/27/2016	BM-24	15-30	1-1.5	<2.03	<2.03	<2.03	<2.03	<2.03
BM-24->30' (0-0.5')	10/27/2016	BM-24	>30	0-0.5	<2.04	<2.04	<4.09	<2.04	<2.04
BM-24->30' (0.5-1')	10/27/2016	BM-24	>30	0.5-1	<2.03	<2.03	<2.03	<2.03	<2.03
BM-24->30' (1-1.5')	10/27/2016	BM-24	>30	1-1.5	<1.95	<1.95	<1.95	<1.95	<1.95
BM-25->30' (0-0.5')	10/27/2016	BM-25	>30	0-0.5	**2.32 J**	<1.93	<6.76	<1.93	<1.93
BM-25->30' (0.5-1')	10/27/2016	BM-25	>30	0.5-1	<1.97	<1.97	<3.94	<1.97	<1.97
BM-25->30' (1-1.5')	10/27/2016	BM-25	>30	1-1.5	<1.90	<1.90	<1.90	<1.90	<1.90
Oregon Clean Fill Screening Level					--	1,100	14,000	15	150

Refer to notes at end of table.

Cascadia Associates, LLC

Table 2
2016 Shoulder Soil Sampling Analytical Results - Lead and PAHs
Statewide Highway Shoulder Soil Evaluation Results Report

Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Lead	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene Equivalents [15.]	Benzo(a)pyrene	Benzo(b)fluoranthene
					mg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Deschutes Columbia Physiographic Province														
DC-01-15-30' (0-0.5')	10/18/2016	DC-01	15-30	0-0.5	**85.4**	<19.2	<19.2	**12.8 J**	<9.60	<9.60	**12.3 J**	**15.6**	**10.8 J**	**21.4 M-02**
DC-01-15-30' (0.5-1')	10/18/2016	DC-01	15-30	0.5-1	**23.8**	<4.11	<4.11	<2.06	<2.06	<2.06	**3.71 J**	**8.10**	**3.47 J**	**12.8 M-02**
DC-01-15-30' (1-1.5')	10/18/2016	DC-01	15-30	1-1.5	**14.0**	<4.15	<4.15	<2.08	<2.08	<2.08	<5.19	**0.271**	<2.08	**2.42 J**
DC-01->30' (0-0.5')	10/18/2016	DC-01	>30	0-0.5	**16.0**	<3.93	<3.93	<1.97	<1.97	<1.97	<3.93	<1.97	<1.97	<1.97
DC-01->30' (0.5-1')	10/18/2016	DC-01	>30	0.5-1	**7.90**	<4.11	<4.11	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06
DC-01->30' (1-1.5')	10/18/2016	DC-01	>30	1-1.5	**7.22**	<4.04	<4.04	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02
DC-02-15-30' (0-0.5')	10/18/2016	DC-02	15-30	0-0.5	**30.7**	<4.09	<4.09	<2.04	<2.04	<2.04	<2.04	**3.11**	**2.29 J**	**5.21 M-02**
DC-02-15-30' (0-0.5') DUP	10/18/2016	DC-02	15-30	0-0.5	**25.3**	<4.03	<4.03	<2.02	<2.02	<2.02	<2.02	**3.46**	**2.94 J**	**4.67 M-02**
DC-02-15-30' (0.5-1')	10/18/2016	DC-02	15-30	0.5-1	**40.9**	<4.16	**6.22 J**	<2.08	<2.08	<2.08	**3.51 J**	**6.46**	**4.43**	**10.8 M-02**
DC-02-15-30' (1-1.5')	10/18/2016	DC-02	15-30	1-1.5	**9.32**	<3.98	<3.98	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
DC-02->30' (0-0.5')	10/18/2016	DC-02	>30	0-0.5	**8.19**	<4.17	<4.17	<2.08	<2.08	<2.08	<5.21	**0.276**	<2.08	**2.50 J**
DC-02->30' (0.5-1')	10/18/2016	DC-02	>30	0.5-1	**6.03**	<4.24	<4.24	<2.12	<2.12	<2.12	<2.12	<2.12	<2.12	<2.12
DC-02->30' (1-1.5')	10/18/2016	DC-02	>30	1-1.5	**6.26**	<4.25	<4.25	<2.13	<2.13	<2.13	<2.13	<2.13	<2.13	<2.13
DC-03-15-30' (0-0.5')	10/18/2016	DC-03	15-30	0-0.5	**30.2**	<4.24	<4.24	<2.12	<2.12	<2.12	<7.32	**0.396**	<2.12	**3.39 J**
DC-03-15-30' (0.5-1')	10/18/2016	DC-03	15-30	0.5-1	**27.2**	<4.11	<4.11	<2.05	<2.05	<2.05	<5.13	**0.527**	<2.05	**2.21 J**
DC-03-15-30' 1-1.5')	10/18/2016	DC-03	15-30	1-1.5	**15.4**	<4.22	<4.22	<2.11	<2.11	<2.11	<2.11	<2.11	<2.11	<2.11
DC-03->30' (0-0.5')	10/18/2016	DC-03	>30	0-0.5	**40.1**	<4.05	<4.05	<2.02	<2.02	<2.02	<7.09	**0.400**	<2.02	**3.61 J**
DC-03->30' (0.5-1')	10/18/2016	DC-03	>30	0.5-1	**6.36**	<3.97	<3.97	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
DC-03->30' (1-1.5')	10/18/2016	DC-03	>30	1-1.5	**12.1**	<3.87	<3.87	<1.93	<1.93	<1.93	<3.87	<1.93	<1.93	<1.93
DC-04-15-30' (0-0.5')	10/18/2016	DC-04	15-30	0-0.5	**23.2**	<4.02	<4.02	<2.01	<2.01	<2.01	<4.02	<2.01	<2.01	<2.01
DC-04-15-30' (0.5-1')	10/18/2016	DC-04	15-30	0.5-1	**8.78**	<3.95	<3.95	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97
DC-04-15-30' (1-1.5')	10/18/2016	DC-04	15-30	1-1.5	**8.78**	<3.96	<3.96	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98
DC-04->30' (0-0.5')	10/18/2016	DC-04	>30	0-0.5	**11.3**	<4.01	<4.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01
DC-04->30' (0.5-1')	10/18/2016	DC-04	>30	0.5-1	**6.74**	<4.05	<4.05	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02
DC-04->30' (1-1.5')	10/18/2016	DC-04	>30	1-1.5	**6.12**	<3.97	<3.97	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98
DC-05-15-30' (0-0.5')	10/18/2016	DC-05	15-30	0-0.5	**7.36**	<3.97	<3.97	<1.98	<1.98	<1.98	<6.85	**0.975**	<1.98	**3.89 J**
DC-05-15-30' (0.5-1')	10/18/2016	DC-05	15-30	0.5-1	**11.8**	<3.95	<3.95	<1.97	<1.97	<1.97	<3.95	**0.265**	<1.97	**2.32 J**
DC-05-15-30' (1-1.5')	10/18/2016	DC-05	15-30	1-1.5	**8.44**	<3.91	<3.91	<1.96	<1.96	<1.96	**3.07 J**	**0.340**	<1.96	<3.91
DC-05-15-30' (1-1.5') DUP	10/18/2016	DC-05	15-30	1-1.5	**8.21**	<19.4	<19.4	<9.71	<9.71	<9.71	<9.71	**20.0**	**14.8 J**	**22.6 M-02**
DC-05->30' (0-0.5')	10/18/2016	DC-05	>30	0-0.5	**15.6**	<3.99	<3.99	<2.00	<2.00	<2.00	<5.29	**2.62**	<2.00	**2.84 J**
DC-05->30' (0.5-1')	10/18/2016	DC-05	>30	0.5-1	**7.35**	<3.88	<3.88	<1.94	<1.94	<1.94	<3.88	<1.94	<1.94	<1.94
DC-05->30' (1-1.5')	10/18/2016	DC-05	>30	1-1.5	**5.99**	<3.99	<3.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
DC-06-15-30' (0-0.5')	10/18/2016	DC-06	15-30	0-0.5	**14.0**	<4.05	<4.05	<2.02	<2.02	<2.02	<4.76	**2.72**	**2.41 J**	**2.76 J**
DC-06-15-30' (0.5-1')	10/18/2016	DC-06	15-30	0.5-1	**7.33**	<4.02	<4.02	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01
DC-06-15-30' (1-1.5')	10/18/2016	DC-06	15-30	1-1.5	**9.41**	<4.04	<4.04	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02
DC-06->30' (0-0.5')	10/18/2016	DC-06	>30	0-0.5	**15.0**	<3.93	<3.93	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97
DC-06->30' (0.5-1')	10/18/2016	DC-06	>30	0.5-1	**9.61**	<4.05	<4.05	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
DC-06->30' (1-1.5')	10/18/2016	DC-06	>30	1-1.5	**9.42**	<4.11	<4.11	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06
DC-07-15-30' (0-0.5')	10/18/2016	DC-07	15-30	0-0.5	**13.1**	<3.98	<3.98	<1.99	**10.9**	**5.83**	**16.2 M-02**	**66.9**	**48.5**	**63.5 M-02**
DC-07-15-30' (0.5-1')	10/18/2016	DC-07	15-30	0.5-1	**8.58**	<3.91	<3.91	<1.96	<1.96	<1.96	**1.97 J**	**4.50**	**3.49 J**	**4.02 M-02**
DC-07-15-30' (1-1.5')	10/18/2016	DC-07	15-30	1-1.5	**8.12**	<3.85	<3.85	<1.92	<1.92	<1.92	<1.92	**0.285**	<1.92	<1.92
DC-07->30' (0-0.5')	10/18/2016	DC-07	>30	0-0.5	**10.6**	<4.01	<4.01	<2.00	**6.27**	**3.27 J**	**9.91 M-02**	**37.8**	**27.4**	**34.5 M-02**
DC-07->30' (0.5-1')	10/18/2016	DC-07	>30	0.5-1	**9.94**	<3.97	<3.97	<1.98	**3.99**	<1.98	**9.56 M-02**	**38.1**	**27.4**	**35.9 M-02**
DC-07->30' (1-1.5')	10/18/2016	DC-07	>30	1-1.5	**8.82**	<3.79	<3.79	<1.89	<1.89	<1.89	<1.89	<1.89	<1.89	<1.89
DC-08-15-30' (0-0.5')	10/18/2016	DC-08	15-30	0-0.5	**8.12**	<3.88	<3.88	<1.94	**5.11**	<1.94	**5.83 M-02**	**28.6**	**20.3**	**20.1 M-02**
DC-08-15-30' (0.5-1')	10/18/2016	DC-08	15-30	0.5-1	**5.52**	<3.90	<3.90	<1.95	**7.95**	**2.19 J**	**16.6 M-02**	**66.6**	**47.1**	**50.2 M-02**
DC-08-15-30' (1-1.5')	10/18/2016	DC-08	15-30	1-1.5	**4.57**	<3.77	<3.77	<1.88	**2.83 J**	<1.88	**4.81 M-02**	**16.4**	**11.2**	**12.9 M-02**
DC-08->30' (0-0.5')	10/18/2016	DC-08	>30	0-0.5	**6.16**	<3.96	<3.96	<1.98	**2.98 J**	<1.98	**3.40 J**	**13.4**	**10.4**	**11.6 M-02**
DC-08->30' (0.5-1')	10/18/2016	DC-08	>30	0.5-1	**5.91 J2**	<19.2	<19.2	<9.62	<9.62	<9.62	<9.62	**25.5**	**20.6 J2**	**22.7 M-02**
Oregon Clean Fill Screening Level					18	738	310,000	29,000	--	29,000	150	--	15	150

Refer to notes at end of table.

Cascadia Associates, LLC

Table 2
2016 Shoulder Soil Sampling Analytical Results - Lead and PAHs
Statewide Highway Shoulder Soil Evaluation Results Report

Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Benzo(g,h,i)perylene µg/kg	Benzo(k)fluoranthene µg/kg	Chrysene µg/kg	Dibenz(a,h)anthracene µg/kg	Indeno(1,2,3-cd)pyrene µg/kg
Deschutes Columbia Physiographic Province									
DC-01-15-30' (0-0.5')	10/18/2016	DC-01	15-30	0-0.5	**18.7 J**	<9.60	**26.6 M-02**	<9.60	**12.3 J**
DC-01-15-30' (0.5-1')	10/18/2016	DC-01	15-30	0.5-1	**9.32**	**2.87 J**	**11.7 M-02**	**2.26 J**	**5.81**
DC-01-15-30' (1-1.5')	10/18/2016	DC-01	15-30	1-1.5	**2.91 J**	<2.08	<5.19	<2.08	<2.08
DC-01->30' (0-0.5')	10/18/2016	DC-01	>30	0-0.5	<1.97	<1.97	<3.93	<1.97	<1.97
DC-01->30' (0.5-1')	10/18/2016	DC-01	>30	0.5-1	<2.06	<2.06	<2.06	<2.06	<2.06
DC-01->30' (1-1.5')	10/18/2016	DC-01	>30	1-1.5	<2.02	<2.02	<2.02	<2.02	<2.02
DC-02-15-30' (0-0.5')	10/18/2016	DC-02	15-30	0-0.5	**4.81**	<2.04	**5.89 M-02**	<2.04	**2.45 J**
DC-02-15-30' (0-0.5') DUP	10/18/2016	DC-02	15-30	0-0.5	**4.67**	<2.02	**7.93 M-02**	<2.02	<2.02
DC-02-15-30' (0.5-1')	10/18/2016	DC-02	15-30	0.5-1	**6.91**	**3.24 J**	**11.9 M-02**	<2.08	**4.85**
DC-02-15-30' (1-1.5')	10/18/2016	DC-02	15-30	1-1.5	<1.99	<1.99	<1.99	<1.99	<1.99
DC-02->30' (0-0.5')	10/18/2016	DC-02	>30	0-0.5	**2.55 J**	<2.08	<5.21	<2.08	<2.08
DC-02->30' (0.5-1')	10/18/2016	DC-02	>30	0.5-1	<2.12	<2.12	<2.12	<2.12	<2.12
DC-02->30' (1-1.5')	10/18/2016	DC-02	>30	1-1.5	<2.13	<2.13	<2.13	<2.13	<2.13
DC-03-15-30' (0-0.5')	10/18/2016	DC-03	15-30	0-0.5	**5.69**	<2.12	<7.32	<2.12	<2.12
DC-03-15-30' (0.5-1')	10/18/2016	DC-03	15-30	0.5-1	**6.06**	<2.05	<6.16	<2.05	**2.45 J**
DC-03-15-30' 1-1.5')	10/18/2016	DC-03	15-30	1-1.5	<2.11	<2.11	<2.11	<2.11	<2.11
DC-03->30' (0-0.5')	10/18/2016	DC-03	>30	0-0.5	**3.91 J**	<2.02	<7.69	<2.02	<2.02
DC-03->30' (0.5-1')	10/18/2016	DC-03	>30	0.5-1	<1.99	<1.99	<1.99	<1.99	<1.99
DC-03->30' (1-1.5')	10/18/2016	DC-03	>30	1-1.5	<1.93	<1.93	<3.87	<1.93	<1.93
DC-04-15-30' (0-0.5')	10/18/2016	DC-04	15-30	0-0.5	<2.01	<2.01	<5.02	<2.01	<2.01
DC-04-15-30' (0.5-1')	10/18/2016	DC-04	15-30	0.5-1	<1.97	<1.97	<1.97	<1.97	<1.97
DC-04-15-30' (1-1.5')	10/18/2016	DC-04	15-30	1-1.5	<1.98	<1.98	<1.98	<1.98	<1.98
DC-04->30' (0-0.5')	10/18/2016	DC-04	>30	0-0.5	<2.01	<2.01	<2.01	<2.01	<2.01
DC-04->30' (0.5-1')	10/18/2016	DC-04	>30	0.5-1	<2.02	<2.02	<2.02	<2.02	<2.02
DC-04->30' (1-1.5')	10/18/2016	DC-04	>30	1-1.5	<1.98	<1.98	<1.98	<1.98	<1.98
DC-05-15-30' (0-0.5')	10/18/2016	DC-05	15-30	0-0.5	**9.70**	<1.98	<6.75	<1.98	**4.89**
DC-05-15-30' (0.5-1')	10/18/2016	DC-05	15-30	0.5-1	**3.34 J**	<1.97	<3.95	<1.97	<1.97
DC-05-15-30' (1-1.5')	10/18/2016	DC-05	15-30	1-1.5	**3.30 J**	<1.96	<3.91	<1.96	<1.96
DC-05-15-30' (1-1.5') DUP	10/18/2016	DC-05	15-30	1-1.5	**37.0**	<9.71	<29.1	<9.71	**26.0**
DC-05->30' (0-0.5')	10/18/2016	DC-05	>30	0-0.5	**3.74 J**	<2.00	<5.39	**2.30 J**	<2.00
DC-05->30' (0.5-1')	10/18/2016	DC-05	>30	0.5-1	<1.94	<1.94	<3.88	<1.94	<1.94
DC-05->30' (1-1.5')	10/18/2016	DC-05	>30	1-1.5	<1.99	<1.99	<1.99	<1.99	<1.99
DC-06-15-30' (0-0.5')	10/18/2016	DC-06	15-30	0-0.5	**2.94 J**	<2.02	<4.55	<2.02	<2.02
DC-06-15-30' (0.5-1')	10/18/2016	DC-06	15-30	0.5-1	<2.01	<2.01	<2.01	<2.01	<2.01
DC-06-15-30' (1-1.5')	10/18/2016	DC-06	15-30	1-1.5	<2.02	<2.02	<2.02	<2.02	<2.02
DC-06->30' (0-0.5')	10/18/2016	DC-06	>30	0-0.5	<1.97	<1.97	<1.97	<1.97	<1.97
DC-06->30' (0.5-1')	10/18/2016	DC-06	>30	0.5-1	<2.03	<2.03	<2.03	<2.03	<2.03
DC-06->30' (1-1.5')	10/18/2016	DC-06	>30	1-1.5	<2.06	<2.06	<2.06	<2.06	<2.06
DC-07-15-30' (0-0.5')	10/18/2016	DC-07	15-30	0-0.5	**59.7**	**18.5 M-02**	**47.4 M-02**	**4.77**	**48.4**
DC-07-15-30' (0.5-1')	10/18/2016	DC-07	15-30	0.5-1	**4.38**	<1.96	**2.72 J**	<1.96	**3.65 J**
DC-07-15-30' (1-1.5')	10/18/2016	DC-07	15-30	1-1.5	**2.31 J**	<1.92	<1.92	<1.92	**2.62 J**
DC-07->30' (0-0.5')	10/18/2016	DC-07	>30	0-0.5	**34.9**	**12.6 M-02**	**24.5 M-02**	**2.65 J**	**28.5**
DC-07->30' (0.5-1')	10/18/2016	DC-07	>30	0.5-1	**33.0**	**10.7 M-02**	**23.6 M-02**	**2.87 J**	**28.2**
DC-07->30' (1-1.5')	10/18/2016	DC-07	>30	1-1.5	<1.89	<1.89	<1.89	<1.89	<1.89
DC-08-15-30' (0-0.5')	10/18/2016	DC-08	15-30	0-0.5	**33.7**	**5.90 M-02**	**9.15 M-02**	**3.12 J**	**21.4**
DC-08-15-30' (0.5-1')	10/18/2016	DC-08	15-30	0.5-1	**59.2**	**16.3 M-02**	**27.8 M-02**	**7.49**	**45.4**
DC-08-15-30' (1-1.5')	10/18/2016	DC-08	15-30	1-1.5	**19.9**	**4.45 M-02**	**8.00 M-02**	**1.94 J**	**12.2**
DC-08->30' (0-0.5')	10/18/2016	DC-08	>30	0-0.5	**19.3**	**3.02 J**	**5.46 M-02**	<1.98	**12.5**
DC-08->30' (0.5-1')	10/18/2016	DC-08	>30	0.5-1	**40.8**	<9.62	**18.9 J**	<9.62	**22.5 J2**
Oregon Clean Fill Screening Level					--	1,100	14,000	15	150

Refer to notes at end of table.

Cascadia Associates, LLC

Table 2
2016 Shoulder Soil Sampling Analytical Results - Lead and PAHs
Statewide Highway Shoulder Soil Evaluation Results Report

Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Lead	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene Equivalents [15.]	Benzo(a)pyrene	Benzo(b)fluoranthene
					mg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Deschutes Columbia Physiographic Province														
DC-08->30' (0.5-1') DUP	10/18/2016	DC-08	>30	0.5-1	**8.13 J2**	<7.83	<7.83	<3.91	**11.3**	**4.27 J**	**13.7 M-02**	**69.0**	**50.2 J2**	**47.8 M-02**
DC-08->30' (1-1.5')	10/18/2016	DC-08	>30	1-1.5	**4.30**	<7.68	<7.68	<3.84	**4.26 J**	<3.84	**5.00 J**	**18.9**	**15.0**	**14.8 M-02**
DC-09-15-30' (0-0.5')	10/19/2016	DC-09	15-30	0-0.5	**7.21**	<4.07	<4.07	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03	<2.03
DC-09-15-30' (0.5-1')	10/19/2016	DC-09	15-30	0.5-1	**4.58**	<4.08	<4.08	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04
DC-09-15-30' (1-1.5')	10/19/2016	DC-09	15-30	1-1.5	**4.76**	<3.98	<3.98	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
DC-09->30' (0-0.5')	10/19/2016	DC-09	>30	0-0.5	**8.85**	<4.10	<4.10	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05
DC-09->30' (0.5-1')	10/19/2016	DC-09	>30	0.5-1	**6.28**	<3.81	<3.81	<1.91	<1.91	<1.91	<1.91	<1.91	<1.91	<1.91
DC-09->30' (1-1.5')	10/19/2016	DC-09	>30	1-1.5	**5.50**	<3.94	<3.94	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97
DC-10-15-30' (0-0.5')	10/19/2016	DC-10	15-30	0-0.5	**10.7**	<4.01	<4.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01
DC-10-15-30' (0.5-1')	10/19/2016	DC-10	15-30	0.5-1	**4.20**	<3.91	<3.91	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96
DC-10-15-30' (1-1.5')	10/19/2016	DC-10	15-30	1-1.5	**4.32**	<3.79	<3.79	<1.89	<1.89	<1.89	<1.89	<1.89	<1.89	<1.89
DC-10->30' (0-0.5')	10/19/2016	DC-10	>30	0-0.5	**8.24**	<3.70	<3.70	<1.85	<1.85	<1.85	<1.85	<1.85	<1.85	<1.85
DC-10->30' (0.5-1')	10/19/2016	DC-10	>30	0.5-1	**6.39**	<3.92	<3.92	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96
DC-10->30' (1-1.5')	10/19/2016	DC-10	>30	1-1.5	**5.91**	<3.56	<3.56	<1.78	<1.78	<1.78	<1.78	<1.78	<1.78	<1.78
DC-11-15-30' (0-0.5')	10/19/2016	DC-11	15-30	0-0.5	**8.46**	<3.73	<3.73	<1.86	<1.86	<1.86	**10.1 M-02**	**22.8**	**14.2**	**28.1 M-02**
DC-11-15-30' (0.5-1')	10/19/2016	DC-11	15-30	0.5-1	**4.55**	<3.54	<3.54	<1.77	<1.77	<1.77	**2.53 J**	**4.44**	**3.06 J**	**6.74 M-02**
DC-11-15-30' (1-1.5')	10/19/2016	DC-11	15-30	1-1.5	**2.89**	<3.60	<3.60	<1.80	<1.80	<1.80	<1.80	<1.80	<1.80	<1.80
DC-11->30' (0-0.5')	10/19/2016	DC-11	>30	0-0.5	**6.18**	<3.51	<3.51	<1.75	<1.75	<1.75	**5.42 M-02**	**9.16**	**6.66**	**12.5 M-02**
DC-11->30' (0.5-1')	10/19/2016	DC-11	>30	0.5-1	**6.14**	<3.56	<3.56	<1.78	<1.78	<1.78	**4.40 M-02**	**7.63**	**5.60**	**10.0 M-02**
DC-11->30' (1-1.5')	10/19/2016	DC-11	>30	1-1.5	**13.0**	<3.58	<3.58	<1.79	<1.79	<1.79	**3.09 J**	**5.41**	**3.93**	**6.91 M-02**
DC-12-15-30' (0-0.5')	10/19/2016	DC-12	15-30	0-0.5	**20.9**	<3.61	<3.61	<1.80	<1.80	<1.80	**7.60 M-02**	**17.2**	**10.9**	**20.4 M-02**
DC-12-15-30' (0.5-1')	10/19/2016	DC-12	15-30	0.5-1	**19.2**	<3.81	<3.81	<1.91	<1.91	<1.91	**5.73 M-02**	**10.3**	**7.53**	**13.8 M-02**
DC-12-15-30' (1-1.5')	10/19/2016	DC-12	15-30	1-1.5	**14.2**	<3.79	<3.79	<1.89	<1.89	<1.89	**2.88 J**	**4.22**	**3.05 J**	**5.26 M-02**
DC-12->30' (0-0.5')	10/19/2016	DC-12	>30	0-0.5	**9.05**	<3.79	<3.79	<1.90	<1.90	<1.90	**3.18 J**	**5.44**	**3.93**	**7.48 M-02**
DC-12->30' (0.5-1')	10/19/2016	DC-12	>30	0.5-1	**4.70**	<3.67	<3.67	<1.83	<1.83	<1.83	**3.48 J**	**5.72**	**4.05**	**7.98 M-02**
DC-12->30' (1-1.5')	10/19/2016	DC-12	>30	1-1.5	**4.02**	<3.61	<3.61	<1.81	<1.81	<1.81	**4.97 M-02**	**9.61**	**7.14**	**11.7 M-02**
DC-13-15-30' (0-0.5')	10/19/2016	DC-13	15-30	0-0.5	**40.2**	<3.73	<3.73	**2.93 J**	<1.86	**4.76**	**37.4 M-02**	**90.8**	**59.5**	**101 M-02**
DC-13-15-30' (0.5-1')	10/19/2016	DC-13	15-30	0.5-1	**7.47**	<3.79	<3.79	<1.89	<1.89	<1.89	**12.5 M-02**	**30.8**	**20.5**	**30.3 M-02**
DC-13-15-30' (1-1.5')	10/19/2016	DC-13	15-30	1-1.5	**8.36**	<3.79	<3.79	<1.89	<1.89	<1.89	**5.51 M-02**	**9.78**	**7.15**	**13.1 M-02**
DC-13->30' (0-0.5')	10/19/2016	DC-13	>30	0-0.5	**12.4**	<3.81	<3.81	<1.91	<1.91	<1.91	**16.4 M-02**	**39.4**	**25.7**	**41.2 M-02**
DC-13->30' (0.5-1')	10/19/2016	DC-13	>30	0.5-1	**9.60**	<3.79	<3.79	<1.89	<1.89	<1.89	**7.44 M-02**	**17.7**	**11.6**	**18.9 M-02**
DC-13->30' (1-1.5')	10/19/2016	DC-13	>30	1-1.5	**6.29**	<4.06	<4.06	<2.03	<2.03	<2.03	**7.95 M-02**	**17.4**	**11.2**	**17.5 M-02**
DC-14-15-30' (0-0.5')	10/19/2016	DC-14	15-30	0-0.5	**8.13**	<4.07	<4.07	<2.04	<2.04	<2.04	**6.01 M-02**	**12.8**	**9.65**	**15.9 M-02**
DC-14-15-30' (0.5-1')	10/19/2016	DC-14	15-30	0.5-1	**6.60**	<4.10	<4.10	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05
DC-14-15-30' (1-1.5')	10/19/2016	DC-14	15-30	1-1.5	**6.95**	<4.13	<4.13	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07
DC-14->30' (0-0.5')	10/19/2016	DC-14	>30	0-0.5	**7.27**	<4.10	<4.10	<2.05	<2.05	<2.05	**3.19 J**	**5.69**	**4.21**	**6.98 M-02**
DC-14->30' (0.5-1')	10/19/2016	DC-14	>30	0.5-1	**6.56**	<4.14	<4.14	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07
DC-14->30' (1-1.5')	10/19/2016	DC-14	>30	1-1.5	**6.71**	<4.13	<4.13	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06	<2.06
DC-15-15-30' (0-0.5')	10/19/2016	DC-15	15-30	0-0.5	**10.2**	<4.08	<4.08	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04	<2.04
DC-15-15-30' (0.5-1')	10/19/2016	DC-15	15-30	0.5-1	**12.5**	<4.13	<4.13	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07
DC-15-15-30' (1-1.5')	10/19/2016	DC-15	15-30	1-1.5	**11.3**	<4.14	<4.14	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07
DC-15->30' (0-0.5')	10/19/2016	DC-15	>30	0-0.5	**10.3**	<4.10	<4.10	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05	<2.05
DC-15->30' (0.5-1')	10/19/2016	DC-15	>30	0.5-1	**11.6**	<4.13	<4.13	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07	<2.07
DC-15->30' (1-1.5')	10/19/2016	DC-15	>30	1-1.5	**12.3**	<4.17	<4.17	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09
DC-15->30' (1-1.5') DUP	10/19/2016	DC-15	>30	1-1.5	**12.3**	<4.16	<4.16	<2.08	<2.08	<2.08	<2.08	<2.08	<2.08	<2.08
DC-16-15-30' (0-0.5')	10/20/2016	DC-16	15-30	0-0.5	**61.8**	<4.01	<4.01	<2.00	<2.00	<2.00	**2.60 J**	**3.96**	**2.73 J**	**6.04 M-02**
DC-16-15-30' (0.5-1')	10/20/2016	DC-16	15-30	0.5-1	**4.24**	<4.02	<4.02	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01
DC-16-15-30' (1-1.5')	10/20/2016	DC-16	15-30	1-1.5	**4.40**	<4.04	<4.04	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02	<2.02
Oregon Clean Fill Screening Level					18	738	310,000	29,000	--	29,000	150	--	15	150

Refer to notes at end of table.

Cascadia Associates, LLC

Table 2
2016 Shoulder Soil Sampling Analytical Results - Lead and PAHs
Statewide Highway Shoulder Soil Evaluation Results Report

Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Benzo(g,h,i)perylene µg/kg	Benzo(k)fluoranthene µg/kg	Chrysene µg/kg	Dibenz(a,h)anthracene µg/kg	Indeno(1,2,3-cd)pyrene µg/kg
Deschutes Columbia Physiographic Province									
DC-08->30' (0.5-1') DUP	10/18/2016	DC-08	>30	0.5-1	**70.9**	**13.7 M-02**	**22.9 M-02**	**6.61 J**	**51.5 J2**
DC-08->30' (1-1.5')	10/18/2016	DC-08	>30	1-1.5	**24.7**	**5.50 J**	**9.50 M-02**	<3.84	**16.0**
DC-09-15-30' (0-0.5')	10/19/2016	DC-09	15-30	0-0.5	<2.03	<2.03	<2.03	<2.03	<2.03
DC-09-15-30' (0.5-1')	10/19/2016	DC-09	15-30	0.5-1	<2.04	<2.04	<2.04	<2.04	<2.04
DC-09-15-30' (1-1.5')	10/19/2016	DC-09	15-30	1-1.5	<1.99	<1.99	<1.99	<1.99	<1.99
DC-09->30' (0-0.5')	10/19/2016	DC-09	>30	0-0.5	<2.05	<2.05	<2.05	<2.05	<2.05
DC-09->30' (0.5-1')	10/19/2016	DC-09	>30	0.5-1	<1.91	<1.91	<1.91	<1.91	<1.91
DC-09->30' (1-1.5')	10/19/2016	DC-09	>30	1-1.5	<1.97	<1.97	<1.97	<1.97	<1.97
DC-10-15-30' (0-0.5')	10/19/2016	DC-10	15-30	0-0.5	<2.01	<2.01	<2.01	<2.01	<2.01
DC-10-15-30' (0.5-1')	10/19/2016	DC-10	15-30	0.5-1	<1.96	<1.96	<1.96	<1.96	<1.96
DC-10-15-30' (1-1.5')	10/19/2016	DC-10	15-30	1-1.5	<1.89	<1.89	<1.89	<1.89	<1.89
DC-10->30' (0-0.5')	10/19/2016	DC-10	>30	0-0.5	<1.85	<1.85	<1.85	<1.85	<1.85
DC-10->30' (0.5-1')	10/19/2016	DC-10	>30	0.5-1	<1.96	<1.96	<1.96	<1.96	<1.96
DC-10->30' (1-1.5')	10/19/2016	DC-10	>30	1-1.5	<1.78	<1.78	<1.78	<1.78	<1.78
DC-11-15-30' (0-0.5')	10/19/2016	DC-11	15-30	0-0.5	**18.3**	**8.13 M-02**	**18.8 M-02**	**3.10 J**	**14.2**
DC-11-15-30' (0.5-1')	10/19/2016	DC-11	15-30	0.5-1	**5.14**	**1.98 J**	**4.81 M-02**	<1.77	**3.78**
DC-11-15-30' (1-1.5')	10/19/2016	DC-11	15-30	1-1.5	<1.80	<1.80	<1.80	<1.80	<1.80
DC-11->30' (0-0.5')	10/19/2016	DC-11	>30	0-0.5	**6.68**	**3.67 M-02**	**10.0 M-02**	<1.75	**5.97**
DC-11->30' (0.5-1')	10/19/2016	DC-11	>30	0.5-1	**5.70**	**3.13 J**	**7.74 M-02**	<1.78	**4.98**
DC-11->30' (1-1.5')	10/19/2016	DC-11	>30	1-1.5	**6.02**	**2.02 J**	**5.94 M-02**	<1.79	**3.96**
DC-12-15-30' (0-0.5')	10/19/2016	DC-12	15-30	0-0.5	**11.6**	**6.00 M-02**	**13.9 M-02**	**2.29 J**	**10.2**
DC-12-15-30' (0.5-1')	10/19/2016	DC-12	15-30	0.5-1	**7.65**	**4.05 M-02**	**9.86 M-02**	<1.91	**6.58**
DC-12-15-30' (1-1.5')	10/19/2016	DC-12	15-30	1-1.5	**3.54 J**	<1.89	**3.20 J**	<1.89	**3.16 J**
DC-12->30' (0-0.5')	10/19/2016	DC-12	>30	0-0.5	**3.93**	**2.13 J**	**5.47 M-02**	<1.90	**3.74 J**
DC-12->30' (0.5-1')	10/19/2016	DC-12	>30	0.5-1	**4.19**	**2.46 J**	**5.75 M-02**	<1.83	**4.50**
DC-12->30' (1-1.5')	10/19/2016	DC-12	>30	1-1.5	**6.43**	**3.79 M-02**	**7.02 M-02**	<1.81	**6.97**
DC-13-15-30' (0-0.5')	10/19/2016	DC-13	15-30	0-0.5	**47.0**	**28.4 M-02**	**61.4 M-02**	**11.9**	**47.5**
DC-13-15-30' (0.5-1')	10/19/2016	DC-13	15-30	0.5-1	**16.0**	**9.39 M-02**	**17.5 M-02**	**3.98**	**17.3**
DC-13-15-30' (1-1.5')	10/19/2016	DC-13	15-30	1-1.5	**6.32**	**3.94 M-02**	**9.15 M-02**	<1.89	**6.59**
DC-13->30' (0-0.5')	10/19/2016	DC-13	>30	0-0.5	**21.1**	**14.7 M-02**	**25.4 M-02**	**5.25**	**23.2**
DC-13->30' (0.5-1')	10/19/2016	DC-13	>30	0.5-1	**9.21**	**5.95 M-02**	**11.4 M-02**	**2.25 J**	**10.2**
DC-13->30' (1-1.5')	10/19/2016	DC-13	>30	1-1.5	**9.15 Q-42**	**5.75 M-02**	**11.1 M-02**	**2.51 J**	**9.66**
DC-14-15-30' (0-0.5')	10/19/2016	DC-14	15-30	0-0.5	**8.75**	**5.02 M-02**	**10.5 M-02**	<2.04	**8.51**
DC-14-15-30' (0.5-1')	10/19/2016	DC-14	15-30	0.5-1	<2.05	<2.05	<2.05	<2.05	<2.05
DC-14-15-30' (1-1.5')	10/19/2016	DC-14	15-30	1-1.5	<2.07	<2.07	<2.07	<2.07	<2.07
DC-14->30' (0-0.5')	10/19/2016	DC-14	>30	0-0.5	**3.82 J**	**2.18 J**	**4.52 M-02**	<2.05	**3.95 J**
DC-14->30' (0.5-1')	10/19/2016	DC-14	>30	0.5-1	<2.07	<2.07	<2.07	<2.07	<2.07
DC-14->30' (1-1.5')	10/19/2016	DC-14	>30	1-1.5	<2.06	<2.06	<2.06	<2.06	<2.06
DC-15-15-30' (0-0.5')	10/19/2016	DC-15	15-30	0-0.5	<2.04	<2.04	<2.04	<2.04	<2.04
DC-15-15-30' (0.5-1')	10/19/2016	DC-15	15-30	0.5-1	<2.07	<2.07	<2.07	<2.07	<2.07
DC-15-15-30' (1-1.5')	10/19/2016	DC-15	15-30	1-1.5	<2.07	<2.07	<2.07	<2.07	<2.07
DC-15->30' (0-0.5')	10/19/2016	DC-15	>30	0-0.5	<2.05	<2.05	<2.05	<2.05	<2.05
DC-15->30' (0.5-1')	10/19/2016	DC-15	>30	0.5-1	<2.07	<2.07	<2.07	<2.07	<2.07
DC-15->30' (1-1.5')	10/19/2016	DC-15	>30	1-1.5	<2.09	<2.09	<2.09	<2.09	<2.09
DC-15->30' (1-1.5') DUP	10/19/2016	DC-15	>30	1-1.5	<2.08	<2.08	<2.08	<2.08	<2.08
DC-16-15-30' (0-0.5')	10/20/2016	DC-16	15-30	0-0.5	**6.02**	<2.00	**5.06 M-02**	<2.00	**3.03 J**
DC-16-15-30' (0.5-1')	10/20/2016	DC-16	15-30	0.5-1	<2.01	<2.01	<2.01	<2.01	<2.01
DC-16-15-30' (1-1.5')	10/20/2016	DC-16	15-30	1-1.5	<2.02	<2.02	<2.02	<2.02	<2.02
Oregon Clean Fill Screening Level					--	1,100	14,000	15	150

Refer to notes at end of table.

Cascadia Associates, LLC

Table 2
2016 Shoulder Soil Sampling Analytical Results - Lead and PAHs
Statewide Highway Shoulder Soil Evaluation Results Report

Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Lead	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene Equivalents [15.]	Benzo(a)pyrene	Benzo(b)fluoranthene
					mg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Deschutes Columbia Physiographic Province														
DC-16->30' (0-0.5')	10/20/2016	DC-16	>30	0-0.5	**11.0**	<4.01	<4.01	<2.00	<2.00	<2.00	**2.22 J**	**3.05**	**2.15 J**	**4.13 M-02**
DC-16->30' (0.5-1')	10/20/2016	DC-16	>30	0.5-1	**4.16**	<4.03	<4.03	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01
DC-16->30' (1-1.5')	10/20/2016	DC-16	>30	1-1.5	**3.78**	<4.03	<4.03	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01
DC-17-15-30' (0-0.5')	10/20/2016	DC-17	15-30	0-0.5	**5.74**	<3.77	<3.77	<1.88	<1.88	<1.88	**1.91 J**	**3.72**	**2.64 J**	**4.63 M-02**
DC-17-15-30' (0.5-1')	10/20/2016	DC-17	15-30	0.5-1	**5.89**	<3.90	<3.90	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95
DC-17-15-30' (1-1.5')	10/20/2016	DC-17	15-30	1-1.5	**4.91**	<3.80	<3.80	<1.90	<1.90	<1.90	<1.90	<1.90	<1.90	<1.90
DC-17->30' (0-0.5')	10/20/2016	DC-17	>30	0-0.5	**4.06**	<3.78	<3.78	<1.89	<1.89	<1.89	<1.89	**0.275**	<1.89	**2.73 J**
DC-17->30' (0.5-1')	10/20/2016	DC-17	>30	0.5-1	**4.06**	<3.78	<3.78	<1.89	<1.89	<1.89	<1.89	<1.89	<1.89	<1.89
DC-17->30' (1-1.5')	10/20/2016	DC-17	>30	1-1.5	**5.93**	<3.71	<3.71	<1.86	<1.86	<1.86	<1.86	0.254	<1.86	**2.54 J**
DC-18-15-30' (0-0.5')	10/20/2016	DC-18	15-30	0-0.5	**6.94**	<3.78	<3.78	<1.89	<1.89	<1.89	<1.89	**0.312**	<1.89	**2.85 J**
DC-18-15-30' (0.5-1')	10/20/2016	DC-18	15-30	0.5-1	**4.91**	<3.88	<3.88	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94
DC-18-15-30' (1-1.5')	10/20/2016	DC-18	15-30	1-1.5	**4.60**	<3.97	<3.97	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
DC-18->30' (0-0.5')	10/20/2016	DC-18	>30	0-0.5	**7.64**	<4.03	<4.03	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01
DC-18->30' (0.5-1')	10/20/2016	DC-18	>30	0.5-1	**4.93**	<3.83	<3.83	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92
DC-18->30' (1-1.5')	10/20/2016	DC-18	>30	1-1.5	**4.28**	<3.99	<3.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
DC-19-15-30' (0-0.5')	10/20/2016	DC-19	15-30	0-0.5	**9.33**	<3.91	<3.91	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95
DC-19-15-30' (0.5-1')	10/20/2016	DC-19	15-30	0.5-1	**6.90**	<3.98	<3.98	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
DC-19-15-30' (1-1.5')	10/20/2016	DC-19	15-30	1-1.5	**5.90**	<3.92	<3.92	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96
DC-19->30' (0-0.5')	10/20/2016	DC-19	>30	0-0.5	**9.27**	<3.98	<3.98	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
DC-19->30' (0.5-1')	10/20/2016	DC-19	>30	0.5-1	**7.56**	<4.03	<4.03	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01
DC-19->30' (1-1.5')	10/20/2016	DC-19	>30	1-1.5	**7.45**	<3.83	<3.83	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92
DC-20-15-30' (0-0.5')	10/21/2016	DC-20	15-30	0-0.5	**38.5**	<3.84	<3.84	<1.92	<1.92	<1.92	**23.2 M-02**	**58.2**	**36.0**	**80.3 M-02**
DC-20-15-30' (0.5-1')	10/21/2016	DC-20	15-30	0.5-1	**9.15**	<3.86	<3.86	<1.93	<1.93	<1.93	**2.45 J**	**3.57**	**2.48 J**	**5.52 M-02**
DC-20-15-30' (1-1.5')	10/21/2016	DC-20	15-30	1-1.5	**6.87**	<3.94	<3.94	<1.97	<1.97	<1.97	**3.41 J**	**5.64**	**3.90 J**	**8.73 M-02**
DC-20->30' (0-0.5')	10/21/2016	DC-20	>30	0-0.5	**21.0**	<3.90	<3.90	<1.95	<1.95	<1.95	**14.8 M-02**	**36.8**	**23.2**	**43.5 M-02**
DC-20->30' (0.5-1')	10/21/2016	DC-20	>30	0.5-1	**8.05**	<3.81	<3.81	<1.90	<1.90	<1.90	**5.73 M-02**	**9.32**	**6.80 J2**	**12.1 M-02**
DC-20->30' (0.5-1') DUP	10/21/2016	DC-20	>30	0.5-1	**7.96**	<3.97	<3.97	<1.98	<1.98	<1.98	**3.70 J**	**6.35**	**4.56 J2**	**9.03 M-02**
DC-20->30' (1-1.5')	10/21/2016	DC-20	>30	1-1.5	**3.11**	<3.83	<3.83	<1.91	<1.91	<1.91	<1.91	**0.196**	<1.91	**1.96 J**
DC-21-15-30' (0-0.5')	10/21/2016	DC-21	15-30	0-0.5	**95.0**	<19.7	<19.7	<9.87	<9.87	<9.87	**19.2 J**	**29.2**	**20.8**	**40.2 M-02**
DC-21-15-30' (0.5-1')	10/21/2016	DC-21	15-30	0.5-1	**24.7**	<4.07	<4.07	<2.03	<2.03	<2.03	**3.98 J**	**6.77**	**4.90**	**9.01 M-02**
DC-21-15-30' (1-1.5')	10/21/2016	DC-21	15-30	1-1.5	**16.9**	<3.91	<3.91	<1.96	<1.96	<1.96	**4.10 M-02**	**6.12**	**4.54**	**7.12 M-02**
DC-21->30' (0-0.5')	10/21/2016	DC-21	>30	0-0.5	**24.1**	<3.90	<3.90	<1.95	<1.95	<1.95	**5.80 M-02**	**10.49**	**7.37**	**16.2 M-02**
DC-21->30' (0.5-1')	10/21/2016	DC-21	>30	0.5-1	**11.0**	<4.00	<4.00	<2.00	<2.00	<2.00	**2.75 J**	**3.76**	**2.55 J**	**6.08 M-02**
DC-21->30' (1-1.5')	10/21/2016	DC-21	>30	1-1.5	**6.36**	<4.03	<4.03	<2.01	<2.01	<2.01	<2.01	**0.212**	<2.01	**2.12 J**
Oregon Clean Fill Screening Level					18	738	310,000	29,000	--	29,000	150	--	15	150

Refer to notes at end of table.

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Table 2
2016 Shoulder Soil Sampling Analytical Results - Lead and PAHs
Statewide Highway Shoulder Soil Evaluation Results Report

Sample ID	Sample Date	Sample Location	Distance from Pavement (feet)	Depth Interval (feet bgs)	Benzo(g,h,i)perylene µg/kg	Benzo(k)fluoranthene µg/kg	Chrysene µg/kg	Dibenz(a,h)anthracene µg/kg	Indeno(1,2,3-cd)pyrene µg/kg
Deschutes Columbia Physiographic Province									
DC-16->30' (0-0.5')	10/20/2016	DC-16	>30	0-0.5	**3.01 J**	<2.00	**2.47 J**	<2.00	**2.34 J**
DC-16->30' (0.5-1')	10/20/2016	DC-16	>30	0.5-1	<2.01	<2.01	<2.01	<2.01	<2.01
DC-16->30' (1-1.5')	10/20/2016	DC-16	>30	1-1.5	<2.01	<2.01	<2.01	<2.01	<2.01
DC-17-15-30' (0-0.5')	10/20/2016	DC-17	15-30	0-0.5	**4.51**	2.03	**3.22 J**	<1.88	**3.62 J**
DC-17-15-30' (0.5-1')	10/20/2016	DC-17	15-30	0.5-1	<1.95	<1.95	<1.95	<1.95	<1.95
DC-17-15-30' (1-1.5')	10/20/2016	DC-17	15-30	1-1.5	<1.90	<1.90	<1.90	<1.90	<1.90
DC-17->30' (0-0.5')	10/20/2016	DC-17	>30	0-0.5	<1.89	<1.89	**2.49 J**	<1.89	<1.89
DC-17->30' (0.5-1')	10/20/2016	DC-17	>30	0.5-1	<1.89	<1.89	<1.89	<1.89	<1.89
DC-17->30' (1-1.5')	10/20/2016	DC-17	>30	1-1.5	<1.86	<1.86	<1.86	<1.86	<1.86
DC-18-15-30' (0-0.5')	10/20/2016	DC-18	15-30	0-0.5	**2.50 J**	<1.89	**1.89 J**	<1.89	<1.89
DC-18-15-30' (0.5-1')	10/20/2016	DC-18	15-30	0.5-1	<1.94	<1.94	<1.94	<1.94	<1.94
DC-18-15-30' (1-1.5')	10/20/2016	DC-18	15-30	1-1.5	<1.99	<1.99	<1.99	<1.99	<1.99
DC-18->30' (0-0.5')	10/20/2016	DC-18	>30	0-0.5	<2.01	<2.01	<2.01	<2.01	<2.01
DC-18->30' (0.5-1')	10/20/2016	DC-18	>30	0.5-1	<1.92	<1.92	<1.92	<1.92	<1.92
DC-18->30' (1-1.5')	10/20/2016	DC-18	>30	1-1.5	<1.99	<1.99	<1.99	<1.99	<1.99
DC-19-15-30' (0-0.5')	10/20/2016	DC-19	15-30	0-0.5	<1.95	<1.95	<1.95	<1.95	<1.95
DC-19-15-30' (0.5-1')	10/20/2016	DC-19	15-30	0.5-1	<1.99	<1.99	<1.99	<1.99	<1.99
DC-19-15-30' (1-1.5')	10/20/2016	DC-19	15-30	1-1.5	<1.96	<1.96	<1.96	<1.96	<1.96
DC-19->30' (0-0.5')	10/20/2016	DC-19	>30	0-0.5	<1.99	<1.99	<1.99	<1.99	<1.99
DC-19->30' (0.5-1')	10/20/2016	DC-19	>30	0.5-1	<2.01	<2.01	<2.01	<2.01	<2.01
DC-19->30' (1-1.5')	10/20/2016	DC-19	>30	1-1.5	<1.92	<1.92	<1.92	<1.92	<1.92
DC-20-15-30' (0-0.5')	10/21/2016	DC-20	15-30	0-0.5	**38.3**	**22.7 M-02**	**49.7 M-02**	**7.86**	**33.1**
DC-20-15-30' (0.5-1')	10/21/2016	DC-20	15-30	0.5-1	**2.69 J**	<1.93	**3.27 J**	<1.93	**2.58 J**
DC-20-15-30' (1-1.5')	10/21/2016	DC-20	15-30	1-1.5	**4.45**	**2.57**	**4.95 M-02**	<1.97	**4.50**
DC-20->30' (0-0.5')	10/21/2016	DC-20	>30	0-0.5	**23.7**	**14.4 M-02**	**24.2 M-02**	**5.17**	**22.4**
DC-20->30' (0.5-1')	10/21/2016	DC-20	>30	0.5-1	**6.33**	**4.49 M-02**	**8.08 M-02**	<1.90	**6.25 J2**
DC-20->30' (0.5-1') DUP	10/21/2016	DC-20	>30	0.5-1	**4.71**	**2.73**	**5.48 M-02**	<1.98	**4.42 J2**
DC-20->30' (1-1.5')	10/21/2016	DC-20	>30	1-1.5	<1.91	<1.91	<1.91	<1.91	<1.91
DC-21-15-30' (0-0.5')	10/21/2016	DC-21	15-30	0-0.5	**25.8**	**12.6**	**28.3 M-02**	<9.87	**20.9**
DC-21-15-30' (0.5-1')	10/21/2016	DC-21	15-30	0.5-1	**5.86**	**2.87**	**6.64 M-02**	<2.03	**4.82**
DC-21-15-30' (1-1.5')	10/21/2016	DC-21	15-30	1-1.5	**4.20**	**2.24 J**	**5.22 M-02**	<1.96	**3.93**
DC-21->30' (0-0.5')	10/21/2016	DC-21	>30	0-0.5	**8.69**	**4.28 M-02**	**9.92 M-02**	<1.95	**7.77**
DC-21->30' (0.5-1')	10/21/2016	DC-21	>30	0.5-1	**2.96 J**	<2.00	**4.11 M-02**	<2.00	**2.98 J**
DC-21->30' (1-1.5')	10/21/2016	DC-21	>30	1-1.5	<2.01	<2.01	<2.01	<2.01	<2.01
Oregon Clean Fill Screening Level					--	1,100	14,000	15	150

Notes:

1. PAHs = polycyclic aromatic hydrocarbons by EPA Method 8270D-SIM
2. Lead by EPA method 6020
3. Sample volume was dried and ground prior to analysis.
4. < = Analyte not detected above laboratory method detection limit shown
5. Bold denotes analyte detected above detection limit.
6. Shaded values indicate concentrations detected above the Oregon Clean Fill Screening Level.
7. µg/kg = microgram per kilogram (part per billion)
8. mg/kg = milligram per kilogram (part per million)
9. feet bgs = feet below ground surface
10. J = Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
11. M-02 = Due to matrix interference, this analyte cannot be accurately quantified. The reported result is estimated.
12. Q-42 = Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits.
13. J1= Surrogate recovery is outside of established control limits, result is estimated.
14. J2 = The relative percent difference between the primary and duplicate sample is greater than 30%. This result should be considered an estimate.
15. As requested by DEQ, benzo(a)pyrene equivalents were calculated using the toxic equivalency factors for carcinogenic PAHs in the DEQ October 2010 *Human Health Risk Assessment Guidance* .

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Table 3

Number of Samples in the Shoulder Soil Database [2, 3]

Statewide Highway Shoulder Soil Evaluation Results Report

Physiographic Province	Distance from Pavement (feet)	Sample Depth Interval (feet bgs)					
		0-0.5		0.5-1		1-1.5	
		Lead	B(a)p	Lead	B(a)p	Lead	B(a)p
Basin and Range	0-15	31	23	26	25	22	21
	15-30	26	26	25	25	25	25
	>30	27	27	25	25	25	25
Blue Mountains	0-15	24	16	24	18	29	18
	15-30	24	21	24	23	28	28
	>30	26	26	25	25	26	26
Cascade Range	0-15	2	0	2	0	0	0
	15-30	0	0	0	0	0	0
	>30	0	0	0	0	0	0
Coast Range	0-15	13	3	13	3	14	5
	15-30	0	0	0	0	0	0
	>30	0	0	0	0	0	0
Deschutes Columbia	0-15	24	18	24	18	33	26
	15-30	26	26	25	25	26	26
	>30	25	25	27	27	26	26
High Lava Plains	0-15	9	1	5	4	5	5
	15-30	2	2	2	2	2	2
	>30	2	2	2	2	2	2
Klamath Mountains	0-15	0	0	0	0	0	0
	15-30	0	0	0	0	0	0
	>30	0	0	0	0	0	0
Owyhee Uplands	0-15	0	0	0	0	0	0
	15-30	0	0	0	0	0	0
	>30	0	0	0	0	0	0
Portland Basin	0-15	83	47	43	12	46	19
	15-30	9	6	4	4	3	3
	>30	0	0	1	1	0	0
South Willamette Valley	0-15	26	17	19	16	20	16
	15-30	7	6	8	8	8	5
	>30	7	4	5	3	5	2

Notes:

1. B(a)p = benzo(a)pyrene
2. Only discrete samples with distance from pavement information and sample depths that can be categorized in the 0 - 0.5, 0.5 - 1, and 1 - 1.5-foot interval are included in this total.
3. Non-detect benzo(a)pyrene results with detection limits higher than the clean fill criteria are not included in these totals.
4. bgs = below the ground surface

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Table 4

Summary Statistics[1] of Lead and Benzo(a)pyrene by Physiographic Province
Statewide Highway Shoulder Soil Evaluation Results Report

Physiographic Province[2]	Analyte	Depth (feet bgs)	Distance from Pavement (feet)	Number of Samples[3]	Number of Non-Detect Samples	Min Detected Value	Max Detected Value	Min Detection Limit	Max Detection Limit	Median	Mean	Third Quartile	Standard Error	Clean Fill Criteria	90UCL for the mean[4]		Non-Normality Suggested?[5]	Chebyshev 90UCL > Clean Fill Criteria
						Concentration in milligrams per kilogram (mg/kg, DW)									Student's-t	Chebyshev		
Basin and Range	Lead	0-0.5	0-15	31	0	1.02	160	NA	NA	9.0	14.4	13.0	5.01	29	21	29	Yes	Yes
		0-0.5	15-30	26	0	3.34	44.2	NA	NA	9.6	13.1	14.8	2.15	29	16	20		
		0-0.5	>30	27	0	2.96	66.1	NA	NA	8.7	12.2	14.1	2.47	29	15	20	Yes	
		0.5-1	0-15	26	0	2.42	61	NA	NA	9.9	13.5	14.7	2.65	29	17	22	Yes	
		0.5-1	15-30	25	0	2.88	132	NA	NA	6.8	15.0	8.46	5.41	29	22	31	Yes	Yes
		0.5-1	>30	25	0	2.33	119	NA	NA	6.1	11.3	8.76	4.54	29	17	25	Yes	
		1-1.5	0-15	22	0	3.26	29.3	NA	NA	8.4	10.9	17.0	1.51	29	13	15		
		1-1.5	15-30	25	0	2.58	90.4	NA	NA	6.6	12.0	9.56	3.76	29	17	23	Yes	
		1-1.5	>30	25	0	2.72	11.2	NA	NA	5.1	5.7	7.56	0.50	29	6.4	7.2		
		Other[6]		9	0	6.90	150	NA	NA	27.0	51.1	70.0	16.3	29	74	100		Yes
	Benzo(a)pyrene	0-0.5	0-15	31	28	0.00837	0.0194	0.00185	0.33	NA	0.00912	NA	0.000648	0.015	0.01	0.01	Yes	
		0-0.5	15-30	26	21	0.00307	0.0149	0.0019	0.0146	NA	0.00451	NA	0.00078	0.015	0.0055	0.01		
		0-0.5	>30	27	24	0.00377	0.00531	0.00176	0.0149	NA	0.003862	NA	8.11E-05	0.015	0.0040	0.004	Yes	
		0.5-1	0-15	26	23	0.00636	0.0119	6.00E-04	0.32	NA	0.00683	NA	0.000392	0.015	0.0074	0.01	Yes	
		0.5-1	15-30	25	20	0.00254	0.019	0.00182	0.0146	NA	0.0146	NA	0.001034	0.015	0.0160	0.018		Yes
		0.5-1	>30	25	21	0.0021	0.0292	0.0019	0.00554	NA	0.00345	NA	0.00124	0.015	0.0051	0.01	Yes	
		1-1.5	0-15	22	18	0.00234	0.0106	6.00E-04	0.067	NA	0.00291	0.00234	0.000518	0.015	0.0036	0.00	Yes	
		1-1.5	15-30	25	23	0.00242	0.0326	0.00185	0.015	NA	NA	NA	NA	0.015	NA	NA		
		1-1.5	>30	25	24	0.00482	0.00482	0.00178	0.014	NA	NA	NA	NA	0.015	NA	NA		
		Other		9	9	NA	NA	0.0064	0.32	NA	NA	NA	NA	0.015	NA	NA		
Blue Mountains	Lead	0-0.5	0-15	24	0	2.6	74	NA	NA	9.5	19.7	21.0	4.32	21	25	33		Yes
		0-0.5	15-30	24	0	1.27	37	NA	NA	8.7	13.1	19.0	1.82	21	16	19		
		0-0.5	>30	26	0	1.48	37.3	NA	NA	8.9	9.6	11.9	1.37	21	11	14	Yes	
		0.5-1	0-15	24	0	3.1	43	NA	NA	11.0	17.0	21.0	2.53	21	20	25		Yes
		0.5-1	15-30	24	0	0.84	23.8	NA	NA	6.1	8.2	13.0	1.20	21	9.8	12		
		0.5-1	>30	25	0	0.729	52.1	NA	NA	6.7	7.9	7.82	1.91	21	10	14	Yes	
		1-1.5	0-15	29	0	2.8	73	NA	NA	10.0	19.5	23.0	3.63	21	24	30		Yes
		1-1.5	15-30	28	0	0.593	29.4	NA	NA	5.9	7.4	6.76	1.22	21	9	11	Yes	
		1-1.5	>30	26	0	0.825	29.8	NA	NA	5.7	6.3	7.21	1.04	21	7.7	9.4	Yes	
		Other		13	0	1.8	78	NA	NA	5.0	17.8	22.0	7.05	21	27.4	39.0		Yes
	Benzo(a)pyrene	0-0.5	0-15	24	20	0.001	0.11	6.00E-04	0.13	NA	0.00603	0.0015	0.00534	0.015	0.013	0.02		Yes
		0-0.5	15-30	24	17	0.00096	0.033	0.00193	0.082	0.00096	0.00343	0.00346	0.00155	0.015	0.0055	0.01	Yes	
		0-0.5	>30	26	19	0.00208	0.0156	0.0019	0.00522	NA	0.00274	0.00208	0.00055	0.015	0.0035	0.00	Yes	
		0.5-1	0-15	24	23	0.063	0.063	0.0006	0.072	NA	NA	NA	NA	0.015	NA	NA		
		0.5-1	15-30	24	20	0.00205	0.03	0.0006	0.035	NA	0.00337	NA	0.00137	0.015	0.0052	0.01	Yes	
		0.5-1	>30	25	23	0.00237	0.00385	0.0018	0.00224	NA	NA	NA	NA	0.015	NA	NA		
		1-1.5	0-15	29	27	0.0022	0.062	0.0006	0.13	NA	NA	NA	NA	0.015	NA	NA		
		1-1.5	15-30	28	26	0.00222	0.016	0.0006	0.0076	NA	NA	NA	NA	0.015	NA	NA		
		1-1.5	>30	26	25	0.00217	0.00217	0.0019	0.00218	NA	NA	NA	NA	0.015	NA	NA		
		Other		0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		

Refer to notes at end of table.

Cascadia Associates, LLC

Table 4

Summary Statistics[1] of Lead and Benzo(a)pyrene by Physiographic Province
Statewide Highway Shoulder Soil Evaluation Results Report

Physiographic Province[2]	Analyte	Depth (feet bgs)	Distance from Pavement (feet)	Number of Samples[3]	Number of Non-Detect Samples	Min Detected Value	Max Detected Value	Min Detection Limit	Max Detection Limit	Median	Mean	Third Quartile	Standard Error	Clean Fill Criteria	90UCL for the mean[4]		Non-Normality Suggested?[5]	Chebyshev 90UCL > Clean Fill Criteria
						Concentration in milligrams per kilogram (mg/kg, DW)									Student's-t	Chebyshev		
Cascade Range	Lead	0-0.5	0-15	2	0	17	40	NA	NA	NA	NA	NA	NA	34	NA	NA		
		0-0.5	15-30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	34	NA	NA		
		0-0.5	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	34	NA	NA		
		0.5-1	0-15	2	0	2.6	5.7	NA	NA	NA	NA	NA	NA	34	NA	NA		
		0.5-1	15-30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	34	NA	NA		
		0.5-1	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	34	NA	NA		
		1-1.5	0-15	0	0	NA	NA	NA	NA	NA	NA	NA	NA	34	NA	NA		
		1-1.5	15-30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	34	NA	NA		
		1-1.5	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	34	NA	NA		
		Other		47	0	1	75.6	NA	NA	7.8	16.7	18.7	2.89	34	21	25		
	Benzo(a)pyrene	0-0.5	0-15	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		0-0.5	15-30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		0-0.5	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		0.5-1	0-15	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		0.5-1	15-30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		0.5-1	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		1-1.5	0-15	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		1-1.5	15-30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		1-1.5	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		Other		42	5	NA	2.8	0.00024	0.007	0.0146	0.168	0.0728	0.0753	0.015	0.27	0.39	Yes	Yes
Coast Range	Lead	0-0.5	0-15	13	0	14	200	NA	NA	65.0	84.1	102	16.43	34	110	133		Yes
		0-0.5	15-30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	34	NA	NA		
		0-0.5	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	34	NA	NA		
		0.5-1	0-15	13	0	21	420	NA	NA	69.0	103.9	110	30.06	34	150	194	Yes	Yes
		0.5-1	15-30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	34	NA	NA		
		0.5-1	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	34	NA	NA		
		1-1.5	0-15	14	0	4.7	360	NA	NA	57.0	84.3	110	25.03	34	120	159	Yes	Yes
		1-1.5	15-30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	34	NA	NA		
		1-1.5	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	34	NA	NA		
		Other		14	0	16	230	NA	NA	38.0	66.3	92.0	16.25	34	88	115	Yes	Yes
	Benzo(a)pyrene	0-0.5	0-15	13	13	NA	NA	0.0083	0.21	NA	NA	NA	NA	0.015	NA	NA		
		0-0.5	15-30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		0-0.5	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		0.5-1	0-15	13	13	NA	NA	0.008	0.17	NA	NA	NA	NA	0.015	NA	NA		
		0.5-1	15-30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		0.5-1	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		1-1.5	0-15	14	13	0.16	0.16	0.0083	0.16	NA	NA	NA	NA	0.015	NA	NA		
		1-1.5	15-30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		1-1.5	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		Other		14	12	0.032	0.076	0.0093	0.18	NA	NA	NA	NA	0.015	NA	NA		

Refer to notes at end of table.

Cascadia Associates, LLC

Table 4

Summary Statistics[1] of Lead and Benzo(a)pyrene by Physiographic Province
Statewide Highway Shoulder Soil Evaluation Results Report

Physiographic Province[2]	Analyte	Depth (feet bgs)	Distance from Pavement (feet)	Number of Samples[3]	Number of Non-Detect Samples	Min Detected Value	Max Detected Value	Min Detection Limit	Max Detection Limit	Median	Mean	Third Quartile	Standard Error	Clean Fill Criteria	90UCL for the mean[4]		Non-Normality Suggested?[5]	Chebyshev 90UCL > Clean Fill Criteria
						Concentration in milligrams per kilogram (mg/kg, DW)									Student's-t	Chebyshev		
Deschutes Columbia	Lead	0-0.5	0-15	24	0	5.4	170	NA	NA	23.0	37.3	46.0	8.09	18	48	62	Yes	Yes
		0-0.5	15-30	26	0	5.74	95	NA	NA	10.7	23.2	30.2	4.69	18	29	37	Yes	Yes
		0-0.5	>30	25	0	4.06	40.1	NA	NA	9.3	11.6	12.4	1.53	18	14	16	Yes	
		0.5-1	0-15	24	0	4.7	160	NA	NA	31.0	51.4	65.0	9.47	18	64	80		Yes
		0.5-1	15-30	25	0	4.2	40.9	NA	NA	7.3	11.0	11.8	1.83	18	13	17	Yes	
		0.5-1	>30	27	0	3.8	14	NA	NA	6.7	7.3	8.13	0.47	18	7.9	8.7		
		1-1.5	0-15	33	0	5	120	NA	NA	18.0	27.1	30.0	4.13	18	33	40	Yes	Yes
		1-1.5	15-30	26	0	2.89	16.9	NA	NA	7.6	8.1	9.32	0.72	18	9	10		
		1-1.5	>30	26	0	3.11	13	NA	NA	6.3	7.0	8.82	0.57	18	7.7	8.7		
		Other		7	0	5.8	16	NA	NA	8.5	8.8	9.4	1.32	18	10.7	12.8	Yes	
	Benzo(a)pyrene	0-0.5	0-15	24	15	0.00094	0.056	0.0006	0.14	0.0027	0.0131	0.016	0.00477	0.015	0.019	0.03		Yes
		0-0.5	15-30	26	9	0.0011	0.0595	0.0006	0.00212	0.00264	0.0103	0.0109	0.00306	0.015	0.014	0.02	Yes	Yes
		0-0.5	>30	25	15	0.0012	0.0274	0.0006	0.00208	0.0012	0.00521	0.00421	0.00165	0.015	0.0074	0.01	Yes	
		0.5-1	0-15	24	11	0.00087	0.073	0.003	0.14	0.0038	0.0169	0.03	0.00523	0.015	0.024	0.03		Yes
		0.5-1	15-30	25	15	0.00095	0.0471	0.0006	0.00207	0.00095	0.00449	0.00347	0.00202	0.015	0.0072	0.01	Yes	
		0.5-1	>30	27	16	0.001	0.0502	0.0006	0.00212	0.001	0.00592	0.0056	0.00217	0.015	0.0088	0.01	Yes	
		1-1.5	0-15	33	23	0.00076	0.1	0.0006	0.073	0.0012	0.00966	0.0032	0.00402	0.015	0.015	0.02		Yes
		1-1.5	15-30	26	19	0.001	0.0148	0.0006	0.00211	NA	0.00249	0.001	0.00072	0.015	0.0034	0.00	Yes	
		1-1.5	>30	26	22	0.00393	0.015	0.0006	0.00213	NA	0.00476	NA	0.000575	0.015	0.0055	0.01	Yes	
		Other		0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
High Lava Plains	Lead	0-0.5	0-15	9	0	2.8	36	NA	NA	9.2	13.3	18.0	3.85	21	19	25		Yes
		0-0.5	15-30	2	0	13	16	NA	NA	NA	NA	NA	NA	21	NA	NA		
		0-0.5	>30	2	0	16	17	NA	NA	NA	NA	NA	NA	21	NA	NA		
		0.5-1	0-15	5	0	9.4	30	NA	NA	24.0	20.9	27.0	3.93	21	27	33		Yes
		0.5-1	15-30	2	0	14	30	NA	NA	NA	NA	NA	NA	21	NA	NA		
		0.5-1	>30	2	0	12	12	NA	NA	NA	NA	NA	NA	21	NA	NA		
		1-1.5	0-15	5	0	6	27	NA	NA	15.0	14.1	16.0	3.83	21	20	26		Yes
		1-1.5	15-30	2	0	8.5	24	NA	NA	NA	NA	NA	NA	21	NA	NA		
		1-1.5	>30	2	0	12	13	NA	NA	NA	NA	NA	NA	21	NA	NA		
		Other		5	0	6	48	NA	NA	14.0	20.4	21.0	7.30	21	32	42	Yes	Yes
	Benzo(a)pyrene	0-0.5	0-15	9	8	0.21	0.21	0.03	0.13	NA	NA	NA	NA	0.015	NA	NA		
		0-0.5	15-30	2	2	NA	NA	0.00060	0.0060	NA	NA	NA	NA	0.015	NA	NA		
		0-0.5	>30	2	2	NA	NA	0.00060	0.0012	NA	NA	NA	NA	0.015	NA	NA		
		0.5-1	0-15	5	5	NA	NA	0.003	0.03	NA	NA	NA	NA	0.015	NA	NA		
		0.5-1	15-30	2	2	NA	NA	0.0006	0.0060	NA	NA	NA	NA	0.015	NA	NA		
		0.5-1	>30	2	2	NA	NA	0.0006	0.0006	NA	NA	NA	NA	0.015	NA	NA		
		1-1.5	0-15	5	5	NA	NA	0.00060	0.0120	NA	NA	NA	NA	0.015	NA	NA		
		1-1.5	15-30	2	2	NA	NA	0.00060	0.0060	NA	NA	NA	NA	0.015	NA	NA		
		1-1.5	>30	2	2	NA	NA	0.00060	0.0006	NA	NA	NA	NA	0.015	NA	NA		
		Other		5	5	NA	NA	0.013	0.074	NA	NA	NA	NA	0.015	NA	NA		

Refer to notes at end of table.

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Table 4

Summary Statistics[1] of Lead and Benzo(a)pyrene by Physiographic Province
Statewide Highway Shoulder Soil Evaluation Results Report

Physiographic Province[2]	Analyte	Depth (feet bgs)	Distance from Pavement (feet)	Number of Samples[3]	Number of Non-Detect Samples	Min Detected Value	Max Detected Value	Min Detection Limit	Max Detection Limit	Median	Mean	Third Quartile	Standard Error	Clean Fill Criteria	90UCL for the mean[4]		Non-Normality Suggested?[5]	Chebyshev 90UCL > Clean Fill Criteria
						Concentration in milligrams per kilogram (mg/kg, DW)									Student's-t	Chebyshev		
Klamath Mountains	Lead	0-0.5	0-15	0	0	NA	NA	NA	NA	NA	NA	NA	NA	36	NA	NA		
		0-0.5	15-30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	36	NA	NA		
		0-0.5	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	36	NA	NA		
		0.5-1	0-15	0	0	NA	NA	NA	NA	NA	NA	NA	NA	36	NA	NA		
		0.5-1	15-30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	36	NA	NA		
		0.5-1	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	36	NA	NA		
		1-1.5	0-15	0	0	NA	NA	NA	NA	NA	NA	NA	NA	36	NA	NA		
		1-1.5	15-30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	36	NA	NA		
		1-1.5	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	36	NA	NA		
		Other		11	0	3.4	76	NA	NA	14.0	21.0	24.0	6.56	36	30	41	Yes	Yes
	Benzo(a)pyrene	0-0.5	0-15	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		0-0.5	15-30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		0-0.5	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		0.5-1	0-15	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		0.5-1	15-30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		0.5-1	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		1-1.5	0-15	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		1-1.5	15-30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		1-1.5	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		Other		11	11	NA	NA	0.0064	0.069	NA	NA	NA	NA	0.015	NA	NA		
Portland Basin	Lead	0-0.5	0-15	83	1	2.2	821	2.8	2.8	64.0	125.2	180	17.06	28	150	176	Yes	Yes
		0-0.5	15-30	9	0	13.4	120	NA	NA	25.0	37.1	37.4	11.48	28	53	72	Yes	Yes
		0-0.5	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	28	NA	NA		
		0.5-1	0-15	43	3	1.1	1100	0.29	5.6	18.0	67.6	41.0	30.01	28	110	158	Yes	Yes
		0.5-1	15-30	4	0	24	160	NA	NA	31.0	65.2	NA	31.94	28	120	161	Yes	Yes
		0.5-1	>30	1	0	8.3	8.3	NA	NA	NA	NA	NA	NA	28	NA	NA		
		1-1.5	0-15	46	0	1.3	116	NA	NA	16.0	26.1	34.0	4.30	28	32	39	Yes	Yes
		1-1.5	15-30	3	0	23	200	NA	NA	38.0	87.0	NA	56.67	28	190	257	Yes	Yes
		1-1.5	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	28	NA	NA		
		Other		117	0	0.44	710	NA	NA	20.0	67.6	59.5	12.20	28	83	104	Yes	Yes
	Benzo(a)pyrene	0-0.5	0-15	57	15	0.0026	6.11	0.007	0.079	0.0605	0.196	0.119	0.107	0.015	0.34	0.52	Yes	Yes
		0-0.5	15-30	6	1	0.033	1.00	0.0095	0.0095	0.0657	0.226	0.13	0.159	0.015	0.46	0.70	Yes	Yes
		0-0.5	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		0.5-1	0-15	16	10	0.021	0.22	0.00066	0.07	NA	0.0493	0.024	0.0152	0.015	0.07	0.10		Yes
		0.5-1	15-30	4	1	0.018	0.78	0.0102	0.0102	0.018	0.22	NA	0.198	0.015	0.54	0.81	Yes	Yes
		0.5-1	>30	1	0	0.0088	0.0088	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		1-1.5	0-15	20	4	0.0037	0.265	0.0072	0.15	0.031	0.062	0.086	0.0177	0.015	0.086	0.12		Yes
		1-1.5	15-30	3	0	0.016	0.66	NA	NA	0.082	0.253	NA	0.205	0.015	0.64	0.87	Yes	Yes
		1-1.5	>30	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA		
		Other		38	26	0.0088	13.7	0.0072	0.14	NA	0.405	0.0172	0.371	0.015	0.89	1.50	Yes	Yes

Refer to notes at end of table.

Cascadia Associates, LLC

Table 4

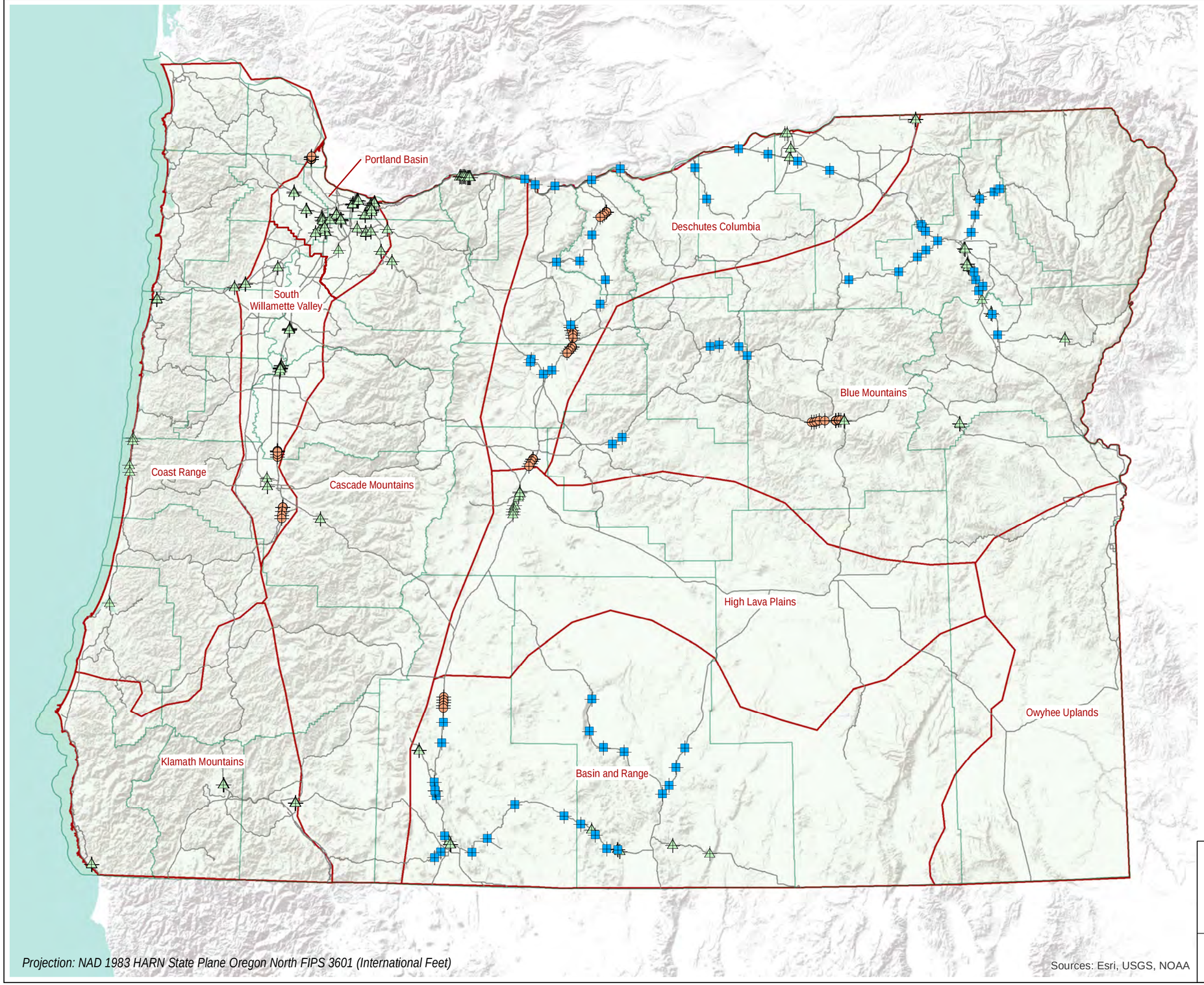
Summary Statistics[1] of Lead and Benzo(a)pyrene by Physiographic Province
Statewide Highway Shoulder Soil Evaluation Results Report

Physiographic Province[2]	Analyte	Depth (feet bgs)	Distance from Pavement (feet)	Number of Samples[3]	Number of Non-Detect Samples	Min Detected Value	Max Detected Value	Min Detection Limit	Max Detection Limit	Median	Mean	Third Quartile	Standard Error	Clean Fill Criteria	90UCL for the mean[4]		Non-Normality Suggested?[5]	Chebyshev 90UCL > Clean Fill Criteria
						Concentration in milligrams per kilogram (mg/kg, DW)									Student's-t	Chebyshev		
South Willamette Valley	Lead	0-0.5	0-15	26	0	9.2	575	NA	NA	71.0	113.8	110	27.44	28	150	196	Yes	Yes
		0-0.5	15-30	7	0	13	92.7	NA	NA	21.0	32.7	47.0	10.90	28	48	65	Yes	Yes
		0-0.5	>30	7	0	13	308	NA	NA	18.0	89.8	184	43.35	28	150	220		Yes
		0.5-1	0-15	19	0	12	338	NA	NA	50.0	77.4	89.0	19.70	28	100	136	Yes	Yes
		0.5-1	15-30	8	0	5.7	70.5	NA	NA	11.0	25.1	23.0	8.74	28	37	51		Yes
		0.5-1	>30	5	0	8.4	36.5	NA	NA	14.0	18.2	18.0	4.83	28	26	33	Yes	Yes
		1-1.5	0-15	20	0	12	275	NA	NA	26.0	57.3	61.0	14.56	28	77	101	Yes	Yes
		1-1.5	15-30	8	0	6.7	59.1	NA	NA	11.0	18.6	12.0	6.42	28	28	38	Yes	Yes
		1-1.5	>30	5	0	4.7	27.8	NA	NA	13.0	13.4	13.0	3.93	28	19	25		
		Other		31	0	7.31	288	NA	NA	20.9	36.8	34.0	9.67	28	50	66	Yes	Yes
	Benzo(a)pyrene	0-0.5	0-15	26	10	0.0012	0.14	0.008	2.7	0.029	0.0316	0.035	0.00703	0.015	0.041	0.05	Yes	Yes
		0-0.5	15-30	8	7	0.0021	0.0021	0.0006	0.0166	NA	NA	NA	NA	0.015	NA	NA		
		0-0.5	>30	5	3	0.0273	0.0311	0.0006	0.0164	NA	NA	NA	NA	0.015	NA	NA		
		0.5-1	0-15	19	8	0.003	0.046	0.0006	0.216	0.011	0.0116	0.015	0.00275	0.015	0.015	0.02	Yes	Yes
		0.5-1	15-30	8	7	0.0058	0.0058	0.0006	0.0141	NA	NA	NA	NA	0.015	NA	NA		
		0.5-1	>30	3	3	NA	NA	0.0006	0.0148	NA	NA	NA	NA	0.015	NA	NA		
		1-1.5	0-15	17	5	0.0011	0.029	0.0077	0.038	0.0085	0.00896	0.01	0.00199	0.015	0.012	0.02		Yes
		1-1.5	15-30	5	5	NA	NA	0.0006	0.0073	NA	NA	NA	NA	0.015	NA	NA		
		1-1.5	>30	2	2	NA	NA	0.0006	0.0006	NA	NA	NA	NA	0.015	NA	NA		
		Other		23	22	0.013	0.013	0.0075	0.132	NA	NA	NA	NA	0.015	NA	NA		

Notes:

1. Summary Stats (mean, median, and se) use the Kaplan-Meier for data groups with censored values (non-detects). Summary statistics are only calculated when there are at least 3 detected values, otherwise only the range is reported.
2. The Owyhee Uplands physiographic province is not included in this table because there is no shoulder soil sampling data available for the province.
3. This summary includes all samples, even those non-detects with DLs that exceeded the clean fill criteria which were excluded from the sample sizes shown in Table 3.
4. Note: very few of the qqplots within each group actually look normal - some have outliers; some are just skewed; others look like a mixture of multiple sub-populations. BAP data in particular do not follow a normal distribution because of so many non-detects. Consequently, for a UCL estimate, Student's-t interval is inappropriate for most groups; Chebyshev's is highly conservative, but coverage is assured.
5. Non-normality of the data in this group, including the possiblity of outliers, is suggested when the absolute value of skewness > 2, or kurtosis > 3.
6. Samples categorized as "Other" are either missing sampling details or could not be classified within the depth and distance from pavement categories used in this evaluation.
7. NA = No data are available or could not be calculated with the existing dataset (see note 1).

FIGURES



N

Legend:

- 2016 Cascadia Soil Sample Locations
- ODOT Projects Soil Sample Locations
- 2015 Apex Soil Sample Locations
- Oregon County Boundaries
- Major Roads
- Oregon Physiographic Provinces

Notes:
1. Multiple soil samples were collected in each of the locations shown.
2. Not all locations shown on this map were included in the data evaluation. Data that could not be classified by predictor variables were excluded from the evaluation.

0 125,000 250,000 500,000

Approximate Scale in Feet

Projection: NAD 1983 HARN State Plane Oregon North FIPS 3601 (International Feet)

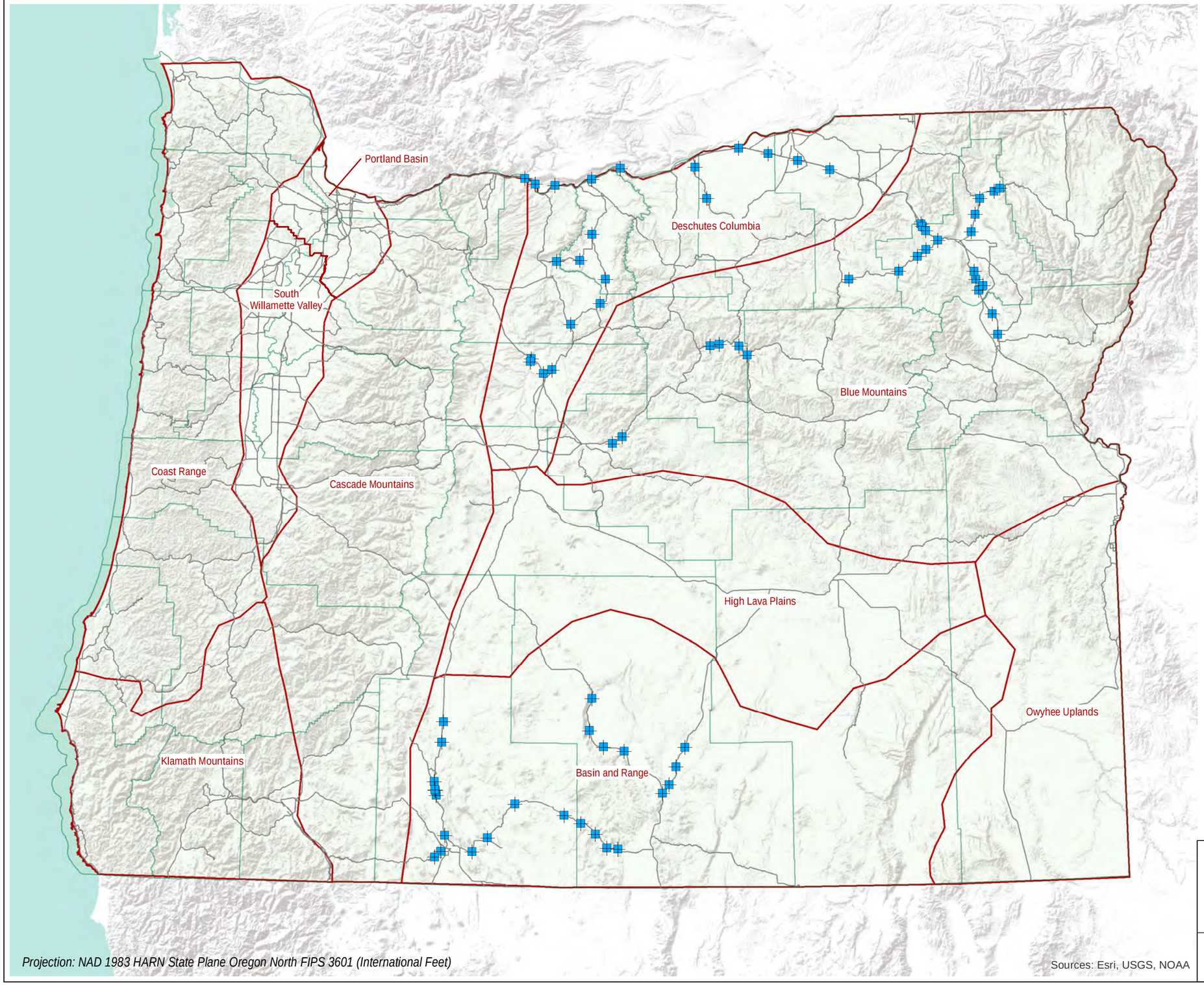
Sources: Esri, USGS, NOAA

Highway Shoulder Soil Sampling Locations - Complete Dataset

2016 Highway Shoulder Soil Sampling Results Report
Oregon Department of Transportation

Cascadia Associates, LLC

Project Number	0028-001-001-04	Figure
June 2017		1



N

Legend:

- 2016 Soil Sample Locations (Cascadia)
- Oregon County Boundaries
- Major Roads
- Oregon Physiographic Provinces

Note: Multiple soil samples were collected in each of the locations shown.

0 125,000 250,000 500,000

Approximate Scale in Feet

Projection: NAD 1983 HARN State Plane Oregon North FIPS 3601 (International Feet)

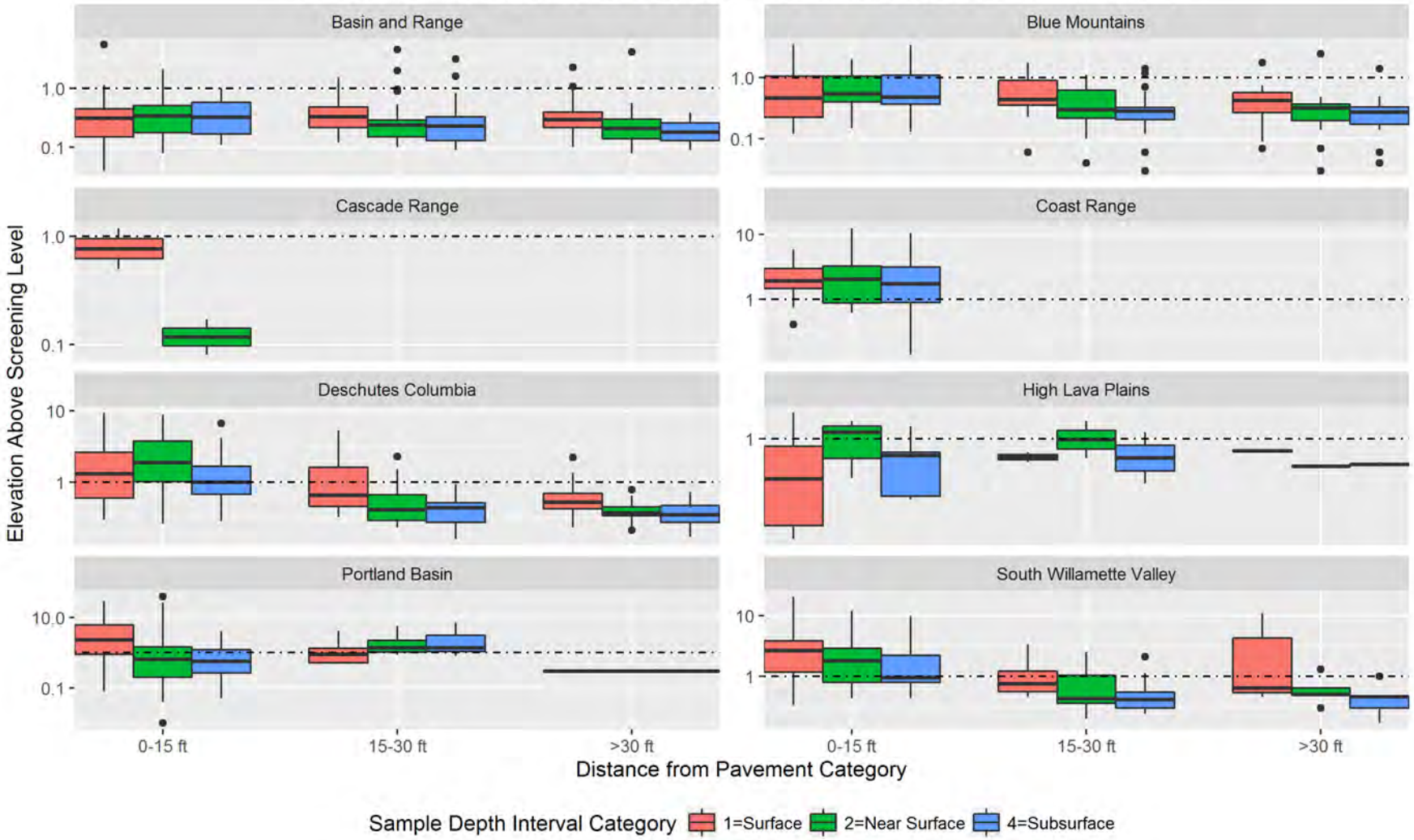
Sources: Esri, USGS, NOAA

2016 Shoulder Soil Sampling Locations

2016 Highway Shoulder Soil Sampling Results Report
Oregon Department of Transportation

Cascadia Associates, LLC

Project Number	0028-001-001-04	Figure
June 2017		**2**



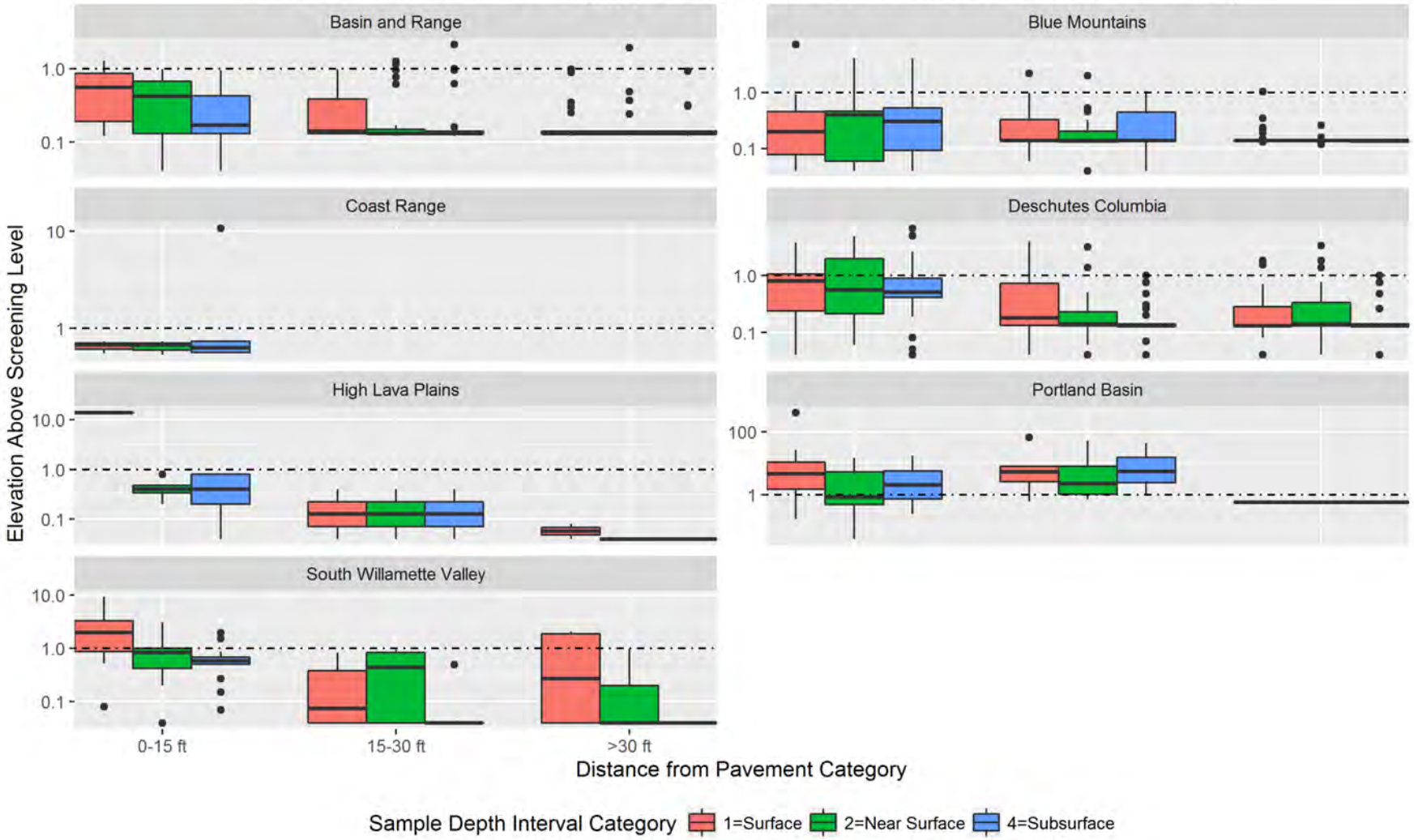
Shoulder Soil Data Lead Box Plots

2016 Highway Shoulder Soil Sampling Results Report
Oregon Department of Transportation

NOTE: Soil concentrations are shown relative to each physiographic province-specific lead clean fill criteria. A value of 1.0 on the Y-axis corresponds to the clean fill criterion. Concentrations are shown on a logarithmic scale.

Cascadia Associates, LLC

Project Number	0028-001-001-04	Figure
June 2017		3



NOTE: Soil concentrations are shown relative to the benzo(a)pyrene clean fill criteria. A value of 1.0 on the Y-axis corresponds to a concentration of 0.015 mg/kg (i.e., the clean fill criterion). Concentrations are shown on a logarithmic scale.

Shoulder Soil Data Benzo(a)pyrene Box Plots

2016 Highway Shoulder Soil Sampling Results Report
Oregon Department of Transportation

Cascadia Associates, LLC

Project Number	0028-001-001-04	Figure
June 2017		4

APPENDIX A

FIELD NOTES

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes
Basin and Range	BR-01	BR-01-0-15' (0-0.5')	10/11	941	3' (util)	1' below	2
	BR-01	BR-01-0-15' (0.5-1')		950			
	BR-01	BR-01-0-15' (1-1.5')		10:10			
	BR-01	BR-01-15-30' (0-0.5')		10:15	16'	1.5' below	
	BR-01	BR-01-15-30' (0.5-1')		1022			
	BR-01	BR-01-15-30' (1-1.5')		1027			
	BR-01	BR-01->30' (0-0.5')		1034	31'	2' below	
	BR-01	BR-01->30' (0.5-1')		1039			
	BR-01	BR-01->30' (1-1.5')	10/11	1044			
	BR-02	BR-02-0-15' (0-0.5')	10/11	1112		level	2
	BR-02	BR-02-0-15' (0.5-1')		1120			
	BR-02	BR-02-0-15' (1-1.5')		1124			
	BR-02	BR-02-15-30' (0-0.5')		1119	16'		
	BR-02	BR-02-15-30' (0.5-1')		1129			
	BR-02	BR-02-15-30' (1-1.5')		1141			
	BR-02	BR-02->30' (0-0.5')		1150	32'	level	2
	BR-02	BR-02->30' (0.5-1')		1156			
	BR-02	BR-02->30' (1-1.5')	10/11	1204			
	BR-03	BR-03-0-15' (0-0.5')	10/11			3' below	2
	BR-03	BR-03-0-15' (0.5-1')					
	BR-03	BR-03-0-15' (1-1.5')					
	BR-03	BR-03-15-30' (0-0.5')		1251	16'		
	BR-03	BR-03-15-30' (0.5-1')		1256			
	BR-03	BR-03-15-30' (1-1.5')		100			
	BR-03	BR-03->30' (0-0.5')		106	31'	2' below	
	BR-03	BR-03->30' (0.5-1')		109			
	BR-03	BR-03->30' (1-1.5')	10/11	114			

Tire 1
New Hole

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color
Basin and Range	BR-01	BR-01-0-15' (0-0.5')	None	No	No	Gravel	Grey
	BR-01	BR-01-0-15' (0.5-1')	↓	↓	↓	Sandy Gravel	lt. brn
	BR-01	BR-01-0-15' (1-1.5')	↓	↓	↓	Sand & Gravel	lt brn
	BR-01	BR-01-15-30' (0-0.5')	↓	↓	↓	Gravel &	lt brn
	BR-01	BR-01-15-30' (0.5-1')	↓	↓	↓	Sand + Gravel	lt brn
	BR-01	BR-01-15-30' (1-1.5')	↓	↓	↓	Fine Sand	brown
	BR-01	BR-01->30' (0-0.5')	↓	↓	↓	Sand & Gravel	lt. brn
	BR-01	BR-01->30' (0.5-1')	↓	↓	↓	Gravel	Grey
	BR-01	BR-01->30' (1-1.5')	↓	↓	↓	Sandy Gravel	Brown
	BR-02	BR-02-0-15' (0-0.5')	None	N	N	Sand & Gravel	Gr/brn
	BR-02	BR-02-0-15' (0.5-1')	↓	↓	↓	Fine Sand + Gravel	lt. Brn
	BR-02	BR-02-0-15' (1-1.5')	↓	↓	↓	SG	Brn
	BR-02	BR-02-15-30' (0-0.5')	↓	↓	↓	Sand + Cobbl	lt brn
	BR-02	BR-02-15-30' (0.5-1')	↓	↓	↓	Sand + Cobbl	lt brn
	BR-02	BR-02-15-30' (1-1.5')	↓	↓	↓	Sand	brn.
	BR-02	BR-02->30' (0-0.5')	↓	↓	↓	Cs- Sand	lt brn
	BR-02	BR-02->30' (0.5-1')	↓	↓	↓	Cs Sand	brn
	BR-02	BR-02->30' (1-1.5')	↓	↓	↓	"	Dk brn
	BR-03	BR-03-0-15' (0-0.5')	N	~40' S	N	Gravel	Grey/brn
	BR-03	BR-03-0-15' (0.5-1')	↓	↓	↓	SG	brn
	BR-03	BR-03-0-15' (1-1.5')	↓	↓	↓	SG	brn
	BR-03	BR-03-15-30' (0-0.5')	N	~40' S	N	Sand Silt	Brown
	BR-03	BR-03-15-30' (0.5-1')	↓	↓	↓	Sand Silt	lt brn.
	BR-03	BR-03-15-30' (1-1.5')	↓	↓	↓	Sand Silt	dk brn.
	BR-03	BR-03->30' (0-0.5')	↓	↓	↓	Silt - roots	lt brn
	BR-03	BR-03->30' (0.5-1')	↓	↓	↓	Silt	red brn
	BR-03	BR-03->30' (1-1.5')	↓	↓	↓	Silt	dk brn

- cohesive

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Recent Shoulder Work or Soil Removal?	Comments
Basin and Range	BR-01	BR-01-0-15' (0-0.5')	No	No	
	BR-01	BR-01-0-15' (0.5-1')	↓	↓	
	BR-01	BR-01-0-15' (1-1.5')	↓	↓	
	BR-01	BR-01-15-30' (0-0.5')	Sparse ~ 10%	↓	
	BR-01	BR-01-15-30' (0.5-1')	↓	↓	
	BR-01	BR-01-15-30' (1-1.5')	↓	↓	
	BR-01	BR-01->30' (0-0.5')	Sparse	↓	
	BR-01	BR-01->30' (0.5-1')	↓	↓	
	BR-01	BR-01->30' (1-1.5')	↓	↓	
	BR-02	BR-02-0-15' (0-0.5')	Grass ~ 70%	N	
	BR-02	BR-02-0-15' (0.5-1')	↓	↓	
	BR-02	BR-02-0-15' (1-1.5')	↓	↓	
	BR-02	BR-02-15-30' (0-0.5')	Fine Grass	↓	
	BR-02	BR-02-15-30' (0.5-1')	↓	↓	
	BR-02	BR-02-15-30' (1-1.5')	↓	↓	
	BR-02	BR-02->30' (0-0.5')	Thick Grass	N	
	BR-02	BR-02->30' (0.5-1')	↓	↓	
	BR-02	BR-02->30' (1-1.5')	↓	↓	
	BR-03	BR-03-0-15' (0-0.5')	Sparse	N	
	BR-03	BR-03-0-15' (0.5-1')	↓	↓	
	BR-03	BR-03-0-15' (1-1.5')	↓	↓	
	BR-03	BR-03-15-30' (0-0.5')	50% Grass	N	
	BR-03	BR-03-15-30' (0.5-1')	↓	↓	
	BR-03	BR-03-15-30' (1-1.5')	↓	↓	
	BR-03	BR-03->30' (0-0.5')	50% Grass	↓	
	BR-03	BR-03->30' (0.5-1')	↓	↓	
	BR-03	BR-03->30' (1-1.5')	↓	↓	

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes
Basin and Range	BR-04	BR-04-0-15' (0-0.5')	10/11	1453	5'	level	2
	BR-04	BR-04-0-15' (0.5-1')		1459			
	BR-04	BR-04-0-15' (1-1.5')		2000			
	BR-04	BR-04-15-30' (0-0.5')		2044	17'		
	BR-04	BR-04-15-30' (0.5-1')		2077			
	BR-04	BR-04-15-30' (1-1.5')		2115			
	BR-04	BR-04->30' (0-0.5')		2155	31'		
	BR-04	BR-04->30' (0.5-1')		2199			
	BR-04	BR-04->30' (1-1.5')	10/11	2259			
	BR-05	BR-05-0-15' (0-0.5')				level	2
	BR-05	BR-05-0-15' (0.5-1')					
	BR-05	BR-05-0-15' (1-1.5')					
	BR-05	BR-05-15-30' (0-0.5')	10/11'	3027	19'	level	2
	BR-05	BR-05-15-30' (0.5-1')		3155	19'		
	BR-05	BR-05-15-30' (1-1.5')		3220			
	BR-05	BR-05->30' (0-0.5')		2244	31'		
	BR-05	BR-05->30' (0.5-1')		3299			
	BR-05	BR-05->30' (1-1.5')		3355	31'		
	BR-06	BR-06-0-15' (0-0.5')	10/11'	3455	5'	1' below	2
	BR-06	BR-06-0-15' (0.5-1')		3599	5'		
	BR-06	BR-06-0-15' (1-1.5')		4044	5'		
	BR-06	BR-06-15-30' (0-0.5')		4077	16'	level	2
	BR-06	BR-06-15-30' (0.5-1')		4100			
	BR-06	BR-06-15-30' (1-1.5')		4133	16'		
	BR-06	BR-06->30' (0-0.5')		4188	31'		
	BR-06	BR-06->30' (0.5-1')		4255			
	BR-06	BR-06->30' (1-1.5')		4311	31'		

+ Duplicate @ 1-1.5 @ 31

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color
Basin and Range	BR-04	BR-04-0-15' (0-0.5')	None	N	N	Gravel	Gray/Brown
	BR-04	BR-04-0-15' (0.5-1')	↓	↓	↓	SG	
	BR-04	BR-04-0-15' (1-1.5')	↓	↓	↓	SG	Lt brn.
	BR-04	BR-04-15-30' (0-0.5')	↓	↓	↓	CS+cobbl	brown
	BR-04	BR-04-15-30' (0.5-1')	↓	↓	↓	SG	Lt brn
	BR-04	BR-04-15-30' (1-1.5')	↓	↓	↓	CSand	Lt brn
	BR-04	BR-04->30' (0-0.5')	↓	↓	↓	CSand	Lt brn
	BR-04	BR-04->30' (0.5-1')	↓	↓	↓	Sand	Lt brn
	BR-04	BR-04->30' (1-1.5')	↓	↓	↓	Sand	brn
	BR-05	BR-05-0-15' (0-0.5')	~	~	~		
	BR-05	BR-05-0-15' (0.5-1')	~	~	~		
	BR-05	BR-05-0-15' (1-1.5')	~	~	~		
	BR-05	BR-05-15-30' (0-0.5')	Above slight	N	N	Sand Case	Lt brn
	BR-05	BR-05-15-30' (0.5-1')	↓	↓	↓	PS. Sand	Lt brn
	BR-05	BR-05-15-30' (1-1.5')	↓	↓	↓	PS. Sand	Lt brn
	BR-05	BR-05->30' (0-0.5')	Above 1'	↓	↓	Silty Sand	Lt brn
	BR-05	BR-05->30' (0.5-1')	↓	↓	↓	Silty Sand	brown-yellow
	BR-05	BR-05->30' (1-1.5')	↓	↓	↓	Fine Sand	brown-yellow
	BR-06	BR-06-0-15' (0-0.5')	Edge of ditch	N	N	Silt Sand	Lt br-yellow - cohesive
	BR-06	BR-06-0-15' (0.5-1')	↓	↓	↓	Silt Sand	yellow
	BR-06	BR-06-0-15' (1-1.5')	↓	↓	↓		Yellow
	BR-06	BR-06-15-30' (0-0.5')	Above	N	N	Find Sand	Brown
	BR-06	BR-06-15-30' (0.5-1')	↓	↓	↓	Silty Sand	Brown
	BR-06	BR-06-15-30' (1-1.5')	↓	↓	↓	Silt Sand	Dk brn
	BR-06	BR-06->30' (0-0.5')	↓	↓	↓	Silty Sand	yell- brn.
	BR-06	BR-06->30' (0.5-1')	↓	↓	↓	" "	yell- brn,
	BR-06	BR-06->30' (1-1.5')	↓	↓	↓	" "	yell- brn

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Recent Shoulder Work or Soil Removal?	Comments
Basin and Range	BR-04	BR-04-0-15' (0-0.5')	N	N	
	BR-04	BR-04-0-15' (0.5-1')			
	BR-04	BR-04-0-15' (1-1.5')			
	BR-04	BR-04-15-30' (0-0.5')			
	BR-04	BR-04-15-30' (0.5-1')			
	BR-04	BR-04-15-30' (1-1.5')			
	BR-04	BR-04->30' (0-0.5')	5% grass		
	BR-04	BR-04->30' (0.5-1')			
	BR-04	BR-04->30' (1-1.5')			
	BR-05	BR-05-0-15' (0-0.5')			
	BR-05	BR-05-0-15' (0.5-1')			
	BR-05	BR-05-0-15' (1-1.5')			
	BR-05	BR-05-15-30' (0-0.5')	Grass, Sage	N	
	BR-05	BR-05-15-30' (0.5-1')			
	BR-05	BR-05-15-30' (1-1.5')			
	BR-05	BR-05->30' (0-0.5')			
	BR-05	BR-05->30' (0.5-1')			
	BR-05	BR-05->30' (1-1.5')			
	BR-06	BR-06-0-15' (0-0.5')	Grass, Sage	N	
	BR-06	BR-06-0-15' (0.5-1')			
	BR-06	BR-06-0-15' (1-1.5')			
	BR-06	BR-06-15-30' (0-0.5')			
	BR-06	BR-06-15-30' (0.5-1')			
	BR-06	BR-06-15-30' (1-1.5')			
	BR-06	BR-06->30' (0-0.5')			
	BR-06	BR-06->30' (0.5-1')			
	BR-06	BR-06->30' (1-1.5')			

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes
Basin and Range	BR-07	BR-07-0-15' (0.5-1')	10/11	456	5'	Below 1'	2
	BR-07	BR-07-0-15' (1-1.5')		504			
	BR-07	BR-07-15-30' (0-0.5')		510	16'		
	BR-07	BR-07-15-30' (0.5-1')		516	↓	level	
	BR-07	BR-07-15-30' (1-1.5')		519	↓		
	BR-07	BR-07->30' (0-0.5')		522	31'		
	BR-07	BR-07->30' (0.5-1')		525	↓		
	BR-07	BR-07->30' (1-1.5')		530	↓		
	BR-08	BR-08-0-15' (0-0.5')					
	BR-08	BR-08-0-15' (0.5-1')					
	BR-08	BR-08-0-15' (1-1.5')					
	BR-08	BR-08-15-30' (0-0.5')	10/11	540	18'	below 1'	2
	BR-08	BR-08-15-30' (0.5-1')		546	↓		
	BR-08	BR-08-15-30' (1-1.5')		553	↓		
	BR-08	BR-08->30' (0-0.5')		559	31'	below 2.5'	2
	BR-08	BR-08->30' (0.5-1')		607	↓		
	BR-08	BR-08->30' (1-1.5')		616	↓		
	BR-09	BR-09-0-15' (0-0.5')					
	BR-09	BR-09-0-15' (0.5-1')					
	BR-09	BR-09-0-15' (1-1.5')					
	BR-09	BR-09-15-30' (0-0.5')		906	20'	below 2'	2
	BR-09	BR-09-15-30' (0.5-1')		917	↓		
	BR-09	BR-09-15-30' (1-1.5')		927	↓		
	BR-09	BR-09->30' (0-0.5')		922	31'	below 1'	2
	BR-09	BR-09->30' (0.5-1')		930	↓		
	BR-09	BR-09->30' (1-1.5')		937	↓		

* → BR07 5' out 0-.5 10/11 at 5:05

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color
Basin and Range	BR-07	BR-07-0-15' (0.5-1')	Edge	N	N	SG	Brn
	BR-07	BR-07-0-15' (1-1.5')		N		SG	Lt brn
	BR-07	BR-07-15-30' (0-0.5')	Not			Coarse Sand	Yellow
	BR-07	BR-07-15-30' (0.5-1')				Fine Sand	yellow
	BR-07	BR-07-15-30' (1-1.5')				Fine Sand	yellow
	BR-07	BR-07->30' (0-0.5')	N/A	N	N	Sand/Cobble	brn
	BR-07	BR-07->30' (0.5-1')				" "	Lt brn.
	BR-07	BR-07->30' (1-1.5')				" "	Lt brn.
	BR-08	BR-08-0-15' (0-0.5')	N/A	N	N		
	BR-08	BR-08-0-15' (0.5-1')					
	BR-08	BR-08-0-15' (1-1.5')					
	BR-08	BR-08-15-30' (0-0.5')	No	N	N	SG	brn
	BR-08	BR-08-15-30' (0.5-1')				Sand + Cobble	Lt brn
	BR-08	BR-08-15-30' (1-1.5')				" "	Lt brn
	BR-08	BR-08->30' (0-0.5')				SG	dk brn
	BR-08	BR-08->30' (0.5-1')				Sand + Cobble	Lt brn
	BR-08	BR-08->30' (1-1.5')				" "	brn.
	BR-09	BR-09-0-15' (0-0.5')					
	BR-09	BR-09-0-15' (0.5-1')					
	BR-09	BR-09-0-15' (1-1.5')					
	BR-09	BR-09-15-30' (0-0.5')	Above	N	N	SG	brn
	BR-09	BR-09-15-30' (0.5-1')				SG	brn
	BR-09	BR-09-15-30' (1-1.5')				Sand/Silt	brn
	BR-09	BR-09->30' (0-0.5')	Above	N	N	Sand/Silt	brn
	BR-09	BR-09->30' (0.5-1')				Silty Sand	Dk brn
	BR-09	BR-09->30' (1-1.5')				Silty Sand	Dk brn

→ Coarse Sand Lt brn

cohesive cores.

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Recent Shoulder Work or Soil Removal?	Comments
Basin and Range	BR-07	BR-07-0-15' (0.5-1')	50% grass	N	
	BR-07	BR-07-0-15' (1-1.5')			
	BR-07	BR-07-15-30' (0-0.5')			
	BR-07	BR-07-15-30' (0.5-1')			
	BR-07	BR-07-15-30' (1-1.5')			
	BR-07	BR-07->30' (0-0.5')	Sage, grass		
	BR-07	BR-07->30' (0.5-1')			
	BR-07	BR-07->30' (1-1.5')			
	BR-08	BR-08-0-15' (0-0.5')			
	BR-08	BR-08-0-15' (0.5-1')			
	BR-08	BR-08-0-15' (1-1.5')			
	BR-08	BR-08-15-30' (0-0.5')	Sage, Grass	N	
	BR-08	BR-08-15-30' (0.5-1')			
	BR-08	BR-08-15-30' (1-1.5')			
	BR-08	BR-08->30' (0-0.5')			
	BR-08	BR-08->30' (0.5-1')			
	BR-08	BR-08->30' (1-1.5')			
	BR-09	BR-09-0-15' (0-0.5')			
	BR-09	BR-09-0-15' (0.5-1')			
	BR-09	BR-09-0-15' (1-1.5')			
	BR-09	BR-09-15-30' (0-0.5')	Grass 50%	N	
	BR-09	BR-09-15-30' (0.5-1')			
	BR-09	BR-09-15-30' (1-1.5')			
	BR-09	BR-09->30' (0-0.5')			
	BR-09	BR-09->30' (0.5-1')			
	BR-09	BR-09->30' (1-1.5')			

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes
Basin and Range	BR-10	BR-10-0-15' (0.5-1')	10/12	1006	5'	below 1'	2
	BR-10	BR-10-0-15' (1-1.5')		1017			
	BR-10	BR-10-15-30' (0-0.5')		1030	20'	below 5'	2
	BR-10	BR-10-15-30' (0.5-1')		1034			
	BR-10	BR-10-15-30' (1-1.5')		1040			
	BR-10	BR-10->30' (0-0.5')		1046	31'		
	BR-10	BR-10->30' (0.5-1')		10			
	BR-10	BR-10->30' (1-1.5')		1047	31'		
	BR-11	BR-11-0-15' (0-0.5')	10/12	11:30	5'	below .5'	2
	BR-11	BR-11-0-15' (0.5-1')		1136			
	BR-11	BR-11-0-15' (1-1.5')		1139			
	BR-11	BR-11-15-30' (0-0.5')		1144	16	below 2'	
	BR-11	BR-11-15-30' (0.5-1')		1152			
	BR-11	BR-11-15-30' (1-1.5')		1159			
	BR-11	BR-11->30' (0-0.5')		1206	31'	below 2	
	BR-11	BR-11->30' (0.5-1')		1210	31'		
	BR-11	BR-11->30' (1-1.5')		1221	→38'		
	BR-12	BR-12-0-15' (0-0.5')	10/12	1245	5'	level	3
	BR-12	BR-12-0-15' (0.5-1')		1255			
	BR-12	BR-12-0-15' (1-1.5')		101			
	BR-12	BR-12-15-30' (0-0.5')		116	21'	below 1.5'	
	BR-12	BR-12-15-30' (0.5-1')		120			
	BR-12	BR-12-15-30' (1-1.5')	N/A	—			
	BR-12	BR-12->30' (0-0.5')		129	31'	below 2'	
	BR-12	BR-12->30' (0.5-1')		137			
	BR-12	BR-12->30' (1-1.5')	N/A	—			

→ 0-1') - gravel

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color
Basin and Range	BR-10	BR-10-0-15' (0.5-1')	None	N	N	Gravel	
	BR-10	BR-10-0-15' (1-1.5')				Silt/Clay	Dk brn – Red w. cohes.
	BR-10	BR-10-15-30' (0-0.5')				Sand	Lt brn
	BR-10	BR-10-15-30' (0.5-1')				PS. Sand	
	BR-10	BR-10-15-30' (1-1.5')				Silt	Grey/white
	BR-10	BR-10->30' (0-0.5')				Sand	brown
	BR-10	BR-10->30' (0.5-1')				PS Sand	Lt brn
	BR-10	BR-10->30' (1-1.5')				PS Sand	" "
	BR-11	BR-11-0-15' (0-0.5')	N/P	Y ~75' W	N	SG	Brn/Gry
	BR-11	BR-11-0-15' (0.5-1')				SG	Lt brn
	BR-11	BR-11-0-15' (1-1.5')				PS Sand	Brn
	BR-11	BR-11-15-30' (0-0.5')				Sand/Gravel	Brn
	BR-11	BR-11-15-30' (0.5-1')				SG	
	BR-11	BR-11-15-30' (1-1.5')				SG	Brn
	BR-11	BR-11->30' (0-0.5')				Sand	Dk brn
	BR-11	BR-11->30' (0.5-1')				Sand	Lt brn
	BR-11	BR-11->30' (1-1.5')				Fine Sand	Dk brn
	BR-12	BR-12-0-15' (0-0.5')	N/A	N	N	(Gravel)	Gray
	BR-12	BR-12-0-15' (0.5-1')				SG	Brn
	BR-12	BR-12-0-15' (1-1.5')				SG	Brn
	BR-12	BR-12-15-30' (0-0.5')				SG	Brn
	BR-12	BR-12-15-30' (0.5-1')				SG + cobbles	Brn
	BR-12	BR-12-15-30' (1-1.5')					
	BR-12	BR-12->30' (0-0.5')				SG+	Gry Brn
	BR-12	BR-12->30' (0.5-1')				SG + cobbles	
	BR-12	BR-12->30' (1-1.5')					

Bedrock outcrop

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Recent Shoulder Work or Soil Removal?	Comments
Basin and Range	BR-10	BR-10-0-15' (0.5-1')	No - Gravel	N	
	BR-10	BR-10-0-15' (1-1.5')	↓	↓	
	BR-10	BR-10-15-30' (0-0.5')	10% Grass	↓	
	BR-10	BR-10-15-30' (0.5-1')	↓	↓	
	BR-10	BR-10-15-30' (1-1.5')	↓	↓	
	BR-10	BR-10->30' (0-0.5')	50% Grass	↓	
	BR-10	BR-10->30' (0.5-1')	↓	↓	
	BR-10	BR-10->30' (1-1.5')	↓	↓	
	BR-11	BR-11-0-15' (0-0.5')	Gravel	N	
	BR-11	BR-11-0-15' (0.5-1')	↓	↓	
	BR-11	BR-11-0-15' (1-1.5')	↓	↓	
	BR-11	BR-11-15-30' (0-0.5')	Grass	↓	
	BR-11	BR-11-15-30' (0.5-1')	↓	↓	
	BR-11	BR-11-15-30' (1-1.5')	↓	↓	
	BR-11	BR-11->30' (0-0.5')	Grass	↓	
	BR-11	BR-11->30' (0.5-1')	↓	↓	
	BR-11	BR-11->30' (1-1.5')	↓	↓	
	BR-12	BR-12-0-15' (0-0.5')	Gravel	N	
	BR-12	BR-12-0-15' (0.5-1')	↓	↓	
	BR-12	BR-12-0-15' (1-1.5')	↓	↓	
	BR-12	BR-12-15-30' (0-0.5')	Sparse Grass	↓	
	BR-12	BR-12-15-30' (0.5-1')	↓	↓	
	BR-12	BR-12-15-30' (1-1.5')	↓	↓	
	BR-12	BR-12->30' (0-0.5')	Grass	↓	
	BR-12	BR-12->30' (0.5-1')	↓	↓	
	BR-12	BR-12->30' (1-1.5')	↓	↓	

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes	
Basin and Range	BR-13	BR-13-0-15' (0-0.5')						
	BR-13	BR-13-0-15' (0.5-1')						
	BR-13	BR-13-0-15' (1-1.5')						
	BR-13	BR-13-15-30' (0-0.5')	10/12	204	15.5'	Below	2	util
	BR-13	BR-13-15-30' (0.5-1')		210				
	BR-13	BR-13-15-30' (1-1.5')		220				
	BR-13	BR-13->30' (0-0.5')		225	31'	Below		
	BR-13	BR-13->30' (0.5-1')		229				
	BR-13	BR-13->30' (1-1.5')		232	31			
	BR-14	BR-14-0-15' (0-0.5')	10/12	320	5'	Below 5'	2	
	BR-14	BR-14-0-15' (0.5-1')		326				
	BR-14	BR-14-0-15' (1-1.5')		333				
	BR-14	BR-14-15-30' (0-0.5')	10/12	338	25'	Below 1'		util
	BR-14	BR-14-15-30' (0.5-1')		342				
	BR-14	BR-14-15-30' (1-1.5')		346				
	BR-14	BR-14->30' (0-0.5')	10/12	352	31'	Below 1'		
	BR-14	BR-14->30' (0.5-1')		402				
	BR-14	BR-14->30' (1-1.5')		406				
	BR-15	BR-15-0-15' (0-0.5')						
	BR-15	BR-15-0-15' (0.5-1')						
	BR-15	BR-15-0-15' (1-1.5')						
	BR-15	BR-15-15-30' (0-0.5')	10/12	445	28'	Level	2	util
	BR-15	BR-15-15-30' (0.5-1')		452				
	BR-15	BR-15-15-30' (1-1.5')		458				
	BR-15	BR-15->30' (0-0.5')		505	31	above		
	BR-15	BR-15->30' (0.5-1')		509				
	BR-15	BR-15->30' (1-1.5')		513				

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color
Basin and Range	BR-13	BR-13-0-15' (0-0.5')					
	BR-13	BR-13-0-15' (0.5-1')					
	BR-13	BR-13-0-15' (1-1.5')					
	BR-13	BR-13-15-30' (0-0.5')	NP	N	N	Sand Silt	Brn.
	BR-13	BR-13-15-30' (0.5-1')	↓	↓	↓	PS Sand	lt brn
	BR-13	BR-13-15-30' (1-1.5')	↓	↓	↓	PS Sand	lt brn
	BR-13	BR-13->30' (0-0.5')	NP	N	N	Sandy Silt	Brn.
	BR-13	BR-13->30' (0.5-1')	↓	↓	↓	↓	Brn > cobbles.
	BR-13	BR-13->30' (1-1.5')	↓	↓	↓	Sand. Silt	Brn
	BR-14	BR-14-0-15' (0-0.5')	NP	N	N	Gravel	Gry Brn
	BR-14	BR-14-0-15' (0.5-1')	↓	↓	↓	SG	Brown
	BR-14	BR-14-0-15' (1-1.5')	↓	↓	↓	SG	Red Brn
	BR-14	BR-14-15-30' (0-0.5')	↓	↓	↓	Sand-Cob	Lt Brn.
	BR-14	BR-14-15-30' (0.5-1')	↓	↓	↓	SG	brn - yellow
	BR-14	BR-14-15-30' (1-1.5')	↓	↓	↓	Sand	Yellow
	BR-14	BR-14->30' (0-0.5')	↓	↓	↓	SG	lt brn
	BR-14	BR-14->30' (0.5-1')	↓	↓	↓	SG	" "
	BR-14	BR-14->30' (1-1.5')	↓	↓	↓	Sand	brn - yellow
	BR-15	BR-15-0-15' (0-0.5')					
	BR-15	BR-15-0-15' (0.5-1')					
	BR-15	BR-15-0-15' (1-1.5')					
	BR-15	BR-15-15-30' (0-0.5')	above	N	N	Fine sand	Lt brn.
	BR-15	BR-15-15-30' (0.5-1')	↓	↓	↓	Silty sand	brn
	BR-15	BR-15-15-30' (1-1.5')	↓	↓	↓	Silt sand	dk brn
	BR-15	BR-15->30' (0-0.5')	↓	↓	↓	Silt sand	brn
	BR-15	BR-15->30' (0.5-1')	↓	↓	↓	Silt sand	dk brn
	BR-15	BR-15->30' (1-1.5')	↓	↓	↓	silt	dk brn

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Recent Shoulder Work or Soil Removal?	Comments
Basin and Range	BR-13	BR-13-0-15' (0-0.5')	Gravel	N	
	BR-13	BR-13-0-15' (0.5-1')			
	BR-13	BR-13-0-15' (1-1.5')			
	BR-13	BR-13-15-30' (0-0.5')	Grass	N	
	BR-13	BR-13-15-30' (0.5-1')			
	BR-13	BR-13-15-30' (1-1.5')			
	BR-13	BR-13->30' (0-0.5')	Sage, Grass	N	
	BR-13	BR-13->30' (0.5-1')			
	BR-13	BR-13->30' (1-1.5')			
	BR-14	BR-14-0-15' (0-0.5')	Gravel	N	
	BR-14	BR-14-0-15' (0.5-1')			
	BR-14	BR-14-0-15' (1-1.5')			
	BR-14	BR-14-15-30' (0-0.5')	Sparse Grass		
	BR-14	BR-14-15-30' (0.5-1')			
	BR-14	BR-14-15-30' (1-1.5')			
	BR-14	BR-14->30' (0-0.5')	Sparse Grass		
	BR-14	BR-14->30' (0.5-1')			
	BR-14	BR-14->30' (1-1.5')			
	BR-15	BR-15-0-15' (0-0.5')	Ground	N	
	BR-15	BR-15-0-15' (0.5-1')			
	BR-15	BR-15-0-15' (1-1.5')			
	BR-15	BR-15-15-30' (0-0.5')	Grass ~ 50%		
	BR-15	BR-15-15-30' (0.5-1')			
	BR-15	BR-15-15-30' (1-1.5')			
	BR-15	BR-15->30' (0-0.5')	Sage + Grass		
	BR-15	BR-15->30' (0.5-1')			
	BR-15	BR-15->30' (1-1.5')			

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes
Basin and Range	BR-16	BR-16-0-15' (0-0.5')	10/12	535	5'	below .5	2
	BR-16	BR-16-0-15' (0.5-1')		545	↓	↓	↓
	BR-16	BR-16-0-15' (1-1.5')		551	↓	↓	↓
	BR-16	BR-16-15-30' (0-0.5')		601	16'	level	
	BR-16	BR-16-15-30' (0.5-1')		607	↓		
	BR-16	BR-16-15-30' (1-1.5')		615	↓		
	BR-16	BR-16->30' (0-0.5')		621	31'		
	BR-16	BR-16->30' (0.5-1')		624	↓		
	BR-16	BR-16->30' (1-1.5')		631	↓	↓	↓
	BR-17	BR-17-0-15' (0-0.5')	10/13	857	5'	level	2
	BR-17	BR-17-0-15' (0.5-1')		913	↓	↓	↓
	BR-17	BR-7-0-15' (1-1.5')		919	↓	↓	↓
	BR-17	BR-17-15-30' (0-0.5')		924	17'	↓	↓
	BR-17	BR-17-15-30' (0.5-1')		928	↓	↓	↓
	BR-17	BR-17-15-30' (1-1.5')		937	↓	↓	↓
	BR-17	BR-17->30' (0-0.5')		935	31'	↓	↓
	BR-17	BR-17->30' (0.5-1')		940	↓	↓	↓
	BR-17	BR-17->30' (1-1.5')	10/13	950	↓	↓	↓
	BR-18	BR-18-0-15' (0-0.5')	~~—~~	~~1024~~	~~—~~	~~—~~	~~—~~
	BR-18	BR-18-0-15' (0.5-1')	~~—~~	~~—~~	~~—~~	~~—~~	~~—~~
	BR-18	BR-18-0-15' (1-1.5')	~~—~~	~~—~~	~~—~~	~~—~~	~~—~~
	BR-18	BR-18-15-30' (0-0.5')	10/13	1024	16'	1' below	2
	BR-18	BR-18-15-30' (0.5-1')		1037	↓	↓	↓
	BR-18	BR-18-15-30' (1-1.5')		1045	↓	↓	↓
	BR-18	BR-18->30' (0-0.5')		1055	31'	↓	↓
	BR-18	BR-18->30' (0.5-1')		1101	31'	↓	↓
	BR-18	BR-18->30' (1-1.5')		1109	↓	↓	↓

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color
Basin and Range	BR-16	BR-16-0-15' (0-0.5')	Above 1'	N	N	SG	Grey
	BR-16	BR-16-0-15' (0.5-1')				SG	Grey/Brown
	BR-16	BR-16-0-15' (1-1.5')				Silt/Clay	Grey
	BR-16	BR-16-15-30' (0-0.5')				Cs. Sand	lt grey
	BR-16	BR-16-15-30' (0.5-1')				Cs Sand	lt brn
	BR-16	BR-16-15-30' (1-1.5')				Sand	lt grey
	BR-16	BR-16->30' (0-0.5')				Fine Sand	lt brn
	BR-16	BR-16->30' (0.5-1')				Sand	lt grey
	BR-16	BR-16->30' (1-1.5')				Fn Sand	lt brn
	BR-17	BR-17-0-15' (0-0.5')	N/A	N	Y 300' W	Gravel	grey
	BR-17	BR-17-0-15' (0.5-1')				SG	grey/brn
	BR-17	BR-7-0-15' (1-1.5')				SG	brn
	BR-17	BR-17-15-30' (0-0.5')				SG+Cobbl	lt brn
	BR-17	BR-17-15-30' (0.5-1')				SG	brn
	BR-17	BR-17-15-30' (1-1.5')				Sand	brn
	BR-17	BR-17->30' (0-0.5')				SG-SOft	lt brn
	BR-17	BR-17->30' (0.5-1')				Silt Sand	red brn
	BR-17	BR-17->30' (1-1.5')				Silt Sand	red brn
	BR-18	BR-18-0-15' (0-0.5')					
	BR-18	BR-18-0-15' (0.5-1')					
	BR-18	BR-18-0-15' (1-1.5')					
	BR-18	BR-18-15-30' (0-0.5')	N/A	N	N	SG + cobbl	lt brn
	BR-18	BR-18-15-30' (0.5-1')				SG	" "
	BR-18	BR-18-15-30' (1-1.5')				SG	lt brn
	BR-18	BR-18->30' (0-0.5')				Cs Sand	brn
	BR-18	BR-18->30' (0.5-1')				Cs Sand	brn
	BR-18	BR-18->30' (1-1.5')				Cs Sand	lt brn

color =

irrigation ditch ~ 40' from road

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Recent Shoulder Work or Soil Removal?	Comments
Basin and Range	BR-16	BR-16-0-15' (0-0.5')	N Grave	N	
	BR-16	BR-16-0-15' (0.5-1')			
	BR-16	BR-16-0-15' (1-1.5')			
	BR-16	BR-16-15-30' (0-0.5')	Thick grass	N	
	BR-16	BR-16-15-30' (0.5-1')			
	BR-16	BR-16-15-30' (1-1.5')			
	BR-16	BR-16->30' (0-0.5')	Thick grass	N	
	BR-16	BR-16->30' (0.5-1')			
	BR-16	BR-16->30' (1-1.5')			
	BR-17	BR-17-0-15' (0-0.5')	Gravel	N	
	BR-17	BR-17-0-15' (0.5-1')			
	BR-17	BR-7-0-15' (1-1.5')			
	BR-17	BR-17-15-30' (0-0.5')	Sparse		
	BR-17	BR-17-15-30' (0.5-1')			
	BR-17	BR-17-15-30' (1-1.5')			
	BR-17	BR-17->30' (0-0.5')	Grass		
	BR-17	BR-17->30' (0.5-1')			
	BR-17	BR-17->30' (1-1.5')			
	BR-18	BR-18-0-15' (0-0.5')			
	BR-18	BR-18-0-15' (0.5-1')			
	BR-18	BR-18-0-15' (1-1.5')			
	BR-18	BR-18-15-30' (0-0.5')	50% grass	N	
	BR-18	BR-18-15-30' (0.5-1')			
	BR-18	BR-18-15-30' (1-1.5')			
	BR-18	BR-18->30' (0-0.5')	Grass	N	
	BR-18	BR-18->30' (0.5-1')			
	BR-18	BR-18->30' (1-1.5')			- New Hole

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes	
Basin and Range	BR-19	BR-19-0-15' (0-0.5')						
	BR-19	BR-19-0-15' (0.5-1')						
	BR-19	BR-19-0-15' (1-1.5')						
	BR-19	BR-19-15-30' (0-0.5')	10/13	1134	24'	below 2'	2	util
	BR-19	BR-19-15-30' (0.5-1')		1143	↓	↓	↓	
	BR-19	BR-19-15-30' (1-1.5')		1151	↓	↓	↓	
	BR-19	BR-19->30' (0-0.5')		1155	34'	below 2	↓	W & ditch
	BR-19	BR-19->30' (0.5-1')		1159	↓	↓	↓	
	BR-19	BR-19->30' (1-1.5')		1202	↓	↓	↓	
	BR-20	BR-20-0-15' (0-0.5')						
	BR-20	BR-20-0-15' (0.5-1')						
	BR-20	BR-20-0-15' (1-1.5')						
	BR-20	BR-20-15-30' (0-0.5')	10/13	1230	16'	below 2'	2	
	BR-20	BR-20-15-30' (0.5-1')		1242	↓	↓	↓	
	BR-20	BR-20-15-30' (1-1.5')		1246	↓	↓	↓	
	BR-20	BR-20->30' (0-0.5')		1250	31'	level		
	BR-20	BR-20->30' (0.5-1')		1255	↓	↓	↓	
	BR-20	BR-20->30' (1-1.5')		1021	↓	↓	↓	
	BR-21	BR-21-0-15' (0-0.5')	10/13	~~1248~~	to'	Below 1'	2	
	BR-21	BR-21-0-15' (0.5-1')	—	255	↓	↓	↓	
	BR-21	BR-21-0-15' (1-1.5')	—	302	↓	↓	↓	
	BR-21	BR-21-15-30' (0-0.5')	10/13	203	22'	Below 3'	2	util
	BR-21	BR-21-15-30' (0.5-1')		208	↓	↓	↓	
	BR-21	BR-21-15-30' (1-1.5')		214				
	BR-21	BR-21->30' (0-0.5')		~~218~~	31'			
	BR-21	BR-21->30' (0.5-1')		222	↓	↓	↓	
	BR-21	BR-21->30' (1-1.5')		227	↓	↓	↓	

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color	
Basin and Range	BR-19	BR-19-0-15' (0-0.5')						
	BR-19	BR-19-0-15' (0.5-1')						
	BR-19	BR-19-0-15' (1-1.5')						
	BR-19	BR-19-15-30' (0-0.5')	Above 1' East	N	N	Silty Sand	lt brn	White Thick Bk
	BR-19	BR-19-15-30' (0.5-1')				Silt + Sand	brn/white	
	BR-19	BR-19-15-30' (1-1.5')				Silt + Sand	brn	
	BR-19	BR-19->30' (0-0.5')	Above 1.5' W			Fine Sand	lt brn	
	BR-19	BR-19->30' (0.5-1')				Fine Sand	white/brn	
	BR-19	BR-19->30' (1-1.5')				Fine Sand	white/brn	
	BR-20	BR-20-0-15' (0-0.5')	Above 0.5'			SG	~~Grey~~ Brn	
	BR-20	BR-20-0-15' (0.5-1')				Clay	RED	
	BR-20	BR-20-0-15' (1-1.5')				Silt Clay	RED	
	BR-20	BR-20-15-30' (0-0.5')	Above 0.5'	N	N	SG	lt brn	
	BR-20	BR-20-15-30' (0.5-1')				SG	brn	
	BR-20	BR-20-15-30' (1-1.5')				SG	brn	
	BR-20	BR-20->30' (0-0.5')	Above 3'	N	N	Silty Sand	brn	Tree roots
	BR-20	BR-20->30' (0.5-1')				Sand	brn	
	BR-20	BR-20->30' (1-1.5')				Sand	dk brn	
	BR-21	BR-21-0-15' (0-0.5')	N/A	N	N	SG	Brn	
	BR-21	BR-21-0-15' (0.5-1')						
	BR-21	BR-21-0-15' (1-1.5')						
	BR-21	BR-21-15-30' (0-0.5')	N/A	N	N	Silty Sand	Brn	
	BR-21	BR-21-15-30' (0.5-1')				Fine Sand	Brn	
	BR-21	BR-21-15-30' (1-1.5')				Silt	Dk Brn	cohes.
	BR-21	BR-21->30' (0-0.5')				SG	lt brn	
	BR-21	BR-21->30' (0.5-1')				Sand	brn	
	BR-21	BR-21->30' (1-1.5')				Sand	dk brn	

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Recent Shoulder Work or Soil Removal?	Comments
Basin and Range	BR-19	BR-19-0-15' (0-0.5')			
	BR-19	BR-19-0-15' (0.5-1')			
	BR-19	BR-19-0-15' (1-1.5')			
	BR-19	BR-19-15-30' (0-0.5')	50% grass	N	
	BR-19	BR-19-15-30' (0.5-1')	"	"	
	BR-19	BR-19-15-30' (1-1.5')	"	"	
	BR-19	BR-19->30' (0-0.5')	Full grass	N	
	BR-19	BR-19->30' (0.5-1')	"	"	
	BR-19	BR-19->30' (1-1.5')	"	"	
	BR-20	BR-20-0-15' (0-0.5')	Grass	N	
	BR-20	BR-20-0-15' (0.5-1')	"	"	
	BR-20	BR-20-0-15' (1-1.5')	"	"	
	BR-20	BR-20-15-30' (0-0.5')	Grass	N	
	BR-20	BR-20-15-30' (0.5-1')	"	"	
	BR-20	BR-20-15-30' (1-1.5')	"	"	
	BR-20	BR-20->30' (0-0.5')	Grass + Pine	N	
	BR-20	BR-20->30' (0.5-1')	"	"	
	BR-20	BR-20->30' (1-1.5')	"	"	
	BR-21	BR-21-0-15' (0-0.5')	Gravel	N	
	BR-21	BR-21-0-15' (0.5-1')	"	"	
	BR-21	BR-21-0-15' (1-1.5')	"	"	
	BR-21	BR-21-15-30' (0-0.5')	Sparse Grass	"	
	BR-21	BR-21-15-30' (0.5-1')	"	"	
	BR-21	BR-21-15-30' (1-1.5')	"	"	
	BR-21	BR-21->30' (0-0.5')	Grass	"	
	BR-21	BR-21->30' (0.5-1')	"	"	
	BR-21	BR-21->30' (1-1.5')	"	"	

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes	
Basin and Range	BR-22	BR-22-0-15' (0-0.5')	10/13	318	5'	Below 1'	2	
	BR-22	BR-22-0-15' (0.5-1')		328	↓	↓	↓	
	BR-22	BR-22-0-15' (1-1.5')		333	↓	↓	↓	
	BR-22	BR-22-15-30' (0-0.5')		337	24'	Above 3'	↓	util
	BR-22	BR-22-15-30' (0.5-1')		345	↓	↓	↓	
	BR-22	BR-22-15-30' (1-1.5')		355	↓	↓	↓	
	BR-22	BR-22->30' (0-0.5')		404	31'	Above 3'	↓	
	BR-22	BR-22->30' (0.5-1')		410	↓	↓	↓	
	BR-22	BR-22->30' (1-1.5')		419	↓	↓	↓	
	BR-23	BR-23-0-15' (0-0.5')	10/13	502	7'	Below 1'	2	
	BR-23	BR-23-0-15' (0.5-1')		511				
	BR-23	BR-23-0-15' (1-1.5')						– Impervious Surface @ 12"
	BR-23	BR-23-15-30' (0-0.5')		520	18'	Below 2'	↓	
	BR-23	BR-23-15-30' (0.5-1')		527	↓	↓	↓	
	BR-23	BR-23-15-30' (1-1.5')		535	↓	↓	↓	
	BR-23	BR-23->30' (0-0.5')		542	31'	Below 2'	↓	
	BR-23	BR-23->30' (0.5-1')		550	↓	↓	↓	
	BR-23	BR-23->30' (1-1.5')		556	↓	↓	↓	
	BR-24	BR-24-0-15' (0-0.5')	10/14	1120	13'	Below 0.5'	2	Asphalt 6" below gravel to ~12'
	BR-24	BR-24-0-15' (0.5-1')		1126	↓	↓	↓	
	BR-24	BR-24-0-15' (1-1.5')		1130	↓	↓	↓	
	BR-24	BR-24-15-30' (0-0.5')		1135	21'	Below 0.5'	↓	
	BR-24	BR-24-15-30' (0.5-1')		1141	↓	↓	↓	
	BR-24	BR-24-15-30' (1-1.5')		1147	↓	↓	↓	
	BR-24	BR-24->30' (0-0.5')		1153	33'	↓	↓	
	BR-24	BR-24->30' (0.5-1')		1159	↓	↓	↓	
	BR-24	BR-24->30' (1-1.5')		1203	↓	↓	↓	

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color
Basin and Range	BR-22	BR-22-0-15' (0-0.5')	Above 0.5'	N	N	SG	Brn
	BR-22	BR-22-0-15' (0.5-1')	↓	↓	↓	Clay	Red brn
	BR-22	BR-22-0-15' (1-1.5')	↓	↓	↓	Silt Clay	Red brn
	BR-22	BR-22-15-30' (0-0.5')	Above	↓	↓	SG	Lt brn
	BR-22	BR-22-15-30' (0.5-1')	↓	↓	↓	Sand	brown
	BR-22	BR-22-15-30' (1-1.5')	↓	↓	↓	Sand	Dk brn
	BR-22	BR-22->30' (0-0.5')	↓	↓	↓	fine Sand	Lt brn
	BR-22	BR-22->30' (0.5-1')	↓	↓	↓	Fn Sand	White Brn
	BR-22	BR-22->30' (1-1.5')	↓	↓	↓	Fn Sand	White Brn
	BR-23	BR-23-0-15' (0-0.5')	Above	N	N	SG	Gray Brn
	BR-23	BR-23-0-15' (0.5-1')	↓	↓	↓	SG	Brn
	BR-23	BR-23-0-15' (1-1.5')	↓	↓	↓	—	
	BR-23	BR-23-15-30' (0-0.5')	↓	↓	↓	Sg	Lt brn
	BR-23	BR-23-15-30' (0.5-1')	↓	↓	↓	SG	brn
	BR-23	BR-23-15-30' (1-1.5')	↓	↓	↓	Sand	brn. yellow
	BR-23	BR-23->30' (0-0.5')	↓	↓	↓	Silty Sand	Lt brn
	BR-23	BR-23->30' (0.5-1')	↓	↓	↓	Silt	brn
	BR-23	BR-23->30' (1-1.5')	↓	↓	↓	Silt	Dk Brown
	BR-24	BR-24-0-15' (0-0.5')	↑	↑	↑	SG	
	BR-24	BR-24-0-15' (0.5-1')	Above 1'	N	N	SG	R-Brown
	BR-24	BR-24-0-15' (1-1.5')	↓	↓	↓	SG	Yellow Pumice
	BR-24	BR-24-15-30' (0-0.5')	Above 0.5'	↓	↓	SG	Yellow
	BR-24	BR-24-15-30' (0.5-1')	↓	↓	↓	Sand	↓
	BR-24	BR-24-15-30' (1-1.5')	↓	↓	↓	Sand	White
	BR-24	BR-24->30' (0-0.5')	↓	↓	↓	SG	White
	BR-24	BR-24->30' (0.5-1')	↓	↓	↓	PSI Sand	↓
	BR-24	BR-24->30' (1-1.5')	↓	↓	↓	Sand	↓

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Recent Shoulder Work or Soil Removal?	Comments
Basin and Range	BR-22	BR-22-0-15' (0-0.5')	Gravel	N	
	BR-22	BR-22-0-15' (0.5-1')	↓	↓	
	BR-22	BR-22-0-15' (1-1.5')	↓	↓	
	BR-22	BR-22-15-30' (0-0.5')	Grass 20%	N	
	BR-22	BR-22-15-30' (0.5-1')	↓	↓	
	BR-22	BR-22-15-30' (1-1.5')	↓	↓	New hole
	BR-22	BR-22->30' (0-0.5')	Grass 50%	N	
	BR-22	BR-22->30' (0.5-1')	↓		
	BR-22	BR-22->30' (1-1.5')	↓		New hole
	BR-23	BR-23-0-15' (0-0.5')	Gravel	N	
	BR-23	BR-23-0-15' (0.5-1')	↓	Looks new but	
	BR-23	BR-23-0-15' (1-1.5')	Asphalt	but	
	BR-23	BR-23-15-30' (0-0.5')	5% Grass	vegetated	
	BR-23	BR-23-15-30' (0.5-1')	↓	↓	
	BR-23	BR-23-15-30' (1-1.5')	↓	↓	
	BR-23	BR-23->30' (0-0.5')	100% Grass	↓	
	BR-23	BR-23->30' (0.5-1')	↓	↓	
	BR-23	BR-23->30' (1-1.5')	↓	↓	
	BR-24	BR-24-0-15' (0-0.5')	Gravel	N	many Cinders
	BR-24	BR-24-0-15' (0.5-1')	↓	↓	
	BR-24	BR-24-0-15' (1-1.5')	↓	↓	Several (3) recent road flares shoulder on pavement
	BR-24	BR-24-15-30' (0-0.5')	Grass	↓	Chopped Wood in hole
	BR-24	BR-24-15-30' (0.5-1')	↓	↓	
	BR-24	BR-24-15-30' (1-1.5')	↓	↓	
	BR-24	BR-24->30' (0-0.5')	Grass Sage	↓	
	BR-24	BR-24->30' (0.5-1')	↓	↓	
	BR-24	BR-24->30' (1-1.5')	↓	↓	

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes
Basin and Range	BR-25	BR-25-0-15' (0-0.5')	10/14	1228	10'	Below 1'	2
	BR-25	BR-25-0-15' (0.5-1')		1242	↓	↓	↓
	BR-25	BR-25-0-15' (1-1.5')		1247	↓	↓	↓
	BR-25	BR-25-15-30' (0-0.5')		1253	22'	Below 2'	2
	BR-25	BR-25-15-30' (0.5-1')		1259	↓	↓	↓
	BR-25	BR-25-15-30' (1-1.5')		102	↓	↓	↓
	BR-25	BR-25->30' (0-0.5')		108	84'	Below 1'	2
	BR-25	BR-25->30' (0.5-1')		113	↓	↓	↓
	BR-25	BR-25->30' (1-1.5')		116	↓	↓	↓

out of ditch

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color
Basin and Range	BR-25	BR-25-0-15' (0-0.5')	Above E	N	N	SG	Gvly Brn
	BR-25	BR-25-0-15' (0.5-1')	↓	↓	↓	SG	Brn
	BR-25	BR-25-0-15' (1-1.5')	↓	↓	↓	SG	Dk Brn
	BR-25	BR-25-15-30' (0-0.5')	Above W	N	N	SG	Lt brn Pumice
	BR-25	BR-25-15-30' (0.5-1')	↓	↓	↓	Sand	brn
	BR-25	BR-25-15-30' (1-1.5')	↓	↓	↓	Fn Sand	brn
	BR-25	BR-25->30' (0-0.5')	Above	N	N	Silty Sand	Brn
	BR-25	BR-25->30' (0.5-1')	↓	↓	↓	Silt Sand	Yellow
	BR-25	BR-25->30' (1-1.5')	↓	↓	↓	Silt Sand	Yellow-white

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Recent Shoulder Work or Soil Removal?	Comments
Basin and Range	BR-25	BR-25-0-15' (0-0.5')	Gravel	N	
	BR-25	BR-25-0-15' (0.5-1')	"	"	
	BR-25	BR-25-0-15' (1-1.5')	"	"	
	BR-25	BR-25-15-30' (0-0.5')	10% grass	N	
	BR-25	BR-25-15-30' (0.5-1')	"	"	
	BR-25	BR-25-15-30' (1-1.5')	"	"	
	BR-25	BR-25->30' (0-0.5')	Grass + Sage	N	
	BR-25	BR-25->30' (0.5-1')	"	"	
	BR-25	BR-25->30' (1-1.5')	"	"	

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes
Blue Mountains	BM-01	BM-01-15-30' (0-0.5')	10/20	1257	18'	Above 2'	4
	BM-01	BM-01-15-30' (0.5-1')		106			
	BM-01	BM-01-15-30' (1-1.5')		112			
	BM-01	BM-01->30' (0-0.5')		120	33'	Above 4'	
	BM-01	BM-01->30' (0.5-1')		127			
	BM-01	BM-01->30' (1-1.5')		139			
	BM-02	BM-02-15-30' (0-0.5')	10/20	158	18'	Below 1'	4
	BM-02	BM-02-15-30' (0.5-1')		212			
	BM-02	BM-02-15-30' (1-1.5')		223			
	BM-02	BM-02->30' (0-0.5')		233	33'	level	
	BM-02	BM-02->30' (0.5-1')		244		Level	4
	BM-02	BM-02->30' (1-1.5')		252			1
	BM-03	BM-03-15-30' (0-0.5')	10/20	311	20'	Level	4
	BM-03	BM-03-15-30' (0.5-1')		324			
	BM-03	BM-03-15-30' (1-1.5')		332			
	BM-03	BM-03->30' (0-0.5')		343	35'	above 2'	
	BM-03	BM-03->30' (0.5-1')		350			
	BM-03	BM-03->30' (1-1.5')		403			
	BM-04	BM-04-15-30' (0-0.5')	10/24	842	18'	level	2
	BM-04	BM-04-15-30' (0.5-1')		853			
	BM-04	BM-04-15-30' (1-1.5')		905			
	BM-04	BM-04->30' (0-0.5')		911	32'	above 2'	2
	BM-04	BM-04->30' (0.5-1')		920			
	BM-04	BM-04->30' (1-1.5')		928			

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color	
Blue Mountains	BM-01	BM-01-15-30' (0-0.5')	Above 3'	N	N	Sandy Grvl	Brn Gry	
	BM-01	BM-01-15-30' (0.5-1')	↓	↓	↓	Sandy Grvl	Ylw Gry	
	BM-01	BM-01-15-30' (1-1.5')	↓	↓	↓	P.S Snd	Ylw-Brn	
	BM-01	BM-01->30' (0-0.5')	↓	↓	↓	Snd tr Grvl	Brn	
	BM-01	BM-01->30' (0.5-1')	↓	↓	↓	Silty Sand	Ylw-Brn	
	BM-01	BM-01->30' (1-1.5')	↓	↓	↓	Silty Sand	Wht-Ltbrn	
	BM-02	BM-02-15-30' (0-0.5')	N/A	N	N	Grvl w/ Sand	Gry/Brn	
	BM-02	BM-02-15-30' (0.5-1')	↓	↓	↓	Grvl w/ Sand	Gry	
	BM-02	BM-02-15-30' (1-1.5')	↓	↓	↓	PS Sand	Lt brn	
	BM-02	BM-02->30' (0-0.5')	↓	↓	↓	SG	Brn	
	BM-02	BM-02->30' (0.5-1')	↓	↓	↓	Silty Sand.	Ylw-Brn	
	BM-02	BM-02->30' (1-1.5')	↓	↓	↓	Silty Sand	Ylw	
	BM-03	BM-03-15-30' (0-0.5')	N/A	N	N	SG	brn	
	BM-03	BM-03-15-30' (0.5-1')	↓	↓	↓	Snd w/ Cobl	Red	cbls many
	BM-03	BM-03-15-30' (1-1.5')	↓	↓	↓	Snd w/ Cobl	Red brn	
	BM-03	BM-03->30' (0-0.5')	↓	↓	↓	↓	Dk brn	
	BM-03	BM-03->30' (0.5-1')	↓	↓	↓	↓	Dk brn	
	BM-03	BM-03->30' (1-1.5')	↓	↓	↓	↓	Dk brn	
	BM-04	BM-04-15-30' (0-0.5')	above 1'	N	N	PS Sand w/ Cobl	Brn	Cobble many
	BM-04	BM-04-15-30' (0.5-1')	↓	↓	↓	Sand w/ Cobl	Gry/Gry	
	BM-04	BM-04-15-30' (1-1.5')	↓	↓	↓	Sand w/ Cobl	Brn/Gry	
	BM-04	BM-04->30' (0-0.5')	above 3'	N	N	Sandy Silt	Ltbrn	v. cohes.
	BM-04	BM-04->30' (0.5-1')	↓	↓	↓	Silt / Clay	Wht/Gry	
	BM-04	BM-04->30' (1-1.5')	↓	↓	↓	Silt / Clay	Lt brn	

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Shoulder Work or Soil Removal?	Highway, Mile Marker, Side of Highway	Comments
Blue Mountains	BM-01	BM-01-15-30' (0-0.5')	Grass 50%	N	I-84E, MM 244, S	
	BM-01	BM-01-15-30' (0.5-1')	↓	↓	↓	
	BM-01	BM-01-15-30' (1-1.5')	↓	↓	↓	
	BM-01	BM-01->30' (0-0.5')	100% Grass	↓	↓	
	BM-01	BM-01->30' (0.5-1')	↓	↓	↓	
	BM-01	BM-01->30' (1-1.5')	↓	↓	↓	
	BM-02	BM-02-15-30' (0-0.5')	70% Grass	N	I-84E, MM 245, S	
	BM-02	BM-02-15-30' (0.5-1')	↓	↓		
	BM-02	BM-02-15-30' (1-1.5')	↓	↓		
	BM-02	BM-02->30' (0-0.5')	100% Grass	↓		
	BM-02	BM-02->30' (0.5-1')	↓	↓		
	BM-02	BM-02->30' (1-1.5')	↓	↓		
	BM-03	BM-03-15-30' (0-0.5')	50% Grass	N	I-84E, MM 247, S	
	BM-03	BM-03-15-30' (0.5-1')	↓	↓	↓	
	BM-03	BM-03-15-30' (1-1.5')	↓	↓	↓	
	BM-03	BM-03->30' (0-0.5')	100% Grass	↓	↓	
	BM-03	BM-03->30' (0.5-1')	↓	↓	↓	
	BM-03	BM-03->30' (1-1.5')	↓	↓	↓	
	BM-04	BM-04-15-30' (0-0.5')	20% grass	N	OR 244, MM 46, N	
	BM-04	BM-04-15-30' (0.5-1')	↓	↓	↓	
	BM-04	BM-04-15-30' (1-1.5')	↓	↓	↓	
	BM-04	BM-04->30' (0-0.5')	80% grass	↓	↓	
	BM-04	BM-04->30' (0.5-1')	↓	↓	↓	
	BM-04	BM-04->30' (1-1.5')	↓	↓	↓	

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes
Blue Mountains	BM-05	BM-05-15-30' (0-0.5')	10/24	1029			
	BM-05	BM-05-15-30' (0.5-1')					
	BM-05	BM-05-15-30' (1-1.5')					
	BM-05	BM-05->30' (0-0.5')		1030	31'	Below 3'	2
	BM-05	BM-05->30' (0.5-1')		1036			
	BM-05	BM-05->30' (1-1.5')		1043			
	BM-06	BM-06-15-30' (0-0.5')	10/24	1102	110'	level	2
	BM-06	BM-06-15-30' (0.5-1')		1110			
	BM-06	BM-06-15-30' (1-1.5')		1119			
	BM-06	BM-06->30' (0-0.5')		1131	31'	Lev. l	
	BM-06	BM-06->30' (0.5-1')		1143			
	BM-06	BM-06->30' (1-1.5')		1155			
	BM-07	BM-07-15-30' (0-0.5')	10/24	1235	16'	below 1'	2
	BM-07	BM-07-15-30' (0.5-1')		1244			
	BM-07	BM-07-15-30' (1-1.5')	10/24	1254			
	BM-07	BM-07->30' (0-0.5')		105	31'	Level	
	BM-07	BM-07->30' (0.5-1')		113			
	BM-07	BM-07->30' (1-1.5')		124			
	BM-08	BM-08-15-30' (0-0.5')	10/24	143	116'	below 2'	2
	BM-08	BM-08-15-30' (0.5-1')		155			
	BM-08	BM-08-15-30' (1-1.5')		209			
	BM-08	BM-08->30' (0-0.5')		220	31'	Level	
	BM-08	BM-08->30' (0.5-1')		231			
	BM-08	BM-08->30' (1-1.5')		240			

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color	
Blue Mountains	BM-05	BM-05-15-30' (0-0.5')						
	BM-05	BM-05-15-30' (0.5-1')						
	BM-05	BM-05-15-30' (1-1.5')						
	BM-05	BM-05->30' (0-0.5')	N/A	N	~ 60' E (level)	Silty Sand	Dk brn	
	BM-05	BM-05->30' (0.5-1')	↓	↓	↓	Sandy Silt	lt brn	
	BM-05	BM-05->30' (1-1.5')	↓	↓	↓	Sand w/ Gvl		
	BM-06	BM-06-15-30' (0-0.5')	N/A	N	~ 50', 3' below (from road)	Sandy Silt	Dk brn	
	BM-06	BM-06-15-30' (0.5-1')	↓	↓	↓	Sandy Silt	brn	
	BM-06	BM-06-15-30' (1-1.5')	↓	↓	↓	Sandy Silt	ylw-brn	
	BM-06	BM-06->30' (0-0.5')	↓	↓	↓	Sandy Silt	Dk brn	
	BM-06	BM-06->30' (0.5-1')	↓	↓	↓	Sand w/ Gvl	brn/ylw	
	BM-06	BM-06->30' (1-1.5')	↓	↓	↓	PS Sand	brn/ylw	
	BM-07	BM-07-15-30' (0-0.5')	Above 1' W	~ 200' N	N	Silt w/ Sand	Dk brn	
	BM-07	BM-07-15-30' (0.5-1')	↓	↓	↓	Silt w/ Sand	Dk brn	cohes.
	BM-07	BM-07-15-30' (1-1.5')	↓	↓	↓	Silt/Clay	Dk brn	
	BM-07	BM-07->30' (0-0.5')	Above 2' E	~ 200 N	N	Silt w/ Sand	Dk brn	
	BM-07	BM-07->30' (0.5-1')	↓	↓	↓	Silt w/ Sand	lt brn	
	BM-07	BM-07->30' (1-1.5')	↓	↓	↓	Silt to Sand	ylw-brn	
	BM-08	BM-08-15-30' (0-0.5')	Above 0.5'	~ 75' S	N	(grvl), (WS)	Gray	
	BM-08	BM-08-15-30' (0.5-1')	↓	↓	↓	Gvl w/ cobs	Gray-brn	
	BM-08	BM-08-15-30' (1-1.5')	↓	↓	↓	Gvl w/ cobs	Gray-brn	
	BM-08	BM-08->30' (0-0.5')	Above 1.5'	↓	↓	Silt w/ Sand	Brn-Red	cohes.
	BM-08	BM-08->30' (0.5-1')	↓	↓	↓	Silt / Clay	Red-brn	
	BM-08	BM-08->30' (1-1.5')	↓	↓	↓	silt/clay		v. cohs

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Shoulder Work or Soil Removal?	Highway, Mile Marker, Side of Highway	Comments
Blue Mountains	BM-05	BM-05-15-30' (0-0.5')	50% grass			
	BM-05	BM-05-15-30' (0.5-1')				
	BM-05	BM-05-15-30' (1-1.5')				
	BM-05	BM-05->30' (0-0.5')	100% grass	N	OR82N, MM 7, E	
	BM-05	BM-05->30' (0.5-1')	↓	↓		
	BM-05	BM-05->30' (1-1.5')	↓	↓		
	BM-06	BM-06-15-30' (0-0.5')	100% grass	N	OR82N, MM 13, E	
	BM-06	BM-06-15-30' (0.5-1')	↓			
	BM-06	BM-06-15-30' (1-1.5')	↓			
	BM-06	BM-06->30' (0-0.5')	↓			
	BM-06	BM-06->30' (0.5-1')	↓			
	BM-06	BM-06->30' (1-1.5')	↓			
	BM-07	BM-07-15-30' (0-0.5')	100% grass	N	OR82N, MM 19, E	
	BM-07	BM-07-15-30' (0.5-1')	↓			
	BM-07	BM-07-15-30' (1-1.5')	↓			
	BM-07	BM-07->30' (0-0.5')	100% grass			
	BM-07	BM-07->30' (0.5-1')	↓			
	BM-07	BM-07->30' (1-1.5')	↓			
	BM-08	BM-08-15-30' (0-0.5')	Gravel	↓	OR82N, MM 26, E	Man-Made gravel 1st 8" Culvert
	BM-08	BM-08-15-30' (0.5-1')	↓	possible		
	BM-08	BM-08-15-30' (1-1.5')	↓			Water in hole @ 15" → Ditch
	BM-08	BM-08->30' (0-0.5')	50% grass			
	BM-08	BM-08->30' (0.5-1')	↓			
	BM-08	BM-08->30' (1-1.5')				

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes
Blue Mountains	BM-09	BM-09-15-30' (0-0.5')	10/24	303	31'	Below 3'	3
	BM-09	BM-09-15-30' (0.5-1')					
	BM-09	BM-09-15-30' (1-1.5')					
	BM-09	BM-09->30' (0-0.5')	10/24	303	31	Below 3'	3
	BM-09	BM-09->30' (0.5-1')	↓	315	↓	↓	↓
	BM-09	BM-09->30' (1-1.5')	↓	327	↓	↓	↓
	BM-10	BM-10-15-30' (0-0.5')	10/25	1007	16'	below 1'	4
	BM-10	BM-10-15-30' (0.5-1')	↓	1018	↓	↓	↓
	BM-10	BM-10-15-30' (1-1.5')	↓	1030	↓	↓	↓
	BM-10	BM-10->30' (0-0.5')	↓	1039	31'	below 1'	↓
	BM-10	BM-10->30' (0.5-1')	↓	1046	↓	↓	↓
	BM-10	BM-10->30' (1-1.5')	↓	1050	↓	↓	↓
	BM-11	BM-11-15-30' (0-0.5')	10/25	1107	16'	below 1'	4
	BM-11	BM-11-15-30' (0.5-1')	↓	1119	↓	↓	↓
	BM-11	BM-11-15-30' (1-1.5')	↓	1132	↓	↓	↓
	BM-11	BM-11->30' (0-0.5')	↓	1140	31'	below 2'	↓
	BM-11	BM-11->30' (0.5-1')	↓	1151	↓	↓	↓
	BM-11	BM-11->30' (1-1.5')	↓	1159	↓	↓	↓
	BM-12	BM-12-15-30' (0-0.5')	10/25	1210	19'	below 2'	4
	BM-12	BM-12-15-30' (0.5-1')	↓	1219	↓	↓	↓
	BM-12	BM-12-15-30' (1-1.5')	↓	1227	↓	↓	↓
	BM-12	BM-12->30' (0-0.5')	↓	1237	33'	below 2'	↓
	BM-12	BM-12->30' (0.5-1')	↓	1246	↓	↓	↓
	BM-12	BM-12->30' (1-1.5')	↓	1254	↓	↓	↓

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color
Blue Mountains	BM-09	BM-09-15-30' (0-0.5')					
	BM-09	BM-09-15-30' (0.5-1')					
	BM-09	BM-09-15-30' (1-1.5')					
	BM-09	BM-09->30' (0-0.5')	N/A	N	N	Sandy Silt	Red-Brn
	BM-09	BM-09->30' (0.5-1')	↓	↓	↓	Sandy Gravel	Brn
	BM-09	BM-09->30' (1-1.5')	↓	↓	↓	SG w/ cobbl	Brn-Gry
	BM-10	BM-10-15-30' (0-0.5')	Above 4" N	N	N	SG + cobbl	Brn-Red
	BM-10	BM-10-15-30' (0.5-1')	↓	↓	Frontage Rd 100'	SG + cobbl	Brn-Red
	BM-10	BM-10-15-30' (1-1.5')	↓	↓	↓	Tuff Buff Sand	Pink
	BM-10	BM-10->30' (0-0.5')	Above 1' S	↓	↓	PS Sand	Brn
	BM-10	BM-10->30' (0.5-1')	↓	↓	↓	PS Sand	lt brn
	BM-10	BM-10->30' (1-1.5')	↓	↓	↓	Silty Sand	Brn/Gry
	BM-11	BM-11-15-30' (0-0.5')	Above 7'	N	N Frontage Rd 1170'	Sand w/ gravel	lt brn
	BM-11	BM-11-15-30' (0.5-1')	↓	↓	↓	Gravel w/ Sand	Pink/lt brn
	BM-11	BM-11-15-30' (1-1.5')	↓	↓	↓	Sand w/ Gravel	Brn/pink
	BM-11	BM-11->30' (0-0.5')	Above 1'	N	↓	Sand w/ Gravel	Brn/pink
	BM-11	BM-11->30' (0.5-1')	↓	↓	↓	Sand + gravel	lt brn-wht Brn
	BM-11	BM-11->30' (1-1.5')	↓	↓	↓	PS Sand	Wht-DK brn
	BM-12	BM-12-15-30' (0-0.5')	N/A	N	N	Sand (B) w/ cobbl	Brn
	BM-12	BM-12-15-30' (0.5-1')	↓	↓	↓	PS Sand	lt Brn
	BM-12	BM-12-15-30' (1-1.5')	↓	↓	↓	PS Sand	lt brn
	BM-12	BM-12->30' (0-0.5')	↓	↓	↓	Silt + Sand	Brn
	BM-12	BM-12->30' (0.5-1')	↓	↓	↓	Silt	Gry-wht
	BM-12	BM-12->30' (1-1.5')	↓	↓	↓	Silt/Clay	DK brn

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Shoulder Work or Soil Removal?	Highway, Mile Marker, Side of Highway	Comments
Blue Mountains	BM-09	BM-09-15-30' (0-0.5')				
	BM-09	BM-09-15-30' (0.5-1')				
	BM-09	BM-09-15-30' (1-1.5')				
	BM-09	BM-09->30' (0-0.5')	50% grass	N	OR82S, MM29, N	Pile from excavation boulder to Snd - plants present
	BM-09	BM-09->30' (0.5-1')	↓	↓		
	BM-09	BM-09->30' (1-1.5')	↓	↓		
	BM-10	BM-10-15-30' (0-0.5')	50% grass	N	184E, MM278, S	Plentiful timbers - Avoided
	BM-10	BM-10-15-30' (0.5-1')	↓	↓		Weakly Indurated Tuff (Auger Can break)
	BM-10	BM-10-15-30' (1-1.5')	↓	↓		
	BM-10	BM-10->30' (0-0.5')	75% grass	N		
	BM-10	BM-10->30' (0.5-1')	↓	↓		
	BM-10	BM-10->30' (1-1.5')	↓	↓		
	BM-11	BM-11-15-30' (0-0.5')	50% grass	N	184E, MM282, S	
	BM-11	BM-11-15-30' (0.5-1')	↓	↓		
	BM-11	BM-11-15-30' (1-1.5')	↓	↓		
	BM-11	BM-11->30' (0-0.5')	100% grass	N		
	BM-11	BM-11->30' (0.5-1')	↓	↓		
	BM-11	BM-11->30' (1-1.5')	↓	↓		
	BM-12	BM-12-15-30' (0-0.5')	50% grass	N	184E, MM285, S	
	BM-12	BM-12-15-30' (0.5-1')	↓	↓		
	BM-12	BM-12-15-30' (1-1.5')	↓	↓		
	BM-12	BM-12->30' (0-0.5')	100% grass	↓		
	BM-12	BM-12->30' (0.5-1')	↓	↓		
	BM-12	BM-12->30' (1-1.5')	↓	↓		

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes
Blue Mountains	BM-13	BM-13-15-30' (0-0.5')	10/25	107	19'	Below 1'	4
	BM-13	BM-13-15-30' (0.5-1')		115			
	BM-13	BM-13-15-30' (1-1.5')		123			
	BM-13	BM-13->30' (0-0.5')		131	33'	Below 1'	
	BM-13	BM-13->30' (0.5-1')		140			
	BM-13	BM-13->30' (1-1.5')		149			
	BM-14	BM-14-15-30' (0-0.5')					
	BM-14	BM-14-15-30' (0.5-1')					
	BM-14	BM-14-15-30' (1-1.5')					
	BM-14	BM-14->30' (0-0.5')	10/25	203	31'	Below 2'	4
	BM-14	BM-14->30' (0.5-1')		211			
	BM-14	BM-14->30' (1-1.5')		221			
	BM-15	BM-15-15-30' (0-0.5')					
	BM-15	BM-15-15-30' (0.5-1')					
	BM-15	BM-15-15-30' (1-1.5')					
	BM-15	BM-15->30' (0-0.5')	10/25	314	31'	Below 2'	4
	BM-15	BM-15->30' (0.5-1')		328			
	BM-15	BM-15->30' (1-1.5')		337			
	BM-16	BM-16-15-30' (0-0.5')	10/25	419	16'	level	2
	BM-16	BM-16-15-30' (0.5-1')		430			
	BM-16	BM-16-15-30' (1-1.5')		439			
	BM-16	BM-16->30' (0-0.5')		451	31'	level	
	BM-16	BM-16->30' (0.5-1')		459			
	BM-16	BM-16->30' (1-1.5')		510			

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color	
Blue Mountains	BM-13	BM-13-15-30' (0-0.5')	Above 0.5'S	N	N	Silty Clay	Brn	v. cohes
	BM-13	BM-13-15-30' (0.5-1')	↓	↓	↓	Silt/Clay	Yllw-brn	
	BM-13	BM-13-15-30' (1-1.5')	↓	↓	↓	Silt/Clay	Yllw brn	
	BM-13	BM-13->30' (0-0.5')	Above 0.5'	↓	↓	PS Sand	Lt brn	
	BM-13	BM-13->30' (0.5-1')	↓	↓	↓	Sand	Brn Wht	
	BM-13	BM-13->30' (1-1.5')	↓	↓	↓	Silt Sand	Brn	
	BM-14	BM-14-15-30' (0-0.5')	~	~	~	~	~	
	BM-14	BM-14-15-30' (0.5-1')	~	~	~	~	~	
	BM-14	BM-14-15-30' (1-1.5')	~	~	~	~	~	
	BM-14	BM-14->30' (0-0.5')	Above 22' N	N	N	PS Sand	Brn	
	BM-14	BM-14->30' (0.5-1')	↓	↓	Frontage Rd	Sand w/ Gravl	Brn/Gry	
	BM-14	BM-14->30' (1-1.5')	↓	↓	7' Ln	Sand w/ Gravl	Brn/Gry	
	BM-15	BM-15-15-30' (0-0.5')	~	~	~	~	~	
	BM-15	BM-15-15-30' (0.5-1')	~	~	~	~	~	
	BM-15	BM-15-15-30' (1-1.5')	~	~	~	~	~	
	BM-15	BM-15->30' (0-0.5')	N/A	N	N	Silty Clay	Dk brn	v. cohes
	BM-15	BM-15->30' (0.5-1')	↓	↓	↓	Silt/Clay	Dk brn	
	BM-15	BM-15->30' (1-1.5')	↓	↓	↓	Silt/Clay	Dk brn	
	BM-16	BM-16-15-30' (0-0.5')	N/A	N	N	Sand w/ gravl	Dk brn	
	BM-16	BM-16-15-30' (0.5-1')	↓	↓	↓	Sand Slt w/ gravl	brn/gry	
	BM-16	BM-16-15-30' (1-1.5')	↓	↓	↓	Sand w/ gravl	brn/gry	
	BM-16	BM-16->30' (0-0.5')	↓	↓	↓	Sand w/ gravl	Dk brn	
	BM-16	BM-16->30' (0.5-1')	↓	↓	↓	Fn WS sand	lt brn	
	BM-16	BM-16->30' (1-1.5')	↓	↓	↓	Silty Sand	lt brn	

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Shoulder Work or Soil Removal?	Highway, Mile Marker, Side of Highway	Comments
Blue Mountains	BM-13	BM-13-15-30' (0-0.5')	10% grass	N	I-84E, MM292, S	
	BM-13	BM-13-15-30' (0.5-1')				
	BM-13	BM-13-15-30' (1-1.5')				
	BM-13	BM-13->30' (0-0.5')	50% grass			
	BM-13	BM-13->30' (0.5-1')				
	BM-13	BM-13->30' (1-1.5')				
	BM-14	BM-14-15-30' (0-0.5')				
	BM-14	BM-14-15-30' (0.5-1')				
	BM-14	BM-14-15-30' (1-1.5')				
	BM-14	BM-14->30' (0-0.5')	100% grass	N	I-84E, MM300, S	
	BM-14	BM-14->30' (0.5-1')				
	BM-14	BM-14->30' (1-1.5')				
	BM-15	BM-15-15-30' (0-0.5')				
	BM-15	BM-15-15-30' (0.5-1')				
	BM-15	BM-15-15-30' (1-1.5')				
	BM-15	BM-15->30' (0-0.5')	25% grass	N	184E, MM275, S	
	BM-15	BM-15->30' (0.5-1')				
	BM-15	BM-15->30' (1-1.5')				
	BM-16	BM-16-15-30' (0-0.5')	100% grass	N	OR244W, MM40, N	
	BM-16	BM-16-15-30' (0.5-1')				
	BM-16	BM-16-15-30' (1-1.5')				
	BM-16	BM-16->30' (0-0.5')	100% grass			
	BM-16	BM-16->30' (0.5-1')				
	BM-16	BM-16->30' (1-1.5')				

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes
Blue Mountains	BM-17	BM-17-15-30' (0-0.5')					
	BM-17	BM-17-15-30' (0.5-1')					
	BM-17	BM-17-15-30' (1-1.5')					
	BM-17	BM-17->30' (0-0.5')	10/26	1002	31'	Level	2
	BM-17	BM-17->30' (0.5-1')	↓	1011	↓	↓	↓
	BM-17	BM-17->30' (1-1.5')	↓	1024	↓	↓	↓
	BM-18	BM-18-15-30' (0-0.5')	10/26	1059	16'	Above 1'	2
	BM-18	BM-18-15-30' (0.5-1')	↓	1114	↓	↓	↓
	BM-18	BM-18-15-30' (1-1.5')	↓	1128	↓	↓	↓
	BM-18	BM-18->30' (0-0.5')	↓	1140	31'	Above 2'	2
	BM-18	BM-18->30' (0.5-1')	↓	1153	↓	↓	↓
	BM-18	BM-18->30' (1-1.5')	↓	1205	↓	↓	↓
	BM-19	BM-19-15-30' (0-0.5')	10/26	1243	17'	Level	2
	BM-19	BM-19-15-30' (0.5-1')	↓	1255	↓	↓	↓
	BM-19	BM-19-15-30' (1-1.5')	↓	111	↓	↓	↓
	BM-19	BM-19->30' (0-0.5')	↓	124	31'	Level	2
	BM-19	BM-19->30' (0.5-1')	↓	137	↓	↓	↓
	BM-19	BM-19->30' (1-1.5')	↓	151	↓	↓	↓
	BM-20	BM-20-15-30' (0-0.5')	10/26	332	20'	Above 0.5'	2
	BM-20	BM-20-15-30' (0.5-1')	↓	339	↓	↓	↓
	BM-20	BM-20-15-30' (1-1.5')	↓	348	↓	↓	↓
	BM-20	BM-20->30' (0-0.5')	↓	358	33'	Above 0.5'	↓
	BM-20	BM-20->30' (0.5-1')	↓	407	↓	↑	↓
	BM-20	BM-20->30' (1-1.5')	↓	415	↑	↑	↓

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color
Blue Mountains	BM-17	BM-17-15-30' (0-0.5')					
	BM-17	BM-17-15-30' (0.5-1')					
	BM-17	BM-17-15-30' (1-1.5')					
	BM-17	BM-17->30' (0-0.5')	N/A	N	N	Sndy/Gvl	lt brn
	BM-17	BM-17->30' (0.5-1')	↓	↓	↓	Silty Snd	brn/y/w
	BM-17	BM-17->30' (1-1.5')	↓	↓	↓	Silty Sand	y/w/brn
	BM-18	BM-18-15-30' (0-0.5')	Above 1'	↓	↓	Sapr w/ Snd	Brn
	BM-18	BM-18-15-30' (0.5-1')	Above 1'	N	N	Saprolite w/ Snd	Brn
	BM-18	BM-18-15-30' (1-1.5')	↓	↓	↓	Sand w/ Cobl	Brn Gry
	BM-18	BM-18->30' (0-0.5')	Above 1'	↓	↓	Silt/Clay	Red-br
	BM-18	BM-18->30' (0.5-1')	↓	↓	↓	Sapr w/ Sndl	Red-br
	BM-18	BM-18->30' (1-1.5')	↓	↓	↓	Sprlt w/ Snd	Red-br
	BM-19	BM-19-15-30' (0-0.5')	Above 1'	N	N	Silt w/ Gvl	Red
	BM-19	BM-19-15-30' (0.5-1')	↓	↓	↓	Silt w/ Cobl	Red-brn
	BM-19	BM-19-15-30' (1-1.5')	↓	↓	↓	Silt w/ Cobl	Red-brn
	BM-19	BM-19->30' (0-0.5')	Above 1'	N	N	Sand w Cobl	lt brn
	BM-19	BM-19->30' (0.5-1')	↓	↓	↓	Sand w/ Cobl	lt brn
	BM-19	BM-19->30' (1-1.5')	↓	↓	↓	Sndy w/ Cob	lt brn/ gravel
	BM-20	BM-20-15-30' (0-0.5')	Above 1'	Y 50' N	N	Sndy w/ Gvl	Dk brn
	BM-20	BM-20-15-30' (0.5-1')	↓	Ditch	↓	PS Snd	lt brn
	BM-20	BM-20-15-30' (1-1.5')	↓	↓	↓	PS Snd	brn
	BM-20	BM-20->30' (0-0.5')	Above 1'	Y	↓	PS Snd	Dk brn
	BM-20	BM-20->30' (0.5-1')	↓	↓	↓	Fn Snd	Dk brn
	BM-20	BM-20->30' (1-1.5')	↓	↓	↓	Fn Snd	y/w brn

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Shoulder Work or Soil Removal?	Highway, Mile Marker, Side of Highway	Comments
Blue Mountains	BM-17	BM-17-15-30' (0-0.5')				
	BM-17	BM-17-15-30' (0.5-1')				
	BM-17	BM-17-15-30' (1-1.5')				
	BM-17	BM-17->30' (0-0.5')	20% grass	N	OR244, MM35, S	
	BM-17	BM-17->30' (0.5-1')	↓	↓	↓	
	BM-17	BM-17->30' (1-1.5')	↓	↓	↓	
	BM-18	BM-18-15-30' (0-0.5')	70% grass	N	OR244, MM24, N	
	BM-18	BM-18-15-30' (0.5-1')	↓	↓	↓	
	BM-18	BM-18-15-30' (1-1.5')	↓	↓	↓	Newhite
	BM-18	BM-18->30' (0-0.5')	90% grass	N	↓	
	BM-18	BM-18->30' (0.5-1')	↓	↓	↓	Newhite
	BM-18	BM-18->30' (1-1.5')	↓	↓	↓	
	BM-19	BM-19-15-30' (0-0.5')	10% grass Pine Needles	N	OR244, MM3, S	
	BM-19	BM-19-15-30' (0.5-1')	↓	↓	↓	
	BM-19	BM-19-15-30' (1-1.5')	↓	↓	↓	
	BM-19	BM-19->30' (0-0.5')	2-3" Pine Straw	N	↓	
	BM-19	BM-19->30' (0.5-1')	↓	↓	↓	
	BM-19	BM-19->30' (1-1.5')	↓	↓	↓	
	BM-20	BM-20-15-30' (0-0.5')	75% grass	N	OR19, MM105, N	
	BM-20	BM-20-15-30' (0.5-1')	↓	↓	↓	
	BM-20	BM-20-15-30' (1-1.5')	↓	↓	↓	
	BM-20	BM-20->30' (0-0.5')	100% grass	N	↓	
	BM-20	BM-20->30' (0.5-1')	↓	↓	↓	
	BM-20	BM-20->30' (1-1.5')	↓	↓	↓	

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes
Blue Mountains	BM-21	BM-21-15-30' (0-0.5')	10/26	426	16'	level	2
	BM-21	BM-21-15-30' (0.5-1')		439			
	BM-21	BM-21-15-30' (1-1.5')		450			
	BM-21	BM-21->30' (0-0.5')		459	31'	level	2
	BM-21	BM-21->30' (0.5-1')		512			
	BM-21	BM-21->30' (1-1.5')		525			
	BM-22	BM-22-15-30' (0-0.5')	10/27	912	x		
	BM-22	BM-22-15-30' (0.5-1')			x		
	BM-22	BM-22-15-30' (1-1.5')			x		
	BM-22	BM-22->30' (0-0.5')	10/27	912	31'	level	2
	BM-22	BM-22->30' (0.5-1')		925			
	BM-22	BM-22->30' (1-1.5')		934			
	BM-23	BM-23-15-30' (0-0.5')	10/27	957	16'	below 0.5'	2
	BM-23	BM-23-15-30' (0.5-1')		1009			
	BM-23	BM-23-15-30' (1-1.5')		1020			
	BM-23	BM-23->30' (0-0.5')		1029	31'	below 1'	2
	BM-23	BM-23->30' (0.5-1')		1041			
	BM-23	BM-23->30' (1-1.5')		1053			
	BM-24	BM-24-15-30' (0-0.5')	10/27	1238	16'	~~above~~ level	2
	BM-24	BM-24-15-30' (0.5-1')		1249			
	BM-24	BM-24-15-30' (1-1.5')		101			
	BM-24	BM-24->30' (0-0.5')		110	31'	level	2
	BM-24	BM-24->30' (0.5-1')		119			
	BM-24	BM-24->30' (1-1.5')		131			

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color
Blue Mountains	BM-21	BM-21-15-30' (0-0.5')	N/A	N	N	Sand w/ Gravel	Brn/Gry
	BM-21	BM-21-15-30' (0.5-1')				Sand w/ Cobbl	
	BM-21	BM-21-15-30' (1-1.5')				Sand w/ Cobbl	
	BM-21	BM-21->30' (0-0.5')	N/A	N	N	Silt + Sand	lt brn
	BM-21	BM-21->30' (0.5-1')				Sand w/ Cobbl	lt brn/gry
	BM-21	BM-21->30' (1-1.5')				Sand w/ Cobbl	lt brn/gry
	BM-22	BM-22-15-30' (0-0.5')					
	BM-22	BM-22-15-30' (0.5-1')					
	BM-22	BM-22-15-30' (1-1.5')					
	BM-22	BM-22->30' (0-0.5')	N/A	Y - Culv 50' W	N	Sand w/ Cobbl	Red-Brn
	BM-22	BM-22->30' (0.5-1')				Sand w/ Gravel	Brn-Red
	BM-22	BM-22->30' (1-1.5')				Sand w/ Gravel	Red-Brn
	BM-23	BM-23-15-30' (0-0.5')	N/A	Y - Culv 15' E	N	Sand w/ Gravel	lt brn
	BM-23	BM-23-15-30' (0.5-1')				PS Sand	brn
	BM-23	BM-23-15-30' (1-1.5')				PS Sand	brn
	BM-23	BM-23->30' (0-0.5')	N/A	Y - Culv 15' E	N	PS sand tr Gravel	Dk brn
	BM-23	BM-23->30' (0.5-1')				PS sand tr Cobbl	Dk brn
	BM-23	BM-23->30' (1-1.5')				PS sand	Dk brn
	BM-24	BM-24-15-30' (0-0.5')	Above 1.5'	N	N	Silt w/ Gravel	Dk brn
	BM-24	BM-24-15-30' (0.5-1')				Silt w/ Gravel	brn
	BM-24	BM-24-15-30' (1-1.5')				Sand w/ Gravel	brn
	BM-24	BM-24->30' (0-0.5')	Above 1.5	N	N	Sand w/ Cobbl	Yl w brn
	BM-24	BM-24->30' (0.5-1')				Sand w/ Gravel	Yl w brn
	BM-24	BM-24->30' (1-1.5')				PS Sand	Yl w brn

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Shoulder Work or Soil Removal?	Highway, Mile Marker, Side of Highway	Comments
Blue Mountains	BM-21	BM-21-15-30' (0-0.5')	80% grass	N	OR 19, MM 99, E	
	BM-21	BM-21-15-30' (0.5-1')	↓	↓		
	BM-21	BM-21-15-30' (1-1.5')	↓	↓		
	BM-21	BM-21->30' (0-0.5')	100% grass	N		
	BM-21	BM-21->30' (0.5-1')	↓	↓		
	BM-21	BM-21->30' (1-1.5')	↓	↓		
	BM-22	BM-22-15-30' (0-0.5')	—	—	—	—
	BM-22	BM-22-15-30' (0.5-1')	—	—	—	—
	BM-22	BM-22-15-30' (1-1.5')	—	—	—	—
	BM-22	BM-22->30' (0-0.5')	50% grass	N	OR 19, MM 87, S	
	BM-22	BM-22->30' (0.5-1')				
	BM-22	BM-22->30' (1-1.5')				
	BM-23	BM-23-15-30' (0-0.5')	25% grass	N	OR 19, MM 83, S	
	BM-23	BM-23-15-30' (0.5-1')				
	BM-23	BM-23-15-30' (1-1.5')				
	BM-23	BM-23->30' (0-0.5')	50% grass	N		
	BM-23	BM-23->30' (0.5-1')				
	BM-23	BM-23->30' (1-1.5')				
	BM-24	BM-24-15-30' (0-0.5')	50% grass	N	US 26, MM 34, N	
	BM-24	BM-24-15-30' (0.5-1')				
	BM-24	BM-24-15-30' (1-1.5')				
	BM-24	BM-24->30' (0-0.5')				
	BM-24	BM-24->30' (0.5-1')				
	BM-24	BM-24->30' (1-1.5')				

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes
Blue Mountains	BM-25	BM-25-15-30' (0-0.5')	10/27	1446	3		
	BM-25	BM-25-15-30' (0.5-1')					
	BM-25	BM-25-15-30' (1-1.5')					
	BM-25	BM-25->30' (0-0.5')	10/27	1417	31'	level	2
	BM-25	BM-25->30' (0.5-1')		202			
	BM-25	BM-25->30' (1-1.5')		218			

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color
Blue Mountains	BM-25	BM-25-15-30' (0-0.5')					
	BM-25	BM-25-15-30' (0.5-1')					
	BM-25	BM-25-15-30' (1-1.5')					
	BM-25	BM-25->30' (0-0.5')	N/A	N	N	Sand w/ (grv)	brn
	BM-25	BM-25->30' (0.5-1')	↓	↓	↓	Sand w/ (cbl)	brn/pink
	BM-25	BM-25->30' (1-1.5')	↓	↓	↓	Cbl w/ Sand	pink/brn

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Recent Shoulder Work or Soil Removal?	Highway, Mile Marker, Side of Highway	Comments
Blue Mountains	BM-25	BM-25-15-30' (0-0.5')				
	BM-25	BM-25-15-30' (0.5-1')				
	BM-25	BM-25-15-30' (1-1.5')				
	BM-25	BM-25->30' (0-0.5')	10% grass Surf	N	US26, MM30, N	Many Cobbles,
	BM-25	BM-25->30' (0.5-1')				Not sampled
	BM-25	BM-25->30' (1-1.5')				

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes	
Deschutes Columbia	DC-01	DC-01-15-30' (0-0.5')	10/18	912	16'	Below 1'	2	
	DC-01	DC-01-15-30' (0.5-1')		918	↓	↓	↓	
	DC-01	DC-01-15-30' (1-1.5')		927	↓	↓	↓	
	DC-01	DC-01->30' (0-0.5')		934	35'	Level	↓	util
	DC-01	DC-01->30' (0.5-1')		938	↓	↓	↓	
	DC-01	DC-01->30' (1-1.5')	↓	943	↓	↓	↓	
	DC-02	DC-02-15-30' (0-0.5')	10/18	1029	16'	Level	2	
	DC-02	DC-02-15-30' (0.5-1')		1037	↓	↓	↓	
	DC-02	DC-02-15-30' (1-1.5')		1044	↓	↓	↓	
	DC-02	DC-02->30' (0-0.5')		1048	31'	Level	2	
	DC-02	DC-02->30' (0.5-1')		1056	↓	↓	↓	
	DC-02	DC-02->30' (1-1.5')		1103	↓	↓	↓	
	DC-03	DC-03-15-30' (0-0.5')	10/18	1124	16'	Level	3	
	DC-03	DC-03-15-30' (0.5-1')		1135	↓	↓	↓	
	DC-03	DC-03-15-30' (1-1.5')		~~1147~~	~~16'~~	↓	↓	Bedrock-ok
	DC-03	DC-03->30' (0-0.5')		1148	31'	Level	↓	
	DC-03	DC-03->30' (0.5-1')		1157	↓	↓	↓	
	DC-03	DC-03->30' (1-1.5')		1204	↓	↓	↓	
	DC-04	DC-04-15-30' (0-0.5')	10/18	1238	16'	Below 1'	2	
	DC-04	DC-04-15-30' (0.5-1')		1245	↓	↓	↑	
	DC-04	DC-04-15-30' (1-1.5')		1251	↓	↓	↑	
	DC-04	DC-04->30' (0-0.5')		1256	31'	Below 1'	↑	
	DC-04	DC-04->30' (0.5-1')		105	↓	↓	↑	
	DC-04	DC-04->30' (1-1.5')	↓	109	↓	↓	↑	

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color
Deschutes Columbia	DC-01	DC-01-15-30' (0-0.5')	Above	N	N	Coarse Sa.	lt brn
	DC-01	DC-01-15-30' (0.5-1')	↓	↓	↓	PS Sand	brn
	DC-01	DC-01-15-30' (1-1.5')	↓	↓	↓	Sand w/ Grav	brn
	DC-01	DC-01->30' (0-0.5')	Above	↓	↓	Sand w/ Grav	lt brn
	DC-01	DC-01->30' (0.5-1')	↓	↓	↓	Fine Sand	red brn
	DC-01	DC-01->30' (1-1.5')	↓	↓	↓	Silty Sand	brn cohes
	DC-02	DC-02-15-30' (0-0.5')	N/A	N	N	SG + cobl	lt brn.
	DC-02	DC-02-15-30' (0.5-1')	↓	↓	↓	Sand w/ cobl	brn
	DC-02	DC-02-15-30' (1-1.5')	↓	↓	↓	Sand w/ cobl	brn/grey
	DC-02	DC-02->30' (0-0.5')	↓	↓	↓	Sand + Cobl	lt brn
	DC-02	DC-02->30' (0.5-1')	↓	↓	↓	Sand w/ cobl	brn/grey
	DC-02	DC-02->30' (1-1.5')	↓	↓	↓	Sand w/ cobl	brn/grey
	DC-03	DC-03-15-30' (0-0.5')	N/A	N	N	Sand w/ Cobl	Brn
	DC-03	DC-03-15-30' (0.5-1')	↓	↓	↓	↓	lt brn + basalt
	DC-03	DC-03-15-30' (1-1.5')	↓	↓	↓	↓	↓
	DC-03	DC-03->30' (0-0.5')	↓	↓	↓	Sand + Cobl	Lt brn
	DC-03	DC-03->30' (0.5-1')	↓	↓	↓	↓	brn
	DC-03	DC-03->30' (1-1.5')	↓	↓	↓	Sand + Cobl many	brn
	DC-04	DC-04-15-30' (0-0.5')	Above - East	N	N	Silty Sand	lt brn
	DC-04	DC-04-15-30' (0.5-1')	↓	↓	↓	Fn Sand	Dk brn
	DC-04	DC-04-15-30' (1-1.5')	↓	↓	↓	Fn Sand	Dk brn
	DC-04	DC-04->30' (0-0.5')	↓	↓	↓	Fn Sand + Gravel	Dk brn
	DC-04	DC-04->30' (0.5-1')	↓	↓	↓	Sand w/ Grvl	Brn
	DC-04	DC-04->30' (1-1.5')	↓	↓	↓	PS Sand	Brn-Yellow

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Recent Shoulder Work or Soil Removal?	Highway, Mile Marker, Side of Highway	Comments
Deschutes Columbia	DC-01	DC-01-15-30' (0-0.5')	Sparse Grass	N	26 NW, MM 115, N	Fuel odor → Airport?
	DC-01	DC-01-15-30' (0.5-1')	↓	↓	26 W, MM 106, N	
	DC-01	DC-01-15-30' (1-1.5')	↓	↓	26 E, MM 108, S	
	DC-01	DC-01->30' (0-0.5')	50% Grass	↓	97N MM 88, E	
	DC-01	DC-01->30' (0.5-1')	↓	↓	97N, MM 69, E	
	DC-01	DC-01->30' (1-1.5')	↓	↓	97N, MM 54, E	
	DC-02	DC-02-15-30' (0-0.5')	Full grass	N	97S MM 43, W	
	DC-02	DC-02-15-30' (0.5-1')	↓	↓	26, MM 106, N	
	DC-02	DC-02-15-30' (1-1.5')	↓	↓		
	DC-02	DC-02->30' (0-0.5')	Full grass	↓		
	DC-02	DC-02->30' (0.5-1')	↓	↓		
	DC-02	DC-02->30' (1-1.5')	↓	↓		
	DC-03	DC-03-15-30' (0-0.5')	Grass/Sage	N	US 26, MM 108, S	
	DC-03	DC-03-15-30' (0.5-1')	↓	↓		
	DC-03	DC-03-15-30' (1-1.5')	↓	↓		Sampled after >30'
	DC-03	DC-03->30' (0-0.5')	Grass/Sage	↓		
	DC-03	DC-03->30' (0.5-1')	↓	↓		New hole
	DC-03	DC-03->30' (1-1.5')	↓	↓		
	DC-04	DC-04-15-30' (0-0.5')	Tufts Grass	N	US 97, MM 88, E	
	DC-04	DC-04-15-30' (0.5-1')	↓	↓		
	DC-04	DC-04-15-30' (1-1.5')	↓	↓		
	DC-04	DC-04->30' (0-0.5')	Tufts Grass	↓		
	DC-04	DC-04->30' (0.5-1')	↓	↓		
	DC-04	DC-04->30' (1-1.5')	↓	↓		

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes
Deschutes Columbia	DC-05	DC-05-15-30' (0-0.5')	10/18	158	18'	Below 1'	2
	DC-05	DC-05-15-30' (0.5-1')		207	↓	↓	↓
	DC-05	DC-05-15-30' (1-1.5')		220	↓	↓	↓
	DC-05	DC-05->30' (0-0.5')		229	32'	Below 1'	↓
	DC-05	DC-05->30' (0.5-1')		236	↓	↓	↓
	DC-05	DC-05->30' (1-1.5')		242	↓	↓	↓
	DC-06	DC-06-15-30' (0-0.5')	10/18	309	16	Below 2'	2
	DC-06	DC-06-15-30' (0.5-1')		317	↓	↓	↓
	DC-06	DC-06-15-30' (1-1.5')		324	↓	↓	↓
	DC-06	DC-06->30' (0-0.5')		329	31	Below 2'	↓
	DC-06	DC-06->30' (0.5-1')		337	↓	↓	↓
	DC-06	DC-06->30' (1-1.5')		343	↓	↓	↓
	DC-07	DC-07-15-30' (0-0.5')	10/18	402	16'	Below 2'	2
	DC-07	DC-07-15-30' (0.5-1')		408	↓	↓	↓
	DC-07	DC-07-15-30' (1-1.5')		413	↓	↓	↓
	DC-07	DC-07->30' (0-0.5')		420	31'	Below 2'	↓
	DC-07	DC-07->30' (0.5-1')		425	↓	↓	↓
	DC-07	DC-07->30' (1-1.5')		432	↓	↓	↓
	DC-08	DC-08-15-30' (0-0.5')	10/18	454	17'	Below 1'	2
	DC-08	DC-08-15-30' (0.5-1')		502	↓	↓	↓
	DC-08	DC-08-15-30' (1-1.5')		509	↓	↓	↓
	DC-08	DC-08->30' (0-0.5')		515	31'	Below 1'	↓
	DC-08	DC-08->30' (0.5-1')		523	↓	↓	↓
	DC-08	DC-08->30' (1-1.5')		532	↓	↓	↓

Dup

Dup

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color
Deschutes Columbia	DC-05	DC-05-15-30' (0-0.5')	N/A	N	N	Si-Cl + grav	Red brn co.
	DC-05	DC-05-15-30' (0.5-1')				Silt w/ gravel	brn
	DC-05	DC-05-15-30' (1-1.5')				Saprolite	Brn
	DC-05	DC-05->30' (0-0.5')				Clay	Red
	DC-05	DC-05->30' (0.5-1')				Silt w/ gravel	Brn
	DC-05	DC-05->30' (1-1.5')				Saprolite	brn
	DC-06	DC-06-15-30' (0-0.5')	N/A	N	N	Silt w/ Gravel	Dk brn cohes
	DC-06	DC-06-15-30' (0.5-1')				WS Sand.	Dk brn
	DC-06	DC-06-15-30' (1-1.5')				WS Sand	Dk brn
	DC-06	DC-06->30' (0-0.5')				Sand w/ gravel	Lt brn
	DC-06	DC-06->30' (0.5-1')				WS Sand	brn
	DC-06	DC-06->30' (1-1.5')				WS Sand	Dk brn
	DC-07	DC-07-15-30' (0-0.5')	N/A	N	N	Silt/Clay	dk brn cohes
	DC-07	DC-07-15-30' (0.5-1')				Silt	Lt brn
	DC-07	DC-07-15-30' (1-1.5')				Silt	Lt brn powdery
	DC-07	DC-07->30' (0-0.5')				Silty Sand	brn
	DC-07	DC-07->30' (0.5-1')				Silt	Lt brn
	DC-07	DC-07->30' (1-1.5')				Silt	Lt brn
	DC-08	DC-08-15-30' (0-0.5')	Above 1' W	Y 40' S	N	Gravel + Fn Sand	brn/grey
	DC-08	DC-08-15-30' (0.5-1')				Sand w/ gravel	brn
	DC-08	DC-08-15-30' (1-1.5')				Sand w/ gravel	brn
	DC-08	DC-08->30' (0-0.5')	Above 1' E	Y 50' S	N	Gravel + Sand	grn/grey
	DC-08	DC-08->30' (0.5-1')				Sand w/ gravel	brn
	DC-08	DC-08->30' (1-1.5')				Sand w/ gravel	brn

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Recent Shoulder Work or Soil Removal?	Highway, Mile Marker, Side of Highway	Comments
Deschutes Columbia	DC-05	DC-05-15-30' (0-0.5')	Sage +	N	US 97, MM 69, E	
	DC-05	DC-05-15-30' (0.5-1')	10% grass			
	DC-05	DC-05-15-30' (1-1.5')				
	DC-05	DC-05->30' (0-0.5')	Sage - 10% grass			
	DC-05	DC-05->30' (0.5-1')				
	DC-05	DC-05->30' (1-1.5')				
	DC-06	DC-06-15-30' (0-0.5')	Grass 50%	N	US 97N, MM 54, E	
	DC-06	DC-06-15-30' (0.5-1')				
	DC-06	DC-06-15-30' (1-1.5')				
	DC-06	DC-06->30' (0-0.5')	Grass 75%			
	DC-06	DC-06->30' (0.5-1')				
	DC-06	DC-06->30' (1-1.5')				
	DC-07	DC-07-15-30' (0-0.5')	Grass 100%	N	US 97S, MM 43, W	
	DC-07	DC-07-15-30' (0.5-1')				
	DC-07	DC-07-15-30' (1-1.5')	Grass 100%			
	DC-07	DC-07->30' (0-0.5')				
	DC-07	DC-07->30' (0.5-1')				
	DC-07	DC-07->30' (1-1.5')				
	DC-08	DC-08-15-30' (0-0.5')	Grass 10%	Y →	US 97N, MM 25, E	
	DC-08	DC-08-15-30' (0.5-1')		Gravel		
	DC-08	DC-08-15-30' (1-1.5')		from cul-		
	DC-08	DC-08->30' (0-0.5')	Grass 100%	vert -		
	DC-08	DC-08->30' (0.5-1')		eng. surface		
	DC-08	DC-08->30' (1-1.5')				

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes
Deschutes Columbia	DC-09	DC-09-15-30' (0-0.5')	10/19	931	16'	level	2
	DC-09	DC-09-15-30' (0.5-1')		941			
	DC-09	DC-09-15-30' (1-1.5')		956			
	DC-09	DC-09->30' (0-0.5')		954	31'	level	
	DC-09	DC-09->30' (0.5-1')		1002			
	DC-09	DC-09->30' (1-1.5')		1009			
	DC-10	DC-10-15-30' (0-0.5')	10/19	1051	16'	below 2'	2
	DC-10	DC-10-15-30' (0.5-1')		1103			
	DC-10	DC-10-15-30' (1-1.5')		1107			
	DC-10	DC-10->30' (0-0.5')		1112	31	below 1'	
	DC-10	DC-10->30' (0.5-1')		1119			
	DC-10	DC-10->30' (1-1.5')		1124			
	DC-11	DC-11-15-30' (0-0.5')	10/19	1214	16'	below 1'	2/4
	DC-11	DC-11-15-30' (0.5-1')		1226			
	DC-11	DC-11-15-30' (1-1.5')		1231			
	DC-11	DC-11->30' (0-0.5')		1236	31'	below 1'	
	DC-11	DC-11->30' (0.5-1')		1240			
	DC-11	DC-11->30' (1-1.5')		1245			
	DC-12	DC-12-15-30' (0-0.5')	10/19	119	16'	below 2'	4
	DC-12	DC-12-15-30' (0.5-1')		128			
	DC-12	DC-12-15-30' (1-1.5')		140			
	DC-12	DC-12->30' (0-0.5')		151	31'	below 2'	
	DC-12	DC-12->30' (0.5-1')		156			
	DC-12	DC-12->30' (1-1.5')		207			

WB lw ~200'N

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color
Deschutes Columbia	DC-09	DC-09-15-30' (0-0.5')	Above	Y - 100' E	N	Sd & cobb	brn/grey
	DC-09	DC-09-15-30' (0.5-1')				Sand w/ gravl	lt brn
	DC-09	DC-09-15-30' (1-1.5')				Snd w/ gravl	brn
	DC-09	DC-09->30' (0-0.5')				Silty Sand	Dk brn
	DC-09	DC-09->30' (0.5-1')	N			Sand w/ cobl	Dk brn
	DC-09	DC-09->30' (1-1.5')				Snd w/ cobl	Dk brn
	DC-10	DC-10-15-30' (0-0.5')	N/A	N	N	Silty Sand	Dk brn
	DC-10	DC-10-15-30' (0.5-1')				Snd w/ Cobl	brn/grey
	DC-10	DC-10-15-30' (1-1.5')				Snd w/ Cobl	brn/grey
	DC-10	DC-10->30' (0-0.5')				WS Sand	Dk brn
	DC-10	DC-10->30' (0.5-1')				Snd w/ cobl	brn/grey
	DC-10	DC-10->30' (1-1.5')				Silty Sand	Dk.
	DC-11	DC-11-15-30' (0-0.5')	N/A	N	Y?	Sand w/ gvl	brn/grey
	DC-11	DC-11-15-30' (0.5-1')				PS sand	brn/grey
	DC-11	DC-11-15-30' (1-1.5')				Fn sand	lt brn
	DC-11	DC-11->30' (0-0.5')				Sand	lt brn.
	DC-11	DC-11->30' (0.5-1')				Fn WS snd	brn
	DC-11	DC-11->30' (1-1.5')				Fn WS snd	brn
	DC-12	DC-12-15-30' (0-0.5')	N/A	N	Y 100' S ↑ 12'	Cbls Sand Matrix	brn
	DC-12	DC-12-15-30' (0.5-1')				Cbl Sand Matrix	brn/grey
	DC-12	DC-12-15-30' (1-1.5')					
	DC-12	DC-12->30' (0-0.5')					
	DC-12	DC-12->30' (0.5-1')					
	DC-12	DC-12->30' (1-1.5')					

colors.

Wood in hole

(photo)

ODOT Statewide Highway Shoulder Soil Sampling Project
Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Recent Shoulder Work or Soil Removal?	Highway, Mile Marker, Side of Highway	Comments
Deschutes Columbia	DC-09	DC-09-15-30' (0-0.5')	30% grass	N	OR216W, MM17, N	
	DC-09	DC-09-15-30' (0.5-1')	↓			
	DC-09	DC-09-15-30' (1-1.5')	↓			
	DC-09	DC-09->30' (0-0.5')	Grass, Sage			
	DC-09	DC-09->30' (0.5-1')	↓			
	DC-09	DC-09->30' (1-1.5')	↓			
	DC-10	DC-10-15-30' (0-0.5')	100% grass	N	OR216E, MM16, S	
	DC-10	DC-10-15-30' (0.5-1')	↓			
	DC-10	DC-10-15-30' (1-1.5')	↓			
	DC-10	DC-10->30' (0-0.5')	100% grass			
	DC-10	DC-10->30' (0.5-1')	↓			
	DC-10	DC-10->30' (1-1.5')	↓			
	DC-11	DC-11-15-30' (0-0.5')	50% grass	N	I-84, MM91, S	RR btw lanes
	DC-11	DC-11-15-30' (0.5-1')	↓			
	DC-11	DC-11-15-30' (1-1.5')	↓			
	DC-11	DC-11->30' (0-0.5')	Rock/Sand			
	DC-11	DC-11->30' (0.5-1')	↓			
	DC-11	DC-11->30' (1-1.5')	↓			
	DC-12	DC-12-15-30' (0-0.5')	50% grass	N	I-84E, MM106, S	Rock + Ang Cbls same hole
	DC-12	DC-12-15-30' (0.5-1')	↓			
	DC-12	DC-12-15-30' (1-1.5')	↓			1" + cobbles
	DC-12	DC-12->30' (0-0.5')	100% grass			* Soil sample ≠ subsurface cond.
	DC-12	DC-12->30' (0.5-1')	↓			
	DC-12	DC-12->30' (1-1.5')	↓			

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes
Deschutes Columbia	DC-13	DC-13-15-30' (0-0.5')	10/19	224	19'	Below 2'	4
	DC-13	DC-13-15-30' (0.5-1')		229	↓	↓	
	DC-13	DC-13-15-30' (1-1.5')		236	↓	↓	
	DC-13	DC-13->30' (0-0.5')		242	34'	Level	
	DC-13	DC-13->30' (0.5-1')		250	↓	↓	
	DC-13	DC-13->30' (1-1.5')		259	↓	↓	
	DC-14	DC-14-15-30' (0-0.5')	10/19	346	16'	Below 2'	2
	DC-14	DC-14-15-30' (0.5-1')		350	↓	↓	
	DC-14	DC-14-15-30' (1-1.5')		355	↓	↓	
	DC-14	DC-14->30' (0-0.5')		359	31'	Below 2	
	DC-14	DC-14->30' (0.5-1')		405	↓	↓	
	DC-14	DC-14->30' (1-1.5')		411	↓	↓	
	DC-15	DC-15-15-30' (0-0.5')	10/19	440	16'	Level	2
	DC-15	DC-15-15-30' (0.5-1')		446	↓	↓	
	DC-15	DC-15-15-30' (1-1.5')		450	↓	↓	
	DC-15	DC-15->30' (0-0.5')		455	31'	Below 1'	
	DC-15	DC-15->30' (0.5-1')		501	↓	↓	
	DC-15	DC-15->30' (1-1.5')		507	↓	↓	
	DC-16	DC-16-15-30' (0-0.5')	10/20	852	20'	Below 1	4
	DC-16	DC-16-15-30' (0.5-1')		901	↓	↓	
	DC-16	DC-16-15-30' (1-1.5')		906	↓	↓	
	DC-16	DC-16->30' (0-0.5')		914	32'	Level	
	DC-16	DC-16->30' (0.5-1')		920	↓	↓	
	DC-16	DC-16->30' (1-1.5')		925	↓	↓	

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color
Deschutes Columbia	DC-13	DC-13-15-30' (0-0.5')	Above 1'	N	Y → Far WB ln	Silty Snd	Red-Brn, cakes
	DC-13	DC-13-15-30' (0.5-1')	↓	↓	↓	Snd w/ cobl	brn
	DC-13	DC-13-15-30' (1-1.5')	↓	↓	↓	Snd w/ cobl	brn
	DC-13	DC-13->30' (0-0.5')	Above 2'	↓	Y - W Bnd ln	Silty Snd	Red Brn
	DC-13	DC-13->30' (0.5-1')	↓	↓	↓	Snd w/ cobl	brn
	DC-13	DC-13->30' (1-1.5')	↓	↓	↓	Snd w/ cobl	brn
	DC-14	DC-14-15-30' (0-0.5')	N/A	N	N	Silty Sand	Yellow-Brn
	DC-14	DC-14-15-30' (0.5-1')	↓	↓	↓	Fn Sand	Yellow
	DC-14	DC-14-15-30' (1-1.5')	↓	↓	↓	Fn WS Sand	Yellow
	DC-14	DC-14->30' (0-0.5')	↓	↓	↓	Silty Sand	Yellow-brn
	DC-14	DC-14->30' (0.5-1')	↓	↓	↓	Fine Sand	Yell-brn
	DC-14	DC-14->30' (1-1.5')	↓	↓	↓	Fine Sand	Brn
	DC-15	DC-15-15-30' (0-0.5')	N/A	N	N	Fn WS Snd	Yellow/lt brn
	DC-15	DC-15-15-30' (0.5-1')	↓	↓	↓	Fin Snd	Yellow
	DC-15	DC-15-15-30' (1-1.5')	↓	↓	↓	Fin Sand	Yell-brn
	DC-15	DC-15->30' (0-0.5')	↓	↓	↓	Silty Sand	Yellow-Brn
	DC-15	DC-15->30' (0.5-1')	↓	↓	↓	Fn Sand	Brn
	DC-15	DC-15->30' (1-1.5')	↓	↓	↓	PS Sand	Brn
	DC-16	DC-16-15-30' (0-0.5')	Above-5	N	N	Snd w/ Rnd Cobl	Brn
	DC-16	DC-16-15-30' (0.5-1')				WS Snd	lt brn/gry
	DC-16	DC-16-15-30' (1-1.5')				WS Snd	lt brn
	DC-16	DC-16->30' (0-0.5')				Snd Rnd Cobl	gry/brn
	DC-16	DC-16->30' (0.5-1')				WS Sand	lt brn
	DC-16	DC-16->30' (1-1.5')				WS Sand	lt brn

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Recent Shoulder Work or Soil Removal?	Highway, Mile Marker, Side of Highway	Comments
Deschutes Columbia	DC-13	DC-13-15-30' (0-0.5')	50% grass Sage	N	I-84E, MM118, S	
	DC-13	DC-13-15-30' (0.5-1')	Moss	↓		
	DC-13	DC-13-15-30' (1-1.5')	↓	↓		
	DC-13	DC-13->30' (0-0.5')	80% grass Moss	N		
	DC-13	DC-13->30' (0.5-1')	↓	↓		
	DC-13	DC-13->30' (1-1.5')	↓	↓		
	DC-14	DC-14-15-30' (0-0.5')	50% grass	N	OR-74S, MM 4, W	
	DC-14	DC-14-15-30' (0.5-1')	↓	↓		
	DC-14	DC-14-15-30' (1-1.5')	↓	↓		
	DC-14	DC-14->30' (0-0.5')	100% grass	↓		
	DC-14	DC-14->30' (0.5-1')	↓	↓		
	DC-14	DC-14->30' (1-1.5')	↓	↓		
	DC-15	DC-15-15-30' (0-0.5')	Sage/grass 50%	N	OR74S, MM 17, W	
	DC-15	DC-15-15-30' (0.5-1')	↓	↓		
	DC-15	DC-15-15-30' (1-1.5')	↓	↓		
	DC-15	DC-15->30' (0-0.5')	Sage/grass 75%			
	DC-15	DC-15->30' (0.5-1')	↓			
	DC-15	DC-15->30' (1-1.5')	↓			
	DC-16	DC-16-15-30' (0-0.5')	Grass 75%	N	I84E. MM164, S	
	DC-16	DC-16-15-30' (0.5-1')	↓	↓		
	DC-16	DC-16-15-30' (1-1.5')	↓	↓		
	DC-16	DC-16->30' (0-0.5')	Grass 100%	↓		
	DC-16	DC-16->30' (0.5-1')	↓	↓		
	DC-16	DC-16->30' (1-1.5')	↓	↓		

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes
Deschutes Columbia	DC-17	DC-17-15-30' (0-0.5')	10/20	951	16'	level	4
	DC-17	DC-17-15-30' (0.5-1')		1002			
	DC-17	DC-17-15-30' (1-1.5')		1009			
	DC-17	DC-17->30' (0-0.5')		1017	31'	level	
	DC-17	DC-17->30' (0.5-1')		1024			
	DC-17	DC-17->30' (1-1.5')		1030			
	DC-18	DC-18-15-30' (0-0.5')	10/20	1048	16'	below 0.5'	4
	DC-18	DC-18-15-30' (0.5-1')		1054			
	DC-18	DC-18-15-30' (1-1.5')		1102			
	DC-18	DC-18->30' (0-0.5')		1108	31'	below 1'	
	DC-18	DC-18->30' (0.5-1')		1115			
	DC-18	DC-18->30' (1-1.5')		1123			
	DC-19	DC-19-15-30' (0-0.5')	10/20	1138	18'	level	4
	DC-19	DC-19-15-30' (0.5-1')		1145			
	DC-19	DC-19-15-30' (1-1.5')		1153			
	DC-19	DC-19->30' (0-0.5')		1159	33'	level	
	DC-19	DC-19->30' (0.5-1')		1206			
	DC-19	DC-19->30' (1-1.5')		1212			
	DC-20	DC-20-15-30' (0-0.5')	10/21	858	16'	level	4
	DC-20	DC-20-15-30' (0.5-1')		909			
	DC-20	DC-20-15-30' (1-1.5')		920			
	DC-20	DC-20->30' (0-0.5')		929	31'	level	
	DC-20	DC-20->30' (0.5-1')		947			
	DC-20	DC-20->30' (1-1.5')		950			

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance? N JR	Soil Type	Soil Color
Deschutes Columbia	DC-17	DC-17-15-30' (0-0.5')	N/A	N	N -> Yes WB	Sndw/Grvl	Brn/Gry
	DC-17	DC-17-15-30' (0.5-1')				Snd & Rnd Cbl	Brn/Gry
	DC-17	DC-17-15-30' (1-1.5')				Snd tr. Cbl	Ltbrn/Gry
	DC-17	DC-17->30' (0-0.5')				Fn Sand	lt brn
	DC-17	DC-17->30' (0.5-1')				Fn Sand	lt brn
	DC-17	DC-17->30' (1-1.5')				Sndw/grvl	Dk brn
	DC-18	DC-18-15-30' (0-0.5')	N/A	N	N?	Slt Snd Tr Grvl	Brn Gry
	DC-18	DC-18-15-30' (0.5-1')				WS Fn Snd	lt brn
	DC-18	DC-18-15-30' (1-1.5')				WS Fn Snd	brn
	DC-18	DC-18->30' (0-0.5')				Sand w/Grvl	lt brn
	DC-18	DC-18->30' (0.5-1')				Snd w/Grvl	Yellow Brn
	DC-18	DC-18->30' (1-1.5')	N/A	N	N	Sndw/Grvl	Brn-Gry
	DC-19	DC-19-15-30' (0-0.5')				Sndw/grvl	Ylw-Brn
	DC-19	DC-19-15-30' (0.5-1')				Snd tr Grvl	Ylw-Brn
	DC-19	DC-19-15-30' (1-1.5')				PS Snd	Ylw
	DC-19	DC-19->30' (0-0.5')				Silty Snd	Ylw lt brn
	DC-19	DC-19->30' (0.5-1')				Silt w/ tr Sand	wht-brn
	DC-19	DC-19->30' (1-1.5')				Silt tr Snd	wht-ltbrn
	DC-20	DC-20-15-30' (0-0.5')	N/A	N	Y- ?	Grvl w/ Sand	Brn-Gry
	DC-20	DC-20-15-30' (0.5-1')				SG w/ cbl	
	DC-20	DC-20-15-30' (1-1.5')				SG w/ cbl	
	DC-20	DC-20->30' (0-0.5')				Sand w/ Grvl	Blk/Grey
	DC-20	DC-20->30' (0.5-1')				PS - Sand	Blk Grvl
	DC-20	DC-20->30' (1-1.5')				WS Snd tr Grvl	Blk/Grey

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Recent Shoulder Work or Soil Removal?	Highway, Mile Marker, Side of Highway	Comments
Deschutes Columbia	DC-17	DC-17-15-30' (0-0.5')	50% grass	N	I-84 E, MM 176, S	Frontage Rd ~ 100' S
	DC-17	DC-17-15-30' (0.5-1')				
	DC-17	DC-17-15-30' (1-1.5')				Trn. Trx ~ 100' N SB
	DC-17	DC-17->30' (0-0.5')	75% grass + Sage	N		WB ln
	DC-17	DC-17->30' (0.5-1')				
	DC-17	DC-17->30' (1-1.5')				
	DC-18	DC-18-15-30' (0-0.5')	100% grass		I-84, MM 186, S	
	DC-18	DC-18-15-30' (0.5-1')				
	DC-18	DC-18-15-30' (1-1.5')				
	DC-18	DC-18->30' (0-0.5')	100% grass	N		
	DC-18	DC-18->30' (0.5-1')				
	DC-18	DC-18->30' (1-1.5')				
	DC-19	DC-19-15-30' (0-0.5')	100% grass	N		
	DC-19	DC-19-15-30' (0.5-1')			184 E, MM 198, S	
	DC-19	DC-19-15-30' (1-1.5')				
	DC-19	DC-19->30' (0-0.5')	100% grass	N		
	DC-19	DC-19->30' (0.5-1')				
	DC-19	DC-19->30' (1-1.5')				
	DC-20	DC-20-15-30' (0-0.5')	75% grass	N	I-84 W, MM 80, N	
	DC-20	DC-20-15-30' (0.5-1')				
	DC-20	DC-20-15-30' (1-1.5')				
	DC-20	DC-20->30' (0-0.5')	75% grass			
	DC-20	DC-20->30' (0.5-1')				
	DC-20	DC-20->30' (1-1.5')				

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Date	Time	Distance from Pavement	Above or Below Roadway	Number of Travel Lanes
Deschutes Columbia	DC-21	DC-21-15-30' (0-0.5')	10/21	1017	17'	Level	4
	DC-21	DC-21-15-30' (0.5-1')		1031			
	DC-21	DC-21-15-30' (1-1.5')		1042			
	DC-21	DC-21->30' (0-0.5')		1052	31'	1' above	4
	DC-21	DC-21->30' (0.5-1')		1109			
	DC-21	DC-21->30' (1-1.5')		1110			

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Sample Location Relative to Ditch	Galvanized Structure Nearby? Distance?	Railroad track nearby? Distance?	Soil Type	Soil Color
Deschutes Columbia	DC-21	DC-21-15-30' (0-0.5')	N/A	N	Y ?	Sdy wSl Cbl	Brn Gry
	DC-21	DC-21-15-30' (0.5-1')	↓	↓	↓	a n	↓
	DC-21	DC-21-15-30' (1-1.5')	↓	↓	↓	Cbl + SndMtx	↓
	DC-21	DC-21->30' (0-0.5')	N/A	N	Y ? ↓	Sdy wSl Cbl	↓
	DC-21	DC-21->30' (0.5-1')	↓	↓	↓	a n	↓
	DC-21	DC-21->30' (1-1.5')	↓	↓	↓	Cbl + sand matrix	↓

Mainly cobl

Cascadia Associates Project No: 0028-001-001-03

	Sample Location	Sample ID	Vegetation Present at Ground Surface? Type?	Recent Shoulder Work or Soil Removal?	Highway, Mile Marker, Side of Highway	Comments
Deschutes Columbia	DC-21	DC-21-15-30' (0-0.5')	50% grass	N	I-84W, MM74, N	
	DC-21	DC-21-15-30' (0.5-1')	"	"		
	DC-21	DC-21-15-30' (1-1.5')	"	"		
	DC-21	DC-21->30' (0-0.5')	80% grass	N		
	DC-21	DC-21->30' (0.5-1')	"	"		
	DC-21	DC-21->30' (1-1.5')	"	"		

APPENDIX B

LABORATORY ANALYTICAL REPORTS AND DATA QUALITY REVIEW

LABORATORY DATA QUALITY ASSURANCE REVIEW

This appendix presents a quality assurance review of laboratory analytical data collected for the 2016 ODOT Highway Shoulder Soil Sampling Project. Soil analyses were performed by Apex Labs of Tigard, Oregon, under Work Orders A6J0556, A6J0562, A6J0598, A6J0754, A6J0823 A6J0849, A6J0892, A6J0893, A6J0925, A6J0950 (reported as Work Order A6J0556); Work Orders A6J0986, A6J0990, A6J1004, A6J1008, A6J1010, A6J1011, A6J1012, and A6J1013 (reported as Work Order A6J0986); and Work Orders A6K0211, A6K0212, A6K0213, A6K0214, A6K0215, A6K0216 (reported as Work Order A6K0211).

A total of 462 soil samples were submitted for analysis of lead by EPA method 6020A and PAHs by EPA method 8270D-SIM. Upon arrival at the lab, the samples were processed as follows, as noted in the laboratory case narrative in each lab report.

- Sample Storage: Soil samples for this work order were frozen upon receipt at the laboratory. Samples were removed from frozen storage and brought to room temperature prior to processing. Samples were returned to frozen storage immediately following processing, to maximize hold times. Freezer conditions of storage are consistent with the guidelines provided in the Oregon DEQ approved Sediment Evaluation Framework (SEF) for the Pacific Northwest, July 2016. The accepted holding times for frozen samples in the SEF is two years for Lead (Pb) and one year for PAHs from date sample is collected. These hold times have been applied to all samples reported.
- Representative Sample Methodology: In order to reduce fundamental sampling error all samples were processed following Apex Labs Representative Sampling Methodology (RSM) SOP G-105. Sample handling per this SOP is consistent with the national ITRC ISM and professionally recognized MIS guidance documents.
  The RSM protocols used included air drying soils and cool grinding of the entire sample to form a well-mixed sample of approximate 50-micron diameter particles. The air drying and cool grinding can lead to depletion of volatile and some semi-volatile compounds. Results for low molecular weight PAHs should be considered Estimate Values with a potential low bias.
  The specific compounds that may be affected are the aromatics with two and three structural rings are: Anthracene, Acenaphthene, Acenaphthylene, Fluorene, Naphthalene, and Phenanthrene.
  Target carcinogenic PAHs are not adversely impacted by RSM preparation and the reported samples are not qualified.

The following describes the results of the data quality review and any qualifiers that were added to the data by the laboratory or Cascadia as a result of the data quality review.

- Samples were received by the analytical laboratory in good condition and in the appropriate, laboratory-supplied sample containers.
- Samples were received by the laboratory within the recommended temperature range.
- The samples were analyzed within their respective method holding times. As noted previously, the samples were frozen upon receipt to preserve the laboratory hold times, in accordance with established protocol.
- Several data values in the three laboratory data reports were reported as estimates, because the concentration was detected below the lowest point of the calibration curve, but above the specified MDL. As a result, the affected data are flagged with the "J" qualifier in the laboratory report and in the data tables.
- Several data values in all laboratory reports were flagged with the M-02 qualifier to indicate that the analyte cannot be accurately quantified due to matrix interference. The reported result is estimated. As a result, the affected data are flagged with the M-02 qualifier in the data tables in addition to the report. None of the data flagged with the M-02 were detected at concentrations close to or above the associated clean fill criteria, so the data evaluation was not affected.
- Several data values in the three laboratory data reports were flagged with the R-02 or R-04 qualifier, indicating that the reporting limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample or due to dilution necessary for analysis, respectively. The data quality was not affected and the data were not flagged as a result.
- Several laboratory analyses in the three laboratory data reports were flagged with the H-08 qualifier indicating that the hold time was extended by freezing at -18 degrees C. Total time at 4 degrees C was less than the standard hold time. The data quality was not anticipated to be affected and the data were not flagged as a result in the data tables.
- Several PAHs were detected in the method blanks associated with batch 6110268 for Work Order A6J0556. The associated results were flagged with the B-02 qualifier, indicating that the analyte detected in an associated blank at a level between one-half the MRL and the MRL. The laboratory notes that results reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. No PAHs were detected in the samples associated with the batch, and no data were qualified.
- A number of PAH analyses in the Work Order A6J0556 report were flagged with the C-05 qualifier, meaning that the extract has undergone a GPC (Gel-Permeation Chromatography) cleanup per EPA 3640A. Reporting levels may be raised due to dilution necessary for cleanup. The data quality was not affected, and the data are not flagged as a result.
- One of the laboratory duplicate samples for Work Order A6J0556, associated with sample BR-20-15-30' (0-0.5') _Prepared was flagged with the T-02 qualifier, meaning that the results for the results of the lab duplicate are estimated due to the analysis

taking place more than 12 hours after the method required mass spectrometer tune check was performed. Similarly, one of the matrix spike/matrix spike duplicate (MS/MSD) samples for Work Order A6J0986 and batch 6110476 associated with sample DC-05->30' (1-1.5') _Prepared was flagged with the T-02 qualifier. For both of these samples, the primary sample data quality was not affected and no data are flagged as a result.

- One of the grind blanks for Work Order A6J0556 and batch 6110268 and one of the grind blanks for Work Order A6J0986 and batch 6110865 was flagged with the T-03 qualifier. This qualifier means that the sample was analyzed outside of the method specified 12-hour tune window and that results are estimated. An additional grind blank was analyzed for the batch 6110268 that met data quality requirements. Data quality was not affected and the data are not flagged as a result.
- The surrogate recoveries for the PAH analysis for sample BM-01->30' (0-0.5') Prepared of Work Order A6J0986 were outside of the lower bound of the quality control range. The associated data are flagged with the J1 qualifier, indicating that the results are estimated and could potentially be biased low.
- The matrix spike (MS) recoveries for Work Order A6J0556 and batch 6120859 for anthracene, benz(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene were outside of upper quality control limits and were flagged with the Q-01 or Q-02 qualifier. Similarly, the MS recovery for Work Order A6J0986 and batch 6110717 for benzo(g,h,i)perylene and MS recovery for Work Order A6K0211 and batch 6120419 for phenanthrene were outside of quality control limits. The affected PAH results for the associated samples, B-24-15-30' (0.5-1'), DC-13->30' (1-1.5') _Prepared, and BM-19-15-30' (0.5-1') _Prepared were flagged with the Q-42 qualifier as estimated, indicating that the matrix spike relative percent difference (RPD) was outside laboratory control limits accordingly. None of the data flagged with the Q-42 were detected at concentrations close to or above the associated clean fill criteria, so the data evaluation was not affected.
- One of two surrogate recoveries for a number of Work Order A6K0211 samples were flagged with the Q-03 qualifier meaning that re-extraction and analysis, or analysis of laboratory duplicate, confirms surrogate failure due to sample matrix effect. The surrogate was just slightly outside of quality control limits. The remaining surrogate recover was within quality control limits. Data quality are not affected and no data are flagged as a result.
- For Work Order A6J0556, a few of the PAH laboratory duplicate values for one of the laboratory duplicate analyses associated with sample BR-20-15-30' (0.5-1') _Prepared in batch 6110353 were outside of quality control limits. The associated QC results were flagged with the Q-05 qualifier indicting that the analyses are not controlled on RPD

values from primary and duplicate concentrations that are below 5 times the method reporting limit.

- For Work Order A6J0556, the batch 6110298 RPD for the MS/MSD for naphthalene was above established quality control limits and was flagged with the Q-24 qualifier. Similarly, the Work Order A6K0211 batch 6120166 RPD for the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) RPD for indeno(1,2,3-cd)pyrene MS/MSD for naphthalene was above established quality control limits and was flagged with the Q-24 qualifier. Because the MS and MSD recoveries and LCS and LCSD recoveries were within quality control limits, no data are flagged as a result.
- The RPD between primary and field duplicate samples was evaluated and is summarized in Table B-1. Analytes with greater than 30 percent RPD were flagged accordingly with the J2 qualifier in Table 2, indicating that the results should be considered estimated.

After a review of the laboratory narratives, data, and quality control data, Cascadia has determined that the data are appropriate for evaluating soil conditions at the site.

Table B-1
Field Duplicate Evaluation
2016 Statewide Highway Shoulder Soil Sampling Results Report

Sample ID	Analyte	Units	Primary Sample Result	Duplicate Sample Result	RPD
BR-02-15-30' (0-0.5')	Lead	mg/kg	5.54	5.73	3.4%
BR-06->30' (1-1.5')	Lead	mg/kg	2.92	2.99	2.4%
BR-09->30' (0-0.5')	Lead	mg/kg	8.45	9.97	16.5%
BR-10->30' (0-0.5')	Lead	mg/kg	9.26	10.2	9.7%
BR-17-15-30' (1-1.5')	Lead	mg/kg	24.0	8.64	**94.1%**
BM-04-15-30' (1-1.5')	Lead	mg/kg	2.46	2.54	3.2%
BM-06-15-30' (0.5-1')	Lead	mg/kg	4.53	4.71	3.9%
BM-12-15-30' (0-0.5')	Lead	mg/kg	8.52	11.0	25.4%
BM-17->30' (1-1.5')	Lead	mg/kg	4.16	4.11	1.2%
BM-22->30' (0-0.5')	Lead	mg/kg	3.14	2.92	7.3%
DC-02-15-30' (0-0.5')	Lead	mg/kg	30.7	25.3	19.3%
	Benzo(a)pyrene [1.]	ug/kg	2.29	2.94	24.9%
	Benzo(b)fluoranthene [1.]	ug/kg	5.21	4.67	10.9%
	Benzo(g,h,i)perylene	ug/kg	4.81	4.67	3.0%
	Chrysene [1.]	ug/kg	5.89	7.93	29.5%
	Fluoranthene	ug/kg	3.39	2.65	24.5%
	Naphthalene [1.]	ug/kg	5.56	4.77	15.3%
	Phenanthrene [1.]	ug/kg	3.4	3.05	10.9%
	Pyrene [1.]	ug/kg	3.81	3.82	0.3%
DC-08->30' (0.5-1')	Lead	mg/kg	5.91	8.13	**31.6%**
	Benzo(a)pyrene	ug/kg	20.6	50.2	**83.6%**
	Benzo(b)fluoranthene [1.]	ug/kg	22.7	47.8	71.2%
	Benzo(g,h,i)perylene	ug/kg	40.8	70.9	**53.9%**
	Chrysene [1.]	ug/kg	18.9	22.9	19.1%
	Indeno(1,2,3-cd)pyrene	ug/kg	22.5	51.5	**78.4%**
	Pyrene [1.]	ug/kg	12.2	40.1	106.7%
DC-15->30' (1-1.5')	Lead	mg/kg	12.3	12.3	0.0%
DC-20->30' (0.5-1')	Lead	mg/kg	8.05	7.96	1.1%
	Benz(a)anthracene [1.]	ug/kg	5.73	3.7	43.1%
	Benzo(a)pyrene	ug/kg	6.8	4.56	**39.4%**
	Benzo(b)fluoranthene [1.]	ug/kg	12.1	9.03	29.1%
	Benzo(g,h,i)perylene	ug/kg	6.33	4.71	29.3%
	Chrysene [1.]	ug/kg	8.08	5.48	38.3%
	Fluoranthene	ug/kg	9.85	7.00	**33.8%**
	Indeno(1,2,3-cd)pyrene	ug/kg	6.25	4.42	**34.3%**
	Phenanthrene [1.]	ug/kg	3.41	2.06	49.4%
	Pyrene	ug/kg	9.99	6.66	**40.0%**

Notes:

1. The primary sample and/or duplicate sample for this analyte is already noted as estimated. Data are not flagged as a result of an RPD greater than 30%.
2.Bold values indicate RPD values greater than 30% for samples not already listed as estimated (see Table footnote 1). Data are flagged accordingly.

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Tuesday, March 21, 2017

Kirsten K. White
Cascadia Associates
6915 SW Macadam, Suite 255
Portland, OR 97219

RE: ODOT Clean Fill Project -- RSM / ODOT Clean Fill Project

Enclosed are the results of analyses for work order A6J0556, which was received by the laboratory on 10/17/2016 at 8:30:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: ldomenighini@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Lisa Domenighini, Client Services Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BR-01-0-15' (0-0.5')_Prepared	A6J0556-21	Soil	10/11/16 09:41	10/17/16 08:30
BR-01-0-15' (0.5-1')_Prepared	A6J0556-22	Soil	10/11/16 09:50	10/17/16 08:30
BR-01-0-15' (1-1.5')_Prepared	A6J0556-23	Soil	10/11/16 10:10	10/17/16 08:30
BR-01-15-30' (0-0.5')_Prepared	A6J0556-24	Soil	10/11/16 10:15	10/17/16 08:30
BR-01-15-30' (0.5-1')_Prepared	A6J0556-25	Soil	10/11/16 10:22	10/17/16 08:30
BR-01-15-30' (1-1.5')_Prepared	A6J0556-26	Soil	10/11/16 10:27	10/17/16 08:30
BR-01->30' (0-0.5')_Prepared	A6J0556-27	Soil	10/11/16 10:35	10/17/16 08:30
BR-01->30' (0.5-1')_Prepared	A6J0556-28	Soil	10/11/16 10:38	10/17/16 08:30
BR-01->30' (1-1.5')_Prepared	A6J0556-29	Soil	10/11/16 10:42	10/17/16 08:30
BR-02-15-30' (0-0.5')_Prepared	A6J0556-30	Soil	10/11/16 11:21	10/17/16 08:30
BR-02-15-30' (0-0.5') DUP_Prepared	A6J0556-31	Soil	10/11/16 11:21	10/17/16 08:30
BR-02-15-30' (0.5-1')_Prepared	A6J0556-32	Soil	10/11/16 11:30	10/17/16 08:30
BR-02-15-30' (1-1.5')_Prepared	A6J0556-33	Soil	10/11/16 11:42	10/17/16 08:30
BR-02->30' (0-0.5')_Prepared	A6J0556-34	Soil	10/11/16 11:51	10/17/16 08:30
BR-02->30' (0.5-1')_Prepared	A6J0556-35	Soil	10/11/16 11:56	10/17/16 08:30
BR-02->30' (1-1.5')_Prepared	A6J0556-36	Soil	10/11/16 12:04	10/17/16 08:30
BR-03-15-30' (0-0.5')_Prepared	A6J0556-37	Soil	10/11/16 12:51	10/17/16 08:30
BR-03-15-30' (0.5-1')_Prepared	A6J0556-38	Soil	10/11/16 12:56	10/17/16 08:30
BR-03-15-30' (1-1.5')_Prepared	A6J0556-39	Soil	10/11/16 13:00	10/17/16 08:30
BR-03->30' (0-0.5')_Prepared	A6J0556-40	Soil	10/11/16 13:06	10/17/16 08:30
Grind Blank	A6J0556-41	Solid	10/11/16 00:00	10/17/16 08:30
BR-03->30' (0.5-1')_Prepared	A6J0562-21	Soil	10/11/16 13:09	10/17/16 08:30
BR-03->30' (1-1.5')_Prepared	A6J0562-22	Soil	10/11/16 13:14	10/17/16 08:30
BR-04-0-15' (0-0.5')_Prepared	A6J0562-23	Soil	10/11/16 13:43	10/17/16 08:30
BR-04-0-15' (0.5-1')_Prepared	A6J0562-24	Soil	10/11/16 13:49	10/17/16 08:30
BR-04-0-15' (1-1.5')_Prepared	A6J0562-25	Soil	10/11/16 14:00	10/17/16 08:30
BR-04-15-30' (0-0.5')_Prepared	A6J0562-26	Soil	10/11/16 14:04	10/17/16 08:30
BR-04-15-30' (0.5-1')_Prepared	A6J0562-27	Soil	10/11/16 14:07	10/17/16 08:30
BR-04-15-30' (1-1.5')_Prepared	A6J0562-28	Soil	10/11/16 14:11	10/17/16 08:30
BR-04->30' (0-0.5')_Prepared	A6J0562-29	Soil	10/11/16 14:15	10/17/16 08:30
BR-04->30' (0.5-1')_Prepared	A6J0562-30	Soil	10/11/16 14:19	10/17/16 08:30
BR-04->30' (1-1.5')_Prepared	A6J0562-31	Soil	10/11/16 14:25	10/17/16 08:30
BR-05-15-30' (0-0.5')_Prepared	A6J0562-32	Soil	10/11/16 15:08	10/17/16 08:30
BR-05-15-30' (0.5-1')_Prepared	A6J0562-33	Soil	10/11/16 15:15	10/17/16 08:30
BR-05-15-30' (1-1.5')_Prepared	A6J0562-34	Soil	10/11/16 15:20	10/17/16 08:30

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BR-05->30 (0-0.5')_Prepared	A6J0562-35	Soil	10/11/16 15:24	10/17/16 08:30
BR-05->30 (0.5-1')_Prepared	A6J0562-36	Soil	10/11/16 15:29	10/17/16 08:30
BR-05->30' (1-1.5')_Prepared	A6J0562-37	Soil	10/11/16 15:35	10/17/16 08:30
BR-06-0-15' (0-0.5')_Prepared	A6J0562-38	Soil	10/11/16 15:51	10/17/16 08:30
BR-06-0-15' (0.5-1')_Prepared	A6J0562-39	Soil	10/11/16 15:59	10/17/16 08:30
BR-06-0-15' (1-1.5')_Prepared	A6J0562-40	Soil	10/11/16 16:04	10/17/16 08:30
Grind Blank	A6J0562-41	Solid	10/11/16 00:00	10/17/16 08:30
BR-06-15-30' (0-0.5')_Prepared	A6J0598-21	Soil	10/11/16 16:06	10/17/16 08:30
BR-06-15-30' (0.5-1')_Prepared	A6J0598-22	Soil	10/11/16 16:09	10/17/16 08:30
BR-06-15-30' (1-1.5')_Prepared	A6J0598-23	Soil	10/11/16 16:12	10/17/16 08:30
BR-06->30' (0-0.5')_Prepared	A6J0598-24	Soil	10/11/16 16:18	10/17/16 08:30
BR-06->30' (0.5-1')_Prepared	A6J0598-25	Soil	10/11/16 16:23	10/17/16 08:30
BR-06->30' (1-1.5')_Prepared	A6J0598-26	Soil	10/11/16 16:30	10/17/16 08:30
BR-06->30' (1-1.5') DUP_Prepared	A6J0598-27	Soil	10/11/16 16:30	10/17/16 08:30
BR-07-0-15' (0-0.5')_Prepared	A6J0598-28	Soil	10/11/16 16:57	10/17/16 08:30
BR-07-0-15' (0.5-1')_Prepared	A6J0598-29	Soil	10/11/16 17:01	10/17/16 08:30
BR-07-0-15' (1-1.5')_Prepared	A6J0598-30	Soil	10/11/16 17:05	10/17/16 08:30
BR-07-15-30' (0-0.5')_Prepared	A6J0598-31	Soil	10/11/16 17:10	10/17/16 08:30
BR-07-15-30' (0.5-1')_Prepared	A6J0598-32	Soil	10/11/16 17:16	10/17/16 08:30
BR-07-15-30' (1-1.5')_Prepared	A6J0598-33	Soil	10/11/16 17:17	10/17/16 08:30
BR-07->30' (0-0.5')_Prepared	A6J0598-34	Soil	10/11/16 17:21	10/17/16 08:30
BR-07->30' (0.5-1')_Prepared	A6J0598-35	Soil	10/11/16 17:24	10/17/16 08:30
BR-07->30' (1-1.5')_Prepared	A6J0598-36	Soil	10/11/16 17:30	10/17/16 08:30
BR-08-15-30' (0-0.5')_Prepared	A6J0598-37	Soil	10/11/16 17:47	10/17/16 08:30
BR-08-15-30' (0.5-1')_Prepared	A6J0598-38	Soil	10/11/16 17:55	10/17/16 08:30
BR-08-15-30' (1-1.5')_Prepared	A6J0598-39	Soil	10/11/16 17:59	10/17/16 08:30
BR-08->30' (0-0.5')_Prepared	A6J0598-40	Soil	10/11/16 18:05	10/17/16 08:30
Grind Blank	A6J0598-41	Solid	10/11/16 00:00	10/17/16 08:30
BR-08->30' (0.5-1')_Prepared	A6J0754-21	Soil	10/11/16 18:10	10/17/16 08:30
BR-08->30' (1-1.5')_Prepared	A6J0754-22	Soil	10/11/16 18:14	10/17/16 08:30
BR-09-15-30' (0-0.5')_Prepared	A6J0754-23	Soil	10/12/16 09:06	10/17/16 08:30
BR-09-15-30' (0.5-1')_Prepared	A6J0754-24	Soil	10/12/16 09:12	10/17/16 08:30
BR-09-15-30' (1-1.5')_Prepared	A6J0754-25	Soil	10/12/16 09:17	10/17/16 08:30
BR-09->30' (0-0.5')_Prepared	A6J0754-26	Soil	10/12/16 09:22	10/17/16 08:30
BR-09->30' DUP (0-0.5')_Prepared	A6J0754-27	Soil	10/12/16 09:22	10/17/16 08:30

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BR-09->30' (0.5-1')_Prepared	A6J0754-28	Soil	10/12/16 09:27	10/17/16 08:30
BR-09->30' (1-1.5')_Prepared	A6J0754-29	Soil	10/12/16 09:31	10/17/16 08:30
BR-10-0-15' (0-0.5')_Prepared	A6J0754-30	Soil	10/12/16 10:16	10/17/16 08:30
BR-10-0-15' (0.5-1')_Prepared	A6J0754-31	Soil	10/12/16 10:25	10/17/16 08:30
BR-10-0-15' (1-1.5')_Prepared	A6J0754-32	Soil	10/12/16 10:30	10/17/16 08:30
BR-10-15-30' (0-0.5')_Prepared	A6J0754-33	Soil	10/12/16 10:37	10/17/16 08:30
BR-10-15-30' (0.5-1')_Prepared	A6J0754-34	Soil	10/12/16 10:39	10/17/16 08:30
BR-10-15-30' (1-1.5')_Prepared	A6J0754-35	Soil	10/12/16 10:43	10/17/16 08:30
BR-10->30' (0-0.5')_Prepared	A6J0754-36	Soil	10/12/16 10:46	10/17/16 08:30
BR-10->30' (0-0.5') DUP_Prepared	A6J0754-37	Soil	10/12/16 10:46	10/17/16 08:30
BR-10->30' (0.5-1')_Prepared	A6J0754-38	Soil	10/12/16 10:48	10/17/16 08:30
BR-10->30' (1-1.5')_Prepared	A6J0754-39	Soil	10/12/16 10:55	10/17/16 08:30
BR-11-0-15' (0-0.5')_Prepared	A6J0754-40	Soil	10/12/16 11:30	10/17/16 08:30
Grind Blank	A6J0754-41	Solid	10/12/16 00:00	10/17/16 08:30
BR-11-0-15' (0.5-1')_Prepared	A6J0823-21	Soil	10/12/16 11:35	10/17/16 08:30
BR-11-0-15' (1-1.5')_Prepared	A6J0823-22	Soil	10/12/16 11:39	10/17/16 08:30
BR-11-15-30' (0-0.5')_Prepared	A6J0823-23	Soil	10/12/16 11:44	10/17/16 08:30
BR-11-15-30' (0.5-1')_Prepared	A6J0823-24	Soil	10/12/16 11:52	10/17/16 08:30
BR-11-15-30' (1-1.5')_Prepared	A6J0823-25	Soil	10/12/16 11:59	10/17/16 08:30
BR-11->30' (0-0.5')_Prepared	A6J0823-26	Soil	10/12/16 12:06	10/17/16 08:30
BR-11->30' (0.5-1')_Prepared	A6J0823-27	Soil	10/12/16 12:10	10/17/16 08:30
BR-11->30' (1-1.5')_Prepared	A6J0823-28	Soil	10/12/16 12:21	10/17/16 08:30
BR-12-0-15' (0-0.5')_Prepared	A6J0823-29	Soil	10/12/16 12:44	10/17/16 08:30
BR-12-0-15' (0.5-1')_Prepared	A6J0823-30	Soil	10/12/16 12:50	10/17/16 08:30
BR-12-0-15' (1-1.5')_Prepared	A6J0823-31	Soil	10/12/16 13:01	10/17/16 08:30
BR-12-15-30' (0-0.5')_Prepared	A6J0823-32	Soil	10/12/16 13:15	10/17/16 08:30
BR-12-15-30' (0.5-1')_Prepared	A6J0823-33	Soil	10/12/16 13:22	10/17/16 08:30
BR-12->30' (0-0.5')_Prepared	A6J0823-34	Soil	10/12/16 13:28	10/17/16 08:30
BR-12->30' (0.5-1')_Prepared	A6J0823-35	Soil	10/12/16 13:36	10/17/16 08:30
BR-13-15-30' (0-0.5')_Prepared	A6J0823-36	Soil	10/12/16 13:59	10/17/16 08:30
BR-13-15-30' (0.5-1')_Prepared	A6J0823-37	Soil	10/12/16 14:10	10/17/16 08:30
BR-13-15-30' (1-1.5')_Prepared	A6J0823-38	Soil	10/12/16 14:20	10/17/16 08:30
BR-13->30' (0-0.5')_Prepared	A6J0823-39	Soil	10/12/16 14:25	10/17/16 08:30
BR-13->30' (0.5-1')_Prepared	A6J0823-40	Soil	10/12/16 14:29	10/17/16 08:30
Grind Blank	A6J0823-41	Solid	10/12/16 00:00	10/17/16 08:30

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BR-13->30' (1-1.5')_Prepared	A6J0849-21	Soil	10/12/16 14:30	10/17/16 08:30
BR-14-0-15' (0-0.5')_Prepared	A6J0849-22	Soil	10/12/16 15:22	10/17/16 08:30
BR-14-0-15' (0.5-1')_Prepared	A6J0849-23	Soil	10/12/16 15:26	10/17/16 08:30
BR-14-0-15' (1-1.5')_Prepared	A6J0849-24	Soil	10/12/16 15:33	10/17/16 08:30
BR-14-15-30' (0-0.5')_Prepared	A6J0849-25	Soil	10/12/16 15:38	10/17/16 08:30
BR-14-15-30' (0.5-1')_Prepared	A6J0849-26	Soil	10/12/16 15:41	10/17/16 08:30
BR-14-15-30' (1-1.5')_Prepared	A6J0849-27	Soil	10/12/16 15:46	10/17/16 08:30
BR-14->30' (0-0.5')_Prepared	A6J0849-28	Soil	10/12/16 15:52	10/17/16 08:30
BR-14->30' (0.5-1')_Prepared	A6J0849-29	Soil	10/12/16 16:02	10/17/16 08:30
BR-14->30' (1-1.5')_Prepared	A6J0849-30	Soil	10/12/16 16:06	10/17/16 08:30
BR-15-15-30' (0-0.5')_Prepared	A6J0849-31	Soil	10/12/16 16:47	10/17/16 08:30
BR-15-15-30' (0.5-1')_Prepared	A6J0849-32	Soil	10/12/16 16:52	10/17/16 08:30
BR-15-15-30' (1-1.5')_Prepared	A6J0849-33	Soil	10/12/16 16:58	10/17/16 08:30
BR-15->30' (0-0.5')_Prepared	A6J0849-34	Soil	10/12/16 17:05	10/17/16 08:30
BR-15->30' (0.5-1')_Prepared	A6J0849-35	Soil	10/12/16 17:09	10/17/16 08:30
BR-15->30' (1-1.5')_Prepared	A6J0849-36	Soil	10/12/16 17:13	10/17/16 08:30
BR-16-0-15' (0-0.5')_Prepared	A6J0849-37	Soil	10/12/16 17:40	10/17/16 08:30
BR-16-0-15' (0.5-1')_Prepared	A6J0849-38	Soil	10/12/16 17:45	10/17/16 08:30
BR-16-0-15' (1-1.5')_Prepared	A6J0849-39	Soil	10/12/16 17:51	10/17/16 08:30
BR-16-15-30' (0-0.5')_Prepared	A6J0849-40	Soil	10/12/16 18:01	10/17/16 08:30
Grind Blank	A6J0849-41	Solid	10/12/16 00:00	10/17/16 08:30
BR-16-15-30' (0.5-1')_Prepared	A6J0892-21	Soil	10/12/16 18:07	10/17/16 08:30
BR-16-15-30' (1-1.5')_Prepared	A6J0892-22	Soil	10/12/16 18:15	10/17/16 08:30
BR-16->30' (0-0.5')_Prepared	A6J0892-23	Soil	10/12/16 18:21	10/17/16 08:30
BR-16->30' (0.5-1')_Prepared	A6J0892-24	Soil	10/12/16 18:24	10/17/16 08:30
BR-16->30' (1-1.5')_Prepared	A6J0892-25	Soil	10/12/16 18:31	10/17/16 08:30
BR-17-0-15' (0-0.5')_Prepared	A6J0892-26	Soil	10/13/16 09:07	10/17/16 08:30
BR-17-0-15' (0.5-1')_Prepared	A6J0892-27	Soil	10/13/16 09:15	10/17/16 08:30
BR-17-0-15' (1-1.5')_Prepared	A6J0892-28	Soil	10/13/16 09:19	10/17/16 08:30
BR-17-15-30' (0-0.5')_Prepared	A6J0892-29	Soil	10/13/16 09:22	10/17/16 08:30
BR-17-15-30' (0.5-1')_Prepared	A6J0892-30	Soil	10/13/16 09:27	10/17/16 08:30
BR-17-15-30' (1-1.5')_Prepared	A6J0892-31	Soil	10/13/16 09:32	10/17/16 08:30
BR-17-15-30' (1-1.5') DUP_Prepared	A6J0892-32	Soil	10/13/16 09:46	10/17/16 08:30
BR-17->30' (0-0.5')_Prepared	A6J0892-33	Soil	10/13/16 09:35	10/17/16 08:30
BR-17->30' (0.5-1')_Prepared	A6J0892-34	Soil	10/13/16 09:40	10/17/16 08:30

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BR-17->30' (1-1.5')_Prepared	A6J0892-35	Soil	10/13/16 09:46	10/17/16 08:30
BR-18-15-30' (0-0.5')_Prepared	A6J0892-36	Soil	10/13/16 10:30	10/17/16 08:30
BR-18-15-30' (0.5-1')_Prepared	A6J0892-37	Soil	10/13/16 10:37	10/17/16 08:30
BR-18-15-30' (1-1.5')_Prepared	A6J0892-38	Soil	10/13/16 10:45	10/17/16 08:30
BR-18->30' (0-0.5')_Prepared	A6J0892-39	Soil	10/13/16 10:55	10/17/16 08:30
BR-18->30' (0.5-1')_Prepared	A6J0892-40	Soil	10/13/16 11:01	10/17/16 08:30
Grind Blank	A6J0892-41	Solid	10/12/16 00:00	10/17/16 08:30
BR-18->30' (1-1.5')_Prepared	A6J0893-21	Soil	10/13/16 11:07	10/17/16 08:30
BR-19-15-30' (0-0.5')_Prepared	A6J0893-22	Soil	10/13/16 11:37	10/17/16 08:30
BR-19-15-30' (0.5-1')_Prepared	A6J0893-23	Soil	10/13/16 11:43	10/17/16 08:30
BR-19-15-30' (1-1.5')_Prepared	A6J0893-24	Soil	10/13/16 11:52	10/17/16 08:30
BR-19->30' (0-0.5')_Prepared	A6J0893-25	Soil	10/13/16 11:56	10/17/16 08:30
BR-19->30' (0.5-1')_Prepared	A6J0893-26	Soil	10/13/16 11:59	10/17/16 08:30
BR-19->30' (1-1.5')_Prepared	A6J0893-27	Soil	10/13/16 12:03	10/17/16 08:30
BR-20-15-30' (0-0.5')_Prepared	A6J0893-28	Soil	10/13/16 12:36	10/17/16 08:30
BR-20-15-30' (0.5-1')_Prepared	A6J0893-29	Soil	10/13/16 12:42	10/17/16 08:30
BR-20-15-30' (1-1.5')_Prepared	A6J0893-30	Soil	10/13/16 12:45	10/17/16 08:30
BR-20->30' (0-0.5')_Prepared	A6J0893-31	Soil	10/13/16 12:50	10/17/16 08:30
BR-20->30' (0.5-1')_Prepared	A6J0893-32	Soil	10/13/16 12:55	10/17/16 08:30
BR-20->30' (1-1.5')_Prepared	A6J0893-33	Soil	10/13/16 13:04	10/17/16 08:30
BR-21-0-15' (0-0.5')_Prepared	A6J0893-34	Soil	10/13/16 13:49	10/17/16 08:30
BR-21-0-15' (0.5-1')_Prepared	A6J0893-35	Soil	10/13/16 13:55	10/17/16 08:30
BR-21-0-15' (1-1.5')_Prepared	A6J0893-36	Soil	10/13/16 14:02	10/17/16 08:30
BR-21-15-30' (0-0.5')_Prepared	A6J0893-37	Soil	10/13/16 14:04	10/17/16 08:30
BR-21-15-30' (0.5-1')_Prepared	A6J0893-38	Soil	10/13/16 14:09	10/17/16 08:30
BR-21-15-30' (1-1.5')_Prepared	A6J0893-39	Soil	10/13/16 14:14	10/17/16 08:30
BR-21->30' (0-0.5')_Prepared	A6J0893-40	Soil	10/13/16 14:18	10/17/16 08:30
Grind Blank	A6J0893-41	Solid	10/13/16 00:00	10/17/16 08:30
BR-21->30' (0.5-1')_Prepared	A6J0925-21	Soil	10/13/16 14:20	10/17/16 08:30
BR-21->30' (1-1.5')_Prepared	A6J0925-22	Soil	10/13/16 14:27	10/17/16 08:30
BR-22-0-15' (0-0.5')_Prepared	A6J0925-23	Soil	10/13/16 15:20	10/17/16 08:30
BR-22-0-15' (0.5-1')_Prepared	A6J0925-24	Soil	10/13/16 15:29	10/17/16 08:30
BR-22-0-15' (1-1.5')_Prepared	A6J0925-25	Soil	10/13/16 15:36	10/17/16 08:30
BR-22-15-30' (0-0.5')_Prepared	A6J0925-26	Soil	10/13/16 15:43	10/17/16 08:30
BR-22-15-30' (0.5-1')_Prepared	A6J0925-27	Soil	10/13/16 15:45	10/17/16 08:30

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BR-22-15-30' (1-1.5')_Prepared	A6J0925-28	Soil	10/13/16 15:55	10/17/16 08:30
BR-22->30' (0-0.5')_Prepared	A6J0925-29	Soil	10/13/16 16:03	10/17/16 08:30
BR-22->30' (0.5-1')_Prepared	A6J0925-30	Soil	10/13/16 16:10	10/17/16 08:30
BR-22->30' (1-1.5')_Prepared	A6J0925-31	Soil	10/13/16 16:18	10/17/16 08:30
BR-23-0-15' (0-0.5')_Prepared	A6J0925-32	Soil	10/13/16 17:03	10/17/16 08:30
BR-23-0-15' (0.5-1')_Prepared	A6J0925-33	Soil	10/13/16 17:12	10/17/16 08:30
BR-23-15-30' (0-0.5')_Prepared	A6J0925-34	Soil	10/13/16 17:20	10/17/16 08:30
BR-23-15-30' (0.5-1')_Prepared	A6J0925-35	Soil	10/13/16 17:28	10/17/16 08:30
BR-23-15-30' (1-1.5')_Prepared	A6J0925-36	Soil	10/13/16 17:35	10/17/16 08:30
BR-23->30' (0-0.5')_Prepared	A6J0925-37	Soil	10/13/16 17:42	10/17/16 08:30
BR-23->30' (0.5-1')_Prepared	A6J0925-38	Soil	10/13/16 17:49	10/17/16 08:30
BR-23->30' (1-1.5')_Prepared	A6J0925-39	Soil	10/13/16 17:55	10/17/16 08:30
BR-24-0-15' (0-0.5')_Prepared	A6J0925-40	Soil	10/14/16 11:25	10/17/16 08:30
Grind Blank	A6J0925-41	Solid	10/13/16 11:25	10/17/16 08:30
BR-24-0-15' (0.5-1')_Prepared	A6J0950-18	Soil	10/14/16 11:31	10/17/16 08:30
BR-24-0-15' (1-1.5')_Prepared	A6J0950-19	Soil	10/14/16 11:35	10/17/16 08:30
BR-24-15-30' (0-0.5')_Prepared	A6J0950-20	Soil	10/14/16 11:40	10/17/16 08:30
BR-24-15-30' (0.5-1')_Prepared	A6J0950-21	Soil	10/14/16 11:45	10/17/16 08:30
BR-24-15-30' (1-1.5')_Prepared	A6J0950-22	Soil	10/14/16 11:49	10/17/16 08:30
BR-24->30' (0-0.5')_Prepared	A6J0950-23	Soil	10/14/16 11:54	10/17/16 08:30
BR-24->30' (0.5-1')_Prepared	A6J0950-24	Soil	10/14/16 12:01	10/17/16 08:30
BR-24->30' (1-1.5')_Prepared	A6J0950-25	Soil	10/14/16 12:11	10/17/16 08:30
BR-25-0-15' (0-0.5')_Prepared	A6J0950-26	Soil	10/14/16 12:36	10/17/16 08:30
BR-25-0-15' (0.5-1')_Prepared	A6J0950-27	Soil	10/14/16 12:42	10/17/16 08:30
BR-25-0-15' (1-1.5')_Prepared	A6J0950-28	Soil	10/14/16 12:47	10/17/16 08:30
BR-25-15-30' (0-0.5')_Prepared	A6J0950-29	Soil	10/14/16 12:54	10/17/16 08:30
BR-25-15-30' (0.5-1')_Prepared	A6J0950-30	Soil	10/14/16 12:59	10/17/16 08:30
BR-25-15-30' (1-1.5')_Prepared	A6J0950-31	Soil	10/14/16 13:03	10/17/16 08:30
BR-25->30' (0-0.5')_Prepared	A6J0950-32	Soil	10/14/16 13:08	10/17/16 08:30
BR-25->30' (0.5-1')_Prepared	A6J0950-33	Soil	10/14/16 13:12	10/17/16 08:30
BR-25->30' (1-1.5')_Prepared	A6J0950-34	Soil	10/14/16 13:15	10/17/16 08:30
Grind Blank	A6J0950-38	Solid	10/14/16 00:00	10/17/16 08:30

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

Apex Laboratories, LLC
12232 SW Garden Place Tigard, Oregon 97223 503.718.2323

March 21, 2017

Kirsten White
Cascadia Associates
6915 SW Macadam, Suite 255
Portland, OR 97219

RE: Laboratory Case Narrative Work Order A6J0556, A6J0562, A6J0598, A6J0754, A6J0823 A6J0849, A6J0892, A6J0893, A6J0925, A6J0950

Sample Storage:
Soil samples for this work order were frozen upon receipt at the laboratory. Samples were removed from frozen storage and brought to room temperature prior to processing. Samples were returned to frozen storage immediately following processing, in order to maximize hold times. Freezer conditions of storage are consistent with the guidelines provided in the Oregon DEQ approved Sediment Evaluation Framework (SEF) for the Pacific Northwest, July 2016. The accepted holding times for frozen samples in the SEF is two years for Lead (Pb) and one year for PAHs from date sample is collected. These hold times have been applied to all samples reported.

Representative Sample Methodology:
In order to reduce fundamental sampling error all samples were processed following Apex Labs Representative Sampling Methodology (RSM) SOP G-105. Sample handling per this SOP is consistent with the national ITRC ISM and professionally recognized MIS guidance documents.

The RSM protocols used included air drying soils and cool grinding of the entire sample to form a well-mixed sample of approximate 50 micron diameter particles. The air drying and cool grinding can lead to depletion of volatile and some semi-volatile compounds. Results for low molecular weight PAHs should be considered Estimate Values with a potential low bias.

The specific compounds that may be affected are the aromatics with two and three structural rings are: Anthracene, Acenaphthene, Acenaphthylene, Fluorene, Naphthalene, and Phenathrene.

Target carcinogenic PAHs are not adversely impacted by RSM preparation and the reported samples are not qualified.

If you have any questions concerning this report, please feel free to contact me
By email at: kpatton@apex-labs.com, or by phone at 503-718-2323.

Kent D. Patton
Director of Technical Services
Apex Laboratories, LLC

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL CASE NARRATIVE

Work Order: A6J0556

ANALYTICAL CASE NARRATIVE

Work Order: A6J0562

Sample Identification Change-

During log in sample BR-04-15-30 (0.5-1), Apex - A6J0562-27 was incorrectly identified on the report. This amended report reflects the corrected sample identification.

Lisa Domenighini
Client Services Manager
03/21/17

ANALYTICAL CASE NARRATIVE

Work Order: A6J0598

Amended Final Report Revision 1
This report supersedes all previous reports.
EPA 8270D SIM PAH: Quality Control Sample Results Reissued
Results for Laboratory Batch QC sample A6J0598-41 (Grind Blank) was initially reported as Estimated Values due to the analysis taking place more than 12 hours after the method required mass spectrometer tune check was performed.
Affected sample have been reanalyzed, and is included in this amended report.
The originally reported sample results were not affected, and are reported again here along with the reanalyzed QC samples.

Mark Zehr
Organics Manager
12/14/2016

ANALYTICAL CASE NARRATIVE

Work Order: A6J0754

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AMENDED REPORT

12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL CASE NARRATIVE

Work Order: A6J0754

Amended Report Revision 1:

EPA Method 8270SIM PAH Data Correction

This report supersedes all previous reports.

Samples "BR-10-0-15' (0.5-1')" (A6J0754-31) and "BR-11-0-15' (0-0.5')" (A6J0754-40):

Due to non-target analyte matrix interference, data originally reported with elevated Method Reporting Limits (MRLs). Samples were re-extracted and the extracts were cleaned up by EPA Method 3640 Gel Permeation Cleanup. The re-analysis data is included in this report and MRLs for Benzo(a)pyrene now meet project specific requirements. Only the analytes with lowered MRLs are included. For additional PAH analytes refer to previously issued report.

Mark Zehr
Organics Manager
1/3/2017

ANALYTICAL CASE NARRATIVE

Work Order: A6J0823

Amended Final Report Revision 1
This report supersedes all previous reports.
EPA 8270D SIM PAH: Quality Control Sample Results Reissued
Results for certain Laboratory Batch QC samples (Matrix Spike, Matrix Spike Duplicate and/or Sample Duplicate) were initially reported as Estimated Values due to the analysis taking place more than 12 hours after the method required mass spectrometer tune check was performed. Affected Batch QC Samples have been reanalyzed, and are included in this amended report.
The originally reported sample results were not affected, and are reported again here along with the reanalyzed QC samples.

Mark Zehr
Organics Manager
12/14/2016

ANALYTICAL CASE NARRATIVE

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

Work Order: A6J0849

Amended Final Report Revision 1
This report supersedes all previous reports.
EPA 8270D SIM PAH: Quality Control Sample Results Reissued
Results for certain Laboratory Batch QC samples (Matrix Spike, Matrix Spike Duplicate and/or Sample Duplicate) were initially reported as Estimated Values due to the analysis taking place more than 12 hours after the method required mass spectrometer tune check was performed. Affected Batch QC Samples have been reanalyzed, and are included in this amended report.
The originally reported sample results were not affected, and are reported again here along with the reanalyzed QC samples.

Mark Zehr
Organics Manager
12/14/2016

ANALYTICAL CASE NARRATIVE

Work Order: A6J0892

Amended Final Report Revision 1
This report supersedes all previous reports.
EPA 8270D SIM PAH: Quality Control Sample Results Reissued
Results for certain Laboratory Batch QC samples (Matrix Spike, Matrix Spike Duplicate and/or Sample Duplicate) were initially reported as Estimated Values due to the analysis taking place more than 12 hours after the method required mass spectrometer tune check was performed. Affected Batch QC Samples have been reanalyzed, and are included in this amended report.
The originally reported sample results were not affected, and are reported again here along with the reanalyzed QC samples.

Mark Zehr
Organics Manager
12/14/2016

ANALYTICAL CASE NARRATIVE

Work Order: A6J0893

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AMENDED REPORT

12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL CASE NARRATIVE

Work Order: A6J0893

Amended Final Report Revision 1
This report supersedes all previous reports.
EPA 8270D SIM PAH: Quality Control Sample Results Reissued
Results for certain Laboratory Batch QC samples (Matrix Spike, Matrix Spike Duplicate and/or Sample Duplicate) were initially reported as Estimated Values due to the analysis taking place more than 12 hours after the method required mass spectrometer tune check was performed. Affected Batch QC Samples have been reanalyzed, and are included in this amended report.
The originally reported sample results were not affected, and are reported again here along with the reanalyzed QC samples.

Mark Zehr
Organics Manager
12/14/2016

ANALYTICAL CASE NARRATIVE

Work Order: A6J0925

Amended Final Report Revision 1
This report supersedes all previous reports.
EPA 8270D SIM PAH: Quality Control Sample Results Reissued
Results for certain Laboratory Batch QC samples (Matrix Spike, Matrix Spike Duplicate and/or Sample Duplicate) were initially reported as Estimated Values due to the analysis taking place more than 12 hours after the method required mass spectrometer tune check was performed. Affected Batch QC Samples have been reanalyzed, and are included in this amended report.
The originally reported sample results were not affected, and are reported again here along with the reanalyzed QC samples.

Mark Zehr
Organics Manager
12/14/2016

ANALYTICAL CASE NARRATIVE

Work Order: A6J0950

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL CASE NARRATIVE

Work Order: A6J0950

Amended Report Revision 1
This report supersedes all previous reports.
EPA 8270D SIM PAH: Quality Control Sample Results Reissued and data correction.

Samples "BR-24-15-30' (0-0.5')" (A6J0950-20) and "BR-24-15-30' (0.5-1')" (A6J0950-21):
Due to non-target analyte matrix interference, data originally reported with elevated Method Reporting Limits (MRLs). Samples were re-extracted and the extracts were cleaned up by EPA Method 3640 Gel Permeation Cleanup. The re-analysis data is included in this report and MRLs for Benzo(a)pyrene now meet project specific requirements.
Results for certain Laboratory Batch QC samples (Matrix Spike, Matrix Spike Duplicate and/or Sample Duplicate) were initially reported as Estimated Values due to the analysis taking place more than 12 hours after the method required mass spectrometer tune check was performed. Affected Batch QC Samples have been reanalyzed, and are included in this amended report.
The originally reported sample results were not affected, and are reported again here along with the reanalyzed QC samples.

Mark Zehr
Organics Manager
12/14/2016 - 1/3/2017

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-01-0-15' (0-0.5')_Prepared (A6J0556-21)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	1.89	3.78	ug/kg dry	1	10/28/16 11:28	EPA 8270D (SIM)	
Acenaphthylene	ND	1.89	3.78	"	"	"	"	
Anthracene	ND	1.89	3.78	"	"	"	"	
Benz(a)anthracene	ND	3.78	3.78	"	"	"	"	
Benzo(a)pyrene	ND	1.89	3.78	"	"	"	"	
Benzo(b)fluoranthene	ND	1.89	3.78	"	"	"	"	
Benzo(k)fluoranthene	ND	1.89	3.78	"	"	"	"	
Benzo(g,h,i)perylene	**2.73**	1.89	3.78	"	"	"	"	J
Chrysene	ND	3.78	3.78	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.89	3.78	"	"	"	"	
Dibenzofuran	ND	1.89	3.78	"	"	"	"	
Fluoranthene	ND	1.89	3.78	"	"	"	"	
Fluorene	ND	1.89	3.78	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.89	3.78	"	"	"	"	
1-Methylnaphthalene	ND	3.78	7.55	"	"	"	"	
2-Methylnaphthalene	ND	3.78	7.55	"	"	"	"	
Naphthalene	ND	3.78	7.55	"	"	"	"	
Phenanthrene	ND	1.89	3.78	"	"	"	"	
Pyrene	ND	1.89	3.78	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*79 %*	*Limits: 54-127 %*	"	"	"	

Apex Laboratories

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-01-0-15' (0.5-1')_Prepared (A6J0556-22)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	1.96	3.93	ug/kg dry	1	10/28/16 11:54	EPA 8270D (SIM)	
Acenaphthylene	ND	1.96	3.93	"	"	"	"	
Anthracene	ND	1.96	3.93	"	"	"	"	
Benz(a)anthracene	ND	1.96	3.93	"	"	"	"	
Benzo(a)pyrene	ND	1.96	3.93	"	"	"	"	
Benzo(b)fluoranthene	ND	1.96	3.93	"	"	"	"	
Benzo(k)fluoranthene	ND	1.96	3.93	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.96	3.93	"	"	"	"	
Chrysene	ND	1.96	3.93	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.96	3.93	"	"	"	"	
Dibenzofuran	ND	1.96	3.93	"	"	"	"	
Fluoranthene	ND	1.96	3.93	"	"	"	"	
Fluorene	ND	1.96	3.93	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.96	3.93	"	"	"	"	
1-Methylnaphthalene	ND	3.93	7.85	"	"	"	"	
2-Methylnaphthalene	ND	3.93	7.85	"	"	"	"	
Naphthalene	ND	3.93	7.85	"	"	"	"	
Phenanthrene	ND	1.96	3.93	"	"	"	"	
Pyrene	ND	1.96	3.93	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*82 %*	*Limits: 54-127 %*	"	"	"	

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Lisa Domenighini, Client Services Manager

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12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-01-0-15' (1-1.5')_Prepared (A6J0556-23)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	1.95	3.89	ug/kg dry	1	10/28/16 12:20	EPA 8270D (SIM)	
Acenaphthylene	ND	1.95	3.89	"	"	"	"	
Anthracene	ND	1.95	3.89	"	"	"	"	
Benz(a)anthracene	ND	1.95	3.89	"	"	"	"	
Benzo(a)pyrene	ND	1.95	3.89	"	"	"	"	
Benzo(b)fluoranthene	ND	1.95	3.89	"	"	"	"	
Benzo(k)fluoranthene	ND	1.95	3.89	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.95	3.89	"	"	"	"	
Chrysene	ND	1.95	3.89	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.95	3.89	"	"	"	"	
Dibenzofuran	ND	1.95	3.89	"	"	"	"	
Fluoranthene	ND	1.95	3.89	"	"	"	"	
Fluorene	ND	1.95	3.89	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.95	3.89	"	"	"	"	
1-Methylnaphthalene	ND	3.89	7.78	"	"	"	"	
2-Methylnaphthalene	ND	3.89	7.78	"	"	"	"	
Naphthalene	ND	3.89	7.78	"	"	"	"	
Phenanthrene	ND	1.95	3.89	"	"	"	"	
Pyrene	ND	1.95	3.89	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*80 %*	*Limits: 54-127 %*	"	"	"	

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Lisa Domenighini, Client Services Manager

Apex Labs

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-01-15-30' (0-0.5')_Prepared (A6J0556-24)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	1.99	3.97	ug/kg dry	1	10/28/16 12:47	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.97	"	"	"	"	
Anthracene	ND	1.99	3.97	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.97	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.97	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.97	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.97	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.97	"	"	"	"	
Chrysene	ND	1.99	3.97	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.97	"	"	"	"	
Dibenzofuran	ND	1.99	3.97	"	"	"	"	
Fluoranthene	ND	1.99	3.97	"	"	"	"	
Fluorene	ND	1.99	3.97	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.97	"	"	"	"	
1-Methylnaphthalene	ND	3.97	7.94	"	"	"	"	
2-Methylnaphthalene	ND	3.97	7.94	"	"	"	"	
Naphthalene	ND	3.97	7.94	"	"	"	"	
Phenanthrene	ND	1.99	3.97	"	"	"	"	
Pyrene	ND	1.99	3.97	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*79 %*	*Limits: 54-127 %*	"	"	"	

Apex Laboratories

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Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-01-15-30' (0.5-1')_Prepared (A6J0556-25)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	1.90	3.81	ug/kg dry	1	10/28/16 20:08	EPA 8270D (SIM)	
Acenaphthylene	ND	1.90	3.81	"	"	"	"	
Anthracene	ND	1.90	3.81	"	"	"	"	
Benz(a)anthracene	ND	3.81	3.81	"	"	"	"	
Benzo(a)pyrene	ND	1.90	3.81	"	"	"	"	
Benzo(b)fluoranthene	ND	1.90	3.81	"	"	"	"	
Benzo(k)fluoranthene	ND	1.90	3.81	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.90	3.81	"	"	"	"	
Chrysene	ND	3.81	3.81	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.90	3.81	"	"	"	"	
Dibenzofuran	ND	1.90	3.81	"	"	"	"	
Fluoranthene	ND	1.90	3.81	"	"	"	"	
Fluorene	ND	1.90	3.81	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.90	3.81	"	"	"	"	
1-Methylnaphthalene	ND	3.81	7.61	"	"	"	"	
2-Methylnaphthalene	ND	3.81	7.61	"	"	"	"	
Naphthalene	ND	3.81	7.61	"	"	"	"	
Phenanthrene	ND	1.90	3.81	"	"	"	"	
Pyrene	ND	1.90	3.81	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*80 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-01-15-30' (1-1.5')_Prepared (A6J0556-26)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	1.94	3.88	ug/kg dry	1	10/28/16 13:13	EPA 8270D (SIM)	
Acenaphthylene	ND	1.94	3.88	"	"	"	"	
Anthracene	ND	1.94	3.88	"	"	"	"	
Benz(a)anthracene	ND	1.94	3.88	"	"	"	"	
Benzo(a)pyrene	ND	1.94	3.88	"	"	"	"	
Benzo(b)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(k)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.94	3.88	"	"	"	"	
Chrysene	ND	1.94	3.88	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.94	3.88	"	"	"	"	
Dibenzofuran	ND	1.94	3.88	"	"	"	"	
Fluoranthene	ND	1.94	3.88	"	"	"	"	
Fluorene	ND	1.94	3.88	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.94	3.88	"	"	"	"	
1-Methylnaphthalene	ND	3.88	7.75	"	"	"	"	
2-Methylnaphthalene	ND	3.88	7.75	"	"	"	"	
Naphthalene	ND	3.88	7.75	"	"	"	"	
Phenanthrene	ND	1.94	3.88	"	"	"	"	
Pyrene	ND	1.94	3.88	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-01->30' (0-0.5')_Prepared (A6J0556-27)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	1.97	3.93	ug/kg dry	1	10/28/16 13:39	EPA 8270D (SIM)	
Acenaphthylene	ND	1.97	3.93	"	"	"	"	
Anthracene	ND	1.97	3.93	"	"	"	"	
Benz(a)anthracene	ND	3.93	3.93	"	"	"	"	
Benzo(a)pyrene	ND	1.97	3.93	"	"	"	"	
Benzo(b)fluoranthene	ND	1.97	3.93	"	"	"	"	
Benzo(k)fluoranthene	ND	1.97	3.93	"	"	"	"	
Benzo(g,h,i)perylene	**2.06**	1.97	3.93	"	"	"	"	J
Chrysene	ND	3.93	3.93	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.97	3.93	"	"	"	"	
Dibenzofuran	ND	1.97	3.93	"	"	"	"	
Fluoranthene	ND	1.97	3.93	"	"	"	"	
Fluorene	ND	1.97	3.93	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.97	3.93	"	"	"	"	
1-Methylnaphthalene	ND	3.93	7.86	"	"	"	"	
2-Methylnaphthalene	ND	3.93	7.86	"	"	"	"	
Naphthalene	ND	3.93	7.86	"	"	"	"	
Phenanthrene	ND	1.97	3.93	"	"	"	"	
Pyrene	ND	1.97	3.93	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 79 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*85 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-01->30' (0.5-1')_Prepared (A6J0556-28)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	2.00	4.00	ug/kg dry	1	10/28/16 14:05	EPA 8270D (SIM)	
Acenaphthylene	ND	2.00	4.00	"	"	"	"	
Anthracene	ND	2.00	4.00	"	"	"	"	
Benz(a)anthracene	ND	2.00	4.00	"	"	"	"	
Benzo(a)pyrene	ND	2.00	4.00	"	"	"	"	
Benzo(b)fluoranthene	ND	2.00	4.00	"	"	"	"	
Benzo(k)fluoranthene	ND	2.00	4.00	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.00	4.00	"	"	"	"	
Chrysene	ND	2.00	4.00	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.00	4.00	"	"	"	"	
Dibenzofuran	ND	2.00	4.00	"	"	"	"	
Fluoranthene	ND	2.00	4.00	"	"	"	"	
Fluorene	ND	2.00	4.00	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.00	4.00	"	"	"	"	
1-Methylnaphthalene	ND	4.00	7.99	"	"	"	"	
2-Methylnaphthalene	ND	4.00	7.99	"	"	"	"	
Naphthalene	ND	4.00	7.99	"	"	"	"	
Phenanthrene	ND	2.00	4.00	"	"	"	"	
Pyrene	ND	2.00	4.00	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*78 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-01->30' (1-1.5')_Prepared (A6J0556-29)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	2.03	4.05	ug/kg dry	1	10/28/16 14:31	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.05	"	"	"	"	
Anthracene	ND	2.03	4.05	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.05	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.05	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.05	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.05	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.05	"	"	"	"	
Chrysene	ND	2.03	4.05	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.05	"	"	"	"	
Dibenzofuran	ND	2.03	4.05	"	"	"	"	
Fluoranthene	ND	2.03	4.05	"	"	"	"	
Fluorene	ND	2.03	4.05	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.05	"	"	"	"	
1-Methylnaphthalene	ND	4.05	8.11	"	"	"	"	
2-Methylnaphthalene	ND	4.05	8.11	"	"	"	"	
Naphthalene	ND	4.05	8.11	"	"	"	"	
Phenanthrene	ND	2.03	4.05	"	"	"	"	
Pyrene	ND	2.03	4.05	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*78 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-02-15-30' (0-0.5')_Prepared (A6J0556-30)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	1.92	3.85	ug/kg dry	1	10/28/16 14:57	EPA 8270D (SIM)	
Acenaphthylene	ND	1.92	3.85	"	"	"	"	
Anthracene	ND	1.92	3.85	"	"	"	"	
Benz(a)anthracene	ND	1.92	3.85	"	"	"	"	
Benzo(a)pyrene	ND	1.92	3.85	"	"	"	"	
Benzo(b)fluoranthene	ND	1.92	3.85	"	"	"	"	
Benzo(k)fluoranthene	ND	1.92	3.85	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.92	3.85	"	"	"	"	
Chrysene	ND	1.92	3.85	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.92	3.85	"	"	"	"	
Dibenzofuran	ND	1.92	3.85	"	"	"	"	
Fluoranthene	ND	1.92	3.85	"	"	"	"	
Fluorene	ND	1.92	3.85	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.92	3.85	"	"	"	"	
1-Methylnaphthalene	ND	3.85	7.69	"	"	"	"	
2-Methylnaphthalene	ND	3.85	7.69	"	"	"	"	
Naphthalene	ND	3.85	7.69	"	"	"	"	
Phenanthrene	ND	1.92	3.85	"	"	"	"	
Pyrene	ND	1.92	3.85	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*74 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-02-15-30' (0-0.5') DUP_Prepared (A6J0556-31)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	2.06	4.13	ug/kg dry	1	10/28/16 15:23	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.13	"	"	"	"	
Anthracene	ND	2.06	4.13	"	"	"	"	
Benz(a)anthracene	ND	2.06	4.13	"	"	"	"	
Benzo(a)pyrene	ND	2.06	4.13	"	"	"	"	
Benzo(b)fluoranthene	ND	2.06	4.13	"	"	"	"	
Benzo(k)fluoranthene	ND	2.06	4.13	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.06	4.13	"	"	"	"	
Chrysene	ND	2.06	4.13	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.06	4.13	"	"	"	"	
Dibenzofuran	ND	2.06	4.13	"	"	"	"	
Fluoranthene	ND	2.06	4.13	"	"	"	"	
Fluorene	ND	2.06	4.13	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.06	4.13	"	"	"	"	
1-Methylnaphthalene	ND	4.13	8.25	"	"	"	"	
2-Methylnaphthalene	ND	4.13	8.25	"	"	"	"	
Naphthalene	ND	4.13	8.25	"	"	"	"	
Phenanthrene	ND	2.06	4.13	"	"	"	"	
Pyrene	ND	2.06	4.13	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*74 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-02-15-30' (0.5-1')_Prepared (A6J0556-32)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	2.01	4.01	ug/kg dry	1	10/28/16 15:49	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.01	"	"	"	"	
Anthracene	ND	2.01	4.01	"	"	"	"	
Benz(a)anthracene	ND	2.01	4.01	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.01	"	"	"	"	
Benzo(b)fluoranthene	ND	2.01	4.01	"	"	"	"	
Benzo(k)fluoranthene	ND	2.01	4.01	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.01	"	"	"	"	
Chrysene	ND	2.01	4.01	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.01	4.01	"	"	"	"	
Dibenzofuran	ND	2.01	4.01	"	"	"	"	
Fluoranthene	ND	2.01	4.01	"	"	"	"	
Fluorene	ND	2.01	4.01	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.01	"	"	"	"	
1-Methylnaphthalene	ND	4.01	8.02	"	"	"	"	
2-Methylnaphthalene	ND	4.01	8.02	"	"	"	"	
Naphthalene	ND	4.01	8.02	"	"	"	"	
Phenanthrene	ND	2.01	4.01	"	"	"	"	
Pyrene	ND	2.01	4.01	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-02-15-30' (1-1.5')_Prepared (A6J0556-33)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	1.90	3.80	ug/kg dry	1	10/28/16 16:14	EPA 8270D (SIM)	
Acenaphthylene	ND	1.90	3.80	"	"	"	"	
Anthracene	ND	1.90	3.80	"	"	"	"	
Benz(a)anthracene	ND	1.90	3.80	"	"	"	"	
Benzo(a)pyrene	ND	1.90	3.80	"	"	"	"	
Benzo(b)fluoranthene	ND	1.90	3.80	"	"	"	"	
Benzo(k)fluoranthene	ND	1.90	3.80	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.90	3.80	"	"	"	"	
Chrysene	ND	1.90	3.80	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.90	3.80	"	"	"	"	
Dibenzofuran	ND	1.90	3.80	"	"	"	"	
Fluoranthene	ND	1.90	3.80	"	"	"	"	
Fluorene	ND	1.90	3.80	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.90	3.80	"	"	"	"	
1-Methylnaphthalene	ND	3.80	7.59	"	"	"	"	
2-Methylnaphthalene	ND	3.80	7.59	"	"	"	"	
Naphthalene	ND	3.80	7.59	"	"	"	"	
Phenanthrene	ND	1.90	3.80	"	"	"	"	
Pyrene	ND	1.90	3.80	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*77 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-02->30' (0-0.5')_Prepared (A6J0556-34)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	1.92	3.83	ug/kg dry	1	10/28/16 16:40	EPA 8270D (SIM)	
Acenaphthylene	ND	1.92	3.83	"	"	"	"	
Anthracene	ND	1.92	3.83	"	"	"	"	
Benz(a)anthracene	ND	1.92	3.83	"	"	"	"	
Benzo(a)pyrene	ND	1.92	3.83	"	"	"	"	
Benzo(b)fluoranthene	ND	1.92	3.83	"	"	"	"	
Benzo(k)fluoranthene	ND	1.92	3.83	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.92	3.83	"	"	"	"	
Chrysene	**2.75**	1.92	3.83	"	"	"	"	J
Dibenz(a,h)anthracene	ND	1.92	3.83	"	"	"	"	
Dibenzofuran	ND	1.92	3.83	"	"	"	"	
Fluoranthene	**4.34**	1.92	3.83	"	"	"	"	
Fluorene	ND	1.92	3.83	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.92	3.83	"	"	"	"	
1-Methylnaphthalene	ND	3.83	7.66	"	"	"	"	
2-Methylnaphthalene	ND	3.83	7.66	"	"	"	"	
Naphthalene	ND	3.83	7.66	"	"	"	"	
Phenanthrene	**2.77**	1.92	3.83	"	"	"	"	J
Pyrene	**5.65**	1.92	3.83	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-02->30' (0.5-1')_Prepared (A6J0556-35)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	1.95	3.91	ug/kg dry	1	10/28/16 17:06	EPA 8270D (SIM)	
Acenaphthylene	ND	1.95	3.91	"	"	"	"	
Anthracene	ND	1.95	3.91	"	"	"	"	
Benz(a)anthracene	ND	1.95	3.91	"	"	"	"	
Benzo(a)pyrene	ND	1.95	3.91	"	"	"	"	
Benzo(b)fluoranthene	ND	1.95	3.91	"	"	"	"	
Benzo(k)fluoranthene	ND	1.95	3.91	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.95	3.91	"	"	"	"	
Chrysene	ND	1.95	3.91	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.95	3.91	"	"	"	"	
Dibenzofuran	ND	1.95	3.91	"	"	"	"	
Fluoranthene	ND	1.95	3.91	"	"	"	"	
Fluorene	ND	1.95	3.91	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.95	3.91	"	"	"	"	
1-Methylnaphthalene	ND	3.91	7.81	"	"	"	"	
2-Methylnaphthalene	ND	3.91	7.81	"	"	"	"	
Naphthalene	ND	3.91	7.81	"	"	"	"	
Phenanthrene	ND	1.95	3.91	"	"	"	"	
Pyrene	ND	1.95	3.91	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 80 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*78 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-02->30' (1-1.5')_Prepared (A6J0556-36)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	2.02	4.04	ug/kg dry	1	10/28/16 17:32	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.04	"	"	"	"	
Anthracene	ND	2.02	4.04	"	"	"	"	
Benz(a)anthracene	ND	2.02	4.04	"	"	"	"	
Benzo(a)pyrene	ND	2.02	4.04	"	"	"	"	
Benzo(b)fluoranthene	ND	2.02	4.04	"	"	"	"	
Benzo(k)fluoranthene	ND	2.02	4.04	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.02	4.04	"	"	"	"	
Chrysene	ND	2.02	4.04	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.02	4.04	"	"	"	"	
Dibenzofuran	ND	2.02	4.04	"	"	"	"	
Fluoranthene	ND	2.02	4.04	"	"	"	"	
Fluorene	ND	2.02	4.04	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.04	"	"	"	"	
1-Methylnaphthalene	ND	4.04	8.09	"	"	"	"	
2-Methylnaphthalene	ND	4.04	8.09	"	"	"	"	
Naphthalene	ND	4.04	8.09	"	"	"	"	
Phenanthrene	ND	2.02	4.04	"	"	"	"	
Pyrene	ND	2.02	4.04	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*78 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-03-15-30' (0-0.5')_Prepared (A6J0556-37)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	2.03	4.07	ug/kg dry	1	10/28/16 17:58	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.07	"	"	"	"	
Anthracene	ND	2.03	4.07	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.07	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.07	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.07	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.07	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.07	"	"	"	"	
Chrysene	ND	2.03	4.07	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.07	"	"	"	"	
Dibenzofuran	ND	2.03	4.07	"	"	"	"	
Fluoranthene	ND	2.03	4.07	"	"	"	"	
Fluorene	ND	2.03	4.07	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.07	"	"	"	"	
1-Methylnaphthalene	ND	4.07	8.14	"	"	"	"	
2-Methylnaphthalene	ND	4.07	8.14	"	"	"	"	
Naphthalene	ND	4.07	8.14	"	"	"	"	
Phenanthrene	ND	2.03	4.07	"	"	"	"	
Pyrene	ND	2.03	4.07	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*73 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-03-15-30' (0.5-1')_Prepared (A6J0556-38)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	1.94	3.89	ug/kg dry	1	10/28/16 18:24	EPA 8270D (SIM)	
Acenaphthylene	ND	1.94	3.89	"	"	"	"	
Anthracene	ND	1.94	3.89	"	"	"	"	
Benz(a)anthracene	ND	1.94	3.89	"	"	"	"	
Benzo(a)pyrene	ND	1.94	3.89	"	"	"	"	
Benzo(b)fluoranthene	ND	1.94	3.89	"	"	"	"	
Benzo(k)fluoranthene	ND	1.94	3.89	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.94	3.89	"	"	"	"	
Chrysene	ND	3.89	3.89	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.94	3.89	"	"	"	"	
Dibenzofuran	ND	1.94	3.89	"	"	"	"	
Fluoranthene	ND	1.94	3.89	"	"	"	"	
Fluorene	ND	1.94	3.89	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.94	3.89	"	"	"	"	
1-Methylnaphthalene	ND	3.89	7.77	"	"	"	"	
2-Methylnaphthalene	ND	3.89	7.77	"	"	"	"	
Naphthalene	ND	3.89	7.77	"	"	"	"	
Phenanthrene	ND	1.94	3.89	"	"	"	"	
Pyrene	ND	1.94	3.89	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 80 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*78 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-03-15-30' (1-1.5')_Prepared (A6J0556-39)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	1.99	3.97	ug/kg dry	1	10/28/16 18:50	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.97	"	"	"	"	
Anthracene	ND	1.99	3.97	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.97	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.97	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.97	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.97	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.97	"	"	"	"	
Chrysene	ND	1.99	3.97	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.97	"	"	"	"	
Dibenzofuran	ND	1.99	3.97	"	"	"	"	
Fluoranthene	ND	1.99	3.97	"	"	"	"	
Fluorene	ND	1.99	3.97	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.97	"	"	"	"	
1-Methylnaphthalene	ND	3.97	7.95	"	"	"	"	
2-Methylnaphthalene	ND	3.97	7.95	"	"	"	"	
Naphthalene	ND	3.97	7.95	"	"	"	"	
Phenanthrene	ND	1.99	3.97	"	"	"	"	
Pyrene	ND	1.99	3.97	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*65 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-03->30' (0-0.5')_Prepared (A6J0556-40)			**Matrix: Soil**		**Batch: 6101065**			**H-08**
Acenaphthene	ND	2.00	4.00	ug/kg dry	1	10/28/16 19:16	EPA 8270D (SIM)	
Acenaphthylene	ND	2.00	4.00	"	"	"	"	
Anthracene	ND	2.00	4.00	"	"	"	"	
Benz(a)anthracene	ND	2.00	4.00	"	"	"	"	
Benzo(a)pyrene	ND	2.00	4.00	"	"	"	"	
Benzo(b)fluoranthene	ND	2.00	4.00	"	"	"	"	
Benzo(k)fluoranthene	ND	2.00	4.00	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.00	4.00	"	"	"	"	
Chrysene	ND	2.00	4.00	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.00	4.00	"	"	"	"	
Dibenzofuran	ND	2.00	4.00	"	"	"	"	
Fluoranthene	ND	2.00	4.00	"	"	"	"	
Fluorene	ND	2.00	4.00	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.00	4.00	"	"	"	"	
1-Methylnaphthalene	ND	4.00	8.00	"	"	"	"	
2-Methylnaphthalene	ND	4.00	8.00	"	"	"	"	
Naphthalene	ND	4.00	8.00	"	"	"	"	
Phenanthrene	ND	2.00	4.00	"	"	"	"	
Pyrene	ND	2.00	4.00	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 85 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*84 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6J0556-41)			**Matrix: Solid**		**Batch: 6101065**			**A-01a, H-08**
Acenaphthene	ND	1.92	3.85	ug/kg wet	1	10/28/16 19:42	EPA 8270D (SIM)	
Acenaphthylene	ND	1.92	3.85	"	"	"	"	
Anthracene	ND	1.92	3.85	"	"	"	"	
Benz(a)anthracene	ND	1.92	3.85	"	"	"	"	
Benzo(a)pyrene	ND	1.92	3.85	"	"	"	"	
Benzo(b)fluoranthene	ND	1.92	3.85	"	"	"	"	
Benzo(k)fluoranthene	ND	1.92	3.85	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.92	3.85	"	"	"	"	
Chrysene	ND	1.92	3.85	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.92	3.85	"	"	"	"	
Dibenzofuran	ND	1.92	3.85	"	"	"	"	
Fluoranthene	ND	1.92	3.85	"	"	"	"	
Fluorene	ND	1.92	3.85	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.92	3.85	"	"	"	"	
1-Methylnaphthalene	ND	3.85	7.69	"	"	"	"	
2-Methylnaphthalene	ND	3.85	7.69	"	"	"	"	
Naphthalene	ND	3.85	7.69	"	"	"	"	
Phenanthrene	ND	1.92	3.85	"	"	"	"	
Pyrene	ND	1.92	3.85	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*71 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-03->30' (0.5-1')_Prepared (A6J0562-21)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	2.15	4.30	ug/kg dry	1	10/25/16 17:24	EPA 8270D (SIM)	
Acenaphthylene	ND	2.15	4.30	"	"	"	"	
Anthracene	ND	2.15	4.30	"	"	"	"	
Benz(a)anthracene	ND	2.15	4.30	"	"	"	"	
Benzo(a)pyrene	ND	2.15	4.30	"	"	"	"	
Benzo(b)fluoranthene	ND	2.15	4.30	"	"	"	"	
Benzo(k)fluoranthene	ND	2.15	4.30	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.15	4.30	"	"	"	"	
Chrysene	ND	2.15	4.30	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.15	4.30	"	"	"	"	
Dibenzofuran	ND	2.15	4.30	"	"	"	"	
Fluoranthene	ND	2.15	4.30	"	"	"	"	
Fluorene	ND	2.15	4.30	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.15	4.30	"	"	"	"	
1-Methylnaphthalene	ND	4.30	8.60	"	"	"	"	
2-Methylnaphthalene	ND	4.30	8.60	"	"	"	"	
Naphthalene	ND	4.30	8.60	"	"	"	"	
Phenanthrene	ND	2.15	4.30	"	"	"	"	
Pyrene	ND	2.15	4.30	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-03->30' (1-1.5')_Prepared (A6J0562-22)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	2.17	4.34	ug/kg dry	1	10/25/16 17:50	EPA 8270D (SIM)	
Acenaphthylene	ND	2.17	4.34	"	"	"	"	
Anthracene	ND	2.17	4.34	"	"	"	"	
Benz(a)anthracene	ND	2.17	4.34	"	"	"	"	
Benzo(a)pyrene	ND	2.17	4.34	"	"	"	"	
Benzo(b)fluoranthene	ND	2.17	4.34	"	"	"	"	
Benzo(k)fluoranthene	ND	2.17	4.34	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.17	4.34	"	"	"	"	
Chrysene	ND	2.17	4.34	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.17	4.34	"	"	"	"	
Dibenzofuran	ND	2.17	4.34	"	"	"	"	
Fluoranthene	ND	2.17	4.34	"	"	"	"	
Fluorene	ND	2.17	4.34	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.17	4.34	"	"	"	"	
1-Methylnaphthalene	ND	4.34	8.69	"	"	"	"	
2-Methylnaphthalene	ND	4.34	8.69	"	"	"	"	
Naphthalene	ND	4.34	8.69	"	"	"	"	
Phenanthrene	**2.31**	2.17	4.34	"	"	"	"	J
Pyrene	ND	2.17	4.34	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*70 %*	*Limits: 54-127 %*	"	"	"	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-04-0-15' (0-0.5')_Prepared (A6J0562-23RE1)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	1.99	3.98	ug/kg dry	1	10/26/16 14:19	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.98	"	"	"	"	
Anthracene	ND	1.99	3.98	"	"	"	"	
Benz(a)anthracene	ND	3.98	3.98	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.98	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(g,h,i)perylene	**3.28**	1.99	3.98	"	"	"	"	J
Chrysene	ND	3.98	3.98	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.98	"	"	"	"	
Dibenzofuran	ND	1.99	3.98	"	"	"	"	
Fluoranthene	ND	1.99	3.98	"	"	"	"	
Fluorene	ND	1.99	3.98	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.98	"	"	"	"	
1-Methylnaphthalene	ND	3.98	7.96	"	"	"	"	
2-Methylnaphthalene	ND	3.98	7.96	"	"	"	"	
Naphthalene	ND	3.98	7.96	"	"	"	"	
Phenanthrene	ND	1.99	3.98	"	"	"	"	
Pyrene	ND	1.99	3.98	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-04-0-15' (0.5-1')_Prepared (A6J0562-24RE1)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	4.95	9.89	ug/kg dry	1	10/26/16 14:45	EPA 8270D (SIM)	
Acenaphthylene	ND	4.95	9.89	"	"	"	"	
Anthracene	ND	4.95	9.89	"	"	"	"	
Benz(a)anthracene	ND	9.89	9.89	"	"	"	"	
Benzo(a)pyrene	ND	4.95	9.89	"	"	"	"	
Benzo(b)fluoranthene	ND	4.95	9.89	"	"	"	"	
Benzo(k)fluoranthene	ND	4.95	9.89	"	"	"	"	
Benzo(g,h,i)perylene	**6.92**	4.95	9.89	"	"	"	"	J
Chrysene	ND	9.89	9.89	"	"	"	"	
Dibenz(a,h)anthracene	ND	4.95	9.89	"	"	"	"	
Dibenzofuran	ND	4.95	9.89	"	"	"	"	
Fluoranthene	ND	4.95	9.89	"	"	"	"	
Fluorene	ND	4.95	9.89	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	4.95	9.89	"	"	"	"	
1-Methylnaphthalene	ND	9.89	19.8	"	"	"	"	
2-Methylnaphthalene	ND	9.89	19.8	"	"	"	"	
Naphthalene	ND	9.89	19.8	"	"	"	"	
Phenanthrene	ND	4.95	9.89	"	"	"	"	
Pyrene	ND	4.95	9.89	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*92 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-04-0-15' (1-1.5')_Prepared (A6J0562-25RE1)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	5.02	10.0	ug/kg dry	1	10/26/16 15:11	EPA 8270D (SIM)	
Acenaphthylene	ND	5.02	10.0	"	"	"	"	
Anthracene	ND	5.02	10.0	"	"	"	"	
Benz(a)anthracene	ND	5.02	10.0	"	"	"	"	
Benzo(a)pyrene	ND	5.02	10.0	"	"	"	"	
Benzo(b)fluoranthene	ND	5.02	10.0	"	"	"	"	
Benzo(k)fluoranthene	ND	5.02	10.0	"	"	"	"	
Benzo(g,h,i)perylene	ND	5.02	10.0	"	"	"	"	
Chrysene	ND	10.0	10.0	"	"	"	"	
Dibenz(a,h)anthracene	ND	5.02	10.0	"	"	"	"	
Dibenzofuran	ND	5.02	10.0	"	"	"	"	
Fluoranthene	ND	5.02	10.0	"	"	"	"	
Fluorene	ND	5.02	10.0	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	5.02	10.0	"	"	"	"	
1-Methylnaphthalene	ND	10.0	20.1	"	"	"	"	
2-Methylnaphthalene	ND	10.0	20.1	"	"	"	"	
Naphthalene	ND	10.0	20.1	"	"	"	"	
Phenanthrene	ND	5.02	10.0	"	"	"	"	
Pyrene	ND	5.02	10.0	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*91 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-04-15-30' (0-0.5')_Prepared (A6J0562-26)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	2.01	4.01	ug/kg dry	1	10/25/16 19:34	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.01	"	"	"	"	
Anthracene	ND	2.01	4.01	"	"	"	"	
Benz(a)anthracene	ND	2.01	4.01	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.01	"	"	"	"	
Benzo(b)fluoranthene	ND	2.01	4.01	"	"	"	"	
Benzo(k)fluoranthene	ND	2.01	4.01	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.01	"	"	"	"	
Chrysene	ND	2.01	4.01	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.01	4.01	"	"	"	"	
Dibenzofuran	ND	2.01	4.01	"	"	"	"	
Fluoranthene	ND	2.01	4.01	"	"	"	"	
Fluorene	ND	2.01	4.01	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.01	"	"	"	"	
1-Methylnaphthalene	ND	4.01	8.02	"	"	"	"	
2-Methylnaphthalene	ND	4.01	8.02	"	"	"	"	
Naphthalene	ND	4.01	8.02	"	"	"	"	
Phenanthrene	ND	2.01	4.01	"	"	"	"	
Pyrene	ND	2.01	4.01	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*78 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-04-15-30' (0.5-1')_Prepared (A6J0562-27)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	2.03	4.05	ug/kg dry	1	10/25/16 20:00	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.05	"	"	"	"	
Anthracene	ND	2.03	4.05	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.05	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.05	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.05	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.05	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.05	"	"	"	"	
Chrysene	ND	2.03	4.05	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.05	"	"	"	"	
Dibenzofuran	ND	2.03	4.05	"	"	"	"	
Fluoranthene	ND	2.03	4.05	"	"	"	"	
Fluorene	ND	2.03	4.05	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.05	"	"	"	"	
1-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
2-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
Naphthalene	ND	4.05	8.10	"	"	"	"	
Phenanthrene	ND	2.03	4.05	"	"	"	"	
Pyrene	ND	2.03	4.05	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 79 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*82 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-04-15-30' (1-1.5')_Prepared (A6J0562-28)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	2.03	4.06	ug/kg dry	1	10/25/16 20:26	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.06	"	"	"	"	
Anthracene	ND	2.03	4.06	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.06	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.06	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.06	"	"	"	"	
Chrysene	ND	2.03	4.06	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.06	"	"	"	"	
Dibenzofuran	ND	2.03	4.06	"	"	"	"	
Fluoranthene	ND	2.03	4.06	"	"	"	"	
Fluorene	ND	2.03	4.06	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.06	"	"	"	"	
1-Methylnaphthalene	ND	4.06	8.12	"	"	"	"	
2-Methylnaphthalene	ND	4.06	8.12	"	"	"	"	
Naphthalene	ND	4.06	8.12	"	"	"	"	
Phenanthrene	ND	2.03	4.06	"	"	"	"	
Pyrene	ND	2.03	4.06	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 81 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*85 %*	*Limits: 54-127 %*	"	"	"	

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-04->30' (0-0.5')_Prepared (A6J0562-29)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	2.01	4.03	ug/kg dry	1	10/26/16 15:37	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.03	"	"	"	"	
Anthracene	ND	2.01	4.03	"	"	"	"	
Benz(a)anthracene	ND	4.03	4.03	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.03	"	"	"	"	
Benzo(b)fluoranthene	ND	2.01	4.03	"	"	"	"	
Benzo(k)fluoranthene	ND	2.01	4.03	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.03	"	"	"	"	
Chrysene	ND	4.03	4.03	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.01	4.03	"	"	"	"	
Dibenzofuran	ND	2.01	4.03	"	"	"	"	
Fluoranthene	ND	2.01	4.03	"	"	"	"	
Fluorene	ND	2.01	4.03	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.03	"	"	"	"	
1-Methylnaphthalene	ND	4.03	8.06	"	"	"	"	
2-Methylnaphthalene	ND	4.03	8.06	"	"	"	"	
Naphthalene	ND	4.03	8.06	"	"	"	"	
Phenanthrene	ND	2.01	4.03	"	"	"	"	
Pyrene	ND	2.01	4.03	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*74 %*	*Limits: 54-127 %*	"	"	"	

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-04->30' (0.5-1')_Prepared (A6J0562-30)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	2.03	4.07	ug/kg dry	1	10/26/16 16:03	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.07	"	"	"	"	
Anthracene	ND	2.03	4.07	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.07	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.07	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.07	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.07	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.07	"	"	"	"	
Chrysene	ND	2.03	4.07	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.07	"	"	"	"	
Dibenzofuran	ND	2.03	4.07	"	"	"	"	
Fluoranthene	ND	2.03	4.07	"	"	"	"	
Fluorene	ND	2.03	4.07	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.07	"	"	"	"	
1-Methylnaphthalene	ND	4.07	8.13	"	"	"	"	
2-Methylnaphthalene	ND	4.07	8.13	"	"	"	"	
Naphthalene	ND	4.07	8.13	"	"	"	"	
Phenanthrene	ND	2.03	4.07	"	"	"	"	
Pyrene	ND	2.03	4.07	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*79 %*	*Limits: 54-127 %*	"	"	"	

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-04->30' (1-1.5')_Prepared (A6J0562-31)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	2.03	4.06	ug/kg dry	1	10/26/16 16:29	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.06	"	"	"	"	
Anthracene	ND	2.03	4.06	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.06	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.06	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.06	"	"	"	"	
Chrysene	ND	2.03	4.06	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.06	"	"	"	"	
Dibenzofuran	ND	2.03	4.06	"	"	"	"	
Fluoranthene	ND	2.03	4.06	"	"	"	"	
Fluorene	ND	2.03	4.06	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.06	"	"	"	"	
1-Methylnaphthalene	ND	4.06	8.12	"	"	"	"	
2-Methylnaphthalene	ND	4.06	8.12	"	"	"	"	
Naphthalene	ND	4.06	8.12	"	"	"	"	
Phenanthrene	ND	2.03	4.06	"	"	"	"	
Pyrene	ND	2.03	4.06	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*87 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-05-15-30' (0-0.5')_Prepared (A6J0562-32)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	2.05	4.09	ug/kg dry	1	10/26/16 16:56	EPA 8270D (SIM)	
Acenaphthylene	ND	2.05	4.09	"	"	"	"	
Anthracene	ND	2.05	4.09	"	"	"	"	
Benz(a)anthracene	ND	4.09	4.09	"	"	"	"	
Benzo(a)pyrene	ND	2.05	4.09	"	"	"	"	
Benzo(b)fluoranthene	**2.26**	2.05	4.09	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.05	4.09	"	"	"	"	
Benzo(g,h,i)perylene	**2.76**	2.05	4.09	"	"	"	"	J
Chrysene	ND	4.09	4.09	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.05	4.09	"	"	"	"	
Dibenzofuran	ND	2.05	4.09	"	"	"	"	
Fluoranthene	ND	2.05	4.09	"	"	"	"	
Fluorene	ND	2.05	4.09	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.05	4.09	"	"	"	"	
1-Methylnaphthalene	ND	4.09	8.18	"	"	"	"	
2-Methylnaphthalene	ND	4.09	8.18	"	"	"	"	
Naphthalene	ND	4.09	8.18	"	"	"	"	
Phenanthrene	ND	2.05	4.09	"	"	"	"	
Pyrene	ND	2.05	4.09	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*87 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-05-15-30' (0.5-1')_Prepared (A6J0562-33)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	2.03	4.06	ug/kg dry	1	10/26/16 17:22	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.06	"	"	"	"	
Anthracene	ND	2.03	4.06	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.06	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.06	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.06	"	"	"	"	
Chrysene	ND	2.03	4.06	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.06	"	"	"	"	
Dibenzofuran	ND	2.03	4.06	"	"	"	"	
Fluoranthene	ND	2.03	4.06	"	"	"	"	
Fluorene	ND	2.03	4.06	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.06	"	"	"	"	
1-Methylnaphthalene	ND	4.06	8.12	"	"	"	"	
2-Methylnaphthalene	ND	4.06	8.12	"	"	"	"	
Naphthalene	ND	4.06	8.12	"	"	"	"	
Phenanthrene	ND	2.03	4.06	"	"	"	"	
Pyrene	ND	2.03	4.06	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*72 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-05-15-30' (1-1.5')_Prepared (A6J0562-34)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	2.04	4.07	ug/kg dry	1	10/26/16 17:48	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.07	"	"	"	"	
Anthracene	ND	2.04	4.07	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.07	"	"	"	"	
Benzo(a)pyrene	ND	2.04	4.07	"	"	"	"	
Benzo(b)fluoranthene	ND	2.04	4.07	"	"	"	"	
Benzo(k)fluoranthene	ND	2.04	4.07	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.04	4.07	"	"	"	"	
Chrysene	ND	2.04	4.07	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.04	4.07	"	"	"	"	
Dibenzofuran	ND	2.04	4.07	"	"	"	"	
Fluoranthene	ND	2.04	4.07	"	"	"	"	
Fluorene	ND	2.04	4.07	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.07	"	"	"	"	
1-Methylnaphthalene	ND	4.07	8.15	"	"	"	"	
2-Methylnaphthalene	ND	4.07	8.15	"	"	"	"	
Naphthalene	ND	4.07	8.15	"	"	"	"	
Phenanthrene	ND	2.04	4.07	"	"	"	"	
Pyrene	ND	2.04	4.07	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*77 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-05->30 (0-0.5')_Prepared (A6J0562-35)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	2.02	4.05	ug/kg dry	1	10/26/16 18:14	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.05	"	"	"	"	
Anthracene	ND	2.02	4.05	"	"	"	"	
Benz(a)anthracene	ND	2.02	4.05	"	"	"	"	
Benzo(a)pyrene	ND	2.02	4.05	"	"	"	"	
Benzo(b)fluoranthene	ND	2.02	4.05	"	"	"	"	
Benzo(k)fluoranthene	ND	2.02	4.05	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.02	4.05	"	"	"	"	
Chrysene	ND	2.02	4.05	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.02	4.05	"	"	"	"	
Dibenzofuran	ND	2.02	4.05	"	"	"	"	
Fluoranthene	ND	2.02	4.05	"	"	"	"	
Fluorene	ND	2.02	4.05	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.05	"	"	"	"	
1-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
2-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
Naphthalene	ND	4.05	8.10	"	"	"	"	
Phenanthrene	ND	2.02	4.05	"	"	"	"	
Pyrene	ND	2.02	4.05	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 80 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*82 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-05->30 (0.5-1')_Prepared (A6J0562-36)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	2.03	4.05	ug/kg dry	1	10/26/16 18:40	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.05	"	"	"	"	
Anthracene	ND	2.03	4.05	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.05	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.05	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.05	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.05	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.05	"	"	"	"	
Chrysene	ND	2.03	4.05	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.05	"	"	"	"	
Dibenzofuran	ND	2.03	4.05	"	"	"	"	
Fluoranthene	ND	2.03	4.05	"	"	"	"	
Fluorene	ND	2.03	4.05	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.05	"	"	"	"	
1-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
2-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
Naphthalene	ND	4.05	8.10	"	"	"	"	
Phenanthrene	ND	2.03	4.05	"	"	"	"	
Pyrene	ND	2.03	4.05	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-05->30' (1-1.5')_Prepared (A6J0562-37)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	2.03	4.06	ug/kg dry	1	10/26/16 19:06	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.06	"	"	"	"	
Anthracene	ND	2.03	4.06	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.06	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.06	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.06	"	"	"	"	
Chrysene	ND	2.03	4.06	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.06	"	"	"	"	
Dibenzofuran	ND	2.03	4.06	"	"	"	"	
Fluoranthene	ND	2.03	4.06	"	"	"	"	
Fluorene	ND	2.03	4.06	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.06	"	"	"	"	
1-Methylnaphthalene	ND	4.06	8.11	"	"	"	"	
2-Methylnaphthalene	ND	4.06	8.11	"	"	"	"	
Naphthalene	ND	4.06	8.11	"	"	"	"	
Phenanthrene	ND	2.03	4.06	"	"	"	"	
Pyrene	ND	2.03	4.06	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 60 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*66 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-06-0-15' (0-0.5')_Prepared (A6J0562-38)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	2.05	4.10	ug/kg dry	1	10/26/16 19:33	EPA 8270D (SIM)	
Acenaphthylene	ND	2.05	4.10	"	"	"	"	
Anthracene	ND	2.05	4.10	"	"	"	"	
Benz(a)anthracene	ND	4.41	4.41	"	"	"	"	R-02
Benzo(a)pyrene	ND	2.05	4.10	"	"	"	"	
Benzo(b)fluoranthene	**2.79**	2.05	4.10	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.05	4.10	"	"	"	"	
Benzo(g,h,i)perylene	**5.38**	2.05	4.10	"	"	"	"	
Chrysene	ND	4.71	4.71	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	2.05	4.10	"	"	"	"	
Dibenzofuran	ND	2.05	4.10	"	"	"	"	
Fluoranthene	ND	2.05	4.10	"	"	"	"	
Fluorene	ND	2.05	4.10	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.05	4.10	"	"	"	"	
1-Methylnaphthalene	ND	4.10	8.20	"	"	"	"	
2-Methylnaphthalene	ND	4.10	8.20	"	"	"	"	
Naphthalene	ND	4.10	8.20	"	"	"	"	
Phenanthrene	ND	2.05	4.10	"	"	"	"	
Pyrene	ND	2.05	4.10	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-06-0-15' (0.5-1')_Prepared (A6J0562-39)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	2.07	4.14	ug/kg dry	1	10/26/16 19:59	EPA 8270D (SIM)	
Acenaphthylene	ND	2.07	4.14	"	"	"	"	
Anthracene	ND	2.07	4.14	"	"	"	"	
Benz(a)anthracene	ND	2.07	4.14	"	"	"	"	
Benzo(a)pyrene	ND	2.07	4.14	"	"	"	"	
Benzo(b)fluoranthene	ND	2.07	4.14	"	"	"	"	
Benzo(k)fluoranthene	ND	2.07	4.14	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.07	4.14	"	"	"	"	
Chrysene	ND	2.07	4.14	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.07	4.14	"	"	"	"	
Dibenzofuran	ND	2.07	4.14	"	"	"	"	
Fluoranthene	ND	2.07	4.14	"	"	"	"	
Fluorene	ND	2.07	4.14	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.07	4.14	"	"	"	"	
1-Methylnaphthalene	ND	4.14	8.27	"	"	"	"	
2-Methylnaphthalene	ND	4.14	8.27	"	"	"	"	
Naphthalene	ND	4.14	8.27	"	"	"	"	
Phenanthrene	ND	2.07	4.14	"	"	"	"	
Pyrene	ND	2.07	4.14	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*72 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-06-0-15' (1-1.5')_Prepared (A6J0562-40)			**Matrix: Soil**		**Batch: 6100946**			
Acenaphthene	ND	2.07	4.15	ug/kg dry	1	10/26/16 20:25	EPA 8270D (SIM)	
Acenaphthylene	ND	2.07	4.15	"	"	"	"	
Anthracene	ND	2.07	4.15	"	"	"	"	
Benz(a)anthracene	ND	2.07	4.15	"	"	"	"	
Benzo(a)pyrene	ND	2.07	4.15	"	"	"	"	
Benzo(b)fluoranthene	ND	2.07	4.15	"	"	"	"	
Benzo(k)fluoranthene	ND	2.07	4.15	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.07	4.15	"	"	"	"	
Chrysene	ND	2.07	4.15	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.07	4.15	"	"	"	"	
Dibenzofuran	ND	2.07	4.15	"	"	"	"	
Fluoranthene	ND	2.07	4.15	"	"	"	"	
Fluorene	ND	2.07	4.15	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.07	4.15	"	"	"	"	
1-Methylnaphthalene	ND	4.15	8.29	"	"	"	"	
2-Methylnaphthalene	ND	4.15	8.29	"	"	"	"	
Naphthalene	ND	4.15	8.29	"	"	"	"	
Phenanthrene	ND	2.07	4.15	"	"	"	"	
Pyrene	ND	2.07	4.15	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6J0562-41)			**Matrix: Solid**		**Batch: 6110268**			**A-01a, H-08, T-03**
Acenaphthene	ND	1.86	3.72	ug/kg wet	1	11/08/16 05:30	EPA 8270D (SIM)	
Acenaphthylene	ND	1.86	3.72	"	"	"	"	
Anthracene	ND	1.86	3.72	"	"	"	"	
Benz(a)anthracene	ND	1.86	3.72	"	"	"	"	
Benzo(a)pyrene	ND	1.86	3.72	"	"	"	"	
Benzo(b)fluoranthene	ND	1.86	3.72	"	"	"	"	
Benzo(k)fluoranthene	ND	1.86	3.72	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.86	3.72	"	"	"	"	
Chrysene	ND	1.86	3.72	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.86	3.72	"	"	"	"	
Dibenzofuran	ND	1.86	3.72	"	"	"	"	
Fluoranthene	ND	1.86	3.72	"	"	"	"	
Fluorene	ND	1.86	3.72	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.86	3.72	"	"	"	"	
1-Methylnaphthalene	ND	3.72	7.44	"	"	"	"	
2-Methylnaphthalene	ND	3.72	7.44	"	"	"	"	
Naphthalene	ND	3.72	7.44	"	"	"	"	
Phenanthrene	ND	1.86	3.72	"	"	"	"	
Pyrene	ND	1.86	3.72	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*77 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-06-15-30' (0-0.5')_Prepared (A6J0598-21)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	1.90	3.80	ug/kg dry	1	11/07/16 19:07	EPA 8270D (SIM)	
Acenaphthylene	ND	1.90	3.80	"	"	"	"	
Anthracene	ND	1.90	3.80	"	"	"	"	
Benz(a)anthracene	ND	1.90	3.80	"	"	"	"	
Benzo(a)pyrene	ND	1.90	3.80	"	"	"	"	
Benzo(b)fluoranthene	ND	1.90	3.80	"	"	"	"	
Benzo(k)fluoranthene	ND	1.90	3.80	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.90	3.80	"	"	"	"	
Chrysene	ND	1.90	3.80	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.90	3.80	"	"	"	"	
Dibenzofuran	ND	1.90	3.80	"	"	"	"	
Fluoranthene	ND	1.90	3.80	"	"	"	"	
Fluorene	ND	1.90	3.80	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.90	3.80	"	"	"	"	
1-Methylnaphthalene	ND	3.80	7.59	"	"	"	"	
2-Methylnaphthalene	ND	3.80	7.59	"	"	"	"	
Naphthalene	ND	3.80	7.59	"	"	"	"	
Phenanthrene	ND	1.90	3.80	"	"	"	"	
Pyrene	ND	1.90	3.80	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 63 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*69 %*	*Limits: 54-127 %*	"	"	"	

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-06-15-30' (0.5-1')_Prepared (A6J0598-22)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	1.85	3.70	ug/kg dry	1	11/07/16 19:33	EPA 8270D (SIM)	
Acenaphthylene	ND	1.85	3.70	"	"	"	"	
Anthracene	ND	1.85	3.70	"	"	"	"	
Benz(a)anthracene	ND	1.85	3.70	"	"	"	"	
Benzo(a)pyrene	ND	1.85	3.70	"	"	"	"	
Benzo(b)fluoranthene	ND	1.85	3.70	"	"	"	"	
Benzo(k)fluoranthene	ND	1.85	3.70	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.85	3.70	"	"	"	"	
Chrysene	ND	1.85	3.70	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.85	3.70	"	"	"	"	
Dibenzofuran	ND	1.85	3.70	"	"	"	"	
Fluoranthene	ND	1.85	3.70	"	"	"	"	
Fluorene	ND	1.85	3.70	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.85	3.70	"	"	"	"	
1-Methylnaphthalene	ND	3.70	7.41	"	"	"	"	
2-Methylnaphthalene	ND	3.70	7.41	"	"	"	"	
Naphthalene	ND	3.70	7.41	"	"	"	"	
Phenanthrene	ND	1.85	3.70	"	"	"	"	
Pyrene	ND	1.85	3.70	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*74 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-06-15-30' (1-1.5')_Prepared (A6J0598-23)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	1.98	3.97	ug/kg dry	1	11/07/16 19:59	EPA 8270D (SIM)	
Acenaphthylene	ND	1.98	3.97	"	"	"	"	
Anthracene	ND	1.98	3.97	"	"	"	"	
Benz(a)anthracene	ND	1.98	3.97	"	"	"	"	
Benzo(a)pyrene	ND	1.98	3.97	"	"	"	"	
Benzo(b)fluoranthene	ND	1.98	3.97	"	"	"	"	
Benzo(k)fluoranthene	ND	1.98	3.97	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.98	3.97	"	"	"	"	
Chrysene	ND	1.98	3.97	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.98	3.97	"	"	"	"	
Dibenzofuran	ND	1.98	3.97	"	"	"	"	
Fluoranthene	ND	1.98	3.97	"	"	"	"	
Fluorene	ND	1.98	3.97	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.98	3.97	"	"	"	"	
1-Methylnaphthalene	ND	3.97	7.94	"	"	"	"	
2-Methylnaphthalene	ND	3.97	7.94	"	"	"	"	
Naphthalene	ND	3.97	7.94	"	"	"	"	
Phenanthrene	ND	1.98	3.97	"	"	"	"	
Pyrene	ND	1.98	3.97	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-06->30' (0-0.5')_Prepared (A6J0598-24)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	1.76	3.52	ug/kg dry	1	11/07/16 20:25	EPA 8270D (SIM)	
Acenaphthylene	ND	1.76	3.52	"	"	"	"	
Anthracene	ND	1.76	3.52	"	"	"	"	
Benz(a)anthracene	ND	1.76	3.52	"	"	"	"	
Benzo(a)pyrene	ND	1.76	3.52	"	"	"	"	
Benzo(b)fluoranthene	ND	1.76	3.52	"	"	"	"	
Benzo(k)fluoranthene	ND	1.76	3.52	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.76	3.52	"	"	"	"	
Chrysene	ND	1.76	3.52	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.76	3.52	"	"	"	"	
Dibenzofuran	ND	1.76	3.52	"	"	"	"	
Fluoranthene	ND	1.76	3.52	"	"	"	"	
Fluorene	ND	1.76	3.52	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.76	3.52	"	"	"	"	
1-Methylnaphthalene	ND	3.52	7.03	"	"	"	"	
2-Methylnaphthalene	ND	3.52	7.03	"	"	"	"	
Naphthalene	ND	3.52	7.03	"	"	"	"	
Phenanthrene	ND	1.76	3.52	"	"	"	"	
Pyrene	ND	1.76	3.52	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*72 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-06->30' (0.5-1')_Prepared (A6J0598-25)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	1.93	3.86	ug/kg dry	1	11/07/16 20:51	EPA 8270D (SIM)	
Acenaphthylene	ND	1.93	3.86	"	"	"	"	
Anthracene	ND	1.93	3.86	"	"	"	"	
Benz(a)anthracene	ND	1.93	3.86	"	"	"	"	
Benzo(a)pyrene	ND	1.93	3.86	"	"	"	"	
Benzo(b)fluoranthene	ND	1.93	3.86	"	"	"	"	
Benzo(k)fluoranthene	ND	1.93	3.86	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.93	3.86	"	"	"	"	
Chrysene	ND	1.93	3.86	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.93	3.86	"	"	"	"	
Dibenzofuran	ND	1.93	3.86	"	"	"	"	
Fluoranthene	ND	1.93	3.86	"	"	"	"	
Fluorene	ND	1.93	3.86	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.93	3.86	"	"	"	"	
1-Methylnaphthalene	ND	3.86	7.72	"	"	"	"	
2-Methylnaphthalene	ND	3.86	7.72	"	"	"	"	
Naphthalene	ND	3.86	7.72	"	"	"	"	
Phenanthrene	ND	1.93	3.86	"	"	"	"	
Pyrene	ND	1.93	3.86	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*80 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-06->30' (1-1.5')_Prepared (A6J0598-26)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	1.78	3.56	ug/kg dry	1	11/07/16 21:17	EPA 8270D (SIM)	
Acenaphthylene	ND	1.78	3.56	"	"	"	"	
Anthracene	ND	1.78	3.56	"	"	"	"	
Benz(a)anthracene	ND	1.78	3.56	"	"	"	"	
Benzo(a)pyrene	ND	1.78	3.56	"	"	"	"	
Benzo(b)fluoranthene	ND	1.78	3.56	"	"	"	"	
Benzo(k)fluoranthene	ND	1.78	3.56	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.78	3.56	"	"	"	"	
Chrysene	ND	1.78	3.56	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.78	3.56	"	"	"	"	
Dibenzofuran	ND	1.78	3.56	"	"	"	"	
Fluoranthene	ND	1.78	3.56	"	"	"	"	
Fluorene	ND	1.78	3.56	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.78	3.56	"	"	"	"	
1-Methylnaphthalene	ND	3.56	7.12	"	"	"	"	
2-Methylnaphthalene	ND	3.56	7.12	"	"	"	"	
Naphthalene	ND	3.56	7.12	"	"	"	"	
Phenanthrene	ND	1.78	3.56	"	"	"	"	
Pyrene	ND	1.78	3.56	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 72 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-06->30' (1-1.5') DUP_Prepared (A6J0598-27)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	1.79	3.58	ug/kg dry	1	11/07/16 21:43	EPA 8270D (SIM)	
Acenaphthylene	ND	1.79	3.58	"	"	"	"	
Anthracene	ND	1.79	3.58	"	"	"	"	
Benz(a)anthracene	ND	1.79	3.58	"	"	"	"	
Benzo(a)pyrene	ND	1.79	3.58	"	"	"	"	
Benzo(b)fluoranthene	ND	1.79	3.58	"	"	"	"	
Benzo(k)fluoranthene	ND	1.79	3.58	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.79	3.58	"	"	"	"	
Chrysene	ND	1.79	3.58	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.79	3.58	"	"	"	"	
Dibenzofuran	ND	1.79	3.58	"	"	"	"	
Fluoranthene	ND	1.79	3.58	"	"	"	"	
Fluorene	ND	1.79	3.58	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.79	3.58	"	"	"	"	
1-Methylnaphthalene	ND	3.58	7.15	"	"	"	"	
2-Methylnaphthalene	ND	3.58	7.15	"	"	"	"	
Naphthalene	ND	3.58	7.15	"	"	"	"	
Phenanthrene	ND	1.79	3.58	"	"	"	"	
Pyrene	ND	1.79	3.58	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-07-0-15' (0-0.5')_Prepared (A6J0598-28)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	1.87	3.73	ug/kg dry	1	11/07/16 22:09	EPA 8270D (SIM)	
Acenaphthylene	ND	1.87	3.73	"	"	"	"	
Anthracene	ND	1.87	3.73	"	"	"	"	
Benz(a)anthracene	ND	3.73	3.73	"	"	"	"	
Benzo(a)pyrene	ND	1.87	3.73	"	"	"	"	
Benzo(b)fluoranthene	ND	1.87	3.73	"	"	"	"	
Benzo(k)fluoranthene	ND	1.87	3.73	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.87	3.73	"	"	"	"	
Chrysene	ND	3.73	3.73	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.87	3.73	"	"	"	"	
Dibenzofuran	ND	1.87	3.73	"	"	"	"	
Fluoranthene	ND	1.87	3.73	"	"	"	"	
Fluorene	ND	1.87	3.73	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.87	3.73	"	"	"	"	
1-Methylnaphthalene	ND	3.73	7.47	"	"	"	"	
2-Methylnaphthalene	ND	3.73	7.47	"	"	"	"	
Naphthalene	ND	3.73	7.47	"	"	"	"	
Phenanthrene	ND	1.87	3.73	"	"	"	"	
Pyrene	ND	1.87	3.73	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*68 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-07-0-15' (0.5-1')_Prepared (A6J0598-29)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	1.82	3.64	ug/kg dry	1	11/07/16 22:35	EPA 8270D (SIM)	
Acenaphthylene	ND	1.82	3.64	"	"	"	"	
Anthracene	ND	1.82	3.64	"	"	"	"	
Benz(a)anthracene	ND	3.64	3.64	"	"	"	"	
Benzo(a)pyrene	ND	1.82	3.64	"	"	"	"	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	"	"	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	"	"	
Chrysene	ND	3.64	3.64	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	"	"	
Dibenzofuran	ND	1.82	3.64	"	"	"	"	
Fluoranthene	ND	1.82	3.64	"	"	"	"	
Fluorene	ND	1.82	3.64	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	"	"	
1-Methylnaphthalene	ND	3.64	7.28	"	"	"	"	
2-Methylnaphthalene	ND	3.64	7.28	"	"	"	"	
Naphthalene	ND	3.64	7.28	"	"	"	"	
Phenanthrene	ND	1.82	3.64	"	"	"	"	
Pyrene	ND	1.82	3.64	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*78 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-07-0-15' (1-1.5')_Prepared (A6J0598-30)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	1.93	3.86	ug/kg dry	1	11/07/16 23:01	EPA 8270D (SIM)	
Acenaphthylene	ND	1.93	3.86	"	"	"	"	
Anthracene	ND	1.93	3.86	"	"	"	"	
Benz(a)anthracene	ND	4.82	4.82	"	"	"	"	R-02
Benzo(a)pyrene	ND	1.93	3.86	"	"	"	"	
Benzo(b)fluoranthene	ND	3.86	3.86	"	"	"	"	
Benzo(k)fluoranthene	ND	1.93	3.86	"	"	"	"	
Benzo(g,h,i)perylene	ND	3.86	3.86	"	"	"	"	
Chrysene	ND	4.82	4.82	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	1.93	3.86	"	"	"	"	
Dibenzofuran	ND	1.93	3.86	"	"	"	"	
Fluoranthene	ND	1.93	3.86	"	"	"	"	
Fluorene	ND	1.93	3.86	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.93	3.86	"	"	"	"	
1-Methylnaphthalene	ND	3.86	7.72	"	"	"	"	
2-Methylnaphthalene	ND	3.86	7.72	"	"	"	"	
Naphthalene	ND	3.86	7.72	"	"	"	"	
Phenanthrene	ND	1.93	3.86	"	"	"	"	
Pyrene	ND	1.93	3.86	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 59 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*67 %*	*Limits: 54-127 %*	"	"	"	

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-07-15-30' (0-0.5')_Prepared (A6J0598-31)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	1.99	3.99	ug/kg dry	1	11/07/16 23:27	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.99	"	"	"	"	
Anthracene	ND	1.99	3.99	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.99	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.99	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.99	"	"	"	"	
Chrysene	ND	3.99	3.99	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.99	"	"	"	"	
Dibenzofuran	ND	1.99	3.99	"	"	"	"	
Fluoranthene	ND	1.99	3.99	"	"	"	"	
Fluorene	ND	1.99	3.99	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.99	"	"	"	"	
1-Methylnaphthalene	ND	3.99	7.97	"	"	"	"	
2-Methylnaphthalene	ND	3.99	7.97	"	"	"	"	
Naphthalene	ND	3.99	7.97	"	"	"	"	
Phenanthrene	ND	1.99	3.99	"	"	"	"	
Pyrene	ND	1.99	3.99	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*68 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-07-15-30' (0.5-1')_Prepared (A6J0598-32)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	2.01	4.01	ug/kg dry	1	11/07/16 23:53	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.01	"	"	"	"	
Anthracene	ND	2.01	4.01	"	"	"	"	
Benz(a)anthracene	ND	2.01	4.01	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.01	"	"	"	"	
Benzo(b)fluoranthene	ND	2.01	4.01	"	"	"	"	
Benzo(k)fluoranthene	ND	2.01	4.01	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.01	"	"	"	"	
Chrysene	ND	2.01	4.01	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.01	4.01	"	"	"	"	
Dibenzofuran	ND	2.01	4.01	"	"	"	"	
Fluoranthene	ND	2.01	4.01	"	"	"	"	
Fluorene	ND	2.01	4.01	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.01	"	"	"	"	
1-Methylnaphthalene	ND	4.01	8.03	"	"	"	"	
2-Methylnaphthalene	ND	4.01	8.03	"	"	"	"	
Naphthalene	ND	4.01	8.03	"	"	"	"	
Phenanthrene	ND	2.01	4.01	"	"	"	"	
Pyrene	ND	2.01	4.01	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*78 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-07-15-30' (1-1.5')_Prepared (A6J0598-33)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	1.87	3.74	ug/kg dry	1	11/08/16 00:18	EPA 8270D (SIM)	
Acenaphthylene	ND	1.87	3.74	"	"	"	"	
Anthracene	ND	1.87	3.74	"	"	"	"	
Benz(a)anthracene	ND	1.87	3.74	"	"	"	"	
Benzo(a)pyrene	ND	1.87	3.74	"	"	"	"	
Benzo(b)fluoranthene	ND	1.87	3.74	"	"	"	"	
Benzo(k)fluoranthene	ND	1.87	3.74	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.87	3.74	"	"	"	"	
Chrysene	ND	1.87	3.74	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.87	3.74	"	"	"	"	
Dibenzofuran	ND	1.87	3.74	"	"	"	"	
Fluoranthene	ND	1.87	3.74	"	"	"	"	
Fluorene	ND	1.87	3.74	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.87	3.74	"	"	"	"	
1-Methylnaphthalene	ND	3.74	7.49	"	"	"	"	
2-Methylnaphthalene	ND	3.74	7.49	"	"	"	"	
Naphthalene	ND	3.74	7.49	"	"	"	"	
Phenanthrene	ND	1.87	3.74	"	"	"	"	
Pyrene	ND	1.87	3.74	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*73 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-07->30' (0-0.5')_Prepared (A6J0598-34)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	1.91	3.83	ug/kg dry	1	11/08/16 00:44	EPA 8270D (SIM)	
Acenaphthylene	ND	1.91	3.83	"	"	"	"	
Anthracene	ND	1.91	3.83	"	"	"	"	
Benz(a)anthracene	ND	1.91	3.83	"	"	"	"	
Benzo(a)pyrene	ND	1.91	3.83	"	"	"	"	
Benzo(b)fluoranthene	ND	1.91	3.83	"	"	"	"	
Benzo(k)fluoranthene	ND	1.91	3.83	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.91	3.83	"	"	"	"	
Chrysene	ND	1.91	3.83	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.91	3.83	"	"	"	"	
Dibenzofuran	ND	1.91	3.83	"	"	"	"	
Fluoranthene	ND	1.91	3.83	"	"	"	"	
Fluorene	ND	1.91	3.83	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.91	3.83	"	"	"	"	
1-Methylnaphthalene	ND	3.83	7.66	"	"	"	"	
2-Methylnaphthalene	ND	3.83	7.66	"	"	"	"	
Naphthalene	ND	3.83	7.66	"	"	"	"	
Phenanthrene	ND	1.91	3.83	"	"	"	"	
Pyrene	ND	1.91	3.83	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*77 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-07->30' (0.5-1')_Prepared (A6J0598-35)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	1.93	3.87	ug/kg dry	1	11/08/16 01:10	EPA 8270D (SIM)	
Acenaphthylene	ND	1.93	3.87	"	"	"	"	
Anthracene	ND	1.93	3.87	"	"	"	"	
Benz(a)anthracene	ND	1.93	3.87	"	"	"	"	
Benzo(a)pyrene	ND	1.93	3.87	"	"	"	"	
Benzo(b)fluoranthene	ND	1.93	3.87	"	"	"	"	
Benzo(k)fluoranthene	ND	1.93	3.87	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.93	3.87	"	"	"	"	
Chrysene	ND	1.93	3.87	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.93	3.87	"	"	"	"	
Dibenzofuran	ND	1.93	3.87	"	"	"	"	
Fluoranthene	ND	1.93	3.87	"	"	"	"	
Fluorene	ND	1.93	3.87	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.93	3.87	"	"	"	"	
1-Methylnaphthalene	ND	3.87	7.74	"	"	"	"	
2-Methylnaphthalene	ND	3.87	7.74	"	"	"	"	
Naphthalene	ND	3.87	7.74	"	"	"	"	
Phenanthrene	ND	1.93	3.87	"	"	"	"	
Pyrene	ND	1.93	3.87	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 81 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*84 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-07->30' (1-1.5')_Prepared (A6J0598-36)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	1.94	3.88	ug/kg dry	1	11/08/16 01:36	EPA 8270D (SIM)	
Acenaphthylene	ND	1.94	3.88	"	"	"	"	
Anthracene	ND	1.94	3.88	"	"	"	"	
Benz(a)anthracene	ND	1.94	3.88	"	"	"	"	
Benzo(a)pyrene	ND	1.94	3.88	"	"	"	"	
Benzo(b)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(k)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.94	3.88	"	"	"	"	
Chrysene	ND	1.94	3.88	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.94	3.88	"	"	"	"	
Dibenzofuran	ND	1.94	3.88	"	"	"	"	
Fluoranthene	ND	1.94	3.88	"	"	"	"	
Fluorene	ND	1.94	3.88	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.94	3.88	"	"	"	"	
1-Methylnaphthalene	ND	3.88	7.75	"	"	"	"	
2-Methylnaphthalene	ND	3.88	7.75	"	"	"	"	
Naphthalene	ND	3.88	7.75	"	"	"	"	
Phenanthrene	ND	1.94	3.88	"	"	"	"	
Pyrene	ND	1.94	3.88	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-08-15-30' (0-0.5')_Prepared (A6J0598-37)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	1.98	3.96	ug/kg dry	1	11/08/16 02:02	EPA 8270D (SIM)	
Acenaphthylene	ND	1.98	3.96	"	"	"	"	
Anthracene	ND	1.98	3.96	"	"	"	"	
Benz(a)anthracene	ND	1.98	3.96	"	"	"	"	
Benzo(a)pyrene	ND	1.98	3.96	"	"	"	"	
Benzo(b)fluoranthene	ND	1.98	3.96	"	"	"	"	
Benzo(k)fluoranthene	ND	1.98	3.96	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.98	3.96	"	"	"	"	
Chrysene	ND	3.96	3.96	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.98	3.96	"	"	"	"	
Dibenzofuran	ND	1.98	3.96	"	"	"	"	
Fluoranthene	ND	1.98	3.96	"	"	"	"	
Fluorene	ND	1.98	3.96	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.98	3.96	"	"	"	"	
1-Methylnaphthalene	ND	3.96	7.93	"	"	"	"	
2-Methylnaphthalene	ND	3.96	7.93	"	"	"	"	
Naphthalene	ND	3.96	7.93	"	"	"	"	
Phenanthrene	ND	1.98	3.96	"	"	"	"	
Pyrene	ND	1.98	3.96	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*69 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-08-15-30' (0.5-1')_Prepared (A6J0598-38)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	1.99	3.98	ug/kg dry	1	11/08/16 02:28	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.98	"	"	"	"	
Anthracene	ND	1.99	3.98	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.98	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.98	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.98	"	"	"	"	
Chrysene	ND	1.99	3.98	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.98	"	"	"	"	
Dibenzofuran	ND	1.99	3.98	"	"	"	"	
Fluoranthene	ND	1.99	3.98	"	"	"	"	
Fluorene	ND	1.99	3.98	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.98	"	"	"	"	
1-Methylnaphthalene	ND	3.98	7.95	"	"	"	"	
2-Methylnaphthalene	ND	3.98	7.95	"	"	"	"	
Naphthalene	ND	3.98	7.95	"	"	"	"	
Phenanthrene	ND	1.99	3.98	"	"	"	"	
Pyrene	ND	1.99	3.98	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*66 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-08-15-30' (1-1.5')_Prepared (A6J0598-39)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	1.93	3.86	ug/kg dry	1	11/08/16 02:54	EPA 8270D (SIM)	
Acenaphthylene	ND	1.93	3.86	"	"	"	"	
Anthracene	ND	1.93	3.86	"	"	"	"	
Benz(a)anthracene	ND	1.93	3.86	"	"	"	"	
Benzo(a)pyrene	ND	1.93	3.86	"	"	"	"	
Benzo(b)fluoranthene	ND	1.93	3.86	"	"	"	"	
Benzo(k)fluoranthene	ND	1.93	3.86	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.93	3.86	"	"	"	"	
Chrysene	ND	1.93	3.86	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.93	3.86	"	"	"	"	
Dibenzofuran	ND	1.93	3.86	"	"	"	"	
Fluoranthene	ND	1.93	3.86	"	"	"	"	
Fluorene	ND	1.93	3.86	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.93	3.86	"	"	"	"	
1-Methylnaphthalene	ND	3.86	7.72	"	"	"	"	
2-Methylnaphthalene	ND	3.86	7.72	"	"	"	"	
Naphthalene	ND	3.86	7.72	"	"	"	"	
Phenanthrene	ND	1.93	3.86	"	"	"	"	
Pyrene	ND	1.93	3.86	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 62 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*66 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-08->30' (0-0.5')_Prepared (A6J0598-40)			**Matrix: Soil**		**Batch: 6110268**			**H-08**
Acenaphthene	ND	2.06	4.13	ug/kg dry	1	11/08/16 03:20	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.13	"	"	"	"	
Anthracene	ND	2.06	4.13	"	"	"	"	
Benz(a)anthracene	ND	2.06	4.13	"	"	"	"	
Benzo(a)pyrene	ND	2.06	4.13	"	"	"	"	
Benzo(b)fluoranthene	ND	2.06	4.13	"	"	"	"	
Benzo(k)fluoranthene	ND	2.06	4.13	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.06	4.13	"	"	"	"	
Chrysene	ND	2.06	4.13	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.06	4.13	"	"	"	"	
Dibenzofuran	ND	2.06	4.13	"	"	"	"	
Fluoranthene	ND	2.06	4.13	"	"	"	"	
Fluorene	ND	2.06	4.13	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.06	4.13	"	"	"	"	
1-Methylnaphthalene	ND	4.13	8.26	"	"	"	"	
2-Methylnaphthalene	ND	4.13	8.26	"	"	"	"	
Naphthalene	ND	4.13	8.26	"	"	"	"	
Phenanthrene	ND	2.06	4.13	"	"	"	"	
Pyrene	ND	2.06	4.13	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 72 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*74 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6J0598-41RE1)			**Matrix: Solid**		**Batch: 6110268**			**A-01b, H-08**
Acenaphthene	ND	1.89	3.78	ug/kg wet	1	12/06/16 15:21	EPA 8270D (SIM)	
Acenaphthylene	ND	1.89	3.78	"	"	"	"	
Anthracene	ND	1.89	3.78	"	"	"	"	
Benz(a)anthracene	ND	1.89	3.78	"	"	"	"	
Benzo(a)pyrene	ND	1.89	3.78	"	"	"	"	
Benzo(b)fluoranthene	ND	1.89	3.78	"	"	"	"	
Benzo(k)fluoranthene	ND	1.89	3.78	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.89	3.78	"	"	"	"	
Chrysene	ND	1.89	3.78	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.89	3.78	"	"	"	"	
Dibenzofuran	ND	1.89	3.78	"	"	"	"	
Fluoranthene	ND	1.89	3.78	"	"	"	"	
Fluorene	ND	1.89	3.78	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.89	3.78	"	"	"	"	
1-Methylnaphthalene	ND	3.78	7.56	"	"	"	"	
2-Methylnaphthalene	ND	3.78	7.56	"	"	"	"	
Naphthalene	ND	3.78	7.56	"	"	"	"	
Phenanthrene	ND	1.89	3.78	"	"	"	"	
Pyrene	ND	1.89	3.78	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 56 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*62 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-08->30' (0.5-1')_Prepared (A6J0754-21)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	2.03	4.06	ug/kg dry	1	10/30/16 13:09	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.06	"	"	"	"	
Anthracene	ND	2.03	4.06	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.06	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.06	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.06	"	"	"	"	
Chrysene	ND	2.03	4.06	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.06	"	"	"	"	
Dibenzofuran	ND	2.03	4.06	"	"	"	"	
Fluoranthene	ND	2.03	4.06	"	"	"	"	
Fluorene	ND	2.03	4.06	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.06	"	"	"	"	
1-Methylnaphthalene	ND	4.06	8.11	"	"	"	"	
2-Methylnaphthalene	ND	4.06	8.11	"	"	"	"	
Naphthalene	ND	4.06	8.11	"	"	"	"	
Phenanthrene	ND	2.03	4.06	"	"	"	"	
Pyrene	ND	2.03	4.06	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*72 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-08->30' (1-1.5')_Prepared (A6J0754-22)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	1.96	3.92	ug/kg dry	1	10/30/16 13:35	EPA 8270D (SIM)	
Acenaphthylene	ND	1.96	3.92	"	"	"	"	
Anthracene	ND	1.96	3.92	"	"	"	"	
Benz(a)anthracene	ND	1.96	3.92	"	"	"	"	
Benzo(a)pyrene	ND	1.96	3.92	"	"	"	"	
Benzo(b)fluoranthene	ND	1.96	3.92	"	"	"	"	
Benzo(k)fluoranthene	ND	1.96	3.92	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.96	3.92	"	"	"	"	
Chrysene	ND	1.96	3.92	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.96	3.92	"	"	"	"	
Dibenzofuran	ND	1.96	3.92	"	"	"	"	
Fluoranthene	ND	1.96	3.92	"	"	"	"	
Fluorene	ND	1.96	3.92	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.96	3.92	"	"	"	"	
1-Methylnaphthalene	ND	3.92	7.85	"	"	"	"	
2-Methylnaphthalene	ND	3.92	7.85	"	"	"	"	
Naphthalene	ND	3.92	7.85	"	"	"	"	
Phenanthrene	ND	1.96	3.92	"	"	"	"	
Pyrene	ND	1.96	3.92	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*83 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-09-15-30' (0-0.5')_Prepared (A6J0754-23)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	2.04	4.08	ug/kg dry	1	10/30/16 14:00	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.08	"	"	"	"	
Anthracene	ND	2.04	4.08	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.08	"	"	"	"	
Benzo(a)pyrene	ND	2.04	4.08	"	"	"	"	
Benzo(b)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(k)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.04	4.08	"	"	"	"	
Chrysene	ND	2.04	4.08	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.04	4.08	"	"	"	"	
Dibenzofuran	ND	2.04	4.08	"	"	"	"	
Fluoranthene	ND	2.04	4.08	"	"	"	"	
Fluorene	ND	2.04	4.08	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.08	"	"	"	"	
1-Methylnaphthalene	ND	4.08	8.15	"	"	"	"	
2-Methylnaphthalene	ND	4.08	8.15	"	"	"	"	
Naphthalene	ND	4.08	8.15	"	"	"	"	
Phenanthrene	ND	2.04	4.08	"	"	"	"	
Pyrene	ND	2.04	4.08	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*85 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-09-15-30' (0.5-1')_Prepared (A6J0754-24)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	1.99	3.99	ug/kg dry	1	10/30/16 14:27	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.99	"	"	"	"	
Anthracene	ND	1.99	3.99	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.99	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.99	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.99	"	"	"	"	
Chrysene	ND	1.99	3.99	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.99	"	"	"	"	
Dibenzofuran	ND	1.99	3.99	"	"	"	"	
Fluoranthene	ND	1.99	3.99	"	"	"	"	
Fluorene	ND	1.99	3.99	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.99	"	"	"	"	
1-Methylnaphthalene	ND	3.99	7.97	"	"	"	"	
2-Methylnaphthalene	ND	3.99	7.97	"	"	"	"	
Naphthalene	ND	3.99	7.97	"	"	"	"	
Phenanthrene	ND	1.99	3.99	"	"	"	"	
Pyrene	ND	1.99	3.99	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 72 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*74 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-09-15-30' (1-1.5')_Prepared (A6J0754-25)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	2.05	4.11	ug/kg dry	1	10/30/16 14:53	EPA 8270D (SIM)	
Acenaphthylene	ND	2.05	4.11	"	"	"	"	
Anthracene	ND	2.05	4.11	"	"	"	"	
Benz(a)anthracene	ND	2.05	4.11	"	"	"	"	
Benzo(a)pyrene	ND	2.05	4.11	"	"	"	"	
Benzo(b)fluoranthene	ND	2.05	4.11	"	"	"	"	
Benzo(k)fluoranthene	ND	2.05	4.11	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.05	4.11	"	"	"	"	
Chrysene	ND	2.05	4.11	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.05	4.11	"	"	"	"	
Dibenzofuran	ND	2.05	4.11	"	"	"	"	
Fluoranthene	ND	2.05	4.11	"	"	"	"	
Fluorene	ND	2.05	4.11	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.05	4.11	"	"	"	"	
1-Methylnaphthalene	ND	4.11	8.21	"	"	"	"	
2-Methylnaphthalene	ND	4.11	8.21	"	"	"	"	
Naphthalene	ND	4.11	8.21	"	"	"	"	
Phenanthrene	ND	2.05	4.11	"	"	"	"	
Pyrene	ND	2.05	4.11	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 60 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*63 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-09->30' (0-0.5')_Prepared (A6J0754-26)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	2.02	4.05	ug/kg dry	1	10/30/16 15:19	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.05	"	"	"	"	
Anthracene	ND	2.02	4.05	"	"	"	"	
Benz(a)anthracene	ND	2.02	4.05	"	"	"	"	
Benzo(a)pyrene	ND	2.02	4.05	"	"	"	"	
Benzo(b)fluoranthene	ND	2.02	4.05	"	"	"	"	
Benzo(k)fluoranthene	ND	2.02	4.05	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.02	4.05	"	"	"	"	
Chrysene	ND	2.02	4.05	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.02	4.05	"	"	"	"	
Dibenzofuran	ND	2.02	4.05	"	"	"	"	
Fluoranthene	ND	2.02	4.05	"	"	"	"	
Fluorene	ND	2.02	4.05	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.05	"	"	"	"	
1-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
2-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
Naphthalene	ND	4.05	8.10	"	"	"	"	
Phenanthrene	ND	2.02	4.05	"	"	"	"	
Pyrene	ND	2.02	4.05	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*72 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-09->30' DUP (0-0.5')_Prepared (A6J0754-27)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	2.02	4.05	ug/kg dry	1	10/30/16 15:44	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.05	"	"	"	"	
Anthracene	ND	2.02	4.05	"	"	"	"	
Benz(a)anthracene	ND	2.02	4.05	"	"	"	"	
Benzo(a)pyrene	ND	2.02	4.05	"	"	"	"	
Benzo(b)fluoranthene	ND	2.02	4.05	"	"	"	"	
Benzo(k)fluoranthene	ND	2.02	4.05	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.02	4.05	"	"	"	"	
Chrysene	ND	2.02	4.05	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.02	4.05	"	"	"	"	
Dibenzofuran	ND	2.02	4.05	"	"	"	"	
Fluoranthene	ND	2.02	4.05	"	"	"	"	
Fluorene	ND	2.02	4.05	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.05	"	"	"	"	
1-Methylnaphthalene	ND	4.05	8.09	"	"	"	"	
2-Methylnaphthalene	ND	4.05	8.09	"	"	"	"	
Naphthalene	ND	4.05	8.09	"	"	"	"	
Phenanthrene	ND	2.02	4.05	"	"	"	"	
Pyrene	ND	2.02	4.05	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*71 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-09->30' (0.5-1')_Prepared (A6J0754-28)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	2.02	4.04	ug/kg dry	1	10/30/16 16:11	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.04	"	"	"	"	
Anthracene	ND	2.02	4.04	"	"	"	"	
Benz(a)anthracene	ND	2.02	4.04	"	"	"	"	
Benzo(a)pyrene	ND	2.02	4.04	"	"	"	"	
Benzo(b)fluoranthene	ND	2.02	4.04	"	"	"	"	
Benzo(k)fluoranthene	ND	2.02	4.04	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.02	4.04	"	"	"	"	
Chrysene	ND	2.02	4.04	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.02	4.04	"	"	"	"	
Dibenzofuran	ND	2.02	4.04	"	"	"	"	
Fluoranthene	ND	2.02	4.04	"	"	"	"	
Fluorene	ND	2.02	4.04	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.04	"	"	"	"	
1-Methylnaphthalene	ND	4.04	8.09	"	"	"	"	
2-Methylnaphthalene	ND	4.04	8.09	"	"	"	"	
Naphthalene	ND	4.04	8.09	"	"	"	"	
Phenanthrene	ND	2.02	4.04	"	"	"	"	
Pyrene	ND	2.02	4.04	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*78 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-09->30' (1-1.5')_Prepared (A6J0754-29)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	1.99	3.98	ug/kg dry	1	10/30/16 16:37	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.98	"	"	"	"	
Anthracene	ND	1.99	3.98	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.98	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.98	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.98	"	"	"	"	
Chrysene	ND	1.99	3.98	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.98	"	"	"	"	
Dibenzofuran	ND	1.99	3.98	"	"	"	"	
Fluoranthene	ND	1.99	3.98	"	"	"	"	
Fluorene	ND	1.99	3.98	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.98	"	"	"	"	
1-Methylnaphthalene	ND	3.98	7.96	"	"	"	"	
2-Methylnaphthalene	ND	3.98	7.96	"	"	"	"	
Naphthalene	ND	3.98	7.96	"	"	"	"	
Phenanthrene	ND	1.99	3.98	"	"	"	"	
Pyrene	ND	1.99	3.98	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 79 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-10-0-15' (0-0.5')_Prepared (A6J0754-30)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	10.0	20.0	ug/kg dry	5	10/30/16 17:03	EPA 8270D (SIM)	
Acenaphthylene	ND	10.0	20.0	"	"	"	"	
Anthracene	ND	10.0	20.0	"	"	"	"	
Benz(a)anthracene	ND	10.0	20.0	"	"	"	"	
Benzo(a)pyrene	**14.1**	10.0	20.0	"	"	"	"	J
Benzo(b)fluoranthene	**24.6**	10.0	20.0	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	10.0	20.0	"	"	"	"	
Benzo(g,h,i)perylene	**27.8**	10.0	20.0	"	"	"	"	
Chrysene	**74.9**	10.0	20.0	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	10.0	20.0	"	"	"	"	
Dibenzofuran	ND	10.0	20.0	"	"	"	"	
Fluoranthene	ND	10.0	20.0	"	"	"	"	
Fluorene	ND	10.0	20.0	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	10.0	20.0	"	"	"	"	
1-Methylnaphthalene	ND	20.0	40.1	"	"	"	"	
2-Methylnaphthalene	ND	20.0	40.1	"	"	"	"	
Naphthalene	ND	20.0	40.1	"	"	"	"	
Phenanthrene	ND	10.0	20.0	"	"	"	"	
Pyrene	**14.6**	10.0	20.0	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*79 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-10-0-15' (0.5-1')_Prepared (A6J0754-31)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	2.03	4.06	ug/kg dry	1	10/30/16 17:29	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.06	"	"	"	"	
Anthracene	ND	2.03	4.06	"	"	"	"	
Dibenzofuran	ND	2.03	4.06	"	"	"	"	
Fluoranthene	ND	2.03	4.06	"	"	"	"	
Fluorene	ND	2.03	4.06	"	"	"	"	
1-Methylnaphthalene	ND	4.06	8.12	"	"	"	"	
2-Methylnaphthalene	ND	4.06	8.12	"	"	"	"	
Naphthalene	ND	4.06	8.12	"	"	"	"	
Phenanthrene	ND	2.03	4.06	"	"	"	"	
Pyrene	ND	2.03	4.06	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
BR-10-0-15' (0.5-1')_Prepared (A6J0754-31RE2)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Surrogate: p-Terphenyl-d14 (Surr)			*Recovery: 71 %*	*Limits: 54-127 %*	20	10/31/16 16:30	EPA 8270D (SIM)	
BR-10-0-15' (0.5-1')_Prepared (A6J0754-31RE4)			**Matrix: Soil**		**Batch: 6120859**			**C-05, H-08**
Benz(a)anthracene	ND	19.6	19.6	ug/kg dry	1	12/29/16 13:53	EPA 8270D (SIM)	
Benzo(a)pyrene	**10.2**	9.82	19.6	"	"	"	"	J
Benzo(b)fluoranthene	**11.9**	9.82	19.6	"	"	"	"	J
Benzo(k)fluoranthene	ND	9.82	19.6	"	"	"	"	
Benzo(g,h,i)perylene	**21.4**	9.82	19.6	"	"	"	"	
Chrysene	ND	19.6	19.6	"	"	"	"	
Dibenz(a,h)anthracene	ND	9.82	19.6	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	9.82	19.6	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*99 %*	*Limits: 54-127 %*	"	"	"	
BR-10-0-15' (1-1.5')_Prepared (A6J0754-32)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	2.01	4.03	ug/kg dry	1	10/30/16 17:54	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.03	"	"	"	"	
Anthracene	ND	2.01	4.03	"	"	"	"	
Benz(a)anthracene	ND	8.36	8.36	"	"	"	"	R-02
Benzo(a)pyrene	ND	4.03	4.03	"	"	"	"	
Benzo(b)fluoranthene	**4.70**	2.01	4.03	"	"	"	"	M-02
Benzo(k)fluoranthene	**2.37**	2.01	4.03	"	"	"	"	J
Chrysene	ND	9.07	9.07	"	"	"	"	R-02

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-10-0-15' (1-1.5')_Prepared (A6J0754-32)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Dibenzofuran	ND	2.01	4.03	ug/kg dry	1	"	EPA 8270D (SIM)	
Fluoranthene	ND	2.01	4.03	"	"	"	"	
Fluorene	ND	2.01	4.03	"	"	"	"	
1-Methylnaphthalene	ND	4.03	8.06	"	"	"	"	
2-Methylnaphthalene	ND	4.03	8.06	"	"	"	"	
Naphthalene	ND	4.03	8.06	"	"	"	"	
Phenanthrene	ND	2.01	4.03	"	"	"	"	
Pyrene	ND	2.01	4.03	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*77 %*	*Limits: 54-127 %*	"	"	"	
BR-10-0-15' (1-1.5')_Prepared (A6J0754-32RE2)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Benzo(g,h,i)perylene	ND	40.3	80.6	ug/kg dry	20	10/31/16 16:56	EPA 8270D (SIM)	
Dibenz(a,h)anthracene	ND	40.3	80.6	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	40.3	80.6	"	"	"	"	
BR-10-15-30' (0-0.5')_Prepared (A6J0754-33)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	2.00	4.00	ug/kg dry	1	10/30/16 18:20	EPA 8270D (SIM)	
Acenaphthylene	ND	2.00	4.00	"	"	"	"	
Anthracene	ND	2.00	4.00	"	"	"	"	
Benz(a)anthracene	ND	4.80	4.80	"	"	"	"	R-02
Benzo(a)pyrene	ND	2.00	4.00	"	"	"	"	
Benzo(b)fluoranthene	**2.75**	2.00	4.00	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.00	4.00	"	"	"	"	
Chrysene	ND	5.30	5.30	"	"	"	"	R-02
Dibenzofuran	ND	2.00	4.00	"	"	"	"	
Fluoranthene	ND	2.00	4.00	"	"	"	"	
Fluorene	ND	2.00	4.00	"	"	"	"	
1-Methylnaphthalene	ND	4.00	8.00	"	"	"	"	
2-Methylnaphthalene	ND	4.00	8.00	"	"	"	"	
Naphthalene	ND	4.00	8.00	"	"	"	"	
Phenanthrene	ND	2.00	4.00	"	"	"	"	
Pyrene	ND	2.00	4.00	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*89 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-10-15-30' (0-0.5')_Prepared (A6J0754-33RE2)			**Matrix: Soil**		**Batch: 6101105**			**H-08, R-04**
Benzo(g,h,i)perylene	ND	40.0	80.0	ug/kg dry	20	10/31/16 17:22	EPA 8270D (SIM)	
Dibenz(a,h)anthracene	ND	40.0	80.0	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	40.0	80.0	"	"	"	"	
BR-10-15-30' (0.5-1')_Prepared (A6J0754-34)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	1.97	3.94	ug/kg dry	1	10/30/16 18:46	EPA 8270D (SIM)	
Acenaphthylene	ND	1.97	3.94	"	"	"	"	
Anthracene	ND	1.97	3.94	"	"	"	"	
Benz(a)anthracene	ND	1.97	3.94	"	"	"	"	
Benzo(a)pyrene	ND	1.97	3.94	"	"	"	"	
Benzo(b)fluoranthene	ND	1.97	3.94	"	"	"	"	
Benzo(k)fluoranthene	ND	1.97	3.94	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.97	3.94	"	"	"	"	
Chrysene	ND	1.97	3.94	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.97	3.94	"	"	"	"	
Dibenzofuran	ND	1.97	3.94	"	"	"	"	
Fluoranthene	ND	1.97	3.94	"	"	"	"	
Fluorene	ND	1.97	3.94	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.97	3.94	"	"	"	"	
1-Methylnaphthalene	ND	3.94	7.88	"	"	"	"	
2-Methylnaphthalene	ND	3.94	7.88	"	"	"	"	
Naphthalene	ND	3.94	7.88	"	"	"	"	
Phenanthrene	ND	1.97	3.94	"	"	"	"	
Pyrene	ND	1.97	3.94	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*75 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-10-15-30' (1-1.5')_Prepared (A6J0754-35)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	2.07	4.14	ug/kg dry	1	10/30/16 19:12	EPA 8270D (SIM)	
Acenaphthylene	ND	2.07	4.14	"	"	"	"	
Anthracene	ND	2.07	4.14	"	"	"	"	
Benz(a)anthracene	ND	4.14	4.14	"	"	"	"	
Benzo(a)pyrene	ND	2.07	4.14	"	"	"	"	
Benzo(b)fluoranthene	ND	2.07	4.14	"	"	"	"	
Benzo(k)fluoranthene	ND	2.07	4.14	"	"	"	"	
Chrysene	ND	4.14	4.14	"	"	"	"	
Dibenzofuran	ND	2.07	4.14	"	"	"	"	
Fluoranthene	ND	2.07	4.14	"	"	"	"	
Fluorene	ND	2.07	4.14	"	"	"	"	
1-Methylnaphthalene	ND	4.14	8.28	"	"	"	"	
2-Methylnaphthalene	ND	4.14	8.28	"	"	"	"	
Naphthalene	ND	4.14	8.28	"	"	"	"	
Phenanthrene	ND	2.07	4.14	"	"	"	"	
Pyrene	ND	2.07	4.14	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*78 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-10-15-30' (1-1.5')_Prepared (A6J0754-35RE1)			**Matrix: Soil**		**Batch: 6101105**			**H-08, R-04**
Benzo(g,h,i)perylene	ND	41.4	82.8	ug/kg dry	20	10/31/16 13:01	EPA 8270D (SIM)	
Dibenz(a,h)anthracene	ND	41.4	82.8	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	41.4	82.8	"	"	"	"	
BR-10->30' (0-0.5')_Prepared (A6J0754-36)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	2.03	4.06	ug/kg dry	1	10/30/16 19:38	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.06	"	"	"	"	
Anthracene	ND	2.03	4.06	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.06	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.06	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.06	"	"	"	"	
Chrysene	ND	2.03	4.06	"	"	"	"	
Dibenzofuran	ND	2.03	4.06	"	"	"	"	
Fluoranthene	ND	2.03	4.06	"	"	"	"	
Fluorene	ND	2.03	4.06	"	"	"	"	
1-Methylnaphthalene	ND	4.06	8.11	"	"	"	"	
2-Methylnaphthalene	ND	4.06	8.11	"	"	"	"	
Naphthalene	ND	4.06	8.11	"	"	"	"	
Phenanthrene	ND	2.03	4.06	"	"	"	"	
Pyrene	ND	2.03	4.06	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-10->30' (0-0.5')_Prepared (A6J0754-36RE1)			**Matrix: Soil**		**Batch: 6101105**			**H-08, R-04**
Benzo(g,h,i)perylene	ND	40.6	81.1	ug/kg dry	20	10/31/16 13:27	EPA 8270D (SIM)	
Dibenz(a,h)anthracene	ND	40.6	81.1	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	40.6	81.1	"	"	"	"	
BR-10->30' (0-0.5') DUP_Prepared (A6J0754-37)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	1.95	3.90	ug/kg dry	1	10/30/16 20:04	EPA 8270D (SIM)	
Acenaphthylene	ND	1.95	3.90	"	"	"	"	
Anthracene	ND	1.95	3.90	"	"	"	"	
Benz(a)anthracene	ND	1.95	3.90	"	"	"	"	
Benzo(a)pyrene	ND	1.95	3.90	"	"	"	"	
Benzo(b)fluoranthene	ND	1.95	3.90	"	"	"	"	
Benzo(k)fluoranthene	ND	1.95	3.90	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.95	3.90	"	"	"	"	
Chrysene	ND	1.95	3.90	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.95	3.90	"	"	"	"	
Dibenzofuran	ND	1.95	3.90	"	"	"	"	
Fluoranthene	ND	1.95	3.90	"	"	"	"	
Fluorene	ND	1.95	3.90	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.95	3.90	"	"	"	"	
1-Methylnaphthalene	ND	3.90	7.79	"	"	"	"	
2-Methylnaphthalene	ND	3.90	7.79	"	"	"	"	
Naphthalene	ND	3.90	7.79	"	"	"	"	
Phenanthrene	ND	1.95	3.90	"	"	"	"	
Pyrene	ND	1.95	3.90	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-10->30' (0.5-1')_Prepared (A6J0754-38)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	2.03	4.06	ug/kg dry	1	10/30/16 20:30	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.06	"	"	"	"	
Anthracene	ND	2.03	4.06	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.06	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.06	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.06	"	"	"	"	
Chrysene	ND	2.03	4.06	"	"	"	"	
Dibenzofuran	ND	2.03	4.06	"	"	"	"	
Fluoranthene	ND	2.03	4.06	"	"	"	"	
Fluorene	ND	2.03	4.06	"	"	"	"	
1-Methylnaphthalene	ND	4.06	8.11	"	"	"	"	
2-Methylnaphthalene	ND	4.06	8.11	"	"	"	"	
Naphthalene	ND	4.06	8.11	"	"	"	"	
Phenanthrene	ND	2.03	4.06	"	"	"	"	
Pyrene	ND	2.03	4.06	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-10->30' (0.5-1')_Prepared (A6J0754-38RE1)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Benzo(g,h,i)perylene	ND	40.6	81.1	ug/kg dry	20	10/31/16 13:53	EPA 8270D (SIM)	R-04
Dibenz(a,h)anthracene	ND	40.6	81.1	"	"	"	"	R-04
Indeno(1,2,3-cd)pyrene	ND	40.6	81.1	"	"	"	"	R-04
BR-10->30' (1-1.5')_Prepared (A6J0754-39)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	2.05	4.11	ug/kg dry	1	10/30/16 20:56	EPA 8270D (SIM)	
Acenaphthylene	ND	2.05	4.11	"	"	"	"	
Anthracene	ND	2.05	4.11	"	"	"	"	
Benz(a)anthracene	ND	2.05	4.11	"	"	"	"	
Benzo(a)pyrene	ND	2.05	4.11	"	"	"	"	
Benzo(b)fluoranthene	ND	2.05	4.11	"	"	"	"	
Benzo(k)fluoranthene	ND	2.05	4.11	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.05	4.11	"	"	"	"	
Chrysene	ND	2.05	4.11	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.05	4.11	"	"	"	"	
Dibenzofuran	ND	2.05	4.11	"	"	"	"	
Fluoranthene	ND	2.05	4.11	"	"	"	"	
Fluorene	ND	2.05	4.11	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.05	4.11	"	"	"	"	
1-Methylnaphthalene	ND	4.11	8.21	"	"	"	"	
2-Methylnaphthalene	ND	4.11	8.21	"	"	"	"	
Naphthalene	ND	4.11	8.21	"	"	"	"	
Phenanthrene	ND	2.05	4.11	"	"	"	"	
Pyrene	ND	2.05	4.11	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-11-0-15' (0-0.5')_Prepared (A6J0754-40)			**Matrix: Soil**		**Batch: 6101105**			**H-08**
Acenaphthene	ND	4.99	9.97	ug/kg dry	1	10/30/16 21:22	EPA 8270D (SIM)	
Acenaphthylene	ND	4.99	9.97	"	"	"	"	
Anthracene	ND	4.99	9.97	"	"	"	"	
Benz(a)anthracene	ND	44.9	44.9	"	"	"	"	R-02
Carbazole	ND	4.99	9.97	"	"	"	"	
Chrysene	ND	54.8	54.8	"	"	"	"	R-02
Dibenzofuran	ND	4.99	9.97	"	"	"	"	
Fluoranthene	ND	4.99	9.97	"	"	"	"	
Fluorene	ND	4.99	9.97	"	"	"	"	
1-Methylnaphthalene	ND	9.97	19.9	"	"	"	"	
2-Methylnaphthalene	ND	9.97	19.9	"	"	"	"	
Naphthalene	ND	9.97	19.9	"	"	"	"	
Phenanthrene	ND	4.99	9.97	"	"	"	"	
Pyrene	ND	4.99	9.97	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 90 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*104 %*	*Limits: 54-127 %*	"	"	"	
BR-11-0-15' (0-0.5')_Prepared (A6J0754-40RE3)			**Matrix: Soil**		**Batch: 6120859**			**C-05, H-08**
Benzo(a)pyrene	**19.4**	10.0	20.1	ug/kg dry	1	12/29/16 14:44	EPA 8270D (SIM)	J
Benzo(b)fluoranthene	**25.0**	10.0	20.1	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	10.0	20.1	"	"	"	"	
Benzo(g,h,i)perylene	**34.0**	10.0	20.1	"	"	"	"	
Dibenz(a,h)anthracene	ND	10.0	20.1	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	10.0	20.1	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*101 %*	*Limits: 54-127 %*	"	"	"	
Grind Blank (A6J0754-41RE1)			**Matrix: Solid**		**Batch: 6101105**			**A-01a, H-08**
Acenaphthene	ND	1.96	3.91	ug/kg wet	1	10/31/16 16:04	EPA 8270D (SIM)	
Acenaphthylene	ND	1.96	3.91	"	"	"	"	
Anthracene	ND	1.96	3.91	"	"	"	"	
Benz(a)anthracene	ND	1.96	3.91	"	"	"	"	
Benzo(a)pyrene	ND	1.96	3.91	"	"	"	"	
Benzo(b)fluoranthene	ND	1.96	3.91	"	"	"	"	
Benzo(k)fluoranthene	ND	1.96	3.91	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.96	3.91	"	"	"	"	

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6J0754-41RE1)			**Matrix: Solid**		**Batch: 6101105**			**A-01a, H-08**
Chrysene	ND	1.96	3.91	ug/kg wet	1	"	EPA 8270D (SIM)	
Dibenz(a,h)anthracene	ND	1.96	3.91	"	"	"	"	
Dibenzofuran	ND	1.96	3.91	"	"	"	"	
Fluoranthene	ND	1.96	3.91	"	"	"	"	
Fluorene	ND	1.96	3.91	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.96	3.91	"	"	"	"	
1-Methylnaphthalene	ND	3.91	7.82	"	"	"	"	
2-Methylnaphthalene	ND	3.91	7.82	"	"	"	"	
Naphthalene	ND	3.91	7.82	"	"	"	"	
Phenanthrene	ND	1.96	3.91	"	"	"	"	
Pyrene	ND	1.96	3.91	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 58 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*75 %*	*Limits: 54-127 %*	"	"	"	
BR-11-0-15' (0.5-1')_Prepared (A6J0823-21)			**Matrix: Soil**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	1.99	3.98	ug/kg dry	1	11/01/16 18:02	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.98	"	"	"	"	
Anthracene	ND	1.99	3.98	"	"	"	"	
Benz(a)anthracene	ND	4.28	4.28	"	"	"	"	R-02
Benzo(a)pyrene	ND	1.99	3.98	"	"	"	"	
Benzo(b)fluoranthene	**4.36**	1.99	3.98	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(g,h,i)perylene	**10.1**	1.99	3.98	"	"	"	"	
Chrysene	ND	4.58	4.58	"	"	"	"	R-02
Dibenz(a,h)anthracene	**2.62**	1.99	3.98	"	"	"	"	J
Dibenzofuran	ND	1.99	3.98	"	"	"	"	
Fluoranthene	ND	1.99	3.98	"	"	"	"	
Fluorene	ND	1.99	3.98	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.98	"	"	"	"	
1-Methylnaphthalene	ND	3.98	7.96	"	"	"	"	
2-Methylnaphthalene	ND	3.98	7.96	"	"	"	"	
Naphthalene	ND	3.98	7.96	"	"	"	"	
Phenanthrene	ND	1.99	3.98	"	"	"	"	
Pyrene	ND	1.99	3.98	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*82 %*	*Limits: 54-127 %*	"	"	"	

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12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes

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Lisa Domenighini, Client Services Manager

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-11-0-15' (1-1.5')_Prepared (A6J0823-22)			**Matrix: Soil**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	1.89	3.78	ug/kg dry	1	11/01/16 18:27	EPA 8270D (SIM)	
Acenaphthylene	ND	1.89	3.78	"	"	"	"	
Anthracene	ND	1.89	3.78	"	"	"	"	
Benz(a)anthracene	ND	6.33	6.33	"	"	"	"	R-02
Benzo(a)pyrene	**2.34**	1.89	3.78	"	"	"	"	J
Benzo(b)fluoranthene	**6.09**	1.89	3.78	"	"	"	"	M-02
Benzo(k)fluoranthene	**1.94**	1.89	3.78	"	"	"	"	J
Benzo(g,h,i)perylene	**11.5**	1.89	3.78	"	"	"	"	
Chrysene	ND	6.99	6.99	"	"	"	"	R-02
Dibenz(a,h)anthracene	**4.21**	1.89	3.78	"	"	"	"	
Dibenzofuran	ND	1.89	3.78	"	"	"	"	
Fluoranthene	ND	1.89	3.78	"	"	"	"	
Fluorene	ND	1.89	3.78	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**1.92**	1.89	3.78	"	"	"	"	J
1-Methylnaphthalene	ND	3.78	7.56	"	"	"	"	
2-Methylnaphthalene	ND	3.78	7.56	"	"	"	"	
Naphthalene	ND	3.78	7.56	"	"	"	"	
Phenanthrene	ND	1.89	3.78	"	"	"	"	
Pyrene	ND	1.89	3.78	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 81 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*93 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-11-15-30' (0-0.5')_Prepared (A6J0823-23)			**Matrix: Soil**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	1.98	3.97	ug/kg dry	1	11/01/16 18:54	EPA 8270D (SIM)	
Acenaphthylene	ND	1.98	3.97	"	"	"	"	
Anthracene	ND	1.98	3.97	"	"	"	"	
Benz(a)anthracene	ND	4.56	4.56	"	"	"	"	R-02
Benzo(a)pyrene	ND	1.98	3.97	"	"	"	"	
Benzo(b)fluoranthene	**3.34**	1.98	3.97	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.98	3.97	"	"	"	"	
Benzo(g,h,i)perylene	**3.69**	1.98	3.97	"	"	"	"	J
Chrysene	ND	5.06	5.06	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	1.98	3.97	"	"	"	"	
Dibenzofuran	ND	1.98	3.97	"	"	"	"	
Fluoranthene	ND	1.98	3.97	"	"	"	"	
Fluorene	ND	1.98	3.97	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.98	3.97	"	"	"	"	
1-Methylnaphthalene	ND	3.97	7.93	"	"	"	"	
2-Methylnaphthalene	ND	3.97	7.93	"	"	"	"	
Naphthalene	ND	3.97	7.93	"	"	"	"	
Phenanthrene	ND	1.98	3.97	"	"	"	"	
Pyrene	ND	1.98	3.97	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*89 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-11-15-30' (0.5-1')_Prepared (A6J0823-24)			**Matrix: Soil**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	1.95	3.90	ug/kg dry	1	11/01/16 19:20	EPA 8270D (SIM)	
Acenaphthylene	ND	1.95	3.90	"	"	"	"	
Anthracene	ND	1.95	3.90	"	"	"	"	
Benz(a)anthracene	ND	4.58	4.58	"	"	"	"	R-02
Benzo(a)pyrene	ND	1.95	3.90	"	"	"	"	
Benzo(b)fluoranthene	**3.85**	1.95	3.90	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.95	3.90	"	"	"	"	
Benzo(g,h,i)perylene	**3.40**	1.95	3.90	"	"	"	"	J
Chrysene	ND	4.97	4.97	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	1.95	3.90	"	"	"	"	
Dibenzofuran	ND	1.95	3.90	"	"	"	"	
Fluoranthene	ND	1.95	3.90	"	"	"	"	
Fluorene	ND	1.95	3.90	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.95	3.90	"	"	"	"	
1-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
2-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
Naphthalene	ND	3.90	7.80	"	"	"	"	
Phenanthrene	ND	1.95	3.90	"	"	"	"	
Pyrene	ND	1.95	3.90	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*90 %*	*Limits: 54-127 %*	"	"	"	

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-11-15-30' (1-1.5')_Prepared (A6J0823-25)			**Matrix: Soil**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	1.90	3.81	ug/kg dry	1	11/01/16 19:45	EPA 8270D (SIM)	
Acenaphthylene	ND	1.90	3.81	"	"	"	"	
Anthracene	ND	1.90	3.81	"	"	"	"	
Benz(a)anthracene	ND	3.81	3.81	"	"	"	"	
Benzo(a)pyrene	ND	1.90	3.81	"	"	"	"	
Benzo(b)fluoranthene	**2.30**	1.90	3.81	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.90	3.81	"	"	"	"	
Benzo(g,h,i)perylene	**2.35**	1.90	3.81	"	"	"	"	J
Chrysene	ND	3.81	3.81	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.90	3.81	"	"	"	"	
Dibenzofuran	ND	1.90	3.81	"	"	"	"	
Fluoranthene	ND	1.90	3.81	"	"	"	"	
Fluorene	ND	1.90	3.81	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.90	3.81	"	"	"	"	
1-Methylnaphthalene	ND	3.81	7.62	"	"	"	"	
2-Methylnaphthalene	ND	3.81	7.62	"	"	"	"	
Naphthalene	ND	3.81	7.62	"	"	"	"	
Phenanthrene	ND	1.90	3.81	"	"	"	"	
Pyrene	ND	1.90	3.81	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*84 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-11->30' (0-0.5')_Prepared (A6J0823-26)			**Matrix: Soil**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	2.04	4.08	ug/kg dry	1	11/01/16 11:14	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.08	"	"	"	"	
Anthracene	ND	2.04	4.08	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.08	"	"	"	"	
Benzo(a)pyrene	ND	2.04	4.08	"	"	"	"	
Benzo(b)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(k)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.04	4.08	"	"	"	"	
Chrysene	ND	2.04	4.08	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.04	4.08	"	"	"	"	
Dibenzofuran	ND	2.04	4.08	"	"	"	"	
Fluoranthene	ND	2.04	4.08	"	"	"	"	
Fluorene	ND	2.04	4.08	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.08	"	"	"	"	
1-Methylnaphthalene	ND	4.08	8.16	"	"	"	"	
2-Methylnaphthalene	ND	4.08	8.16	"	"	"	"	
Naphthalene	ND	4.08	8.16	"	"	"	"	
Phenanthrene	ND	2.04	4.08	"	"	"	"	
Pyrene	ND	2.04	4.08	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-11->30' (0.5-1')_Prepared (A6J0823-27)			**Matrix: Soil**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	1.98	3.96	ug/kg dry	1	11/01/16 11:40	EPA 8270D (SIM)	
Acenaphthylene	ND	1.98	3.96	"	"	"	"	
Anthracene	ND	1.98	3.96	"	"	"	"	
Benz(a)anthracene	ND	1.98	3.96	"	"	"	"	
Benzo(a)pyrene	ND	1.98	3.96	"	"	"	"	
Benzo(b)fluoranthene	ND	1.98	3.96	"	"	"	"	
Benzo(k)fluoranthene	ND	1.98	3.96	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.98	3.96	"	"	"	"	
Chrysene	ND	1.98	3.96	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.98	3.96	"	"	"	"	
Dibenzofuran	ND	1.98	3.96	"	"	"	"	
Fluoranthene	ND	1.98	3.96	"	"	"	"	
Fluorene	ND	1.98	3.96	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.98	3.96	"	"	"	"	
1-Methylnaphthalene	ND	3.96	7.92	"	"	"	"	
2-Methylnaphthalene	ND	3.96	7.92	"	"	"	"	
Naphthalene	ND	3.96	7.92	"	"	"	"	
Phenanthrene	ND	1.98	3.96	"	"	"	"	
Pyrene	ND	1.98	3.96	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*77 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-11->30' (1-1.5')_Prepared (A6J0823-28)			**Matrix: Soil**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	2.04	4.09	ug/kg dry	1	11/01/16 12:06	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.09	"	"	"	"	
Anthracene	ND	2.04	4.09	"	"	"	"	
Benz(a)anthracene	**3.64**	2.04	4.09	"	"	"	"	J
Benzo(a)pyrene	**4.82**	2.04	4.09	"	"	"	"	
Benzo(b)fluoranthene	**8.62**	2.04	4.09	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	2.04	4.09	"	"	"	"	
Benzo(g,h,i)perylene	**2.66**	2.04	4.09	"	"	"	"	J
Chrysene	**10.1**	2.04	4.09	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.04	4.09	"	"	"	"	
Dibenzofuran	**5.27**	2.04	4.09	"	"	"	"	
Fluoranthene	**3.11**	2.04	4.09	"	"	"	"	J
Fluorene	ND	2.04	4.09	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.69**	2.04	4.09	"	"	"	"	J
1-Methylnaphthalene	ND	4.09	8.17	"	"	"	"	
2-Methylnaphthalene	**4.49**	4.09	8.17	"	"	"	"	J
Naphthalene	**10.5**	4.09	8.17	"	"	"	"	
Phenanthrene	**21.8**	2.04	4.09	"	"	"	"	
Pyrene	**6.12**	2.04	4.09	"	"	"	"	M-02
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*75 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-12-0-15' (0-0.5')_Prepared (A6J0823-29)			**Matrix: Soil**		**Batch: 6101127**			**H-08, R-04**
Acenaphthene	ND	9.57	19.1	ug/kg dry	5	11/01/16 20:11	EPA 8270D (SIM)	
Acenaphthylene	ND	9.57	19.1	"	"	"	"	
Anthracene	ND	9.57	19.1	"	"	"	"	
Benz(a)anthracene	ND	19.1	19.1	"	"	"	"	
Benzo(a)pyrene	ND	9.57	19.1	"	"	"	"	
Benzo(b)fluoranthene	ND	9.57	19.1	"	"	"	"	
Benzo(k)fluoranthene	ND	9.57	19.1	"	"	"	"	
Benzo(g,h,i)perylene	**17.1**	9.57	19.1	"	"	"	"	J
Chrysene	ND	19.1	19.1	"	"	"	"	
Dibenz(a,h)anthracene	ND	9.57	19.1	"	"	"	"	
Dibenzofuran	ND	9.57	19.1	"	"	"	"	
Fluoranthene	ND	9.57	19.1	"	"	"	"	
Fluorene	ND	9.57	19.1	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	9.57	19.1	"	"	"	"	
1-Methylnaphthalene	ND	19.1	38.3	"	"	"	"	
2-Methylnaphthalene	ND	19.1	38.3	"	"	"	"	
Naphthalene	ND	19.1	38.3	"	"	"	"	
Phenanthrene	ND	9.57	19.1	"	"	"	"	
Pyrene	ND	9.57	19.1	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 85 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*103 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-12-0-15' (0.5-1')_Prepared (A6J0823-30)			**Matrix: Soil**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	1.91	3.81	ug/kg dry	1	11/01/16 16:00	EPA 8270D (SIM)	
Acenaphthylene	ND	1.91	3.81	"	"	"	"	
Anthracene	ND	1.91	3.81	"	"	"	"	
Benz(a)anthracene	ND	3.81	3.81	"	"	"	"	
Benzo(a)pyrene	ND	1.91	3.81	"	"	"	"	
Benzo(b)fluoranthene	ND	1.91	3.81	"	"	"	"	
Benzo(k)fluoranthene	ND	1.91	3.81	"	"	"	"	
Benzo(g,h,i)perylene	**4.77**	1.91	3.81	"	"	"	"	
Chrysene	ND	3.81	3.81	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.91	3.81	"	"	"	"	
Dibenzofuran	ND	1.91	3.81	"	"	"	"	
Fluoranthene	ND	1.91	3.81	"	"	"	"	
Fluorene	ND	1.91	3.81	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**1.92**	1.91	3.81	"	"	"	"	J
1-Methylnaphthalene	ND	3.81	7.63	"	"	"	"	
2-Methylnaphthalene	ND	3.81	7.63	"	"	"	"	
Naphthalene	ND	3.81	7.63	"	"	"	"	
Phenanthrene	ND	1.91	3.81	"	"	"	"	
Pyrene	ND	1.91	3.81	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 61 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*78 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-12-0-15' (1-1.5')_Prepared (A6J0823-31)			**Matrix: Soil**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	1.92	3.83	ug/kg dry	1	11/01/16 16:26	EPA 8270D (SIM)	
Acenaphthylene	ND	1.92	3.83	"	"	"	"	
Anthracene	ND	1.92	3.83	"	"	"	"	
Benz(a)anthracene	ND	3.83	3.83	"	"	"	"	
Benzo(a)pyrene	ND	1.92	3.83	"	"	"	"	
Benzo(b)fluoranthene	ND	1.92	3.83	"	"	"	"	
Benzo(k)fluoranthene	ND	1.92	3.83	"	"	"	"	
Benzo(g,h,i)perylene	**3.23**	1.92	3.83	"	"	"	"	J
Chrysene	ND	3.83	3.83	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.92	3.83	"	"	"	"	
Dibenzofuran	ND	1.92	3.83	"	"	"	"	
Fluoranthene	ND	1.92	3.83	"	"	"	"	
Fluorene	ND	1.92	3.83	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.92	3.83	"	"	"	"	
1-Methylnaphthalene	ND	3.83	7.67	"	"	"	"	
2-Methylnaphthalene	ND	3.83	7.67	"	"	"	"	
Naphthalene	ND	3.83	7.67	"	"	"	"	
Phenanthrene	ND	1.92	3.83	"	"	"	"	
Pyrene	ND	1.92	3.83	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 54 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*77 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-12-15-30' (0-0.5')_Prepared (A6J0823-32)			**Matrix: Soil**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	1.99	3.99	ug/kg dry	1	11/01/16 12:32	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.99	"	"	"	"	
Anthracene	ND	1.99	3.99	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.99	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.99	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.99	"	"	"	"	
Chrysene	ND	3.99	3.99	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.99	"	"	"	"	
Dibenzofuran	ND	1.99	3.99	"	"	"	"	
Fluoranthene	ND	1.99	3.99	"	"	"	"	
Fluorene	ND	1.99	3.99	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.99	"	"	"	"	
1-Methylnaphthalene	ND	3.99	7.97	"	"	"	"	
2-Methylnaphthalene	ND	3.99	7.97	"	"	"	"	
Naphthalene	ND	3.99	7.97	"	"	"	"	
Phenanthrene	ND	1.99	3.99	"	"	"	"	
Pyrene	ND	1.99	3.99	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*70 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-12-15-30' (0.5-1')_Prepared (A6J0823-33)			**Matrix: Soil**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	2.02	4.04	ug/kg dry	1	11/01/16 17:10	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.04	"	"	"	"	
Anthracene	ND	2.02	4.04	"	"	"	"	
Benz(a)anthracene	ND	6.36	6.36	"	"	"	"	R-02
Benzo(a)pyrene	**2.54**	2.02	4.04	"	"	"	"	J
Benzo(b)fluoranthene	**4.05**	2.02	4.04	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	2.02	4.04	"	"	"	"	
Benzo(g,h,i)perylene	**6.59**	2.02	4.04	"	"	"	"	
Chrysene	ND	6.87	6.87	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	2.02	4.04	"	"	"	"	
Dibenzofuran	ND	2.02	4.04	"	"	"	"	
Fluoranthene	ND	2.02	4.04	"	"	"	"	
Fluorene	ND	2.02	4.04	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.04	"	"	"	"	
1-Methylnaphthalene	ND	4.04	8.08	"	"	"	"	
2-Methylnaphthalene	ND	4.04	8.08	"	"	"	"	
Naphthalene	ND	4.04	8.08	"	"	"	"	
Phenanthrene	ND	2.02	4.04	"	"	"	"	
Pyrene	ND	2.02	4.04	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 63 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*75 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-12->30' (0-0.5')_Prepared (A6J0823-34)			**Matrix: Soil**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	2.00	4.01	ug/kg dry	1	11/01/16 12:58	EPA 8270D (SIM)	
Acenaphthylene	ND	2.00	4.01	"	"	"	"	
Anthracene	ND	2.00	4.01	"	"	"	"	
Benz(a)anthracene	ND	4.01	4.01	"	"	"	"	
Benzo(a)pyrene	ND	2.00	4.01	"	"	"	"	
Benzo(b)fluoranthene	ND	2.00	4.01	"	"	"	"	
Benzo(k)fluoranthene	ND	2.00	4.01	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.00	4.01	"	"	"	"	
Chrysene	ND	4.01	4.01	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.00	4.01	"	"	"	"	
Dibenzofuran	ND	2.00	4.01	"	"	"	"	
Fluoranthene	ND	2.00	4.01	"	"	"	"	
Fluorene	ND	2.00	4.01	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.00	4.01	"	"	"	"	
1-Methylnaphthalene	ND	4.01	8.01	"	"	"	"	
2-Methylnaphthalene	ND	4.01	8.01	"	"	"	"	
Naphthalene	ND	4.01	8.01	"	"	"	"	
Phenanthrene	**2.23**	2.00	4.01	"	"	"	"	J
Pyrene	ND	2.00	4.01	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*70 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-12->30' (0.5-1')_Prepared (A6J0823-35)			**Matrix: Soil**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	2.02	4.04	ug/kg dry	1	11/01/16 17:36	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.04	"	"	"	"	
Anthracene	ND	2.02	4.04	"	"	"	"	
Benz(a)anthracene	ND	4.24	4.24	"	"	"	"	R-02
Benzo(a)pyrene	**7.31**	2.02	4.04	"	"	"	"	
Benzo(b)fluoranthene	**12.0**	2.02	4.04	"	"	"	"	M-02
Benzo(k)fluoranthene	**3.37**	2.02	4.04	"	"	"	"	J
Benzo(g,h,i)perylene	**8.59**	2.02	4.04	"	"	"	"	
Chrysene	ND	25.1	25.1	"	"	"	"	R-02
Dibenz(a,h)anthracene	**4.07**	2.02	4.04	"	"	"	"	
Dibenzofuran	ND	2.02	4.04	"	"	"	"	
Fluoranthene	**3.55**	2.02	4.04	"	"	"	"	J
Fluorene	ND	2.02	4.04	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.04	"	"	"	"	
1-Methylnaphthalene	ND	4.04	8.07	"	"	"	"	
2-Methylnaphthalene	ND	4.04	8.07	"	"	"	"	
Naphthalene	ND	4.04	8.07	"	"	"	"	
Phenanthrene	**14.8**	2.02	4.04	"	"	"	"	
Pyrene	**9.07**	2.02	4.04	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*80 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-13-15-30' (0-0.5')_Prepared (A6J0823-36)			**Matrix: Soil**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	2.07	4.14	ug/kg dry	1	11/01/16 13:24	EPA 8270D (SIM)	
Acenaphthylene	ND	2.07	4.14	"	"	"	"	
Anthracene	ND	2.07	4.14	"	"	"	"	
Benz(a)anthracene	ND	4.14	4.14	"	"	"	"	
Benzo(a)pyrene	ND	2.07	4.14	"	"	"	"	
Benzo(b)fluoranthene	ND	2.07	4.14	"	"	"	"	
Benzo(k)fluoranthene	ND	2.07	4.14	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.07	4.14	"	"	"	"	
Chrysene	ND	4.14	4.14	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.07	4.14	"	"	"	"	
Dibenzofuran	ND	2.07	4.14	"	"	"	"	
Fluoranthene	ND	2.07	4.14	"	"	"	"	
Fluorene	ND	2.07	4.14	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.07	4.14	"	"	"	"	
1-Methylnaphthalene	ND	4.14	8.29	"	"	"	"	
2-Methylnaphthalene	ND	4.14	8.29	"	"	"	"	
Naphthalene	ND	4.14	8.29	"	"	"	"	
Phenanthrene	ND	2.07	4.14	"	"	"	"	
Pyrene	ND	2.07	4.14	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*75 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-13-15-30' (0.5-1')_Prepared (A6J0823-37)			**Matrix: Soil**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	1.98	3.95	ug/kg dry	1	11/01/16 13:50	EPA 8270D (SIM)	
Acenaphthylene	ND	1.98	3.95	"	"	"	"	
Anthracene	ND	1.98	3.95	"	"	"	"	
Benz(a)anthracene	ND	3.95	3.95	"	"	"	"	
Benzo(a)pyrene	ND	1.98	3.95	"	"	"	"	
Benzo(b)fluoranthene	ND	1.98	3.95	"	"	"	"	
Benzo(k)fluoranthene	ND	1.98	3.95	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.98	3.95	"	"	"	"	
Chrysene	ND	3.95	3.95	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.98	3.95	"	"	"	"	
Dibenzofuran	ND	1.98	3.95	"	"	"	"	
Fluoranthene	ND	1.98	3.95	"	"	"	"	
Fluorene	ND	1.98	3.95	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.98	3.95	"	"	"	"	
1-Methylnaphthalene	ND	3.95	7.91	"	"	"	"	
2-Methylnaphthalene	ND	3.95	7.91	"	"	"	"	
Naphthalene	ND	3.95	7.91	"	"	"	"	
Phenanthrene	ND	1.98	3.95	"	"	"	"	
Pyrene	ND	1.98	3.95	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 56 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*72 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-13-15-30' (1-1.5')_Prepared (A6J0823-38)			**Matrix: Soil**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	2.02	4.04	ug/kg dry	1	11/01/16 14:16	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.04	"	"	"	"	
Anthracene	ND	2.02	4.04	"	"	"	"	
Benz(a)anthracene	ND	6.16	6.16	"	"	"	"	R-02
Benzo(a)pyrene	ND	2.02	4.04	"	"	"	"	
Benzo(b)fluoranthene	**2.58**	2.02	4.04	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.02	4.04	"	"	"	"	
Benzo(g,h,i)perylene	**3.35**	2.02	4.04	"	"	"	"	J
Chrysene	ND	6.76	6.76	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	2.02	4.04	"	"	"	"	
Dibenzofuran	ND	2.02	4.04	"	"	"	"	
Fluoranthene	ND	2.02	4.04	"	"	"	"	
Fluorene	ND	2.02	4.04	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.04	"	"	"	"	
1-Methylnaphthalene	ND	4.04	8.08	"	"	"	"	
2-Methylnaphthalene	ND	4.04	8.08	"	"	"	"	
Naphthalene	ND	4.04	8.08	"	"	"	"	
Phenanthrene	ND	2.02	4.04	"	"	"	"	
Pyrene	ND	2.02	4.04	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*74 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-13->30' (0-0.5')_Prepared (A6J0823-39)			**Matrix: Soil**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	1.98	3.96	ug/kg dry	1	11/01/16 14:42	EPA 8270D (SIM)	
Acenaphthylene	ND	1.98	3.96	"	"	"	"	
Anthracene	ND	1.98	3.96	"	"	"	"	
Benz(a)anthracene	ND	3.96	3.96	"	"	"	"	
Benzo(a)pyrene	ND	1.98	3.96	"	"	"	"	
Benzo(b)fluoranthene	ND	1.98	3.96	"	"	"	"	
Benzo(k)fluoranthene	ND	1.98	3.96	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.98	3.96	"	"	"	"	
Chrysene	ND	3.96	3.96	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.98	3.96	"	"	"	"	
Dibenzofuran	ND	1.98	3.96	"	"	"	"	
Fluoranthene	ND	1.98	3.96	"	"	"	"	
Fluorene	ND	1.98	3.96	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.98	3.96	"	"	"	"	
1-Methylnaphthalene	ND	3.96	7.91	"	"	"	"	
2-Methylnaphthalene	ND	3.96	7.91	"	"	"	"	
Naphthalene	ND	3.96	7.91	"	"	"	"	
Phenanthrene	ND	1.98	3.96	"	"	"	"	
Pyrene	ND	1.98	3.96	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 63 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*70 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-13->30' (0.5-1')_Prepared (A6J0823-40)			**Matrix: Soil**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	1.99	3.97	ug/kg dry	1	11/01/16 15:08	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.97	"	"	"	"	
Anthracene	ND	1.99	3.97	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.97	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.97	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.97	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.97	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.97	"	"	"	"	
Chrysene	ND	1.99	3.97	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.97	"	"	"	"	
Dibenzofuran	ND	1.99	3.97	"	"	"	"	
Fluoranthene	ND	1.99	3.97	"	"	"	"	
Fluorene	ND	1.99	3.97	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.97	"	"	"	"	
1-Methylnaphthalene	ND	3.97	7.94	"	"	"	"	
2-Methylnaphthalene	ND	3.97	7.94	"	"	"	"	
Naphthalene	ND	3.97	7.94	"	"	"	"	
Phenanthrene	ND	1.99	3.97	"	"	"	"	
Pyrene	ND	1.99	3.97	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*73 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6J0823-41)			**Matrix: Solid**		**Batch: 6101127**			**H-08**
Acenaphthene	ND	1.84	3.68	ug/kg wet	1	11/01/16 15:35	EPA 8270D (SIM)	
Acenaphthylene	ND	1.84	3.68	"	"	"	"	
Anthracene	ND	1.84	3.68	"	"	"	"	
Benz(a)anthracene	ND	1.84	3.68	"	"	"	"	
Benzo(a)pyrene	ND	1.84	3.68	"	"	"	"	
Benzo(b)fluoranthene	ND	1.84	3.68	"	"	"	"	
Benzo(k)fluoranthene	ND	1.84	3.68	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.84	3.68	"	"	"	"	
Chrysene	ND	1.84	3.68	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.84	3.68	"	"	"	"	
Dibenzofuran	ND	1.84	3.68	"	"	"	"	
Fluoranthene	ND	1.84	3.68	"	"	"	"	
Fluorene	ND	1.84	3.68	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.84	3.68	"	"	"	"	
1-Methylnaphthalene	ND	3.68	7.35	"	"	"	"	
2-Methylnaphthalene	ND	3.68	7.35	"	"	"	"	
Naphthalene	ND	3.68	7.35	"	"	"	"	
Phenanthrene	ND	1.84	3.68	"	"	"	"	
Pyrene	ND	1.84	3.68	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 58 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*84 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-13->30' (1-1.5')_Prepared (A6J0849-21)			**Matrix: Soil**		**Batch: 6110298**			**H-08**
Acenaphthene	ND	2.03	4.06	ug/kg dry	1	11/08/16 11:05	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.06	"	"	"	"	
Anthracene	ND	2.03	4.06	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.06	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.06	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.06	"	"	"	"	
Chrysene	ND	2.03	4.06	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.06	"	"	"	"	
Dibenzofuran	ND	2.03	4.06	"	"	"	"	
Fluoranthene	ND	2.03	4.06	"	"	"	"	
Fluorene	ND	2.03	4.06	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.06	"	"	"	"	
1-Methylnaphthalene	ND	4.06	8.12	"	"	"	"	
2-Methylnaphthalene	ND	4.06	8.12	"	"	"	"	
Naphthalene	ND	4.06	8.12	"	"	"	"	
Phenanthrene	ND	2.03	4.06	"	"	"	"	
Pyrene	ND	2.03	4.06	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 79 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*82 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-14-0-15' (0-0.5')_Prepared (A6J0849-22RE1)			**Matrix: Soil**		**Batch: 6110298**			**H-08, R-04**
Acenaphthene	ND	14.7	29.3	ug/kg dry	3	11/09/16 19:32	EPA 8270D (SIM)	
Acenaphthylene	ND	14.7	29.3	"	"	"	"	
Anthracene	ND	14.7	29.3	"	"	"	"	
Benz(a)anthracene	ND	14.7	29.3	"	"	"	"	
Benzo(a)pyrene	ND	14.7	29.3	"	"	"	"	
Benzo(b)fluoranthene	ND	14.7	29.3	"	"	"	"	
Benzo(k)fluoranthene	ND	14.7	29.3	"	"	"	"	
Benzo(g,h,i)perylene	ND	14.7	29.3	"	"	"	"	
Chrysene	ND	14.7	29.3	"	"	"	"	
Dibenz(a,h)anthracene	ND	14.7	29.3	"	"	"	"	
Dibenzofuran	ND	14.7	29.3	"	"	"	"	
Fluoranthene	ND	14.7	29.3	"	"	"	"	
Fluorene	ND	14.7	29.3	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	14.7	29.3	"	"	"	"	
1-Methylnaphthalene	ND	29.3	58.6	"	"	"	"	
2-Methylnaphthalene	ND	29.3	58.6	"	"	"	"	
Naphthalene	ND	29.3	58.6	"	"	"	"	
Phenanthrene	ND	14.7	29.3	"	"	"	"	
Pyrene	ND	14.7	29.3	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*88 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-14-0-15' (0.5-1')_Prepared (A6J0849-23RE1)			**Matrix: Soil**		**Batch: 6110298**			**H-08, R-04**
Acenaphthene	ND	14.8	29.6	ug/kg dry	3	11/09/16 20:24	EPA 8270D (SIM)	
Acenaphthylene	ND	14.8	29.6	"	"	"	"	
Anthracene	ND	14.8	29.6	"	"	"	"	
Benz(a)anthracene	ND	14.8	29.6	"	"	"	"	
Benzo(a)pyrene	ND	14.8	29.6	"	"	"	"	
Benzo(b)fluoranthene	ND	14.8	29.6	"	"	"	"	
Benzo(k)fluoranthene	ND	14.8	29.6	"	"	"	"	
Benzo(g,h,i)perylene	ND	14.8	29.6	"	"	"	"	
Chrysene	ND	14.8	29.6	"	"	"	"	
Dibenz(a,h)anthracene	ND	14.8	29.6	"	"	"	"	
Dibenzofuran	ND	14.8	29.6	"	"	"	"	
Fluoranthene	ND	14.8	29.6	"	"	"	"	
Fluorene	ND	14.8	29.6	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	14.8	29.6	"	"	"	"	
1-Methylnaphthalene	ND	29.6	59.1	"	"	"	"	
2-Methylnaphthalene	ND	29.6	59.1	"	"	"	"	
Naphthalene	ND	29.6	59.1	"	"	"	"	
Phenanthrene	ND	14.8	29.6	"	"	"	"	
Pyrene	ND	14.8	29.6	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 83 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*93 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-14-0-15' (1-1.5')_Prepared (A6J0849-24)			**Matrix: Soil**		**Batch: 6110298**			**H-08**
Acenaphthene	ND	1.89	3.78	ug/kg dry	1	11/08/16 12:23	EPA 8270D (SIM)	
Acenaphthylene	ND	1.89	3.78	"	"	"	"	
Anthracene	ND	1.89	3.78	"	"	"	"	
Benz(a)anthracene	ND	1.89	3.78	"	"	"	"	
Benzo(a)pyrene	ND	1.89	3.78	"	"	"	"	
Benzo(b)fluoranthene	ND	1.89	3.78	"	"	"	"	
Benzo(k)fluoranthene	ND	1.89	3.78	"	"	"	"	
Benzo(g,h,i)perylene	**2.55**	1.89	3.78	"	"	"	"	J
Chrysene	ND	1.89	3.78	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.89	3.78	"	"	"	"	
Dibenzofuran	ND	1.89	3.78	"	"	"	"	
Fluoranthene	ND	1.89	3.78	"	"	"	"	
Fluorene	ND	1.89	3.78	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.89	3.78	"	"	"	"	
1-Methylnaphthalene	ND	3.78	7.56	"	"	"	"	
2-Methylnaphthalene	ND	3.78	7.56	"	"	"	"	
Naphthalene	ND	3.78	7.56	"	"	"	"	
Phenanthrene	ND	1.89	3.78	"	"	"	"	
Pyrene	ND	1.89	3.78	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*68 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-14-15-30' (0-0.5')_Prepared (A6J0849-25)			**Matrix: Soil**		**Batch: 6110298**			**H-08**
Acenaphthene	ND	1.94	3.88	ug/kg dry	1	11/08/16 12:49	EPA 8270D (SIM)	
Acenaphthylene	ND	1.94	3.88	"	"	"	"	
Anthracene	ND	1.94	3.88	"	"	"	"	
Benz(a)anthracene	ND	1.94	3.88	"	"	"	"	
Benzo(a)pyrene	ND	1.94	3.88	"	"	"	"	
Benzo(b)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(k)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.94	3.88	"	"	"	"	
Chrysene	ND	1.94	3.88	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.94	3.88	"	"	"	"	
Dibenzofuran	ND	1.94	3.88	"	"	"	"	
Fluoranthene	ND	1.94	3.88	"	"	"	"	
Fluorene	ND	1.94	3.88	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.94	3.88	"	"	"	"	
1-Methylnaphthalene	ND	3.88	7.77	"	"	"	"	
2-Methylnaphthalene	ND	3.88	7.77	"	"	"	"	
Naphthalene	ND	3.88	7.77	"	"	"	"	
Phenanthrene	ND	1.94	3.88	"	"	"	"	
Pyrene	ND	1.94	3.88	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-14-15-30' (0.5-1')_Prepared (A6J0849-26)			**Matrix: Soil**		**Batch: 6110298**			**H-08**
Acenaphthene	ND	1.99	3.97	ug/kg dry	1	11/08/16 13:15	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.97	"	"	"	"	
Anthracene	ND	1.99	3.97	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.97	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.97	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.97	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.97	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.97	"	"	"	"	
Chrysene	ND	1.99	3.97	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.97	"	"	"	"	
Dibenzofuran	ND	1.99	3.97	"	"	"	"	
Fluoranthene	ND	1.99	3.97	"	"	"	"	
Fluorene	ND	1.99	3.97	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.97	"	"	"	"	
1-Methylnaphthalene	ND	3.97	7.95	"	"	"	"	
2-Methylnaphthalene	ND	3.97	7.95	"	"	"	"	
Naphthalene	ND	3.97	7.95	"	"	"	"	
Phenanthrene	ND	1.99	3.97	"	"	"	"	
Pyrene	ND	1.99	3.97	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-14-15-30' (1-1.5')_Prepared (A6J0849-27)			**Matrix: Soil**		**Batch: 6110298**			**H-08**
Acenaphthene	ND	1.91	3.81	ug/kg dry	1	11/08/16 13:41	EPA 8270D (SIM)	
Acenaphthylene	ND	1.91	3.81	"	"	"	"	
Anthracene	ND	1.91	3.81	"	"	"	"	
Benz(a)anthracene	ND	1.91	3.81	"	"	"	"	
Benzo(a)pyrene	ND	1.91	3.81	"	"	"	"	
Benzo(b)fluoranthene	ND	1.91	3.81	"	"	"	"	
Benzo(k)fluoranthene	ND	1.91	3.81	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.91	3.81	"	"	"	"	
Chrysene	ND	1.91	3.81	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.91	3.81	"	"	"	"	
Dibenzofuran	ND	1.91	3.81	"	"	"	"	
Fluoranthene	ND	1.91	3.81	"	"	"	"	
Fluorene	ND	1.91	3.81	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.91	3.81	"	"	"	"	
1-Methylnaphthalene	ND	3.81	7.63	"	"	"	"	
2-Methylnaphthalene	ND	3.81	7.63	"	"	"	"	
Naphthalene	ND	3.81	7.63	"	"	"	"	
Phenanthrene	ND	1.91	3.81	"	"	"	"	
Pyrene	ND	1.91	3.81	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*79 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-14->30' (0-0.5')_Prepared (A6J0849-28)			**Matrix: Soil**		**Batch: 6110298**			**H-08**
Acenaphthene	ND	2.01	4.03	ug/kg dry	1	11/08/16 14:08	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.03	"	"	"	"	
Anthracene	ND	2.01	4.03	"	"	"	"	
Benz(a)anthracene	ND	2.01	4.03	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.03	"	"	"	"	
Benzo(b)fluoranthene	ND	2.01	4.03	"	"	"	"	
Benzo(k)fluoranthene	ND	2.01	4.03	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.03	"	"	"	"	
Chrysene	ND	2.01	4.03	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.01	4.03	"	"	"	"	
Dibenzofuran	ND	2.01	4.03	"	"	"	"	
Fluoranthene	ND	2.01	4.03	"	"	"	"	
Fluorene	ND	2.01	4.03	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.03	"	"	"	"	
1-Methylnaphthalene	ND	4.03	8.05	"	"	"	"	
2-Methylnaphthalene	ND	4.03	8.05	"	"	"	"	
Naphthalene	ND	4.03	8.05	"	"	"	"	
Phenanthrene	ND	2.01	4.03	"	"	"	"	
Pyrene	ND	2.01	4.03	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*63 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-14->30' (0.5-1')_Prepared (A6J0849-29)			**Matrix: Soil**		**Batch: 6110298**			**H-08**
Acenaphthene	ND	1.94	3.88	ug/kg dry	1	11/08/16 14:34	EPA 8270D (SIM)	
Acenaphthylene	ND	1.94	3.88	"	"	"	"	
Anthracene	ND	1.94	3.88	"	"	"	"	
Benz(a)anthracene	ND	1.94	3.88	"	"	"	"	
Benzo(a)pyrene	ND	1.94	3.88	"	"	"	"	
Benzo(b)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(k)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.94	3.88	"	"	"	"	
Chrysene	ND	1.94	3.88	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.94	3.88	"	"	"	"	
Dibenzofuran	ND	1.94	3.88	"	"	"	"	
Fluoranthene	ND	1.94	3.88	"	"	"	"	
Fluorene	ND	1.94	3.88	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.94	3.88	"	"	"	"	
1-Methylnaphthalene	ND	3.88	7.76	"	"	"	"	
2-Methylnaphthalene	ND	3.88	7.76	"	"	"	"	
Naphthalene	ND	3.88	7.76	"	"	"	"	
Phenanthrene	ND	1.94	3.88	"	"	"	"	
Pyrene	ND	1.94	3.88	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 62 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*61 %*	*Limits: 54-127 %*	"	"	"	

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-14->30' (1-1.5')_Prepared (A6J0849-30)			**Matrix: Soil**		**Batch: 6110298**			**H-08**
Acenaphthene	ND	1.94	3.88	ug/kg dry	1	11/08/16 15:00	EPA 8270D (SIM)	
Acenaphthylene	ND	1.94	3.88	"	"	"	"	
Anthracene	ND	1.94	3.88	"	"	"	"	
Benz(a)anthracene	ND	1.94	3.88	"	"	"	"	
Benzo(a)pyrene	ND	1.94	3.88	"	"	"	"	
Benzo(b)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(k)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.94	3.88	"	"	"	"	
Chrysene	ND	1.94	3.88	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.94	3.88	"	"	"	"	
Dibenzofuran	ND	1.94	3.88	"	"	"	"	
Fluoranthene	ND	1.94	3.88	"	"	"	"	
Fluorene	ND	1.94	3.88	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.94	3.88	"	"	"	"	
1-Methylnaphthalene	ND	3.88	7.76	"	"	"	"	
2-Methylnaphthalene	ND	3.88	7.76	"	"	"	"	
Naphthalene	ND	3.88	7.76	"	"	"	"	
Phenanthrene	ND	1.94	3.88	"	"	"	"	
Pyrene	ND	1.94	3.88	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*70 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-15-15-30' (0-0.5')_Prepared (A6J0849-31)			**Matrix: Soil**		**Batch: 6110298**			**H-08**
Acenaphthene	ND	2.00	4.00	ug/kg dry	1	11/08/16 15:25	EPA 8270D (SIM)	
Acenaphthylene	ND	2.00	4.00	"	"	"	"	
Anthracene	ND	2.00	4.00	"	"	"	"	
Benz(a)anthracene	ND	2.00	4.00	"	"	"	"	
Benzo(a)pyrene	ND	2.00	4.00	"	"	"	"	
Benzo(b)fluoranthene	ND	2.00	4.00	"	"	"	"	
Benzo(k)fluoranthene	ND	2.00	4.00	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.00	4.00	"	"	"	"	
Chrysene	ND	2.00	4.00	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.00	4.00	"	"	"	"	
Dibenzofuran	ND	2.00	4.00	"	"	"	"	
Fluoranthene	ND	2.00	4.00	"	"	"	"	
Fluorene	ND	2.00	4.00	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.00	4.00	"	"	"	"	
1-Methylnaphthalene	ND	4.00	8.00	"	"	"	"	
2-Methylnaphthalene	ND	4.00	8.00	"	"	"	"	
Naphthalene	ND	4.00	8.00	"	"	"	"	
Phenanthrene	ND	2.00	4.00	"	"	"	"	
Pyrene	ND	2.00	4.00	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*69 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-15-15-30' (0.5-1')_Prepared (A6J0849-32)			**Matrix: Soil**		**Batch: 6110298**			**H-08**
Acenaphthene	ND	1.95	3.90	ug/kg dry	1	11/08/16 15:51	EPA 8270D (SIM)	
Acenaphthylene	ND	1.95	3.90	"	"	"	"	
Anthracene	ND	1.95	3.90	"	"	"	"	
Benz(a)anthracene	ND	1.95	3.90	"	"	"	"	
Benzo(a)pyrene	ND	1.95	3.90	"	"	"	"	
Benzo(b)fluoranthene	ND	1.95	3.90	"	"	"	"	
Benzo(k)fluoranthene	ND	1.95	3.90	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.95	3.90	"	"	"	"	
Chrysene	ND	1.95	3.90	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.95	3.90	"	"	"	"	
Dibenzofuran	ND	1.95	3.90	"	"	"	"	
Fluoranthene	ND	1.95	3.90	"	"	"	"	
Fluorene	ND	1.95	3.90	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.95	3.90	"	"	"	"	
1-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
2-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
Naphthalene	ND	3.90	7.80	"	"	"	"	
Phenanthrene	ND	1.95	3.90	"	"	"	"	
Pyrene	ND	1.95	3.90	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 59 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*59 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-15-15-30' (1-1.5')_Prepared (A6J0849-33RE1)			**Matrix: Soil**		**Batch: 6110460**			**H-08**
Acenaphthene	ND	2.04	4.07	ug/kg dry	1	11/11/16 19:13	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.07	"	"	"	"	
Anthracene	ND	2.04	4.07	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.07	"	"	"	"	
Benzo(a)pyrene	ND	2.04	4.07	"	"	"	"	
Benzo(b)fluoranthene	ND	2.04	4.07	"	"	"	"	
Benzo(k)fluoranthene	ND	2.04	4.07	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.04	4.07	"	"	"	"	
Chrysene	ND	2.04	4.07	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.04	4.07	"	"	"	"	
Dibenzofuran	ND	2.04	4.07	"	"	"	"	
Fluoranthene	ND	2.04	4.07	"	"	"	"	
Fluorene	ND	2.04	4.07	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.07	"	"	"	"	
1-Methylnaphthalene	ND	4.07	8.14	"	"	"	"	
2-Methylnaphthalene	ND	4.07	8.14	"	"	"	"	
Naphthalene	ND	4.07	8.14	"	"	"	"	
Phenanthrene	ND	2.04	4.07	"	"	"	"	
Pyrene	ND	2.04	4.07	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 88 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*90 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-15->30' (0-0.5')_Prepared (A6J0849-34RE1)			**Matrix: Soil**		**Batch: 6110460**			**H-08**
Acenaphthene	ND	2.06	4.12	ug/kg dry	1	11/11/16 19:39	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.12	"	"	"	"	
Anthracene	ND	2.06	4.12	"	"	"	"	
Benz(a)anthracene	ND	2.06	4.12	"	"	"	"	
Benzo(a)pyrene	ND	2.06	4.12	"	"	"	"	
Benzo(b)fluoranthene	ND	2.06	4.12	"	"	"	"	
Benzo(k)fluoranthene	ND	2.06	4.12	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.06	4.12	"	"	"	"	
Chrysene	ND	2.06	4.12	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.06	4.12	"	"	"	"	
Dibenzofuran	ND	2.06	4.12	"	"	"	"	
Fluoranthene	ND	2.06	4.12	"	"	"	"	
Fluorene	ND	2.06	4.12	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.06	4.12	"	"	"	"	
1-Methylnaphthalene	ND	4.12	8.24	"	"	"	"	
2-Methylnaphthalene	ND	4.12	8.24	"	"	"	"	
Naphthalene	**4.54**	4.12	8.24	"	"	"	"	J
Phenanthrene	ND	2.06	4.12	"	"	"	"	
Pyrene	ND	2.06	4.12	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 88 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*95 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-15->30' (0.5-1')_Prepared (A6J0849-35RE1)			**Matrix: Soil**		**Batch: 6110460**			**H-08**
Acenaphthene	ND	1.99	3.98	ug/kg dry	1	11/11/16 20:05	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.98	"	"	"	"	
Anthracene	ND	1.99	3.98	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.98	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.98	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.98	"	"	"	"	
Chrysene	ND	1.99	3.98	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.98	"	"	"	"	
Dibenzofuran	ND	1.99	3.98	"	"	"	"	
Fluoranthene	ND	1.99	3.98	"	"	"	"	
Fluorene	ND	1.99	3.98	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.98	"	"	"	"	
1-Methylnaphthalene	ND	3.98	7.97	"	"	"	"	
2-Methylnaphthalene	ND	3.98	7.97	"	"	"	"	
Naphthalene	**4.06**	3.98	7.97	"	"	"	"	J
Phenanthrene	ND	1.99	3.98	"	"	"	"	
Pyrene	ND	1.99	3.98	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 89 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*92 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-15->30' (1-1.5')_Prepared (A6J0849-36RE1)			**Matrix: Soil**		**Batch: 6110460**			**H-08**
Acenaphthene	ND	1.94	3.88	ug/kg dry	1	11/11/16 20:31	EPA 8270D (SIM)	
Acenaphthylene	ND	1.94	3.88	"	"	"	"	
Anthracene	ND	1.94	3.88	"	"	"	"	
Benz(a)anthracene	ND	1.94	3.88	"	"	"	"	
Benzo(a)pyrene	ND	1.94	3.88	"	"	"	"	
Benzo(b)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(k)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.94	3.88	"	"	"	"	
Chrysene	ND	1.94	3.88	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.94	3.88	"	"	"	"	
Dibenzofuran	ND	1.94	3.88	"	"	"	"	
Fluoranthene	ND	1.94	3.88	"	"	"	"	
Fluorene	ND	1.94	3.88	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.94	3.88	"	"	"	"	
1-Methylnaphthalene	ND	3.88	7.76	"	"	"	"	
2-Methylnaphthalene	ND	3.88	7.76	"	"	"	"	
Naphthalene	ND	3.88	7.76	"	"	"	"	
Phenanthrene	ND	1.94	3.88	"	"	"	"	
Pyrene	ND	1.94	3.88	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 83 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*85 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-16-0-15' (0-0.5')_Prepared (A6J0849-37)			**Matrix: Soil**		**Batch: 6110298**			**H-08**
Acenaphthene	ND	4.83	9.67	ug/kg dry	1	11/09/16 10:25	EPA 8270D (SIM)	
Acenaphthylene	ND	4.83	9.67	"	"	"	"	
Anthracene	ND	4.83	9.67	"	"	"	"	
Benz(a)anthracene	ND	9.67	9.67	"	"	"	"	
Benzo(a)pyrene	ND	4.83	9.67	"	"	"	"	
Benzo(b)fluoranthene	ND	4.83	9.67	"	"	"	"	
Benzo(k)fluoranthene	ND	4.83	9.67	"	"	"	"	
Benzo(g,h,i)perylene	ND	4.83	9.67	"	"	"	"	
Chrysene	ND	9.67	9.67	"	"	"	"	
Dibenz(a,h)anthracene	ND	4.83	9.67	"	"	"	"	
Dibenzofuran	ND	4.83	9.67	"	"	"	"	
Fluoranthene	ND	4.83	9.67	"	"	"	"	
Fluorene	ND	4.83	9.67	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	4.83	9.67	"	"	"	"	
1-Methylnaphthalene	ND	9.67	19.3	"	"	"	"	
2-Methylnaphthalene	ND	9.67	19.3	"	"	"	"	
Naphthalene	ND	9.67	19.3	"	"	"	"	
Phenanthrene	ND	4.83	9.67	"	"	"	"	
Pyrene	ND	4.83	9.67	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-16-0-15' (0.5-1')_Prepared (A6J0849-38RE2)			**Matrix: Soil**		**Batch: 6110298**			**H-08**
Acenaphthene	ND	9.50	19.0	ug/kg dry	1	11/19/16 04:21	EPA 8270D (SIM)	
Acenaphthylene	ND	9.50	19.0	"	"	"	"	
Anthracene	ND	9.50	19.0	"	"	"	"	
Benz(a)anthracene	ND	23.7	23.7	"	"	"	"	R-02
Benzo(a)pyrene	ND	9.50	19.0	"	"	"	"	
Benzo(b)fluoranthene	**15.8**	9.50	19.0	"	"	"	"	J
Benzo(k)fluoranthene	ND	9.50	19.0	"	"	"	"	
Benzo(g,h,i)perylene	**26.8**	9.50	19.0	"	"	"	"	
Chrysene	ND	23.7	23.7	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	9.50	19.0	"	"	"	"	
Dibenzofuran	ND	9.50	19.0	"	"	"	"	
Fluoranthene	ND	9.50	19.0	"	"	"	"	
Fluorene	ND	9.50	19.0	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**10.1**	9.50	19.0	"	"	"	"	J
1-Methylnaphthalene	ND	19.0	38.0	"	"	"	"	
2-Methylnaphthalene	ND	19.0	38.0	"	"	"	"	
Naphthalene	ND	19.0	38.0	"	"	"	"	
Phenanthrene	ND	9.50	19.0	"	"	"	"	
Pyrene	ND	9.50	19.0	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 88 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*119 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-16-0-15' (1-1.5')_Prepared (A6J0849-39RE1)			**Matrix: Soil**		**Batch: 6110298**			**H-08**
Acenaphthene	ND	5.94	11.9	ug/kg dry	3	11/10/16 13:29	EPA 8270D (SIM)	
Acenaphthylene	ND	5.94	11.9	"	"	"	"	
Anthracene	ND	5.94	11.9	"	"	"	"	
Benz(a)anthracene	ND	23.8	23.8	"	"	"	"	R-02
Benzo(a)pyrene	**10.6**	5.94	11.9	"	"	"	"	J
Benzo(b)fluoranthene	**17.1**	5.94	11.9	"	"	"	"	M-02
Benzo(k)fluoranthene	**6.96**	5.94	11.9	"	"	"	"	J
Benzo(g,h,i)perylene	**28.6**	5.94	11.9	"	"	"	"	
Chrysene	ND	26.7	26.7	"	"	"	"	R-02
Dibenz(a,h)anthracene	**8.75**	5.94	11.9	"	"	"	"	J
Dibenzofuran	ND	5.94	11.9	"	"	"	"	
Fluoranthene	ND	5.94	11.9	"	"	"	"	
Fluorene	ND	5.94	11.9	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**6.64**	5.94	11.9	"	"	"	"	J
1-Methylnaphthalene	ND	11.9	23.8	"	"	"	"	
2-Methylnaphthalene	ND	11.9	23.8	"	"	"	"	
Naphthalene	ND	11.9	23.8	"	"	"	"	
Phenanthrene	ND	5.94	11.9	"	"	"	"	
Pyrene	**6.23**	5.94	11.9	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 62 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*66 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-16-15-30' (0-0.5')_Prepared (A6J0849-40)			**Matrix: Soil**		**Batch: 6110298**			**H-08**
Acenaphthene	ND	2.09	4.19	ug/kg dry	1	11/09/16 11:43	EPA 8270D (SIM)	
Acenaphthylene	ND	2.09	4.19	"	"	"	"	
Anthracene	ND	2.09	4.19	"	"	"	"	
Benz(a)anthracene	ND	2.09	4.19	"	"	"	"	
Benzo(a)pyrene	ND	2.09	4.19	"	"	"	"	
Benzo(b)fluoranthene	ND	2.09	4.19	"	"	"	"	
Benzo(k)fluoranthene	ND	2.09	4.19	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.09	4.19	"	"	"	"	
Chrysene	ND	2.09	4.19	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.09	4.19	"	"	"	"	
Dibenzofuran	ND	2.09	4.19	"	"	"	"	
Fluoranthene	ND	2.09	4.19	"	"	"	"	
Fluorene	ND	2.09	4.19	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.09	4.19	"	"	"	"	
1-Methylnaphthalene	ND	4.19	8.37	"	"	"	"	
2-Methylnaphthalene	**5.14**	4.19	8.37	"	"	"	"	J
Naphthalene	**4.60**	4.19	8.37	"	"	"	"	J
Phenanthrene	ND	2.09	4.19	"	"	"	"	
Pyrene	ND	2.09	4.19	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 58 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*58 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6J0849-41)			**Matrix: Solid**		**Batch: 6110298**			**H-08**
Acenaphthene	ND	1.84	3.69	ug/kg wet	1	11/08/16 20:37	EPA 8270D (SIM)	
Acenaphthylene	ND	1.84	3.69	"	"	"	"	
Anthracene	ND	1.84	3.69	"	"	"	"	
Benz(a)anthracene	ND	1.84	3.69	"	"	"	"	
Benzo(a)pyrene	ND	1.84	3.69	"	"	"	"	
Benzo(b)fluoranthene	ND	1.84	3.69	"	"	"	"	
Benzo(k)fluoranthene	ND	1.84	3.69	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.84	3.69	"	"	"	"	
Chrysene	ND	1.84	3.69	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.84	3.69	"	"	"	"	
Dibenzofuran	ND	1.84	3.69	"	"	"	"	
Fluoranthene	ND	1.84	3.69	"	"	"	"	
Fluorene	ND	1.84	3.69	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.84	3.69	"	"	"	"	
1-Methylnaphthalene	ND	3.69	7.37	"	"	"	"	
2-Methylnaphthalene	ND	3.69	7.37	"	"	"	"	
Naphthalene	ND	3.69	7.37	"	"	"	"	
Phenanthrene	ND	1.84	3.69	"	"	"	"	
Pyrene	ND	1.84	3.69	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 61 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*64 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-16-15-30' (0.5-1')_Prepared (A6J0892-21)			**Matrix: Soil**		**Batch: 6110299**			**H-08**
Acenaphthene	ND	1.99	3.99	ug/kg dry	1	11/10/16 17:21	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.99	"	"	"	"	
Anthracene	ND	1.99	3.99	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.99	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.99	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.99	"	"	"	"	
Chrysene	ND	1.99	3.99	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.99	"	"	"	"	
Dibenzofuran	ND	1.99	3.99	"	"	"	"	
Fluoranthene	ND	1.99	3.99	"	"	"	"	
Fluorene	ND	1.99	3.99	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.99	"	"	"	"	
1-Methylnaphthalene	ND	3.99	7.98	"	"	"	"	
2-Methylnaphthalene	ND	3.99	7.98	"	"	"	"	
Naphthalene	ND	3.99	7.98	"	"	"	"	
Phenanthrene	ND	1.99	3.99	"	"	"	"	
Pyrene	ND	1.99	3.99	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 63 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*63 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-16-15-30' (1-1.5')_Prepared (A6J0892-22)			**Matrix: Soil**		**Batch: 6110299**			**H-08**
Acenaphthene	ND	2.11	4.23	ug/kg dry	1	11/10/16 17:47	EPA 8270D (SIM)	
Acenaphthylene	ND	2.11	4.23	"	"	"	"	
Anthracene	ND	2.11	4.23	"	"	"	"	
Benz(a)anthracene	ND	2.11	4.23	"	"	"	"	
Benzo(a)pyrene	ND	2.11	4.23	"	"	"	"	
Benzo(b)fluoranthene	ND	2.11	4.23	"	"	"	"	
Benzo(k)fluoranthene	ND	2.11	4.23	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.11	4.23	"	"	"	"	
Chrysene	ND	2.11	4.23	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.11	4.23	"	"	"	"	
Dibenzofuran	ND	2.11	4.23	"	"	"	"	
Fluoranthene	ND	2.11	4.23	"	"	"	"	
Fluorene	ND	2.11	4.23	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.11	4.23	"	"	"	"	
1-Methylnaphthalene	ND	4.23	8.46	"	"	"	"	
2-Methylnaphthalene	ND	4.23	8.46	"	"	"	"	
Naphthalene	ND	4.23	8.46	"	"	"	"	
Phenanthrene	ND	2.11	4.23	"	"	"	"	
Pyrene	ND	2.11	4.23	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*67 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-16->30' (0-0.5')_Prepared (A6J0892-23)			**Matrix: Soil**		**Batch: 6110299**			**H-08**
Acenaphthene	ND	2.15	4.29	ug/kg dry	1	11/10/16 18:13	EPA 8270D (SIM)	
Acenaphthylene	ND	2.15	4.29	"	"	"	"	
Anthracene	ND	2.15	4.29	"	"	"	"	
Benz(a)anthracene	ND	2.15	4.29	"	"	"	"	
Benzo(a)pyrene	ND	2.15	4.29	"	"	"	"	
Benzo(b)fluoranthene	ND	2.15	4.29	"	"	"	"	
Benzo(k)fluoranthene	ND	2.15	4.29	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.15	4.29	"	"	"	"	
Chrysene	ND	2.15	4.29	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.15	4.29	"	"	"	"	
Dibenzofuran	ND	2.15	4.29	"	"	"	"	
Fluoranthene	ND	2.15	4.29	"	"	"	"	
Fluorene	ND	2.15	4.29	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.15	4.29	"	"	"	"	
1-Methylnaphthalene	ND	4.29	8.59	"	"	"	"	
2-Methylnaphthalene	ND	4.29	8.59	"	"	"	"	
Naphthalene	ND	4.29	8.59	"	"	"	"	
Phenanthrene	ND	2.15	4.29	"	"	"	"	
Pyrene	ND	2.15	4.29	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*63 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-16->30' (0.5-1')_Prepared (A6J0892-24)			**Matrix: Soil**		**Batch: 6110299**			**H-08**
Acenaphthene	ND	2.06	4.11	ug/kg dry	1	11/10/16 18:38	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.11	"	"	"	"	
Anthracene	ND	2.06	4.11	"	"	"	"	
Benz(a)anthracene	ND	2.06	4.11	"	"	"	"	
Benzo(a)pyrene	ND	2.06	4.11	"	"	"	"	
Benzo(b)fluoranthene	ND	2.06	4.11	"	"	"	"	
Benzo(k)fluoranthene	ND	2.06	4.11	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.06	4.11	"	"	"	"	
Chrysene	ND	2.06	4.11	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.06	4.11	"	"	"	"	
Dibenzofuran	ND	2.06	4.11	"	"	"	"	
Fluoranthene	ND	2.06	4.11	"	"	"	"	
Fluorene	ND	2.06	4.11	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.06	4.11	"	"	"	"	
1-Methylnaphthalene	ND	4.11	8.23	"	"	"	"	
2-Methylnaphthalene	ND	4.11	8.23	"	"	"	"	
Naphthalene	ND	4.11	8.23	"	"	"	"	
Phenanthrene	ND	2.06	4.11	"	"	"	"	
Pyrene	ND	2.06	4.11	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*65 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-16->30' (1-1.5')_Prepared (A6J0892-25RE1)			**Matrix: Soil**		**Batch: 6110520**			**H-08**
Acenaphthene	ND	2.01	4.01	ug/kg dry	1	11/15/16 15:04	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.01	"	"	"	"	
Anthracene	ND	2.01	4.01	"	"	"	"	
Benz(a)anthracene	ND	2.01	4.01	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.01	"	"	"	"	
Benzo(b)fluoranthene	ND	2.01	4.01	"	"	"	"	
Benzo(k)fluoranthene	ND	2.01	4.01	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.01	"	"	"	"	
Chrysene	ND	2.01	4.01	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.01	4.01	"	"	"	"	
Dibenzofuran	ND	2.01	4.01	"	"	"	"	
Fluoranthene	ND	2.01	4.01	"	"	"	"	
Fluorene	ND	2.01	4.01	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.01	"	"	"	"	
1-Methylnaphthalene	ND	4.01	8.02	"	"	"	"	
2-Methylnaphthalene	ND	4.01	8.02	"	"	"	"	
Naphthalene	ND	4.01	8.02	"	"	"	"	
Phenanthrene	ND	2.01	4.01	"	"	"	"	
Pyrene	ND	2.01	4.01	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*74 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-17-0-15' (0-0.5')_Prepared (A6J0892-26)			**Matrix: Soil**		**Batch: 6110299**			**H-08**
Acenaphthene	ND	1.85	3.71	ug/kg dry	1	11/10/16 19:30	EPA 8270D (SIM)	
Acenaphthylene	ND	1.85	3.71	"	"	"	"	
Anthracene	ND	1.85	3.71	"	"	"	"	
Benz(a)anthracene	ND	1.85	3.71	"	"	"	"	
Benzo(a)pyrene	ND	1.85	3.71	"	"	"	"	
Benzo(b)fluoranthene	ND	1.85	3.71	"	"	"	"	
Benzo(k)fluoranthene	ND	1.85	3.71	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.85	3.71	"	"	"	"	
Chrysene	ND	3.71	3.71	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.85	3.71	"	"	"	"	
Dibenzofuran	ND	1.85	3.71	"	"	"	"	
Fluoranthene	ND	1.85	3.71	"	"	"	"	
Fluorene	ND	1.85	3.71	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.85	3.71	"	"	"	"	
1-Methylnaphthalene	ND	3.71	7.41	"	"	"	"	
2-Methylnaphthalene	ND	3.71	7.41	"	"	"	"	
Naphthalene	ND	3.71	7.41	"	"	"	"	
Phenanthrene	ND	1.85	3.71	"	"	"	"	
Pyrene	ND	1.85	3.71	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*67 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-17-0-15' (0.5-1')_Prepared (A6J0892-27)			**Matrix: Soil**		**Batch: 6110299**			**H-08**
Acenaphthene	ND	1.86	3.72	ug/kg dry	1	11/10/16 19:56	EPA 8270D (SIM)	
Acenaphthylene	ND	1.86	3.72	"	"	"	"	
Anthracene	ND	1.86	3.72	"	"	"	"	
Benz(a)anthracene	ND	3.72	3.72	"	"	"	"	
Benzo(a)pyrene	ND	1.86	3.72	"	"	"	"	
Benzo(b)fluoranthene	ND	1.86	3.72	"	"	"	"	
Benzo(k)fluoranthene	ND	1.86	3.72	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.86	3.72	"	"	"	"	
Chrysene	ND	3.72	3.72	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.86	3.72	"	"	"	"	
Dibenzofuran	ND	1.86	3.72	"	"	"	"	
Fluoranthene	ND	1.86	3.72	"	"	"	"	
Fluorene	ND	1.86	3.72	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.86	3.72	"	"	"	"	
1-Methylnaphthalene	ND	3.72	7.45	"	"	"	"	
2-Methylnaphthalene	ND	3.72	7.45	"	"	"	"	
Naphthalene	ND	3.72	7.45	"	"	"	"	
Phenanthrene	ND	1.86	3.72	"	"	"	"	
Pyrene	ND	1.86	3.72	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 56 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*66 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-17-0-15' (1-1.5')_Prepared (A6J0892-28)			**Matrix: Soil**		**Batch: 6110299**			**H-08**
Acenaphthene	ND	14.5	29.0	ug/kg dry	3	11/10/16 20:22	EPA 8270D (SIM)	
Acenaphthylene	ND	14.5	29.0	"	"	"	"	
Anthracene	ND	14.5	29.0	"	"	"	"	
Benz(a)anthracene	ND	36.2	36.2	"	"	"	"	R-02
Benzo(a)pyrene	ND	14.5	29.0	"	"	"	"	
Benzo(b)fluoranthene	**16.4**	14.5	29.0	"	"	"	"	J
Benzo(k)fluoranthene	ND	14.5	29.0	"	"	"	"	
Benzo(g,h,i)perylene	**32.1**	14.5	29.0	"	"	"	"	
Chrysene	ND	36.2	36.2	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	14.5	29.0	"	"	"	"	
Dibenzofuran	ND	14.5	29.0	"	"	"	"	
Fluoranthene	ND	14.5	29.0	"	"	"	"	
Fluorene	ND	14.5	29.0	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	14.5	29.0	"	"	"	"	
1-Methylnaphthalene	ND	29.0	58.0	"	"	"	"	
2-Methylnaphthalene	ND	29.0	58.0	"	"	"	"	
Naphthalene	ND	29.0	58.0	"	"	"	"	
Phenanthrene	ND	14.5	29.0	"	"	"	"	
Pyrene	ND	14.5	29.0	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 93 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*92 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-17-15-30' (0-0.5')_Prepared (A6J0892-29)			**Matrix: Soil**		**Batch: 6110299**			**H-08, R-04**
Acenaphthene	ND	14.2	28.5	ug/kg dry	3	11/10/16 20:48	EPA 8270D (SIM)	
Acenaphthylene	ND	14.2	28.5	"	"	"	"	
Anthracene	ND	14.2	28.5	"	"	"	"	
Benz(a)anthracene	ND	28.5	28.5	"	"	"	"	
Benzo(a)pyrene	ND	14.2	28.5	"	"	"	"	
Benzo(b)fluoranthene	ND	14.2	28.5	"	"	"	"	
Benzo(k)fluoranthene	ND	14.2	28.5	"	"	"	"	
Benzo(g,h,i)perylene	**19.8**	14.2	28.5	"	"	"	"	J
Chrysene	ND	28.5	28.5	"	"	"	"	
Dibenz(a,h)anthracene	ND	14.2	28.5	"	"	"	"	
Dibenzofuran	ND	14.2	28.5	"	"	"	"	
Fluoranthene	ND	14.2	28.5	"	"	"	"	
Fluorene	ND	14.2	28.5	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	14.2	28.5	"	"	"	"	
1-Methylnaphthalene	ND	28.5	57.0	"	"	"	"	
2-Methylnaphthalene	ND	28.5	57.0	"	"	"	"	
Naphthalene	ND	28.5	57.0	"	"	"	"	
Phenanthrene	ND	14.2	28.5	"	"	"	"	
Pyrene	ND	14.2	28.5	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 91 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*92 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-17-15-30' (0.5-1')_Prepared (A6J0892-30)			**Matrix: Soil**		**Batch: 6110299**			**H-08, R-04**
Acenaphthene	ND	14.6	29.3	ug/kg dry	3	11/10/16 21:14	EPA 8270D (SIM)	
Acenaphthylene	ND	14.6	29.3	"	"	"	"	
Anthracene	ND	14.6	29.3	"	"	"	"	
Benz(a)anthracene	ND	14.6	29.3	"	"	"	"	
Benzo(a)pyrene	ND	14.6	29.3	"	"	"	"	
Benzo(b)fluoranthene	ND	14.6	29.3	"	"	"	"	
Benzo(k)fluoranthene	ND	14.6	29.3	"	"	"	"	
Benzo(g,h,i)perylene	**14.9**	14.6	29.3	"	"	"	"	J
Chrysene	ND	29.3	29.3	"	"	"	"	
Dibenz(a,h)anthracene	ND	14.6	29.3	"	"	"	"	
Dibenzofuran	ND	14.6	29.3	"	"	"	"	
Fluoranthene	ND	14.6	29.3	"	"	"	"	
Fluorene	ND	14.6	29.3	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	14.6	29.3	"	"	"	"	
1-Methylnaphthalene	ND	29.3	58.6	"	"	"	"	
2-Methylnaphthalene	ND	29.3	58.6	"	"	"	"	
Naphthalene	ND	29.3	58.6	"	"	"	"	
Phenanthrene	ND	14.6	29.3	"	"	"	"	
Pyrene	ND	14.6	29.3	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 91 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*96 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-17-15-30' (1-1.5')_Prepared (A6J0892-31)			**Matrix: Soil**		**Batch: 6110299**			**R-04, H-08**
Acenaphthene	ND	14.5	28.9	ug/kg dry	3	11/10/16 21:40	EPA 8270D (SIM)	
Acenaphthylene	ND	14.5	28.9	"	"	"	"	
Anthracene	ND	14.5	28.9	"	"	"	"	
Benz(a)anthracene	ND	14.5	28.9	"	"	"	"	
Benzo(a)pyrene	ND	14.5	28.9	"	"	"	"	
Benzo(b)fluoranthene	ND	14.5	28.9	"	"	"	"	
Benzo(k)fluoranthene	ND	14.5	28.9	"	"	"	"	
Benzo(g,h,i)perylene	ND	14.5	28.9	"	"	"	"	
Chrysene	ND	28.9	28.9	"	"	"	"	
Dibenz(a,h)anthracene	ND	14.5	28.9	"	"	"	"	
Dibenzofuran	ND	14.5	28.9	"	"	"	"	
Fluoranthene	ND	14.5	28.9	"	"	"	"	
Fluorene	ND	14.5	28.9	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	14.5	28.9	"	"	"	"	
1-Methylnaphthalene	ND	28.9	57.8	"	"	"	"	
2-Methylnaphthalene	ND	28.9	57.8	"	"	"	"	
Naphthalene	ND	28.9	57.8	"	"	"	"	
Phenanthrene	ND	14.5	28.9	"	"	"	"	
Pyrene	ND	14.5	28.9	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 88 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*94 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-17-15-30' (1-1.5') DUP_Prepared (A6J0892-32)			**Matrix: Soil**		**Batch: 6110299**			**H-08**
Acenaphthene	ND	2.06	4.12	ug/kg dry	1	11/10/16 22:06	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.12	"	"	"	"	
Anthracene	ND	2.06	4.12	"	"	"	"	
Benz(a)anthracene	ND	2.06	4.12	"	"	"	"	
Benzo(a)pyrene	ND	2.06	4.12	"	"	"	"	
Benzo(b)fluoranthene	**3.69**	2.06	4.12	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.06	4.12	"	"	"	"	
Benzo(g,h,i)perylene	**3.18**	2.06	4.12	"	"	"	"	J
Chrysene	**3.70**	2.06	4.12	"	"	"	"	J
Dibenz(a,h)anthracene	ND	2.06	4.12	"	"	"	"	
Dibenzofuran	ND	2.06	4.12	"	"	"	"	
Fluoranthene	**3.16**	2.06	4.12	"	"	"	"	J
Fluorene	ND	2.06	4.12	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.41**	2.06	4.12	"	"	"	"	J
1-Methylnaphthalene	ND	4.12	8.24	"	"	"	"	
2-Methylnaphthalene	ND	4.12	8.24	"	"	"	"	
Naphthalene	**4.47**	4.12	8.24	"	"	"	"	J
Phenanthrene	**2.83**	2.06	4.12	"	"	"	"	J
Pyrene	**3.26**	2.06	4.12	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 59 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*68 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-17->30' (0-0.5')_Prepared (A6J0892-33)			**Matrix: Soil**		**Batch: 6110299**			**H-08**
Acenaphthene	ND	14.9	29.7	ug/kg dry	3	11/10/16 22:32	EPA 8270D (SIM)	
Acenaphthylene	ND	14.9	29.7	"	"	"	"	
Anthracene	ND	14.9	29.7	"	"	"	"	
Benz(a)anthracene	ND	44.6	44.6	"	"	"	"	R-02
Benzo(a)pyrene	ND	14.9	29.7	"	"	"	"	
Benzo(b)fluoranthene	**21.5**	14.9	29.7	"	"	"	"	J
Benzo(k)fluoranthene	ND	14.9	29.7	"	"	"	"	
Benzo(g,h,i)perylene	**31.9**	14.9	29.7	"	"	"	"	
Chrysene	ND	52.1	52.1	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	14.9	29.7	"	"	"	"	
Dibenzofuran	ND	14.9	29.7	"	"	"	"	
Fluoranthene	ND	14.9	29.7	"	"	"	"	
Fluorene	ND	14.9	29.7	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	14.9	29.7	"	"	"	"	
1-Methylnaphthalene	ND	29.7	59.5	"	"	"	"	
2-Methylnaphthalene	ND	29.7	59.5	"	"	"	"	
Naphthalene	ND	29.7	59.5	"	"	"	"	
Phenanthrene	ND	14.9	29.7	"	"	"	"	
Pyrene	ND	14.9	29.7	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 92 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*91 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-17->30' (0.5-1')_Prepared (A6J0892-34)			**Matrix: Soil**		**Batch: 6110299**			**H-08**
Acenaphthene	ND	2.02	4.03	ug/kg dry	1	11/10/16 22:58	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.03	"	"	"	"	
Anthracene	ND	2.02	4.03	"	"	"	"	
Benz(a)anthracene	**2.13**	2.02	4.03	"	"	"	"	J
Benzo(a)pyrene	**3.58**	2.02	4.03	"	"	"	"	J
Benzo(b)fluoranthene	**8.19**	2.02	4.03	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	2.02	4.03	"	"	"	"	
Benzo(g,h,i)perylene	**7.00**	2.02	4.03	"	"	"	"	
Chrysene	**8.28**	2.02	4.03	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.02	4.03	"	"	"	"	
Dibenzofuran	ND	2.02	4.03	"	"	"	"	
Fluoranthene	**6.07**	2.02	4.03	"	"	"	"	
Fluorene	ND	2.02	4.03	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**3.90**	2.02	4.03	"	"	"	"	J
1-Methylnaphthalene	ND	4.03	8.06	"	"	"	"	
2-Methylnaphthalene	ND	4.03	8.06	"	"	"	"	
Naphthalene	**4.61**	4.03	8.06	"	"	"	"	J
Phenanthrene	**5.15**	2.02	4.03	"	"	"	"	
Pyrene	**6.20**	2.02	4.03	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 55 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*67 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-17->30' (1-1.5')_Prepared (A6J0892-35)			**Matrix: Soil**		**Batch: 6110299**			**H-08**
Acenaphthene	ND	2.01	4.02	ug/kg dry	1	11/10/16 23:24	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.02	"	"	"	"	
Anthracene	ND	2.01	4.02	"	"	"	"	
Benz(a)anthracene	ND	2.01	4.02	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.02	"	"	"	"	
Benzo(b)fluoranthene	**5.00**	2.01	4.02	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	2.01	4.02	"	"	"	"	
Benzo(g,h,i)perylene	**3.95**	2.01	4.02	"	"	"	"	J
Chrysene	**4.69**	2.01	4.02	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.01	4.02	"	"	"	"	
Dibenzofuran	ND	2.01	4.02	"	"	"	"	
Fluoranthene	**4.29**	2.01	4.02	"	"	"	"	
Fluorene	ND	2.01	4.02	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.80**	2.01	4.02	"	"	"	"	J
1-Methylnaphthalene	ND	4.02	8.03	"	"	"	"	
2-Methylnaphthalene	ND	4.02	8.03	"	"	"	"	
Naphthalene	**6.73**	4.02	8.03	"	"	"	"	J
Phenanthrene	**4.09**	2.01	4.02	"	"	"	"	
Pyrene	**4.26**	2.01	4.02	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 72 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*71 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-18-15-30' (0-0.5')_Prepared (A6J0892-36)			**Matrix: Soil**		**Batch: 6110299**			**H-08, R-04**
Acenaphthene	ND	9.37	18.7	ug/kg dry	2	11/10/16 23:50	EPA 8270D (SIM)	
Acenaphthylene	ND	9.37	18.7	"	"	"	"	
Anthracene	ND	9.37	18.7	"	"	"	"	
Benz(a)anthracene	ND	18.7	18.7	"	"	"	"	
Benzo(a)pyrene	ND	9.37	18.7	"	"	"	"	
Benzo(b)fluoranthene	ND	9.37	18.7	"	"	"	"	
Benzo(k)fluoranthene	ND	9.37	18.7	"	"	"	"	
Benzo(g,h,i)perylene	ND	9.37	18.7	"	"	"	"	
Chrysene	ND	23.4	23.4	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	9.37	18.7	"	"	"	"	
Dibenzofuran	ND	9.37	18.7	"	"	"	"	
Fluoranthene	ND	9.37	18.7	"	"	"	"	
Fluorene	ND	9.37	18.7	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	9.37	18.7	"	"	"	"	
1-Methylnaphthalene	ND	18.7	37.5	"	"	"	"	
2-Methylnaphthalene	ND	18.7	37.5	"	"	"	"	
Naphthalene	ND	18.7	37.5	"	"	"	"	
Phenanthrene	ND	9.37	18.7	"	"	"	"	
Pyrene	ND	9.37	18.7	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 80 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*91 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-18-15-30' (0.5-1')_Prepared (A6J0892-37)			**Matrix: Soil**		**Batch: 6110299**			**H-08**
Acenaphthene	ND	1.92	3.85	ug/kg dry	1	11/11/16 00:16	EPA 8270D (SIM)	
Acenaphthylene	ND	1.92	3.85	"	"	"	"	
Anthracene	ND	1.92	3.85	"	"	"	"	
Benz(a)anthracene	ND	5.77	5.77	"	"	"	"	R-02
Benzo(a)pyrene	ND	1.92	3.85	"	"	"	"	
Benzo(b)fluoranthene	**3.40**	1.92	3.85	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.92	3.85	"	"	"	"	
Benzo(g,h,i)perylene	**3.01**	1.92	3.85	"	"	"	"	J
Chrysene	ND	6.73	6.73	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	1.92	3.85	"	"	"	"	
Dibenzofuran	ND	1.92	3.85	"	"	"	"	
Fluoranthene	ND	1.92	3.85	"	"	"	"	
Fluorene	ND	1.92	3.85	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.92	3.85	"	"	"	"	
1-Methylnaphthalene	ND	3.85	7.69	"	"	"	"	
2-Methylnaphthalene	ND	3.85	7.69	"	"	"	"	
Naphthalene	ND	3.85	7.69	"	"	"	"	
Phenanthrene	ND	1.92	3.85	"	"	"	"	
Pyrene	**2.05**	1.92	3.85	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-18-15-30' (1-1.5')_Prepared (A6J0892-38)			**Matrix: Soil**		**Batch: 6110299**			**H-08**
Acenaphthene	ND	1.85	3.71	ug/kg dry	1	11/11/16 00:42	EPA 8270D (SIM)	
Acenaphthylene	ND	1.85	3.71	"	"	"	"	
Anthracene	ND	1.85	3.71	"	"	"	"	
Benz(a)anthracene	ND	4.64	4.64	"	"	"	"	R-02
Benzo(a)pyrene	ND	1.85	3.71	"	"	"	"	
Benzo(b)fluoranthene	**2.50**	1.85	3.71	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.85	3.71	"	"	"	"	
Benzo(g,h,i)perylene	**2.56**	1.85	3.71	"	"	"	"	J
Chrysene	ND	5.56	5.56	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	1.85	3.71	"	"	"	"	
Dibenzofuran	ND	1.85	3.71	"	"	"	"	
Fluoranthene	ND	1.85	3.71	"	"	"	"	
Fluorene	ND	1.85	3.71	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.85	3.71	"	"	"	"	
1-Methylnaphthalene	ND	3.71	7.42	"	"	"	"	
2-Methylnaphthalene	ND	3.71	7.42	"	"	"	"	
Naphthalene	ND	3.71	7.42	"	"	"	"	
Phenanthrene	ND	1.85	3.71	"	"	"	"	
Pyrene	ND	1.85	3.71	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 60 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*83 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-18->30' (0-0.5')_Prepared (A6J0892-39)			**Matrix: Soil**		**Batch: 6110299**			**H-08**
Acenaphthene	ND	2.05	4.10	ug/kg dry	1	11/11/16 01:08	EPA 8270D (SIM)	
Acenaphthylene	ND	2.05	4.10	"	"	"	"	
Anthracene	ND	2.05	4.10	"	"	"	"	
Benz(a)anthracene	ND	4.10	4.10	"	"	"	"	
Benzo(a)pyrene	**3.77**	2.05	4.10	"	"	"	"	J
Benzo(b)fluoranthene	**9.38**	2.05	4.10	"	"	"	"	M-02
Benzo(k)fluoranthene	**3.14**	2.05	4.10	"	"	"	"	J
Benzo(g,h,i)perylene	**6.71**	2.05	4.10	"	"	"	"	
Chrysene	ND	15.4	15.4	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	2.05	4.10	"	"	"	"	
Dibenzofuran	**2.24**	2.05	4.10	"	"	"	"	J
Fluoranthene	**20.8**	2.05	4.10	"	"	"	"	
Fluorene	ND	2.05	4.10	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**3.81**	2.05	4.10	"	"	"	"	J
1-Methylnaphthalene	ND	4.10	8.19	"	"	"	"	
2-Methylnaphthalene	ND	4.10	8.19	"	"	"	"	
Naphthalene	**6.65**	4.10	8.19	"	"	"	"	J
Phenanthrene	**16.7**	2.05	4.10	"	"	"	"	
Pyrene	**14.7**	2.05	4.10	"	"	"	"	M-02
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 59 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*66 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-18->30' (0.5-1')_Prepared (A6J0892-40)			**Matrix: Soil**		**Batch: 6110299**			**H-08**
Acenaphthene	ND	1.93	3.87	ug/kg dry	1	11/11/16 01:34	EPA 8270D (SIM)	
Acenaphthylene	ND	1.93	3.87	"	"	"	"	
Anthracene	ND	1.93	3.87	"	"	"	"	
Benz(a)anthracene	ND	1.93	3.87	"	"	"	"	
Benzo(a)pyrene	ND	1.93	3.87	"	"	"	"	
Benzo(b)fluoranthene	ND	1.93	3.87	"	"	"	"	
Benzo(k)fluoranthene	ND	1.93	3.87	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.93	3.87	"	"	"	"	
Chrysene	ND	1.93	3.87	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.93	3.87	"	"	"	"	
Dibenzofuran	ND	1.93	3.87	"	"	"	"	
Fluoranthene	**2.08**	1.93	3.87	"	"	"	"	J
Fluorene	ND	1.93	3.87	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.93	3.87	"	"	"	"	
1-Methylnaphthalene	ND	3.87	7.74	"	"	"	"	
2-Methylnaphthalene	ND	3.87	7.74	"	"	"	"	
Naphthalene	ND	3.87	7.74	"	"	"	"	
Phenanthrene	ND	1.93	3.87	"	"	"	"	
Pyrene	**1.96**	1.93	3.87	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 59 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*78 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6J0892-41)			**Matrix: Solid**		**Batch: 6110299**			**H-08**
Acenaphthene	ND	1.93	3.85	ug/kg wet	1	11/11/16 02:51	EPA 8270D (SIM)	
Acenaphthylene	ND	1.93	3.85	"	"	"	"	
Anthracene	ND	1.93	3.85	"	"	"	"	
Benz(a)anthracene	ND	1.93	3.85	"	"	"	"	
Benzo(a)pyrene	ND	1.93	3.85	"	"	"	"	
Benzo(b)fluoranthene	ND	1.93	3.85	"	"	"	"	
Benzo(k)fluoranthene	ND	1.93	3.85	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.93	3.85	"	"	"	"	
Chrysene	ND	1.93	3.85	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.93	3.85	"	"	"	"	
Dibenzofuran	ND	1.93	3.85	"	"	"	"	
Fluoranthene	ND	1.93	3.85	"	"	"	"	
Fluorene	ND	1.93	3.85	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.93	3.85	"	"	"	"	
1-Methylnaphthalene	ND	3.85	7.71	"	"	"	"	
2-Methylnaphthalene	ND	3.85	7.71	"	"	"	"	
Naphthalene	ND	3.85	7.71	"	"	"	"	
Phenanthrene	ND	1.93	3.85	"	"	"	"	
Pyrene	ND	1.93	3.85	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*82 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-18->30' (1-1.5')_Prepared (A6J0893-21)			**Matrix: Soil**		**Batch: 6110353**			**H-08**
Acenaphthene	ND	1.93	3.86	ug/kg dry	1	11/12/16 11:18	EPA 8270D (SIM)	
Acenaphthylene	ND	1.93	3.86	"	"	"	"	
Anthracene	ND	1.93	3.86	"	"	"	"	
Benz(a)anthracene	ND	1.93	3.86	"	"	"	"	
Benzo(a)pyrene	ND	1.93	3.86	"	"	"	"	
Benzo(b)fluoranthene	ND	1.93	3.86	"	"	"	"	
Benzo(k)fluoranthene	ND	1.93	3.86	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.93	3.86	"	"	"	"	
Chrysene	ND	1.93	3.86	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.93	3.86	"	"	"	"	
Dibenzofuran	ND	1.93	3.86	"	"	"	"	
Fluoranthene	ND	1.93	3.86	"	"	"	"	
Fluorene	ND	1.93	3.86	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.93	3.86	"	"	"	"	
1-Methylnaphthalene	ND	3.86	7.73	"	"	"	"	
2-Methylnaphthalene	ND	3.86	7.73	"	"	"	"	
Naphthalene	ND	3.86	7.73	"	"	"	"	
Phenanthrene	ND	1.93	3.86	"	"	"	"	
Pyrene	ND	1.93	3.86	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*65 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-19-15-30' (0-0.5')_Prepared (A6J0893-22)			**Matrix: Soil**		**Batch: 6110353**			**H-08**
Acenaphthene	ND	1.94	3.88	ug/kg dry	1	11/12/16 11:44	EPA 8270D (SIM)	
Acenaphthylene	ND	1.94	3.88	"	"	"	"	
Anthracene	ND	1.94	3.88	"	"	"	"	
Benz(a)anthracene	ND	4.85	4.85	"	"	"	"	R-02
Benzo(a)pyrene	ND	1.94	3.88	"	"	"	"	
Benzo(b)fluoranthene	**2.47**	1.94	3.88	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(g,h,i)perylene	**3.76**	1.94	3.88	"	"	"	"	J
Chrysene	ND	5.83	5.83	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	1.94	3.88	"	"	"	"	
Dibenzofuran	ND	1.94	3.88	"	"	"	"	
Fluoranthene	ND	1.94	3.88	"	"	"	"	
Fluorene	ND	1.94	3.88	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.94	3.88	"	"	"	"	
1-Methylnaphthalene	ND	3.88	7.77	"	"	"	"	
2-Methylnaphthalene	ND	3.88	7.77	"	"	"	"	
Naphthalene	ND	3.88	7.77	"	"	"	"	
Phenanthrene	ND	1.94	3.88	"	"	"	"	
Pyrene	**2.59**	1.94	3.88	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 62 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*68 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-19-15-30' (0.5-1')_Prepared (A6J0893-23)			**Matrix: Soil**		**Batch: 6110353**			**H-08**
Acenaphthene	ND	1.95	3.90	ug/kg dry	1	11/12/16 12:10	EPA 8270D (SIM)	
Acenaphthylene	ND	1.95	3.90	"	"	"	"	
Anthracene	ND	1.95	3.90	"	"	"	"	
Benz(a)anthracene	ND	1.95	3.90	"	"	"	"	
Benzo(a)pyrene	ND	1.95	3.90	"	"	"	"	
Benzo(b)fluoranthene	ND	1.95	3.90	"	"	"	"	
Benzo(k)fluoranthene	ND	1.95	3.90	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.95	3.90	"	"	"	"	
Chrysene	ND	3.90	3.90	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.95	3.90	"	"	"	"	
Dibenzofuran	ND	1.95	3.90	"	"	"	"	
Fluoranthene	ND	1.95	3.90	"	"	"	"	
Fluorene	ND	1.95	3.90	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.95	3.90	"	"	"	"	
1-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
2-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
Naphthalene	ND	3.90	7.80	"	"	"	"	
Phenanthrene	ND	1.95	3.90	"	"	"	"	
Pyrene	ND	1.95	3.90	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 62 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*62 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-19-15-30' (1-1.5')_Prepared (A6J0893-24)			**Matrix: Soil**		**Batch: 6110353**			**H-08**
Acenaphthene	ND	2.02	4.04	ug/kg dry	1	11/12/16 12:36	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.04	"	"	"	"	
Anthracene	ND	2.02	4.04	"	"	"	"	
Benz(a)anthracene	ND	2.02	4.04	"	"	"	"	
Benzo(a)pyrene	ND	2.02	4.04	"	"	"	"	
Benzo(b)fluoranthene	ND	2.02	4.04	"	"	"	"	
Benzo(k)fluoranthene	ND	2.02	4.04	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.02	4.04	"	"	"	"	
Chrysene	ND	2.02	4.04	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.02	4.04	"	"	"	"	
Dibenzofuran	ND	2.02	4.04	"	"	"	"	
Fluoranthene	ND	2.02	4.04	"	"	"	"	
Fluorene	ND	2.02	4.04	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.04	"	"	"	"	
1-Methylnaphthalene	ND	4.04	8.09	"	"	"	"	
2-Methylnaphthalene	ND	4.04	8.09	"	"	"	"	
Naphthalene	ND	4.04	8.09	"	"	"	"	
Phenanthrene	ND	2.02	4.04	"	"	"	"	
Pyrene	ND	2.02	4.04	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 56 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*60 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-19->30' (0-0.5')_Prepared (A6J0893-25)			**Matrix: Soil**		**Batch: 6110353**			**H-08**
Acenaphthene	ND	1.95	3.90	ug/kg dry	1	11/12/16 13:02	EPA 8270D (SIM)	
Acenaphthylene	ND	1.95	3.90	"	"	"	"	
Anthracene	ND	1.95	3.90	"	"	"	"	
Benz(a)anthracene	ND	1.95	3.90	"	"	"	"	
Benzo(a)pyrene	ND	1.95	3.90	"	"	"	"	
Benzo(b)fluoranthene	ND	1.95	3.90	"	"	"	"	
Benzo(k)fluoranthene	ND	1.95	3.90	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.95	3.90	"	"	"	"	
Chrysene	ND	1.95	3.90	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.95	3.90	"	"	"	"	
Dibenzofuran	ND	1.95	3.90	"	"	"	"	
Fluoranthene	ND	1.95	3.90	"	"	"	"	
Fluorene	ND	1.95	3.90	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.95	3.90	"	"	"	"	
1-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
2-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
Naphthalene	**4.68**	3.90	7.80	"	"	"	"	J
Phenanthrene	ND	1.95	3.90	"	"	"	"	
Pyrene	ND	1.95	3.90	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*62 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-19->30' (0.5-1')_Prepared (A6J0893-26)			**Matrix: Soil**		**Batch: 6110353**			**H-08**
Acenaphthene	ND	1.95	3.91	ug/kg dry	1	11/12/16 13:28	EPA 8270D (SIM)	
Acenaphthylene	ND	1.95	3.91	"	"	"	"	
Anthracene	ND	1.95	3.91	"	"	"	"	
Benz(a)anthracene	ND	1.95	3.91	"	"	"	"	
Benzo(a)pyrene	ND	1.95	3.91	"	"	"	"	
Benzo(b)fluoranthene	ND	1.95	3.91	"	"	"	"	
Benzo(k)fluoranthene	ND	1.95	3.91	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.95	3.91	"	"	"	"	
Chrysene	ND	1.95	3.91	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.95	3.91	"	"	"	"	
Dibenzofuran	ND	1.95	3.91	"	"	"	"	
Fluoranthene	ND	1.95	3.91	"	"	"	"	
Fluorene	ND	1.95	3.91	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.95	3.91	"	"	"	"	
1-Methylnaphthalene	ND	3.91	7.81	"	"	"	"	
2-Methylnaphthalene	ND	3.91	7.81	"	"	"	"	
Naphthalene	**4.21**	3.91	7.81	"	"	"	"	J
Phenanthrene	ND	1.95	3.91	"	"	"	"	
Pyrene	ND	1.95	3.91	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*71 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-19->30' (1-1.5')_Prepared (A6J0893-27)			**Matrix: Soil**		**Batch: 6110353**			**H-08**
Acenaphthene	ND	1.87	3.73	ug/kg dry	1	11/12/16 13:54	EPA 8270D (SIM)	
Acenaphthylene	ND	1.87	3.73	"	"	"	"	
Anthracene	ND	1.87	3.73	"	"	"	"	
Benz(a)anthracene	ND	1.87	3.73	"	"	"	"	
Benzo(a)pyrene	ND	1.87	3.73	"	"	"	"	
Benzo(b)fluoranthene	ND	1.87	3.73	"	"	"	"	
Benzo(k)fluoranthene	ND	1.87	3.73	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.87	3.73	"	"	"	"	
Chrysene	ND	1.87	3.73	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.87	3.73	"	"	"	"	
Dibenzofuran	ND	1.87	3.73	"	"	"	"	
Fluoranthene	ND	1.87	3.73	"	"	"	"	
Fluorene	ND	1.87	3.73	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.87	3.73	"	"	"	"	
1-Methylnaphthalene	ND	3.73	7.47	"	"	"	"	
2-Methylnaphthalene	ND	3.73	7.47	"	"	"	"	
Naphthalene	ND	3.73	7.47	"	"	"	"	
Phenanthrene	ND	1.87	3.73	"	"	"	"	
Pyrene	ND	1.87	3.73	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*63 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-20-15-30' (0-0.5')_Prepared (A6J0893-28)			**Matrix: Soil**		**Batch: 6110353**			**H-08, T-02**
Acenaphthene	ND	14.5	29.0	ug/kg dry	3	11/12/16 14:20	EPA 8270D (SIM)	
Acenaphthylene	ND	14.5	29.0	"	"	"	"	
Anthracene	ND	14.5	29.0	"	"	"	"	
Benz(a)anthracene	ND	50.7	50.7	"	"	"	"	R-02
Benzo(a)pyrene	**14.7**	14.5	29.0	"	"	"	"	J
Benzo(b)fluoranthene	**19.3**	14.5	29.0	"	"	"	"	J
Benzo(k)fluoranthene	ND	14.5	29.0	"	"	"	"	
Benzo(g,h,i)perylene	**33.4**	14.5	29.0	"	"	"	"	
Chrysene	ND	50.7	50.7	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	14.5	29.0	"	"	"	"	
Dibenzofuran	ND	14.5	29.0	"	"	"	"	
Fluoranthene	ND	14.5	29.0	"	"	"	"	
Fluorene	ND	14.5	29.0	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	14.5	29.0	"	"	"	"	
1-Methylnaphthalene	ND	29.0	57.9	"	"	"	"	
2-Methylnaphthalene	ND	29.0	57.9	"	"	"	"	
Naphthalene	ND	29.0	57.9	"	"	"	"	
Phenanthrene	ND	14.5	29.0	"	"	"	"	
Pyrene	ND	14.5	29.0	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*74 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-20-15-30' (0.5-1')_Prepared (A6J0893-29)			**Matrix: Soil**		**Batch: 6110353**			**H-08**
Acenaphthene	ND	14.3	28.7	ug/kg dry	3	11/12/16 14:46	EPA 8270D (SIM)	
Acenaphthylene	ND	14.3	28.7	"	"	"	"	
Anthracene	ND	14.3	28.7	"	"	"	"	
Benz(a)anthracene	ND	50.2	50.2	"	"	"	"	R-02
Benzo(a)pyrene	**17.2**	14.3	28.7	"	"	"	"	J
Benzo(b)fluoranthene	**21.8**	14.3	28.7	"	"	"	"	J
Benzo(k)fluoranthene	ND	14.3	28.7	"	"	"	"	
Benzo(g,h,i)perylene	**32.6**	14.3	28.7	"	"	"	"	
Chrysene	ND	50.2	50.2	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	14.3	28.7	"	"	"	"	
Dibenzofuran	ND	14.3	28.7	"	"	"	"	
Fluoranthene	ND	14.3	28.7	"	"	"	"	
Fluorene	ND	14.3	28.7	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	14.3	28.7	"	"	"	"	
1-Methylnaphthalene	ND	28.7	57.3	"	"	"	"	
2-Methylnaphthalene	ND	28.7	57.3	"	"	"	"	
Naphthalene	ND	28.7	57.3	"	"	"	"	
Phenanthrene	ND	14.3	28.7	"	"	"	"	
Pyrene	ND	14.3	28.7	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 87 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-20-15-30' (1-1.5')_Prepared (A6J0893-30)			**Matrix: Soil**		**Batch: 6110353**			**H-08**
Acenaphthene	ND	9.51	19.0	ug/kg dry	2	11/12/16 15:12	EPA 8270D (SIM)	
Acenaphthylene	ND	9.51	19.0	"	"	"	"	
Anthracene	ND	9.51	19.0	"	"	"	"	
Benz(a)anthracene	ND	19.0	19.0	"	"	"	"	
Benzo(a)pyrene	ND	9.51	19.0	"	"	"	"	
Benzo(b)fluoranthene	ND	9.51	19.0	"	"	"	"	
Benzo(k)fluoranthene	ND	9.51	19.0	"	"	"	"	
Benzo(g,h,i)perylene	**12.6**	9.51	19.0	"	"	"	"	J
Chrysene	ND	23.8	23.8	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	9.51	19.0	"	"	"	"	
Dibenzofuran	ND	9.51	19.0	"	"	"	"	
Fluoranthene	ND	9.51	19.0	"	"	"	"	
Fluorene	ND	9.51	19.0	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	9.51	19.0	"	"	"	"	
1-Methylnaphthalene	ND	19.0	38.0	"	"	"	"	
2-Methylnaphthalene	ND	19.0	38.0	"	"	"	"	
Naphthalene	ND	19.0	38.0	"	"	"	"	
Phenanthrene	ND	9.51	19.0	"	"	"	"	
Pyrene	ND	9.51	19.0	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 61 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*62 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-20->30' (0-0.5')_Prepared (A6J0893-31)			**Matrix: Soil**		**Batch: 6110353**			**H-08**
Acenaphthene	ND	2.02	4.03	ug/kg dry	1	11/12/16 15:37	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.03	"	"	"	"	
Anthracene	ND	2.02	4.03	"	"	"	"	
Benz(a)anthracene	ND	2.02	4.03	"	"	"	"	
Benzo(a)pyrene	ND	2.02	4.03	"	"	"	"	
Benzo(b)fluoranthene	**2.35**	2.02	4.03	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.02	4.03	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.02	4.03	"	"	"	"	
Chrysene	ND	4.03	4.03	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.02	4.03	"	"	"	"	
Dibenzofuran	ND	2.02	4.03	"	"	"	"	
Fluoranthene	**2.86**	2.02	4.03	"	"	"	"	J
Fluorene	ND	2.02	4.03	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.03	"	"	"	"	
1-Methylnaphthalene	ND	4.03	8.07	"	"	"	"	
2-Methylnaphthalene	ND	4.03	8.07	"	"	"	"	
Naphthalene	**5.79**	4.03	8.07	"	"	"	"	J
Phenanthrene	**2.95**	2.02	4.03	"	"	"	"	J
Pyrene	**2.56**	2.02	4.03	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*67 %*	*Limits: 54-127 %*	"	"	"	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-20->30' (0.5-1')_Prepared (A6J0893-32)			**Matrix: Soil**		**Batch: 6110353**			**H-08**
Acenaphthene	ND	1.90	3.80	ug/kg dry	1	11/12/16 16:03	EPA 8270D (SIM)	
Acenaphthylene	ND	1.90	3.80	"	"	"	"	
Anthracene	ND	1.90	3.80	"	"	"	"	
Benz(a)anthracene	ND	1.90	3.80	"	"	"	"	
Benzo(a)pyrene	ND	1.90	3.80	"	"	"	"	
Benzo(b)fluoranthene	ND	1.90	3.80	"	"	"	"	
Benzo(k)fluoranthene	ND	1.90	3.80	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.90	3.80	"	"	"	"	
Chrysene	ND	1.90	3.80	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.90	3.80	"	"	"	"	
Dibenzofuran	ND	1.90	3.80	"	"	"	"	
Fluoranthene	ND	1.90	3.80	"	"	"	"	
Fluorene	ND	1.90	3.80	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.90	3.80	"	"	"	"	
1-Methylnaphthalene	ND	3.80	7.60	"	"	"	"	
2-Methylnaphthalene	ND	3.80	7.60	"	"	"	"	
Naphthalene	ND	3.80	7.60	"	"	"	"	
Phenanthrene	ND	1.90	3.80	"	"	"	"	
Pyrene	ND	1.90	3.80	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 61 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*59 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-20->30' (1-1.5')_Prepared (A6J0893-33RE1)			**Matrix: Soil**		**Batch: 6110353**			**H-08**
Acenaphthene	ND	1.94	3.87	ug/kg dry	1	12/02/16 20:41	EPA 8270D (SIM)	
Acenaphthylene	ND	1.94	3.87	"	"	"	"	
Anthracene	ND	1.94	3.87	"	"	"	"	
Benz(a)anthracene	ND	3.87	3.87	"	"	"	"	
Benzo(a)pyrene	ND	1.94	3.87	"	"	"	"	
Benzo(b)fluoranthene	ND	1.94	3.87	"	"	"	"	
Benzo(k)fluoranthene	ND	1.94	3.87	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.94	3.87	"	"	"	"	
Chrysene	ND	3.87	3.87	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.94	3.87	"	"	"	"	
Dibenzofuran	ND	1.94	3.87	"	"	"	"	
Fluoranthene	ND	1.94	3.87	"	"	"	"	
Fluorene	ND	1.94	3.87	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.94	3.87	"	"	"	"	
1-Methylnaphthalene	ND	3.87	7.75	"	"	"	"	
2-Methylnaphthalene	ND	3.87	7.75	"	"	"	"	
Naphthalene	ND	3.87	7.75	"	"	"	"	
Phenanthrene	ND	1.94	3.87	"	"	"	"	
Pyrene	ND	1.94	3.87	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 60 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*60 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-21-0-15' (0-0.5')_Prepared (A6J0893-34)			**Matrix: Soil**		**Batch: 6110353**			**H-08**
Acenaphthene	ND	14.7	29.3	ug/kg dry	3	11/12/16 16:55	EPA 8270D (SIM)	
Acenaphthylene	**33.6**	14.7	29.3	"	"	"	"	
Anthracene	ND	14.7	29.3	"	"	"	"	
Benz(a)anthracene	ND	14.7	29.3	"	"	"	"	
Benzo(a)pyrene	ND	14.7	29.3	"	"	"	"	
Benzo(b)fluoranthene	**38.0**	14.7	29.3	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	14.7	29.3	"	"	"	"	
Benzo(g,h,i)perylene	**21.2**	14.7	29.3	"	"	"	"	J
Chrysene	**37.6**	14.7	29.3	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	14.7	29.3	"	"	"	"	
Dibenzofuran	ND	14.7	29.3	"	"	"	"	
Fluoranthene	**90.6**	14.7	29.3	"	"	"	"	
Fluorene	ND	14.7	29.3	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	14.7	29.3	"	"	"	"	
1-Methylnaphthalene	ND	29.3	58.6	"	"	"	"	
2-Methylnaphthalene	ND	29.3	58.6	"	"	"	"	
Naphthalene	**76.1**	29.3	58.6	"	"	"	"	
Phenanthrene	**78.2**	14.7	29.3	"	"	"	"	
Pyrene	**74.9**	14.7	29.3	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-21-0-15' (0.5-1')_Prepared (A6J0893-35)			**Matrix: Soil**		**Batch: 6110353**			**H-08**
Acenaphthene	ND	4.00	8.00	ug/kg dry	2	11/12/16 17:21	EPA 8270D (SIM)	
Acenaphthylene	**6.98**	4.00	8.00	"	"	"	"	J
Anthracene	ND	4.00	8.00	"	"	"	"	
Benz(a)anthracene	ND	8.00	8.00	"	"	"	"	
Benzo(a)pyrene	**11.9**	4.00	8.00	"	"	"	"	
Benzo(b)fluoranthene	**18.9**	4.00	8.00	"	"	"	"	M-02
Benzo(k)fluoranthene	**11.6**	4.00	8.00	"	"	"	"	M-02
Benzo(g,h,i)perylene	**13.4**	4.00	8.00	"	"	"	"	
Chrysene	ND	20.0	20.0	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	4.00	8.00	"	"	"	"	
Dibenzofuran	ND	4.00	8.00	"	"	"	"	
Fluoranthene	**20.6**	4.00	8.00	"	"	"	"	
Fluorene	ND	4.00	8.00	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**5.06**	4.00	8.00	"	"	"	"	J
1-Methylnaphthalene	ND	8.00	16.0	"	"	"	"	
2-Methylnaphthalene	ND	8.00	16.0	"	"	"	"	
Naphthalene	**15.9**	8.00	16.0	"	"	"	"	J
Phenanthrene	**18.1**	4.00	8.00	"	"	"	"	
Pyrene	**19.6**	4.00	8.00	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*70 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-21-0-15' (1-1.5')_Prepared (A6J0893-36)			**Matrix: Soil**		**Batch: 6110353**			**H-08**
Acenaphthene	ND	2.07	4.15	ug/kg dry	1	11/12/16 17:47	EPA 8270D (SIM)	
Acenaphthylene	**7.75**	2.07	4.15	"	"	"	"	
Anthracene	**3.33**	2.07	4.15	"	"	"	"	J
Benz(a)anthracene	**3.34**	2.07	4.15	"	"	"	"	J
Benzo(a)pyrene	**3.53**	2.07	4.15	"	"	"	"	J
Benzo(b)fluoranthene	**11.9**	2.07	4.15	"	"	"	"	M-02
Benzo(k)fluoranthene	**2.54**	2.07	4.15	"	"	"	"	J
Benzo(g,h,i)perylene	**4.92**	2.07	4.15	"	"	"	"	
Chrysene	**10.5**	2.07	4.15	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.07	4.15	"	"	"	"	
Dibenzofuran	**3.36**	2.07	4.15	"	"	"	"	J
Fluoranthene	**22.5**	2.07	4.15	"	"	"	"	
Fluorene	ND	2.07	4.15	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**3.86**	2.07	4.15	"	"	"	"	J
1-Methylnaphthalene	ND	4.15	8.30	"	"	"	"	
2-Methylnaphthalene	ND	4.15	8.30	"	"	"	"	
Naphthalene	**20.8**	4.15	8.30	"	"	"	"	
Phenanthrene	**20.5**	2.07	4.15	"	"	"	"	
Pyrene	**17.3**	2.07	4.15	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*70 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-21-15-30' (0-0.5')_Prepared (A6J0893-37)			**Matrix: Soil**		**Batch: 6110353**			**H-08**
Acenaphthene	ND	2.02	4.04	ug/kg dry	1	11/12/16 18:13	EPA 8270D (SIM)	
Acenaphthylene	**15.4**	2.02	4.04	"	"	"	"	
Anthracene	**11.6**	2.02	4.04	"	"	"	"	
Benz(a)anthracene	**8.46**	2.02	4.04	"	"	"	"	M-02
Benzo(a)pyrene	**7.18**	2.02	4.04	"	"	"	"	
Benzo(b)fluoranthene	**34.8**	2.02	4.04	"	"	"	"	M-02
Benzo(k)fluoranthene	**8.09**	2.02	4.04	"	"	"	"	M-02
Benzo(g,h,i)perylene	**11.4**	2.02	4.04	"	"	"	"	
Chrysene	**34.3**	2.02	4.04	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.02	4.04	"	"	"	"	
Dibenzofuran	**16.3**	2.02	4.04	"	"	"	"	
Fluoranthene	**138**	2.02	4.04	"	"	"	"	
Fluorene	ND	2.02	4.04	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**8.80**	2.02	4.04	"	"	"	"	
1-Methylnaphthalene	**5.65**	4.04	8.07	"	"	"	"	J
2-Methylnaphthalene	**10.9**	4.04	8.07	"	"	"	"	
Naphthalene	**89.2**	4.04	8.07	"	"	"	"	
Phenanthrene	**101**	2.02	4.04	"	"	"	"	
Pyrene	**64.0**	2.02	4.04	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*62 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-21-15-30' (0.5-1')_Prepared (A6J0893-38)			**Matrix: Soil**		**Batch: 6110353**			**H-08**
Acenaphthene	ND	1.98	3.97	ug/kg dry	1	11/12/16 18:39	EPA 8270D (SIM)	
Acenaphthylene	**15.4**	1.98	3.97	"	"	"	"	
Anthracene	**11.9**	1.98	3.97	"	"	"	"	
Benz(a)anthracene	**10.5**	1.98	3.97	"	"	"	"	M-02
Benzo(a)pyrene	**9.33**	1.98	3.97	"	"	"	"	
Benzo(b)fluoranthene	**43.4**	1.98	3.97	"	"	"	"	M-02
Benzo(k)fluoranthene	**9.54**	1.98	3.97	"	"	"	"	M-02
Benzo(g,h,i)perylene	**12.9**	1.98	3.97	"	"	"	"	
Chrysene	**38.5**	1.98	3.97	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.98	3.97	"	"	"	"	
Dibenzofuran	**17.9**	1.98	3.97	"	"	"	"	
Fluoranthene	**168**	1.98	3.97	"	"	"	"	
Fluorene	ND	1.98	3.97	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**11.3**	1.98	3.97	"	"	"	"	
1-Methylnaphthalene	**5.16**	3.97	7.93	"	"	"	"	J
2-Methylnaphthalene	**9.90**	3.97	7.93	"	"	"	"	
Naphthalene	**78.9**	3.97	7.93	"	"	"	"	
Phenanthrene	**120**	1.98	3.97	"	"	"	"	
Pyrene	**64.6**	1.98	3.97	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*68 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-21-15-30' (1-1.5')_Prepared (A6J0893-39)			**Matrix: Soil**		**Batch: 6110353**			**H-08**
Acenaphthene	ND	1.97	3.93	ug/kg dry	1	11/12/16 19:05	EPA 8270D (SIM)	
Acenaphthylene	**4.40**	1.97	3.93	"	"	"	"	
Anthracene	**3.59**	1.97	3.93	"	"	"	"	J
Benz(a)anthracene	**3.20**	1.97	3.93	"	"	"	"	J
Benzo(a)pyrene	**2.42**	1.97	3.93	"	"	"	"	J
Benzo(b)fluoranthene	**11.8**	1.97	3.93	"	"	"	"	M-02
Benzo(k)fluoranthene	**2.76**	1.97	3.93	"	"	"	"	J
Benzo(g,h,i)perylene	**4.25**	1.97	3.93	"	"	"	"	
Chrysene	**11.3**	1.97	3.93	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.97	3.93	"	"	"	"	
Dibenzofuran	**4.97**	1.97	3.93	"	"	"	"	
Fluoranthene	**44.1**	1.97	3.93	"	"	"	"	
Fluorene	ND	1.97	3.93	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**3.67**	1.97	3.93	"	"	"	"	J
1-Methylnaphthalene	ND	3.93	7.87	"	"	"	"	
2-Methylnaphthalene	ND	3.93	7.87	"	"	"	"	
Naphthalene	**28.3**	3.93	7.87	"	"	"	"	
Phenanthrene	**31.7**	1.97	3.93	"	"	"	"	
Pyrene	**20.3**	1.97	3.93	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*64 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-21->30' (0-0.5')_Prepared (A6J0893-40)			**Matrix: Soil**		**Batch: 6110353**			**H-08**
Acenaphthene	ND	2.00	4.00	ug/kg dry	1	11/12/16 19:31	EPA 8270D (SIM)	
Acenaphthylene	**12.0**	2.00	4.00	"	"	"	"	
Anthracene	**7.51**	2.00	4.00	"	"	"	"	
Benz(a)anthracene	**6.40**	2.00	4.00	"	"	"	"	M-02
Benzo(a)pyrene	**4.53**	2.00	4.00	"	"	"	"	
Benzo(b)fluoranthene	**24.7**	2.00	4.00	"	"	"	"	M-02
Benzo(k)fluoranthene	**5.23**	2.00	4.00	"	"	"	"	M-02
Benzo(g,h,i)perylene	**7.31**	2.00	4.00	"	"	"	"	
Chrysene	**25.3**	2.00	4.00	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.00	4.00	"	"	"	"	
Dibenzofuran	**14.1**	2.00	4.00	"	"	"	"	
Fluoranthene	**143**	2.00	4.00	"	"	"	"	
Fluorene	ND	2.00	4.00	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**5.89**	2.00	4.00	"	"	"	"	
1-Methylnaphthalene	**4.21**	4.00	8.00	"	"	"	"	J
2-Methylnaphthalene	**8.37**	4.00	8.00	"	"	"	"	
Naphthalene	**77.0**	4.00	8.00	"	"	"	"	
Phenanthrene	**96.2**	2.00	4.00	"	"	"	"	
Pyrene	**58.7**	2.00	4.00	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*64 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6J0893-41)			**Matrix: Solid**		**Batch: 6110353**			**A-01a, H-08**
Acenaphthene	ND	1.86	3.72	ug/kg wet	1	11/12/16 19:57	EPA 8270D (SIM)	
Acenaphthylene	ND	1.86	3.72	"	"	"	"	
Anthracene	ND	1.86	3.72	"	"	"	"	
Benz(a)anthracene	ND	1.86	3.72	"	"	"	"	
Benzo(a)pyrene	ND	1.86	3.72	"	"	"	"	
Benzo(b)fluoranthene	ND	1.86	3.72	"	"	"	"	
Benzo(k)fluoranthene	ND	1.86	3.72	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.86	3.72	"	"	"	"	
Chrysene	ND	1.86	3.72	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.86	3.72	"	"	"	"	
Dibenzofuran	ND	1.86	3.72	"	"	"	"	
Fluoranthene	ND	1.86	3.72	"	"	"	"	
Fluorene	ND	1.86	3.72	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.86	3.72	"	"	"	"	
1-Methylnaphthalene	ND	3.72	7.44	"	"	"	"	
2-Methylnaphthalene	ND	3.72	7.44	"	"	"	"	
Naphthalene	ND	3.72	7.44	"	"	"	"	
Phenanthrene	ND	1.86	3.72	"	"	"	"	
Pyrene	ND	1.86	3.72	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 60 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*61 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-21->30' (0.5-1')_Prepared (A6J0925-21)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	2.01	4.02	ug/kg dry	1	11/13/16 14:04	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.02	"	"	"	"	
Anthracene	ND	2.01	4.02	"	"	"	"	
Benz(a)anthracene	ND	2.01	4.02	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.02	"	"	"	"	
Benzo(b)fluoranthene	**3.58**	2.01	4.02	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.01	4.02	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.02	"	"	"	"	
Chrysene	**3.11**	2.01	4.02	"	"	"	"	J
Dibenz(a,h)anthracene	ND	2.01	4.02	"	"	"	"	
Dibenzofuran	ND	2.01	4.02	"	"	"	"	
Fluoranthene	**14.1**	2.01	4.02	"	"	"	"	
Fluorene	ND	2.01	4.02	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.14**	2.01	4.02	"	"	"	"	J
1-Methylnaphthalene	ND	4.02	8.03	"	"	"	"	
2-Methylnaphthalene	ND	4.02	8.03	"	"	"	"	
Naphthalene	**9.66**	4.02	8.03	"	"	"	"	
Phenanthrene	**10.6**	2.01	4.02	"	"	"	"	
Pyrene	**6.17**	2.01	4.02	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*71 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-21->30' (1-1.5')_Prepared (A6J0925-22)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	1.97	3.93	ug/kg dry	1	11/13/16 14:30	EPA 8270D (SIM)	
Acenaphthylene	ND	1.97	3.93	"	"	"	"	
Anthracene	ND	1.97	3.93	"	"	"	"	
Benz(a)anthracene	ND	1.97	3.93	"	"	"	"	
Benzo(a)pyrene	ND	1.97	3.93	"	"	"	"	
Benzo(b)fluoranthene	ND	1.97	3.93	"	"	"	"	
Benzo(k)fluoranthene	ND	1.97	3.93	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.97	3.93	"	"	"	"	
Chrysene	ND	1.97	3.93	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.97	3.93	"	"	"	"	
Dibenzofuran	ND	1.97	3.93	"	"	"	"	
Fluoranthene	**2.12**	1.97	3.93	"	"	"	"	J
Fluorene	ND	1.97	3.93	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.97	3.93	"	"	"	"	
1-Methylnaphthalene	ND	3.93	7.87	"	"	"	"	
2-Methylnaphthalene	ND	3.93	7.87	"	"	"	"	
Naphthalene	ND	3.93	7.87	"	"	"	"	
Phenanthrene	**1.99**	1.97	3.93	"	"	"	"	J
Pyrene	ND	1.97	3.93	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-22-0-15' (0-0.5')_Prepared (A6J0925-23)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	2.01	4.01	ug/kg dry	1	11/13/16 14:56	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.01	"	"	"	"	
Anthracene	ND	2.01	4.01	"	"	"	"	
Benz(a)anthracene	ND	4.01	4.01	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.01	"	"	"	"	
Benzo(b)fluoranthene	ND	2.01	4.01	"	"	"	"	
Benzo(k)fluoranthene	ND	2.01	4.01	"	"	"	"	
Benzo(g,h,i)perylene	**2.78**	2.01	4.01	"	"	"	"	J
Chrysene	ND	4.01	4.01	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.01	4.01	"	"	"	"	
Dibenzofuran	ND	2.01	4.01	"	"	"	"	
Fluoranthene	ND	2.01	4.01	"	"	"	"	
Fluorene	ND	2.01	4.01	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.01	"	"	"	"	
1-Methylnaphthalene	ND	4.01	8.02	"	"	"	"	
2-Methylnaphthalene	ND	4.01	8.02	"	"	"	"	
Naphthalene	ND	4.01	8.02	"	"	"	"	
Phenanthrene	ND	2.01	4.01	"	"	"	"	
Pyrene	ND	2.01	4.01	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*86 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-22-0-15' (0.5-1')_Prepared (A6J0925-24)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	1.93	3.86	ug/kg dry	1	11/13/16 15:22	EPA 8270D (SIM)	
Acenaphthylene	ND	1.93	3.86	"	"	"	"	
Anthracene	ND	1.93	3.86	"	"	"	"	
Benz(a)anthracene	ND	1.93	3.86	"	"	"	"	
Benzo(a)pyrene	ND	1.93	3.86	"	"	"	"	
Benzo(b)fluoranthene	**2.18**	1.93	3.86	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.93	3.86	"	"	"	"	
Benzo(g,h,i)perylene	**4.05**	1.93	3.86	"	"	"	"	
Chrysene	ND	1.93	3.86	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.93	3.86	"	"	"	"	
Dibenzofuran	ND	1.93	3.86	"	"	"	"	
Fluoranthene	ND	1.93	3.86	"	"	"	"	
Fluorene	ND	1.93	3.86	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.93	3.86	"	"	"	"	
1-Methylnaphthalene	ND	3.86	7.72	"	"	"	"	
2-Methylnaphthalene	ND	3.86	7.72	"	"	"	"	
Naphthalene	ND	3.86	7.72	"	"	"	"	
Phenanthrene	ND	1.93	3.86	"	"	"	"	
Pyrene	ND	1.93	3.86	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*82 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-22-0-15' (1-1.5')_Prepared (A6J0925-25)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	1.93	3.87	ug/kg dry	1	11/13/16 15:48	EPA 8270D (SIM)	
Acenaphthylene	ND	1.93	3.87	"	"	"	"	
Anthracene	ND	1.93	3.87	"	"	"	"	
Benz(a)anthracene	ND	6.77	6.77	"	"	"	"	R-02
Benzo(a)pyrene	ND	1.93	3.87	"	"	"	"	
Benzo(b)fluoranthene	**4.75**	1.93	3.87	"	"	"	"	
Benzo(k)fluoranthene	ND	1.93	3.87	"	"	"	"	
Benzo(g,h,i)perylene	**9.88**	1.93	3.87	"	"	"	"	
Chrysene	ND	6.77	6.77	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	1.93	3.87	"	"	"	"	
Dibenzofuran	ND	1.93	3.87	"	"	"	"	
Fluoranthene	ND	1.93	3.87	"	"	"	"	
Fluorene	ND	1.93	3.87	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**3.10**	1.93	3.87	"	"	"	"	J
1-Methylnaphthalene	ND	3.87	7.73	"	"	"	"	
2-Methylnaphthalene	ND	3.87	7.73	"	"	"	"	
Naphthalene	ND	3.87	7.73	"	"	"	"	
Phenanthrene	ND	1.93	3.87	"	"	"	"	
Pyrene	ND	1.93	3.87	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*84 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-22-15-30' (0-0.5')_Prepared (A6J0925-26)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	1.97	3.95	ug/kg dry	1	11/13/16 16:14	EPA 8270D (SIM)	
Acenaphthylene	ND	1.97	3.95	"	"	"	"	
Anthracene	ND	1.97	3.95	"	"	"	"	
Benz(a)anthracene	**3.34**	1.97	3.95	"	"	"	"	J
Benzo(a)pyrene	**3.07**	1.97	3.95	"	"	"	"	J
Benzo(b)fluoranthene	**8.51**	1.97	3.95	"	"	"	"	M-02
Benzo(k)fluoranthene	**2.29**	1.97	3.95	"	"	"	"	J
Benzo(g,h,i)perylene	**5.93**	1.97	3.95	"	"	"	"	
Chrysene	**6.95**	1.97	3.95	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.97	3.95	"	"	"	"	
Dibenzofuran	ND	1.97	3.95	"	"	"	"	
Fluoranthene	**17.4**	1.97	3.95	"	"	"	"	
Fluorene	ND	1.97	3.95	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**4.66**	1.97	3.95	"	"	"	"	
1-Methylnaphthalene	ND	3.95	7.90	"	"	"	"	
2-Methylnaphthalene	ND	3.95	7.90	"	"	"	"	
Naphthalene	**8.20**	3.95	7.90	"	"	"	"	
Phenanthrene	**9.97**	1.97	3.95	"	"	"	"	
Pyrene	**12.3**	1.97	3.95	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 80 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*93 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-22-15-30' (0.5-1')_Prepared (A6J0925-27)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	1.92	3.84	ug/kg dry	1	11/13/16 16:40	EPA 8270D (SIM)	
Acenaphthylene	ND	1.92	3.84	"	"	"	"	
Anthracene	ND	1.92	3.84	"	"	"	"	
Benz(a)anthracene	ND	1.92	3.84	"	"	"	"	
Benzo(a)pyrene	ND	1.92	3.84	"	"	"	"	
Benzo(b)fluoranthene	**2.71**	1.92	3.84	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.92	3.84	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.92	3.84	"	"	"	"	
Chrysene	**2.18**	1.92	3.84	"	"	"	"	J
Dibenz(a,h)anthracene	ND	1.92	3.84	"	"	"	"	
Dibenzofuran	ND	1.92	3.84	"	"	"	"	
Fluoranthene	**5.57**	1.92	3.84	"	"	"	"	
Fluorene	ND	1.92	3.84	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.92	3.84	"	"	"	"	
1-Methylnaphthalene	ND	3.84	7.68	"	"	"	"	
2-Methylnaphthalene	ND	3.84	7.68	"	"	"	"	
Naphthalene	ND	3.84	7.68	"	"	"	"	
Phenanthrene	**2.98**	1.92	3.84	"	"	"	"	J
Pyrene	**4.77**	1.92	3.84	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 62 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*71 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-22-15-30' (1-1.5')_Prepared (A6J0925-28)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	1.96	3.92	ug/kg dry	1	11/13/16 17:06	EPA 8270D (SIM)	
Acenaphthylene	ND	1.96	3.92	"	"	"	"	
Anthracene	ND	1.96	3.92	"	"	"	"	
Benz(a)anthracene	ND	1.96	3.92	"	"	"	"	
Benzo(a)pyrene	ND	1.96	3.92	"	"	"	"	
Benzo(b)fluoranthene	ND	1.96	3.92	"	"	"	"	
Benzo(k)fluoranthene	ND	1.96	3.92	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.96	3.92	"	"	"	"	
Chrysene	ND	1.96	3.92	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.96	3.92	"	"	"	"	
Dibenzofuran	ND	1.96	3.92	"	"	"	"	
Fluoranthene	**3.82**	1.96	3.92	"	"	"	"	J
Fluorene	ND	1.96	3.92	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.96	3.92	"	"	"	"	
1-Methylnaphthalene	ND	3.92	7.84	"	"	"	"	
2-Methylnaphthalene	ND	3.92	7.84	"	"	"	"	
Naphthalene	ND	3.92	7.84	"	"	"	"	
Phenanthrene	**3.03**	1.96	3.92	"	"	"	"	J
Pyrene	**2.59**	1.96	3.92	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 72 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*80 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-22->30' (0-0.5')_Prepared (A6J0925-29)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	2.06	4.11	ug/kg dry	1	11/13/16 17:32	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.11	"	"	"	"	
Anthracene	ND	2.06	4.11	"	"	"	"	
Benz(a)anthracene	**2.66**	2.06	4.11	"	"	"	"	J
Benzo(a)pyrene	ND	2.06	4.11	"	"	"	"	
Benzo(b)fluoranthene	**6.39**	2.06	4.11	"	"	"	"	M-02
Benzo(k)fluoranthene	**2.15**	2.06	4.11	"	"	"	"	J
Benzo(g,h,i)perylene	**4.47**	2.06	4.11	"	"	"	"	
Chrysene	**5.37**	2.06	4.11	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.06	4.11	"	"	"	"	
Dibenzofuran	ND	2.06	4.11	"	"	"	"	
Fluoranthene	**15.2**	2.06	4.11	"	"	"	"	
Fluorene	ND	2.06	4.11	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**3.22**	2.06	4.11	"	"	"	"	J
1-Methylnaphthalene	ND	4.11	8.23	"	"	"	"	
2-Methylnaphthalene	ND	4.11	8.23	"	"	"	"	
Naphthalene	**11.2**	4.11	8.23	"	"	"	"	
Phenanthrene	**11.1**	2.06	4.11	"	"	"	"	
Pyrene	**10.8**	2.06	4.11	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*79 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-22->30' (0.5-1')_Prepared (A6J0925-30)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	1.99	3.98	ug/kg dry	1	11/13/16 17:57	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.98	"	"	"	"	
Anthracene	ND	1.99	3.98	"	"	"	"	
Benz(a)anthracene	**2.18**	1.99	3.98	"	"	"	"	J
Benzo(a)pyrene	**2.10**	1.99	3.98	"	"	"	"	J
Benzo(b)fluoranthene	**6.23**	1.99	3.98	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(g,h,i)perylene	**4.50**	1.99	3.98	"	"	"	"	
Chrysene	**4.93**	1.99	3.98	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.99	3.98	"	"	"	"	
Dibenzofuran	ND	1.99	3.98	"	"	"	"	
Fluoranthene	**15.1**	1.99	3.98	"	"	"	"	
Fluorene	ND	1.99	3.98	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**3.64**	1.99	3.98	"	"	"	"	J
1-Methylnaphthalene	ND	3.98	7.97	"	"	"	"	
2-Methylnaphthalene	ND	3.98	7.97	"	"	"	"	
Naphthalene	**7.52**	3.98	7.97	"	"	"	"	J
Phenanthrene	**10.6**	1.99	3.98	"	"	"	"	
Pyrene	**10.8**	1.99	3.98	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 81 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*92 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-22->30' (1-1.5')_Prepared (A6J0925-31)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	1.99	3.99	ug/kg dry	1	11/13/16 18:23	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.99	"	"	"	"	
Anthracene	ND	1.99	3.99	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.99	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.99	"	"	"	"	
Benzo(b)fluoranthene	**3.89**	1.99	3.99	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(g,h,i)perylene	**2.72**	1.99	3.99	"	"	"	"	J
Chrysene	**3.22**	1.99	3.99	"	"	"	"	J
Dibenz(a,h)anthracene	ND	1.99	3.99	"	"	"	"	
Dibenzofuran	ND	1.99	3.99	"	"	"	"	
Fluoranthene	**8.59**	1.99	3.99	"	"	"	"	
Fluorene	ND	1.99	3.99	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.31**	1.99	3.99	"	"	"	"	J
1-Methylnaphthalene	ND	3.99	7.97	"	"	"	"	
2-Methylnaphthalene	ND	3.99	7.97	"	"	"	"	
Naphthalene	**6.06**	3.99	7.97	"	"	"	"	J
Phenanthrene	**5.81**	1.99	3.99	"	"	"	"	
Pyrene	**6.28**	1.99	3.99	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*88 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-23-0-15' (0-0.5')_Prepared (A6J0925-32)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	5.71	11.4	ug/kg dry	3	11/13/16 18:49	EPA 8270D (SIM)	
Acenaphthylene	ND	5.71	11.4	"	"	"	"	
Anthracene	ND	5.71	11.4	"	"	"	"	
Benz(a)anthracene	ND	5.71	11.4	"	"	"	"	
Benzo(a)pyrene	**8.37**	5.71	11.4	"	"	"	"	J
Benzo(b)fluoranthene	**22.3**	5.71	11.4	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	5.71	11.4	"	"	"	"	
Benzo(g,h,i)perylene	**21.6**	5.71	11.4	"	"	"	"	
Chrysene	**21.8**	5.71	11.4	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	5.71	11.4	"	"	"	"	
Dibenzofuran	ND	5.71	11.4	"	"	"	"	
Fluoranthene	**13.9**	5.71	11.4	"	"	"	"	
Fluorene	ND	5.71	11.4	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**11.9**	5.71	11.4	"	"	"	"	
1-Methylnaphthalene	ND	11.4	22.8	"	"	"	"	
2-Methylnaphthalene	ND	11.4	22.8	"	"	"	"	
Naphthalene	ND	11.4	22.8	"	"	"	"	
Phenanthrene	**8.23**	5.71	11.4	"	"	"	"	J
Pyrene	**13.3**	5.71	11.4	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*98 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-23-0-15' (0.5-1')_Prepared (A6J0925-33)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	5.57	11.1	ug/kg dry	3	11/13/16 19:15	EPA 8270D (SIM)	
Acenaphthylene	ND	5.57	11.1	"	"	"	"	
Anthracene	ND	5.57	11.1	"	"	"	"	
Benz(a)anthracene	ND	5.57	11.1	"	"	"	"	
Benzo(a)pyrene	**6.36**	5.57	11.1	"	"	"	"	J
Benzo(b)fluoranthene	**18.2**	5.57	11.1	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	5.57	11.1	"	"	"	"	
Benzo(g,h,i)perylene	**19.4**	5.57	11.1	"	"	"	"	
Chrysene	**19.7**	5.57	11.1	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	5.57	11.1	"	"	"	"	
Dibenzofuran	ND	5.57	11.1	"	"	"	"	
Fluoranthene	**10.2**	5.57	11.1	"	"	"	"	J
Fluorene	ND	5.57	11.1	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**9.47**	5.57	11.1	"	"	"	"	J
1-Methylnaphthalene	ND	11.1	22.3	"	"	"	"	
2-Methylnaphthalene	ND	11.1	22.3	"	"	"	"	
Naphthalene	ND	11.1	22.3	"	"	"	"	
Phenanthrene	**6.15**	5.57	11.1	"	"	"	"	J
Pyrene	**10.4**	5.57	11.1	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 72 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*97 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-23-15-30' (0-0.5')_Prepared (A6J0925-34)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	5.95	11.9	ug/kg dry	3	11/13/16 19:41	EPA 8270D (SIM)	
Acenaphthylene	ND	5.95	11.9	"	"	"	"	
Anthracene	ND	5.95	11.9	"	"	"	"	
Benz(a)anthracene	**10.8**	5.95	11.9	"	"	"	"	J
Benzo(a)pyrene	**11.6**	5.95	11.9	"	"	"	"	J
Benzo(b)fluoranthene	**19.5**	5.95	11.9	"	"	"	"	M-02
Benzo(k)fluoranthene	**6.34**	5.95	11.9	"	"	"	"	J
Benzo(g,h,i)perylene	**20.1**	5.95	11.9	"	"	"	"	
Chrysene	**21.2**	5.95	11.9	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	5.95	11.9	"	"	"	"	
Dibenzofuran	ND	5.95	11.9	"	"	"	"	
Fluoranthene	**17.4**	5.95	11.9	"	"	"	"	
Fluorene	ND	5.95	11.9	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**9.55**	5.95	11.9	"	"	"	"	J
1-Methylnaphthalene	ND	11.9	23.8	"	"	"	"	
2-Methylnaphthalene	ND	11.9	23.8	"	"	"	"	
Naphthalene	ND	11.9	23.8	"	"	"	"	
Phenanthrene	**12.4**	5.95	11.9	"	"	"	"	
Pyrene	**18.7**	5.95	11.9	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 63 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*88 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-23-15-30' (0.5-1')_Prepared (A6J0925-35)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	2.02	4.04	ug/kg dry	1	11/13/16 20:07	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.04	"	"	"	"	
Anthracene	ND	2.02	4.04	"	"	"	"	
Benz(a)anthracene	**6.42**	2.02	4.04	"	"	"	"	M-02
Benzo(a)pyrene	**11.6**	2.02	4.04	"	"	"	"	
Benzo(b)fluoranthene	**19.7**	2.02	4.04	"	"	"	"	M-02
Benzo(k)fluoranthene	**6.57**	2.02	4.04	"	"	"	"	M-02
Benzo(g,h,i)perylene	**16.5**	2.02	4.04	"	"	"	"	
Chrysene	**16.0**	2.02	4.04	"	"	"	"	M-02
Dibenz(a,h)anthracene	**3.35**	2.02	4.04	"	"	"	"	J
Dibenzofuran	ND	2.02	4.04	"	"	"	"	
Fluoranthene	**14.8**	2.02	4.04	"	"	"	"	
Fluorene	ND	2.02	4.04	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**9.53**	2.02	4.04	"	"	"	"	
1-Methylnaphthalene	ND	4.04	8.08	"	"	"	"	
2-Methylnaphthalene	**4.42**	4.04	8.08	"	"	"	"	J
Naphthalene	**7.29**	4.04	8.08	"	"	"	"	J
Phenanthrene	**11.3**	2.02	4.04	"	"	"	"	
Pyrene	**15.5**	2.02	4.04	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 51 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*66 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-23-15-30' (1-1.5')_Prepared (A6J0925-36)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	15.2	30.4	ug/kg dry	3	11/13/16 20:33	EPA 8270D (SIM)	
Acenaphthylene	ND	15.2	30.4	"	"	"	"	
Anthracene	ND	15.2	30.4	"	"	"	"	
Benz(a)anthracene	ND	30.4	30.4	"	"	"	"	
Benzo(a)pyrene	**32.6**	15.2	30.4	"	"	"	"	
Benzo(b)fluoranthene	**34.1**	15.2	30.4	"	"	"	"	M-02
Benzo(k)fluoranthene	**31.6**	15.2	30.4	"	"	"	"	M-02
Benzo(g,h,i)perylene	**33.6**	15.2	30.4	"	"	"	"	
Chrysene	**88.0**	15.2	30.4	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	15.2	30.4	"	"	"	"	
Dibenzofuran	ND	15.2	30.4	"	"	"	"	
Fluoranthene	ND	15.2	30.4	"	"	"	"	
Fluorene	ND	15.2	30.4	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	15.2	30.4	"	"	"	"	
1-Methylnaphthalene	ND	30.4	60.7	"	"	"	"	
2-Methylnaphthalene	ND	30.4	60.7	"	"	"	"	
Naphthalene	ND	30.4	60.7	"	"	"	"	
Phenanthrene	ND	15.2	30.4	"	"	"	"	
Pyrene	**28.4**	15.2	30.4	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 80 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*102 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-23->30' (0-0.5')_Prepared (A6J0925-37)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	4.93	9.86	ug/kg dry	1	11/13/16 20:59	EPA 8270D (SIM)	
Acenaphthylene	ND	4.93	9.86	"	"	"	"	
Anthracene	ND	4.93	9.86	"	"	"	"	
Benz(a)anthracene	ND	14.8	14.8	"	"	"	"	R-02
Benzo(a)pyrene	**5.31**	4.93	9.86	"	"	"	"	J
Benzo(b)fluoranthene	**10.0**	4.93	9.86	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	4.93	9.86	"	"	"	"	
Benzo(g,h,i)perylene	**9.87**	4.93	9.86	"	"	"	"	
Chrysene	ND	14.8	14.8	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	4.93	9.86	"	"	"	"	
Dibenzofuran	ND	4.93	9.86	"	"	"	"	
Fluoranthene	**5.96**	4.93	9.86	"	"	"	"	J
Fluorene	ND	4.93	9.86	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**5.01**	4.93	9.86	"	"	"	"	J
1-Methylnaphthalene	ND	9.86	19.7	"	"	"	"	
2-Methylnaphthalene	ND	9.86	19.7	"	"	"	"	
Naphthalene	ND	9.86	19.7	"	"	"	"	
Phenanthrene	**5.51**	4.93	9.86	"	"	"	"	J
Pyrene	**7.86**	4.93	9.86	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*98 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-23->30' (0.5-1')_Prepared (A6J0925-38)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	1.96	3.91	ug/kg dry	1	11/13/16 21:25	EPA 8270D (SIM)	
Acenaphthylene	**2.18**	1.96	3.91	"	"	"	"	J
Anthracene	**4.58**	1.96	3.91	"	"	"	"	
Benz(a)anthracene	**19.2**	1.96	3.91	"	"	"	"	M-02
Benzo(a)pyrene	**29.2**	1.96	3.91	"	"	"	"	
Benzo(b)fluoranthene	**47.0**	1.96	3.91	"	"	"	"	M-02
Benzo(k)fluoranthene	**15.5**	1.96	3.91	"	"	"	"	M-02
Benzo(g,h,i)perylene	**25.6**	1.96	3.91	"	"	"	"	
Chrysene	**28.6**	1.96	3.91	"	"	"	"	M-02
Dibenz(a,h)anthracene	**7.73**	1.96	3.91	"	"	"	"	
Dibenzofuran	**2.95**	1.96	3.91	"	"	"	"	J
Fluoranthene	**32.6**	1.96	3.91	"	"	"	"	
Fluorene	**2.51**	1.96	3.91	"	"	"	"	J
Indeno(1,2,3-cd)pyrene	**20.0**	1.96	3.91	"	"	"	"	
1-Methylnaphthalene	ND	3.91	7.83	"	"	"	"	
2-Methylnaphthalene	**4.17**	3.91	7.83	"	"	"	"	J
Naphthalene	**8.68**	3.91	7.83	"	"	"	"	
Phenanthrene	**23.3**	1.96	3.91	"	"	"	"	
Pyrene	**29.1**	1.96	3.91	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*91 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-23->30' (1-1.5')_Prepared (A6J0925-39)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	4.70	9.41	ug/kg dry	1	11/13/16 21:51	EPA 8270D (SIM)	
Acenaphthylene	ND	4.70	9.41	"	"	"	"	
Anthracene	ND	4.70	9.41	"	"	"	"	
Benz(a)anthracene	ND	4.70	9.41	"	"	"	"	
Benzo(a)pyrene	ND	4.70	9.41	"	"	"	"	
Benzo(b)fluoranthene	ND	4.70	9.41	"	"	"	"	
Benzo(k)fluoranthene	ND	4.70	9.41	"	"	"	"	
Benzo(g,h,i)perylene	**28.8**	4.70	9.41	"	"	"	"	
Chrysene	ND	4.70	9.41	"	"	"	"	
Dibenz(a,h)anthracene	ND	4.70	9.41	"	"	"	"	
Dibenzofuran	ND	4.70	9.41	"	"	"	"	
Fluoranthene	ND	4.70	9.41	"	"	"	"	
Fluorene	ND	4.70	9.41	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**8.31**	4.70	9.41	"	"	"	"	J
1-Methylnaphthalene	ND	9.41	18.8	"	"	"	"	
2-Methylnaphthalene	ND	9.41	18.8	"	"	"	"	
Naphthalene	ND	9.41	18.8	"	"	"	"	
Phenanthrene	ND	4.70	9.41	"	"	"	"	
Pyrene	ND	4.70	9.41	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*101 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-24-0-15' (0-0.5')_Prepared (A6J0925-40)			**Matrix: Soil**		**Batch: 6110375**			**H-08**
Acenaphthene	ND	23.9	47.7	ug/kg dry	5	11/13/16 22:17	EPA 8270D (SIM)	
Acenaphthylene	ND	23.9	47.7	"	"	"	"	
Anthracene	ND	23.9	47.7	"	"	"	"	
Benz(a)anthracene	ND	59.7	59.7	"	"	"	"	R-02
Benzo(a)pyrene	ND	23.9	47.7	"	"	"	"	
Benzo(b)fluoranthene	**38.1**	23.9	47.7	"	"	"	"	J
Benzo(k)fluoranthene	ND	23.9	47.7	"	"	"	"	
Benzo(g,h,i)perylene	ND	59.7	59.7	"	"	"	"	R-02
Chrysene	ND	59.7	59.7	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	23.9	47.7	"	"	"	"	
Dibenzofuran	ND	23.9	47.7	"	"	"	"	
Fluoranthene	ND	23.9	47.7	"	"	"	"	
Fluorene	ND	23.9	47.7	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	23.9	47.7	"	"	"	"	
1-Methylnaphthalene	ND	47.7	95.4	"	"	"	"	
2-Methylnaphthalene	ND	47.7	95.4	"	"	"	"	
Naphthalene	ND	47.7	95.4	"	"	"	"	
Phenanthrene	ND	23.9	47.7	"	"	"	"	
Pyrene	ND	23.9	47.7	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 89 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*119 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6J0925-41)			**Matrix: Solid**		**Batch: 6110375**			**A-01a, H-08**
Acenaphthene	ND	1.85	3.71	ug/kg wet	1	11/13/16 22:43	EPA 8270D (SIM)	
Acenaphthylene	ND	1.85	3.71	"	"	"	"	
Anthracene	ND	1.85	3.71	"	"	"	"	
Benz(a)anthracene	ND	1.85	3.71	"	"	"	"	
Benzo(a)pyrene	ND	1.85	3.71	"	"	"	"	
Benzo(b)fluoranthene	ND	1.85	3.71	"	"	"	"	
Benzo(k)fluoranthene	ND	1.85	3.71	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.85	3.71	"	"	"	"	
Chrysene	ND	1.85	3.71	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.85	3.71	"	"	"	"	
Dibenzofuran	ND	1.85	3.71	"	"	"	"	
Fluoranthene	ND	1.85	3.71	"	"	"	"	
Fluorene	ND	1.85	3.71	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.85	3.71	"	"	"	"	
1-Methylnaphthalene	ND	3.71	7.41	"	"	"	"	
2-Methylnaphthalene	ND	3.71	7.41	"	"	"	"	
Naphthalene	ND	3.71	7.41	"	"	"	"	
Phenanthrene	ND	1.85	3.71	"	"	"	"	
Pyrene	ND	1.85	3.71	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 63 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*94 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-24-0-15' (0.5-1')_Prepared (A6J0950-18)			**Matrix: Soil**		**Batch: 6110429**			**H-08, R-04**
Acenaphthene	ND	13.8	27.7	ug/kg dry	3	11/14/16 12:20	EPA 8270D (SIM)	
Acenaphthylene	ND	13.8	27.7	"	"	"	"	
Anthracene	ND	13.8	27.7	"	"	"	"	
Benz(a)anthracene	ND	27.7	27.7	"	"	"	"	
Benzo(a)pyrene	ND	13.8	27.7	"	"	"	"	
Benzo(b)fluoranthene	**15.5**	13.8	27.7	"	"	"	"	J
Benzo(k)fluoranthene	ND	13.8	27.7	"	"	"	"	
Benzo(g,h,i)perylene	**26.7**	13.8	27.7	"	"	"	"	J
Chrysene	ND	27.7	27.7	"	"	"	"	
Dibenz(a,h)anthracene	ND	13.8	27.7	"	"	"	"	
Dibenzofuran	ND	13.8	27.7	"	"	"	"	
Fluoranthene	ND	13.8	27.7	"	"	"	"	
Fluorene	ND	13.8	27.7	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	13.8	27.7	"	"	"	"	
1-Methylnaphthalene	ND	27.7	55.4	"	"	"	"	
2-Methylnaphthalene	ND	27.7	55.4	"	"	"	"	
Naphthalene	ND	27.7	55.4	"	"	"	"	
Phenanthrene	ND	13.8	27.7	"	"	"	"	
Pyrene	ND	13.8	27.7	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 79 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-24-0-15' (1-1.5')_Prepared (A6J0950-19)			**Matrix: Soil**		**Batch: 6110429**			**H-08**
Acenaphthene	ND	1.79	3.59	ug/kg dry	1	11/14/16 12:46	EPA 8270D (SIM)	
Acenaphthylene	ND	1.79	3.59	"	"	"	"	
Anthracene	ND	1.79	3.59	"	"	"	"	
Benz(a)anthracene	ND	8.07	8.07	"	"	"	"	R-02
Benzo(a)pyrene	**2.56**	1.79	3.59	"	"	"	"	J
Benzo(b)fluoranthene	**4.08**	1.79	3.59	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	1.79	3.59	"	"	"	"	
Benzo(g,h,i)perylene	**5.91**	1.79	3.59	"	"	"	"	
Chrysene	ND	8.07	8.07	"	"	"	"	R-02
Dibenz(a,h)anthracene	**2.23**	1.79	3.59	"	"	"	"	J
Dibenzofuran	ND	1.79	3.59	"	"	"	"	
Fluoranthene	ND	1.79	3.59	"	"	"	"	
Fluorene	ND	1.79	3.59	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.79	3.59	"	"	"	"	
1-Methylnaphthalene	ND	3.59	7.17	"	"	"	"	
2-Methylnaphthalene	ND	3.59	7.17	"	"	"	"	
Naphthalene	ND	3.59	7.17	"	"	"	"	
Phenanthrene	ND	1.79	3.59	"	"	"	"	
Pyrene	**2.14**	1.79	3.59	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 72 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*91 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-24-15-30' (0-0.5')_Prepared (A6J0950-20RE3)			**Matrix: Soil**		**Batch: 6120859**			**C-05, H-08**
Acenaphthene	ND	9.62	19.2	ug/kg dry	1	12/29/16 15:10	EPA 8270D (SIM)	
Acenaphthylene	ND	9.62	19.2	"	"	"	"	
Anthracene	ND	9.62	19.2	"	"	"	"	
Benz(a)anthracene	ND	33.7	33.7	"	"	"	"	R-02
Benzo(a)pyrene	**14.9**	9.62	19.2	"	"	"	"	J
Benzo(b)fluoranthene	**25.9**	9.62	19.2	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	9.62	19.2	"	"	"	"	
Benzo(g,h,i)perylene	**33.6**	9.62	19.2	"	"	"	"	
Chrysene	ND	33.7	33.7	"	"	"	"	R-02
Dibenz(a,h)anthracene	**10.4**	9.62	19.2	"	"	"	"	J
Dibenzofuran	ND	9.62	19.2	"	"	"	"	
Fluoranthene	ND	9.62	19.2	"	"	"	"	
Fluorene	ND	9.62	19.2	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	9.62	19.2	"	"	"	"	
1-Methylnaphthalene	ND	19.2	38.5	"	"	"	"	
2-Methylnaphthalene	ND	19.2	38.5	"	"	"	"	
Naphthalene	ND	19.2	38.5	"	"	"	"	
Phenanthrene	ND	9.62	19.2	"	"	"	"	
Pyrene	ND	9.62	19.2	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*110 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-24-15-30' (0.5-1')_Prepared (A6J0950-21RE3)			**Matrix: Soil**		**Batch: 6120859**			**C-05, H-08**
Acenaphthene	ND	9.82	19.6	ug/kg dry	1	12/29/16 15:36	EPA 8270D (SIM)	
Acenaphthylene	ND	9.82	19.6	"	"	"	"	
Anthracene	ND	9.82	19.6	"	"	"	"	Q-42
Benz(a)anthracene	ND	44.2	44.2	"	"	"	"	R-02
Benzo(a)pyrene	**19.0**	9.82	19.6	"	"	"	"	Q-42, J
Benzo(b)fluoranthene	**31.2**	9.82	19.6	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	9.82	19.6	"	"	"	"	
Benzo(g,h,i)perylene	**36.3**	9.82	19.6	"	"	"	"	
Chrysene	ND	44.2	44.2	"	"	"	"	R-02
Dibenz(a,h)anthracene	**12.2**	9.82	19.6	"	"	"	"	J
Dibenzofuran	ND	9.82	19.6	"	"	"	"	
Fluoranthene	ND	9.82	19.6	"	"	"	"	
Fluorene	ND	9.82	19.6	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	9.82	19.6	"	"	"	"	
1-Methylnaphthalene	ND	19.6	39.3	"	"	"	"	
2-Methylnaphthalene	ND	19.6	39.3	"	"	"	"	
Naphthalene	ND	19.6	39.3	"	"	"	"	
Phenanthrene	ND	9.82	19.6	"	"	"	"	
Pyrene	ND	9.82	19.6	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*116 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-24-15-30' (1-1.5')_Prepared (A6J0950-22)			**Matrix: Soil**		**Batch: 6110429**			**H-08, R-04**
Acenaphthene	ND	15.0	29.9	ug/kg dry	3	11/14/16 14:04	EPA 8270D (SIM)	
Acenaphthylene	ND	15.0	29.9	"	"	"	"	
Anthracene	ND	15.0	29.9	"	"	"	"	
Benzo(a)pyrene	ND	15.0	29.9	"	"	"	"	
Benzo(b)fluoranthene	ND	15.0	29.9	"	"	"	"	
Benzo(k)fluoranthene	ND	15.0	29.9	"	"	"	"	
Dibenzofuran	ND	15.0	29.9	"	"	"	"	
Fluoranthene	ND	15.0	29.9	"	"	"	"	
Fluorene	ND	15.0	29.9	"	"	"	"	
1-Methylnaphthalene	ND	29.9	59.9	"	"	"	"	
2-Methylnaphthalene	ND	29.9	59.9	"	"	"	"	
Naphthalene	ND	29.9	59.9	"	"	"	"	
Phenanthrene	ND	15.0	29.9	"	"	"	"	
Pyrene	ND	15.0	29.9	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*	"	"	"	
BR-24-15-30' (1-1.5')_Prepared (A6J0950-22RE1)			**Matrix: Soil**		**Batch: 6110429**			**H-08, R-04**
Benz(a)anthracene	ND	49.9	99.8	ug/kg dry	10	11/15/16 16:22	EPA 8270D (SIM)	
Benzo(g,h,i)perylene	ND	49.9	99.8	"	"	"	"	
Chrysene	ND	49.9	99.8	"	"	"	"	
Dibenz(a,h)anthracene	ND	49.9	99.8	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	49.9	99.8	"	"	"	"	
Surrogate: p-Terphenyl-d14 (Surr)			*Recovery: 75 %*	*Limits: 54-127 %*	"	"	"	
BR-24->30' (0-0.5')_Prepared (A6J0950-23)			**Matrix: Soil**		**Batch: 6110429**			**H-08**
Acenaphthene	ND	1.90	3.80	ug/kg dry	1	11/14/16 14:30	EPA 8270D (SIM)	
Acenaphthylene	ND	1.90	3.80	"	"	"	"	
Anthracene	ND	1.90	3.80	"	"	"	"	
Benz(a)anthracene	ND	1.90	3.80	"	"	"	"	
Benzo(a)pyrene	ND	1.90	3.80	"	"	"	"	
Benzo(b)fluoranthene	ND	1.90	3.80	"	"	"	"	
Benzo(k)fluoranthene	ND	1.90	3.80	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.90	3.80	"	"	"	"	
Chrysene	ND	1.90	3.80	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.90	3.80	"	"	"	"	
Dibenzofuran	ND	1.90	3.80	"	"	"	"	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-24->30' (0-0.5')_Prepared (A6J0950-23)			**Matrix: Soil**		**Batch: 6110429**			**H-08**
Fluoranthene	ND	1.90	3.80	ug/kg dry	1	"	EPA 8270D (SIM)	
Fluorene	ND	1.90	3.80	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.90	3.80	"	"	"	"	
1-Methylnaphthalene	ND	3.80	7.59	"	"	"	"	
2-Methylnaphthalene	ND	3.80	7.59	"	"	"	"	
Naphthalene	ND	3.80	7.59	"	"	"	"	
Phenanthrene	ND	1.90	3.80	"	"	"	"	
Pyrene	ND	1.90	3.80	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*94 %*	*Limits: 54-127 %*	"	"	"	
BR-24->30' (0.5-1')_Prepared (A6J0950-24)			**Matrix: Soil**		**Batch: 6110429**			**H-08**
Acenaphthene	ND	2.01	4.02	ug/kg dry	1	11/14/16 14:56	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.02	"	"	"	"	
Anthracene	ND	2.01	4.02	"	"	"	"	
Benz(a)anthracene	ND	2.01	4.02	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.02	"	"	"	"	
Benzo(b)fluoranthene	ND	2.01	4.02	"	"	"	"	
Benzo(k)fluoranthene	ND	2.01	4.02	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.02	"	"	"	"	
Chrysene	ND	2.01	4.02	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.01	4.02	"	"	"	"	
Dibenzofuran	ND	2.01	4.02	"	"	"	"	
Fluoranthene	ND	2.01	4.02	"	"	"	"	
Fluorene	ND	2.01	4.02	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.02	"	"	"	"	
1-Methylnaphthalene	ND	4.02	8.04	"	"	"	"	
2-Methylnaphthalene	ND	4.02	8.04	"	"	"	"	
Naphthalene	ND	4.02	8.04	"	"	"	"	
Phenanthrene	ND	2.01	4.02	"	"	"	"	
Pyrene	ND	2.01	4.02	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*97 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-24->30' (1-1.5')_Prepared (A6J0950-25)			**Matrix: Soil**		**Batch: 6110429**			**H-08**
Acenaphthene	ND	1.91	3.82	ug/kg dry	1	11/14/16 15:22	EPA 8270D (SIM)	
Acenaphthylene	ND	1.91	3.82	"	"	"	"	
Anthracene	ND	1.91	3.82	"	"	"	"	
Benz(a)anthracene	ND	1.91	3.82	"	"	"	"	
Benzo(a)pyrene	ND	1.91	3.82	"	"	"	"	
Benzo(b)fluoranthene	ND	1.91	3.82	"	"	"	"	
Benzo(k)fluoranthene	ND	1.91	3.82	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.91	3.82	"	"	"	"	
Chrysene	ND	1.91	3.82	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.91	3.82	"	"	"	"	
Dibenzofuran	ND	1.91	3.82	"	"	"	"	
Fluoranthene	ND	1.91	3.82	"	"	"	"	
Fluorene	ND	1.91	3.82	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.91	3.82	"	"	"	"	
1-Methylnaphthalene	ND	3.82	7.63	"	"	"	"	
2-Methylnaphthalene	ND	3.82	7.63	"	"	"	"	
Naphthalene	ND	3.82	7.63	"	"	"	"	
Phenanthrene	ND	1.91	3.82	"	"	"	"	
Pyrene	ND	1.91	3.82	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*101 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-25-0-15' (0-0.5')_Prepared (A6J0950-26)			**Matrix: Soil**		**Batch: 6110429**			**H-08, R-04**
Acenaphthene	ND	3.95	7.90	ug/kg dry	2	11/14/16 15:49	EPA 8270D (SIM)	
Acenaphthylene	ND	3.95	7.90	"	"	"	"	
Anthracene	ND	3.95	7.90	"	"	"	"	
Benz(a)anthracene	ND	7.90	7.90	"	"	"	"	
Benzo(a)pyrene	ND	3.95	7.90	"	"	"	"	
Benzo(b)fluoranthene	ND	3.95	7.90	"	"	"	"	
Benzo(k)fluoranthene	ND	3.95	7.90	"	"	"	"	
Benzo(g,h,i)perylene	ND	3.95	7.90	"	"	"	"	
Chrysene	ND	7.90	7.90	"	"	"	"	
Dibenz(a,h)anthracene	ND	3.95	7.90	"	"	"	"	
Dibenzofuran	ND	3.95	7.90	"	"	"	"	
Fluoranthene	ND	3.95	7.90	"	"	"	"	
Fluorene	ND	3.95	7.90	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	3.95	7.90	"	"	"	"	
1-Methylnaphthalene	ND	7.90	15.8	"	"	"	"	
2-Methylnaphthalene	ND	7.90	15.8	"	"	"	"	
Naphthalene	ND	7.90	15.8	"	"	"	"	
Phenanthrene	ND	3.95	7.90	"	"	"	"	
Pyrene	ND	3.95	7.90	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 63 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*91 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-25-0-15' (0.5-1')_Prepared (A6J0950-27)			**Matrix: Soil**		**Batch: 6110429**			**H-08**
Acenaphthene	ND	1.98	3.97	ug/kg dry	1	11/14/16 16:15	EPA 8270D (SIM)	
Acenaphthylene	ND	1.98	3.97	"	"	"	"	
Anthracene	ND	1.98	3.97	"	"	"	"	
Benz(a)anthracene	ND	1.98	3.97	"	"	"	"	
Benzo(a)pyrene	ND	1.98	3.97	"	"	"	"	
Benzo(b)fluoranthene	ND	1.98	3.97	"	"	"	"	
Benzo(k)fluoranthene	ND	1.98	3.97	"	"	"	"	
Benzo(g,h,i)perylene	**2.69**	1.98	3.97	"	"	"	"	J
Chrysene	ND	1.98	3.97	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.98	3.97	"	"	"	"	
Dibenzofuran	ND	1.98	3.97	"	"	"	"	
Fluoranthene	ND	1.98	3.97	"	"	"	"	
Fluorene	ND	1.98	3.97	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.98	3.97	"	"	"	"	
1-Methylnaphthalene	ND	3.97	7.94	"	"	"	"	
2-Methylnaphthalene	ND	3.97	7.94	"	"	"	"	
Naphthalene	ND	3.97	7.94	"	"	"	"	
Phenanthrene	ND	1.98	3.97	"	"	"	"	
Pyrene	ND	1.98	3.97	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 79 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*102 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-25-0-15' (1-1.5')_Prepared (A6J0950-28)			**Matrix: Soil**		**Batch: 6110429**			**H-08, R-04**
Acenaphthene	ND	14.2	28.5	ug/kg dry	3	11/14/16 16:41	EPA 8270D (SIM)	
Acenaphthylene	ND	14.2	28.5	"	"	"	"	
Anthracene	ND	14.2	28.5	"	"	"	"	
Benz(a)anthracene	ND	14.2	28.5	"	"	"	"	
Benzo(a)pyrene	ND	14.2	28.5	"	"	"	"	
Benzo(b)fluoranthene	ND	14.2	28.5	"	"	"	"	
Benzo(k)fluoranthene	ND	14.2	28.5	"	"	"	"	
Benzo(g,h,i)perylene	ND	14.2	28.5	"	"	"	"	
Chrysene	ND	14.2	28.5	"	"	"	"	
Dibenz(a,h)anthracene	ND	14.2	28.5	"	"	"	"	
Dibenzofuran	ND	14.2	28.5	"	"	"	"	
Fluoranthene	ND	14.2	28.5	"	"	"	"	
Fluorene	ND	14.2	28.5	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	14.2	28.5	"	"	"	"	
1-Methylnaphthalene	ND	28.5	57.0	"	"	"	"	
2-Methylnaphthalene	ND	28.5	57.0	"	"	"	"	
Naphthalene	ND	28.5	57.0	"	"	"	"	
Phenanthrene	ND	14.2	28.5	"	"	"	"	
Pyrene	ND	14.2	28.5	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*102 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-25-15-30' (0-0.5')_Prepared (A6J0950-29)			**Matrix: Soil**		**Batch: 6110429**			**R-04, H-08**
Acenaphthene	ND	14.6	29.2	ug/kg dry	3	11/14/16 17:07	EPA 8270D (SIM)	
Acenaphthylene	ND	14.6	29.2	"	"	"	"	
Anthracene	ND	14.6	29.2	"	"	"	"	
Benz(a)anthracene	ND	29.2	29.2	"	"	"	"	
Benzo(a)pyrene	ND	14.6	29.2	"	"	"	"	
Benzo(b)fluoranthene	ND	14.6	29.2	"	"	"	"	
Benzo(k)fluoranthene	ND	14.6	29.2	"	"	"	"	
Benzo(g,h,i)perylene	ND	14.6	29.2	"	"	"	"	
Chrysene	ND	29.2	29.2	"	"	"	"	
Dibenz(a,h)anthracene	ND	14.6	29.2	"	"	"	"	
Dibenzofuran	ND	14.6	29.2	"	"	"	"	
Fluoranthene	ND	14.6	29.2	"	"	"	"	
Fluorene	ND	14.6	29.2	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	14.6	29.2	"	"	"	"	
1-Methylnaphthalene	ND	29.2	58.3	"	"	"	"	
2-Methylnaphthalene	ND	29.2	58.3	"	"	"	"	
Naphthalene	ND	29.2	58.3	"	"	"	"	
Phenanthrene	ND	14.6	29.2	"	"	"	"	
Pyrene	ND	14.6	29.2	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 90 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*120 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-25-15-30' (0.5-1')_Prepared (A6J0950-30)			**Matrix: Soil**		**Batch: 6110429**			**H-08**
Acenaphthene	ND	1.82	3.63	ug/kg dry	1	11/14/16 17:33	EPA 8270D (SIM)	
Acenaphthylene	ND	1.82	3.63	"	"	"	"	
Anthracene	ND	1.82	3.63	"	"	"	"	
Benz(a)anthracene	ND	1.82	3.63	"	"	"	"	
Benzo(a)pyrene	ND	1.82	3.63	"	"	"	"	
Benzo(b)fluoranthene	ND	1.82	3.63	"	"	"	"	
Benzo(k)fluoranthene	ND	1.82	3.63	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.82	3.63	"	"	"	"	
Chrysene	ND	3.63	3.63	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.82	3.63	"	"	"	"	
Dibenzofuran	ND	1.82	3.63	"	"	"	"	
Fluoranthene	ND	1.82	3.63	"	"	"	"	
Fluorene	ND	1.82	3.63	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.63	"	"	"	"	
1-Methylnaphthalene	ND	3.63	7.27	"	"	"	"	
2-Methylnaphthalene	ND	3.63	7.27	"	"	"	"	
Naphthalene	ND	3.63	7.27	"	"	"	"	
Phenanthrene	ND	1.82	3.63	"	"	"	"	
Pyrene	ND	1.82	3.63	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 52 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*89 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-25-15-30' (1-1.5')_Prepared (A6J0950-31)			**Matrix: Soil**		**Batch: 6110429**			**H-08**
Acenaphthene	ND	2.01	4.01	ug/kg dry	1	11/14/16 17:59	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.01	"	"	"	"	
Anthracene	ND	2.01	4.01	"	"	"	"	
Benz(a)anthracene	ND	2.01	4.01	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.01	"	"	"	"	
Benzo(b)fluoranthene	ND	2.01	4.01	"	"	"	"	
Benzo(k)fluoranthene	ND	2.01	4.01	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.01	"	"	"	"	
Chrysene	ND	2.01	4.01	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.01	4.01	"	"	"	"	
Dibenzofuran	ND	2.01	4.01	"	"	"	"	
Fluoranthene	ND	2.01	4.01	"	"	"	"	
Fluorene	ND	2.01	4.01	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.01	"	"	"	"	
1-Methylnaphthalene	ND	4.01	8.03	"	"	"	"	
2-Methylnaphthalene	ND	4.01	8.03	"	"	"	"	
Naphthalene	ND	8.03	8.03	"	"	"	"	
Phenanthrene	ND	2.01	4.01	"	"	"	"	
Pyrene	ND	2.01	4.01	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*98 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-25->30' (0-0.5')_Prepared (A6J0950-32)			**Matrix: Soil**		**Batch: 6110429**			**H-08, R-04**
Acenaphthene	ND	13.3	26.7	ug/kg dry	3	11/14/16 18:25	EPA 8270D (SIM)	
Acenaphthylene	ND	13.3	26.7	"	"	"	"	
Anthracene	ND	13.3	26.7	"	"	"	"	
Benz(a)anthracene	ND	13.3	26.7	"	"	"	"	
Benzo(a)pyrene	ND	13.3	26.7	"	"	"	"	
Benzo(b)fluoranthene	ND	13.3	26.7	"	"	"	"	
Benzo(k)fluoranthene	ND	13.3	26.7	"	"	"	"	
Benzo(g,h,i)perylene	ND	13.3	26.7	"	"	"	"	
Chrysene	ND	13.3	26.7	"	"	"	"	
Dibenz(a,h)anthracene	ND	13.3	26.7	"	"	"	"	
Dibenzofuran	ND	13.3	26.7	"	"	"	"	
Fluoranthene	ND	13.3	26.7	"	"	"	"	
Fluorene	ND	13.3	26.7	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	13.3	26.7	"	"	"	"	
1-Methylnaphthalene	ND	26.7	53.4	"	"	"	"	
2-Methylnaphthalene	ND	26.7	53.4	"	"	"	"	
Naphthalene	ND	26.7	53.4	"	"	"	"	
Phenanthrene	ND	13.3	26.7	"	"	"	"	
Pyrene	ND	13.3	26.7	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*102 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-25->30' (0.5-1')_Prepared (A6J0950-33)			**Matrix: Soil**		**Batch: 6110429**			**H-08, R-04**
Acenaphthene	ND	5.54	11.1	ug/kg dry	3	11/14/16 18:51	EPA 8270D (SIM)	
Acenaphthylene	ND	5.54	11.1	"	"	"	"	
Anthracene	ND	5.54	11.1	"	"	"	"	
Benz(a)anthracene	ND	5.54	11.1	"	"	"	"	
Benzo(a)pyrene	ND	5.54	11.1	"	"	"	"	
Benzo(b)fluoranthene	ND	5.54	11.1	"	"	"	"	
Benzo(k)fluoranthene	ND	5.54	11.1	"	"	"	"	
Benzo(g,h,i)perylene	ND	5.54	11.1	"	"	"	"	
Chrysene	ND	5.54	11.1	"	"	"	"	
Dibenz(a,h)anthracene	ND	5.54	11.1	"	"	"	"	
Dibenzofuran	ND	5.54	11.1	"	"	"	"	
Fluoranthene	ND	5.54	11.1	"	"	"	"	
Fluorene	ND	5.54	11.1	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	5.54	11.1	"	"	"	"	
1-Methylnaphthalene	ND	11.1	22.2	"	"	"	"	
2-Methylnaphthalene	ND	11.1	22.2	"	"	"	"	
Naphthalene	ND	11.1	22.2	"	"	"	"	
Phenanthrene	ND	5.54	11.1	"	"	"	"	
Pyrene	ND	5.54	11.1	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*105 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-25->30' (1-1.5')_Prepared (A6J0950-34)			**Matrix: Soil**		**Batch: 6110429**			**H-08, R-04**
Acenaphthene	ND	14.0	28.0	ug/kg dry	3	11/14/16 19:17	EPA 8270D (SIM)	
Acenaphthylene	ND	14.0	28.0	"	"	"	"	
Anthracene	ND	14.0	28.0	"	"	"	"	
Benz(a)anthracene	ND	14.0	28.0	"	"	"	"	
Benzo(a)pyrene	ND	14.0	28.0	"	"	"	"	
Benzo(b)fluoranthene	ND	14.0	28.0	"	"	"	"	
Benzo(k)fluoranthene	ND	14.0	28.0	"	"	"	"	
Benzo(g,h,i)perylene	ND	14.0	28.0	"	"	"	"	
Chrysene	ND	14.0	28.0	"	"	"	"	
Dibenz(a,h)anthracene	ND	14.0	28.0	"	"	"	"	
Dibenzofuran	ND	14.0	28.0	"	"	"	"	
Fluoranthene	ND	14.0	28.0	"	"	"	"	
Fluorene	ND	14.0	28.0	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	14.0	28.0	"	"	"	"	
1-Methylnaphthalene	ND	28.0	56.0	"	"	"	"	
2-Methylnaphthalene	ND	28.0	56.0	"	"	"	"	
Naphthalene	ND	28.0	56.0	"	"	"	"	
Phenanthrene	ND	14.0	28.0	"	"	"	"	
Pyrene	ND	14.0	28.0	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*119 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6J0950-38)			**Matrix: Solid**		**Batch: 6110429**			**H-08**
Acenaphthene	ND	1.84	3.67	ug/kg wet	1	11/15/16 16:48	EPA 8270D (SIM)	
Acenaphthylene	ND	1.84	3.67	"	"	"	"	
Anthracene	ND	1.84	3.67	"	"	"	"	
Benz(a)anthracene	ND	1.84	3.67	"	"	"	"	
Benzo(a)pyrene	ND	1.84	3.67	"	"	"	"	
Benzo(b)fluoranthene	ND	1.84	3.67	"	"	"	"	
Benzo(k)fluoranthene	ND	1.84	3.67	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.84	3.67	"	"	"	"	
Chrysene	ND	1.84	3.67	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.84	3.67	"	"	"	"	
Dibenzofuran	ND	1.84	3.67	"	"	"	"	
Fluoranthene	ND	1.84	3.67	"	"	"	"	
Fluorene	ND	1.84	3.67	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.84	3.67	"	"	"	"	
1-Methylnaphthalene	ND	3.67	7.35	"	"	"	"	
2-Methylnaphthalene	ND	3.67	7.35	"	"	"	"	
Naphthalene	ND	3.67	7.35	"	"	"	"	
Phenanthrene	ND	1.84	3.67	"	"	"	"	
Pyrene	ND	1.84	3.67	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 61 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*89 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-01-0-15' (0-0.5')_Prepared (A6J0556-21)			**Matrix: Soil**					
Batch: 6101067								
Lead	**3.55**	0.104	0.208	mg/kg dry	10	10/28/16 12:56	EPA 6020A	
BR-01-0-15' (0.5-1')_Prepared (A6J0556-22)			**Matrix: Soil**					
Batch: 6101067								
Lead	**3.85**	0.0995	0.199	mg/kg dry	10	10/28/16 13:08	EPA 6020A	
BR-01-0-15' (1-1.5')_Prepared (A6J0556-23)			**Matrix: Soil**					
Batch: 6101067								
Lead	**11.2**	0.104	0.208	mg/kg dry	10	10/28/16 13:14	EPA 6020A	
BR-01-15-30' (0-0.5')_Prepared (A6J0556-24)			**Matrix: Soil**					
Batch: 6101067								
Lead	**3.97**	0.0993	0.199	mg/kg dry	10	10/28/16 13:17	EPA 6020A	
BR-01-15-30' (0.5-1')_Prepared (A6J0556-25)			**Matrix: Soil**					
Batch: 6101067								
Lead	**4.16**	0.106	0.212	mg/kg dry	10	10/28/16 13:20	EPA 6020A	
BR-01-15-30' (1-1.5')_Prepared (A6J0556-26)			**Matrix: Soil**					
Batch: 6101067								
Lead	**3.69**	0.0992	0.198	mg/kg dry	10	10/28/16 13:32	EPA 6020A	
BR-01->30' (0-0.5')_Prepared (A6J0556-27)			**Matrix: Soil**					
Batch: 6101067								
Lead	**15.5**	0.105	0.209	mg/kg dry	10	10/28/16 13:35	EPA 6020A	
BR-01->30' (0.5-1')_Prepared (A6J0556-28)			**Matrix: Soil**					
Batch: 6101067								
Lead	**3.59**	0.111	0.222	mg/kg dry	10	10/28/16 13:47	EPA 6020A	
BR-01->30' (1-1.5')_Prepared (A6J0556-29)			**Matrix: Soil**					
Batch: 6101067								
Lead	**2.84**	0.102	0.204	mg/kg dry	10	10/28/16 13:50	EPA 6020A	
BR-02-15-30' (0-0.5')_Prepared (A6J0556-30)			**Matrix: Soil**					
Batch: 6101067								
Lead	**5.54**	0.108	0.217	mg/kg dry	10	10/28/16 13:53	EPA 6020A	
BR-02-15-30' (0-0.5') DUP_Prepared (A6J0556-31)			**Matrix: Soil**					
Batch: 6101067								
Lead	**5.73**	0.102	0.203	mg/kg dry	10	10/28/16 13:56	EPA 6020A	
BR-02-15-30' (0.5-1')_Prepared (A6J0556-32)			**Matrix: Soil**					

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-02-15-30' (0.5-1')_Prepared (A6J0556-32)			**Matrix: Soil**					
Batch: 6101070								
Lead	**5.03**	0.110	0.221	mg/kg dry	10	10/31/16 21:07	EPA 6020A	
BR-02-15-30' (1-1.5')_Prepared (A6J0556-33)			**Matrix: Soil**					
Batch: 6101070								
Lead	**4.41**	0.110	0.220	mg/kg dry	10	10/31/16 21:10	EPA 6020A	
BR-02->30' (0-0.5')_Prepared (A6J0556-34)			**Matrix: Soil**					
Batch: 6101070								
Lead	**4.48**	0.101	0.202	mg/kg dry	10	10/31/16 21:13	EPA 6020A	
BR-02->30' (0.5-1')_Prepared (A6J0556-35)			**Matrix: Soil**					
Batch: 6101070								
Lead	**2.80**	0.110	0.221	mg/kg dry	10	10/31/16 21:16	EPA 6020A	
BR-02->30' (1-1.5')_Prepared (A6J0556-36)			**Matrix: Soil**					
Batch: 6101070								
Lead	**2.72**	0.0994	0.199	mg/kg dry	10	10/31/16 21:19	EPA 6020A	
BR-03-15-30' (0-0.5')_Prepared (A6J0556-37RE1)			**Matrix: Soil**					
Batch: 6101070								
Lead	**6.00**	0.112	0.224	mg/kg dry	10	10/31/16 21:39	EPA 6020A	
BR-03-15-30' (0.5-1')_Prepared (A6J0556-38)			**Matrix: Soil**					
Batch: 6101070								
Lead	**7.33**	0.111	0.222	mg/kg dry	10	10/31/16 21:42	EPA 6020A	
BR-03-15-30' (1-1.5')_Prepared (A6J0556-39)			**Matrix: Soil**					
Batch: 6101070								
Lead	**7.24**	0.109	0.219	mg/kg dry	10	10/31/16 21:45	EPA 6020A	
BR-03->30' (0-0.5')_Prepared (A6J0556-40)			**Matrix: Soil**					
Batch: 6101070								
Lead	**6.70**	0.111	0.223	mg/kg dry	10	10/31/16 21:48	EPA 6020A	
Grind Blank (A6J0556-41)			**Matrix: Solid**					
Batch: 6110224								
Lead	ND	0.108	0.215	mg/kg	10	11/04/16 14:35	EPA 6020A	
BR-03->30' (0.5-1')_Prepared (A6J0562-21)			**Matrix: Soil**					
Batch: 6101070								
Lead	**6.48**	0.111	0.222	mg/kg dry	10	10/31/16 21:51	EPA 6020A	
BR-03->30' (1-1.5')_Prepared (A6J0562-22)			**Matrix: Soil**					

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-03->30' (1-1.5')_Prepared (A6J0562-22)			**Matrix: Soil**					
Batch: 6101070								
Lead	**6.71**	0.119	0.237	mg/kg dry	10	10/31/16 21:54	EPA 6020A	
BR-04-0-15' (0-0.5')_Prepared (A6J0562-23)			**Matrix: Soil**					
Batch: 6101070								
Lead	**12.3**	0.102	0.203	mg/kg dry	10	10/31/16 21:56	EPA 6020A	
BR-04-0-15' (0.5-1')_Prepared (A6J0562-24)			**Matrix: Soil**					
Batch: 6101070								
Lead	**23.5**	0.0986	0.197	mg/kg dry	10	10/31/16 21:59	EPA 6020A	
BR-04-0-15' (1-1.5')_Prepared (A6J0562-25)			**Matrix: Soil**					
Batch: 6101070								
Lead	**17.0**	0.103	0.207	mg/kg dry	10	10/31/16 22:11	EPA 6020A	
BR-04-15-30' (0-0.5')_Prepared (A6J0562-26)			**Matrix: Soil**					
Batch: 6101070								
Lead	**17.5**	0.104	0.207	mg/kg dry	10	10/31/16 22:14	EPA 6020A	
BR-04-15-30' (0.5-1')_Prepared (A6J0562-27)			**Matrix: Soil**					
Batch: 6101070								
Lead	**7.13**	0.108	0.217	mg/kg dry	10	10/31/16 22:17	EPA 6020A	
BR-04-15-30' (1-1.5')_Prepared (A6J0562-28)			**Matrix: Soil**					
Batch: 6101070								
Lead	**6.96**	0.105	0.209	mg/kg dry	10	10/31/16 22:20	EPA 6020A	
BR-04->30' (0-0.5')_Prepared (A6J0562-29)			**Matrix: Soil**					
Batch: 6101070								
Lead	**6.04**	0.102	0.203	mg/kg dry	10	10/31/16 22:23	EPA 6020A	
BR-04->30' (0.5-1')_Prepared (A6J0562-30)			**Matrix: Soil**					
Batch: 6101070								
Lead	**15.1**	0.109	0.219	mg/kg dry	10	10/31/16 22:35	EPA 6020A	
BR-04->30' (1-1.5')_Prepared (A6J0562-31)			**Matrix: Soil**					
Batch: 6101077								
Lead	**6.56**	0.111	0.221	mg/kg dry	10	10/31/16 22:56	EPA 6020A	
BR-05-15-30' (0-0.5')_Prepared (A6J0562-32)			**Matrix: Soil**					
Batch: 6101077								
Lead	**12.1**	0.109	0.218	mg/kg dry	10	10/31/16 22:59	EPA 6020A	
BR-05-15-30' (0.5-1')_Prepared (A6J0562-33)			**Matrix: Soil**					

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-05-15-30' (0.5-1')_Prepared (A6J0562-33)			**Matrix: Soil**					
Batch: 6101077								
Lead	**5.90**	0.110	0.220	mg/kg dry	10	10/31/16 23:02	EPA 6020A	
BR-05-15-30' (1-1.5')_Prepared (A6J0562-34)			**Matrix: Soil**					
Batch: 6101077								
Lead	**3.58**	0.109	0.218	mg/kg dry	10	10/31/16 23:05	EPA 6020A	
BR-05->30 (0-0.5')_Prepared (A6J0562-35)			**Matrix: Soil**					
Batch: 6101077								
Lead	**6.60**	0.0989	0.198	mg/kg dry	10	10/31/16 23:14	EPA 6020A	
BR-05->30 (0.5-1')_Prepared (A6J0562-36)			**Matrix: Soil**					
Batch: 6101077								
Lead	**5.81**	0.104	0.209	mg/kg dry	10	10/31/16 23:17	EPA 6020A	
BR-05->30' (1-1.5')_Prepared (A6J0562-37)			**Matrix: Soil**					
Batch: 6101077								
Lead	**5.23**	0.111	0.222	mg/kg dry	10	10/31/16 23:20	EPA 6020A	
BR-06-0-15' (0-0.5')_Prepared (A6J0562-38)			**Matrix: Soil**					
Batch: 6101077								
Lead	**10.3**	0.100	0.200	mg/kg dry	10	10/31/16 23:32	EPA 6020A	
BR-06-0-15' (0.5-1')_Prepared (A6J0562-39)			**Matrix: Soil**					
Batch: 6101077								
Lead	**5.07**	0.115	0.230	mg/kg dry	10	10/31/16 23:35	EPA 6020A	
BR-06-0-15' (1-1.5')_Prepared (A6J0562-40)			**Matrix: Soil**					
Batch: 6101077								
Lead	**4.57**	0.110	0.221	mg/kg dry	10	10/31/16 23:38	EPA 6020A	
Grind Blank (A6J0562-41)			**Matrix: Solid**					
Batch: 6110224								
Lead	ND	0.108	0.215	mg/kg	10	11/04/16 14:38	EPA 6020A	
BR-06-15-30' (0-0.5')_Prepared (A6J0598-21)			**Matrix: Soil**					
Batch: 6101101								
Lead	**3.34**	0.101	0.203	mg/kg dry	10	11/01/16 00:32	EPA 6020A	
BR-06-15-30' (0.5-1')_Prepared (A6J0598-22)			**Matrix: Soil**					
Batch: 6101101								
Lead	**3.79**	0.110	0.219	mg/kg dry	10	11/01/16 00:35	EPA 6020A	
BR-06-15-30' (1-1.5')_Prepared (A6J0598-23)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-06-15-30' (1-1.5')_Prepared (A6J0598-23)			**Matrix: Soil**					
Batch: 6101101								
Lead	**2.95**	0.105	0.211	mg/kg dry	10	11/01/16 00:38	EPA 6020A	
BR-06->30' (0-0.5')_Prepared (A6J0598-24)			**Matrix: Soil**					
Batch: 6101101								
Lead	**3.62**	0.108	0.217	mg/kg dry	10	11/01/16 00:42	EPA 6020A	
BR-06->30' (0.5-1')_Prepared (A6J0598-25)			**Matrix: Soil**					
Batch: 6101101								
Lead	**3.64**	0.104	0.207	mg/kg dry	10	11/01/16 00:54	EPA 6020A	
BR-06->30' (1-1.5')_Prepared (A6J0598-26)			**Matrix: Soil**					
Batch: 6101101								
Lead	**2.92**	0.108	0.216	mg/kg dry	10	11/01/16 01:06	EPA 6020A	
BR-06->30' (1-1.5') DUP_Prepared (A6J0598-27)			**Matrix: Soil**					
Batch: 6101101								
Lead	**2.99**	0.108	0.216	mg/kg dry	10	11/01/16 01:09	EPA 6020A	
BR-07-0-15' (0-0.5')_Prepared (A6J0598-28)			**Matrix: Soil**					
Batch: 6101101								
Lead	**3.51**	0.108	0.216	mg/kg dry	10	11/01/16 01:12	EPA 6020A	
BR-07-0-15' (0.5-1')_Prepared (A6J0598-29)			**Matrix: Soil**					
Batch: 6101101								
Lead	**2.83**	0.104	0.208	mg/kg dry	10	11/01/16 01:15	EPA 6020A	
BR-07-0-15' (1-1.5')_Prepared (A6J0598-30)			**Matrix: Soil**					
Batch: 6101101								
Lead	**5.58**	0.111	0.221	mg/kg dry	10	11/01/16 01:18	EPA 6020A	
BR-07-15-30' (0-0.5')_Prepared (A6J0598-31)			**Matrix: Soil**					
Batch: 6101110								
Lead	**6.57**	0.106	0.211	mg/kg dry	10	11/01/16 15:18	EPA 6020A	
BR-07-15-30' (0.5-1')_Prepared (A6J0598-32)			**Matrix: Soil**					
Batch: 6101110								
Lead	**3.31**	0.105	0.209	mg/kg dry	10	11/01/16 15:21	EPA 6020A	
BR-07-15-30' (1-1.5')_Prepared (A6J0598-33)			**Matrix: Soil**					
Batch: 6101110								
Lead	**3.16**	0.107	0.214	mg/kg dry	10	11/01/16 15:24	EPA 6020A	
BR-07->30' (0-0.5')_Prepared (A6J0598-34)			**Matrix: Soil**					

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ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-07->30' (0-0.5')_Prepared (A6J0598-34)			**Matrix: Soil**					
Batch: 6101110								
Lead	**2.96**	0.103	0.205	mg/kg dry	10	11/01/16 15:27	EPA 6020A	
BR-07->30' (0.5-1')_Prepared (A6J0598-35)			**Matrix: Soil**					
Batch: 6101110								
Lead	**2.33**	0.102	0.204	mg/kg dry	10	11/01/16 15:30	EPA 6020A	
BR-07->30' (1-1.5')_Prepared (A6J0598-36)			**Matrix: Soil**					
Batch: 6101110								
Lead	**2.92**	0.109	0.218	mg/kg dry	10	11/01/16 15:33	EPA 6020A	
BR-08-15-30' (0-0.5')_Prepared (A6J0598-37)			**Matrix: Soil**					
Batch: 6101110								
Lead	**3.59**	0.103	0.207	mg/kg dry	10	11/01/16 15:46	EPA 6020A	
BR-08-15-30' (0.5-1')_Prepared (A6J0598-38)			**Matrix: Soil**					
Batch: 6101110								
Lead	**2.88**	0.111	0.223	mg/kg dry	10	11/01/16 15:49	EPA 6020A	
BR-08-15-30' (1-1.5')_Prepared (A6J0598-39RE1)			**Matrix: Soil**					
Batch: 6101110								
Lead	**2.58**	0.105	0.211	mg/kg dry	10	11/02/16 20:48	EPA 6020A	
BR-08->30' (0-0.5')_Prepared (A6J0598-40)			**Matrix: Soil**					
Batch: 6101110								
Lead	**5.07**	0.103	0.205	mg/kg dry	10	11/01/16 15:55	EPA 6020A	
Grind Blank (A6J0598-41)			**Matrix: Solid**					
Batch: 6110224								
Lead	ND	0.0980	0.196	mg/kg	10	11/04/16 14:41	EPA 6020A	
BR-08->30' (0.5-1')_Prepared (A6J0754-21)			**Matrix: Soil**					
Batch: 6101077								
Lead	**4.01**	0.103	0.206	mg/kg dry	10	10/31/16 23:41	EPA 6020A	
BR-08->30' (1-1.5')_Prepared (A6J0754-22)			**Matrix: Soil**					
Batch: 6101077								
Lead	**3.57**	0.109	0.217	mg/kg dry	10	10/31/16 23:44	EPA 6020A	
BR-09-15-30' (0-0.5')_Prepared (A6J0754-23)			**Matrix: Soil**					
Batch: 6101077								
Lead	**12.3**	0.105	0.209	mg/kg dry	10	10/31/16 23:47	EPA 6020A	
BR-09-15-30' (0.5-1')_Prepared (A6J0754-24)			**Matrix: Soil**					

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Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-09-15-30' (0.5-1')_Prepared (A6J0754-24)			**Matrix: Soil**					
Batch: 6101077								
Lead	**8.46**	0.106	0.212	mg/kg dry	10	10/31/16 23:50	EPA 6020A	
BR-09-15-30' (1-1.5')_Prepared (A6J0754-25)			**Matrix: Soil**					
Batch: 6101077								
Lead	**7.35**	0.111	0.222	mg/kg dry	10	10/31/16 23:53	EPA 6020A	
BR-09->30' (0-0.5')_Prepared (A6J0754-26)			**Matrix: Soil**					
Batch: 6101077								
Lead	**8.45**	0.103	0.206	mg/kg dry	10	10/31/16 23:56	EPA 6020A	
BR-09->30' DUP (0-0.5')_Prepared (A6J0754-27)			**Matrix: Soil**					
Batch: 6101077								
Lead	**9.97**	0.102	0.203	mg/kg dry	10	10/31/16 23:59	EPA 6020A	
BR-09->30' (0.5-1')_Prepared (A6J0754-28)			**Matrix: Soil**					
Batch: 6101077								
Lead	**8.76**	0.106	0.212	mg/kg dry	10	11/01/16 00:11	EPA 6020A	
BR-09->30' (1-1.5')_Prepared (A6J0754-29)			**Matrix: Soil**					
Batch: 6101077								
Lead	**8.29**	0.111	0.223	mg/kg dry	10	11/01/16 00:14	EPA 6020A	
BR-10-0-15' (0-0.5')_Prepared (A6J0754-30)			**Matrix: Soil**					
Batch: 6101077								
Lead	**13.1**	0.111	0.222	mg/kg dry	10	11/01/16 00:20	EPA 6020A	
BR-10-0-15' (0.5-1')_Prepared (A6J0754-31)			**Matrix: Soil**					
Batch: 6101101								
Lead	**13.8**	0.108	0.216	mg/kg dry	10	11/01/16 01:21	EPA 6020A	
BR-10-0-15' (1-1.5')_Prepared (A6J0754-32)			**Matrix: Soil**					
Batch: 6101101								
Lead	**11.6**	0.111	0.223	mg/kg dry	10	11/01/16 01:33	EPA 6020A	
BR-10-15-30' (0-0.5')_Prepared (A6J0754-33)			**Matrix: Soil**					
Batch: 6101101								
Lead	**10.5**	0.109	0.217	mg/kg dry	10	11/01/16 01:36	EPA 6020A	
BR-10-15-30' (0.5-1')_Prepared (A6J0754-34)			**Matrix: Soil**					
Batch: 6101101								
Lead	**8.53**	0.107	0.215	mg/kg dry	10	11/01/16 01:39	EPA 6020A	
BR-10-15-30' (1-1.5')_Prepared (A6J0754-35)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-10-15-30' (1-1.5')_Prepared (A6J0754-35)			**Matrix: Soil**					
Batch: 6101101								
Lead	**6.80**	0.114	0.228	mg/kg dry	10	11/01/16 01:42	EPA 6020A	
BR-10->30' (0-0.5')_Prepared (A6J0754-36)			**Matrix: Soil**					
Batch: 6101101								
Lead	**9.26**	0.106	0.212	mg/kg dry	10	11/01/16 01:45	EPA 6020A	
BR-10->30' (0-0.5') DUP_Prepared (A6J0754-37)			**Matrix: Soil**					
Batch: 6101101								
Lead	**10.2**	0.111	0.222	mg/kg dry	10	11/01/16 01:48	EPA 6020A	
BR-10->30' (0.5-1')_Prepared (A6J0754-38)			**Matrix: Soil**					
Batch: 6101101								
Lead	**9.29**	0.105	0.209	mg/kg dry	10	11/01/16 01:51	EPA 6020A	
BR-10->30' (1-1.5')_Prepared (A6J0754-39)			**Matrix: Soil**					
Batch: 6101101								
Lead	**8.17**	0.107	0.213	mg/kg dry	10	11/01/16 01:58	EPA 6020A	
BR-11-0-15' (0-0.5')_Prepared (A6J0754-40)			**Matrix: Soil**					
Batch: 6101110								
Lead	**9.19**	0.113	0.225	mg/kg dry	10	11/01/16 16:01	EPA 6020A	
Grind Blank (A6J0754-41)			**Matrix: Solid**					
Batch: 6110224								
Lead	ND	0.108	0.217	mg/kg	10	11/04/16 14:44	EPA 6020A	
BR-11-0-15' (0.5-1')_Prepared (A6J0823-21)			**Matrix: Soil**					
Batch: 6110270								
Lead	**14.2**	0.101	0.203	mg/kg dry	10	11/04/16 17:30	EPA 6020A	
BR-11-0-15' (1-1.5')_Prepared (A6J0823-22)			**Matrix: Soil**					
Batch: 6110270								
Lead	**17.3**	0.102	0.203	mg/kg dry	10	11/04/16 17:33	EPA 6020A	
BR-11-15-30' (0-0.5')_Prepared (A6J0823-23)			**Matrix: Soil**					
Batch: 6110270								
Lead	**14.8**	0.108	0.215	mg/kg dry	10	11/04/16 17:37	EPA 6020A	
BR-11-15-30' (0.5-1')_Prepared (A6J0823-24)			**Matrix: Soil**					
Batch: 6110270								
Lead	**7.88**	0.0996	0.199	mg/kg dry	10	11/04/16 17:52	EPA 6020A	
BR-11-15-30' (1-1.5')_Prepared (A6J0823-25)			**Matrix: Soil**					

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Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-11-15-30' (1-1.5')_Prepared (A6J0823-25)			**Matrix: Soil**					
Batch: 6110270								
Lead	**9.77**	0.110	0.219	mg/kg dry	10	11/04/16 17:56	EPA 6020A	
BR-11->30' (0-0.5')_Prepared (A6J0823-26)			**Matrix: Soil**					
Batch: 6110270								
Lead	**8.92**	0.108	0.217	mg/kg dry	10	11/04/16 17:59	EPA 6020A	
BR-11->30' (0.5-1')_Prepared (A6J0823-27)			**Matrix: Soil**					
Batch: 6110270								
Lead	**8.05**	0.115	0.231	mg/kg dry	10	11/04/16 18:25	EPA 6020A	
BR-11->30' (1-1.5')_Prepared (A6J0823-28)			**Matrix: Soil**					
Batch: 6110270								
Lead	**9.88**	0.115	0.230	mg/kg dry	10	11/04/16 18:40	EPA 6020A	
BR-12-0-15' (0-0.5')_Prepared (A6J0823-29)			**Matrix: Soil**					
Batch: 6110270								
Lead	**5.50**	0.110	0.221	mg/kg dry	10	11/04/16 18:44	EPA 6020A	
BR-12-0-15' (0.5-1')_Prepared (A6J0823-30)			**Matrix: Soil**					
Batch: 6110270								
Lead	**4.46**	0.107	0.213	mg/kg dry	10	11/04/16 18:59	EPA 6020A	
BR-12-0-15' (1-1.5')_Prepared (A6J0823-31)			**Matrix: Soil**					
Batch: 6110270								
Lead	**3.55**	0.111	0.222	mg/kg dry	10	11/04/16 19:02	EPA 6020A	
BR-12-15-30' (0-0.5')_Prepared (A6J0823-32)			**Matrix: Soil**					
Batch: 6110270								
Lead	**9.69**	0.110	0.220	mg/kg dry	10	11/04/16 19:06	EPA 6020A	
BR-12-15-30' (0.5-1')_Prepared (A6J0823-33)			**Matrix: Soil**					
Batch: 6110270								
Lead	**8.13**	0.104	0.208	mg/kg dry	10	11/04/16 19:10	EPA 6020A	
BR-12->30' (0-0.5')_Prepared (A6J0823-34)			**Matrix: Soil**					
Batch: 6110270								
Lead	**10.8**	0.110	0.219	mg/kg dry	10	11/04/16 19:14	EPA 6020A	
BR-12->30' (0.5-1')_Prepared (A6J0823-35)			**Matrix: Soil**					
Batch: 6110270								
Lead	**8.90**	0.112	0.224	mg/kg dry	10	11/04/16 19:28	EPA 6020A	
BR-13-15-30' (0-0.5')_Prepared (A6J0823-36)			**Matrix: Soil**					

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Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-13-15-30' (0-0.5')_Prepared (A6J0823-36)			**Matrix: Soil**					
Batch: 6110270								
Lead	**11.3**	0.116	0.233	mg/kg dry	10	11/04/16 19:32	EPA 6020A	
BR-13-15-30' (0.5-1')_Prepared (A6J0823-37)			**Matrix: Soil**					
Batch: 6110270								
Lead	**15.8**	0.102	0.203	mg/kg dry	10	11/04/16 19:36	EPA 6020A	
BR-13-15-30' (1-1.5')_Prepared (A6J0823-38)			**Matrix: Soil**					
Batch: 6110270								
Lead	**18.6**	0.102	0.203	mg/kg dry	10	11/04/16 19:40	EPA 6020A	
BR-13->30' (0-0.5')_Prepared (A6J0823-39)			**Matrix: Soil**					
Batch: 6110270								
Lead	**20.6**	0.106	0.212	mg/kg dry	10	11/04/16 19:47	EPA 6020A	
BR-13->30' (0.5-1')_Prepared (A6J0823-40)			**Matrix: Soil**					
Batch: 6110275								
Lead	**8.47**	0.102	0.205	mg/kg dry	10	11/04/16 20:02	EPA 6020A	
Grind Blank (A6J0823-41)			**Matrix: Solid**					
Batch: 6110224								
Lead	ND	0.107	0.214	mg/kg	10	11/04/16 14:48	EPA 6020A	
BR-13->30' (1-1.5')_Prepared (A6J0849-21)			**Matrix: Soil**					
Batch: 6110374								
Lead	**6.76**	0.117	0.235	mg/kg dry	10	11/10/16 16:55	EPA 6020A	
BR-14-0-15' (0-0.5')_Prepared (A6J0849-22)			**Matrix: Soil**					
Batch: 6110374								
Lead	**11.9**	0.111	0.222	mg/kg dry	10	11/10/16 16:58	EPA 6020A	
BR-14-0-15' (0.5-1')_Prepared (A6J0849-23)			**Matrix: Soil**					
Batch: 6110374								
Lead	**14.3**	0.111	0.221	mg/kg dry	10	11/10/16 17:25	EPA 6020A	
BR-14-0-15' (1-1.5')_Prepared (A6J0849-24)			**Matrix: Soil**					
Batch: 6110374								
Lead	**10.3**	0.102	0.203	mg/kg dry	10	11/10/16 17:29	EPA 6020A	
BR-14-15-30' (0-0.5')_Prepared (A6J0849-25)			**Matrix: Soil**					
Batch: 6110374								
Lead	**8.30**	0.105	0.209	mg/kg dry	10	11/10/16 17:33	EPA 6020A	
BR-14-15-30' (0.5-1')_Prepared (A6J0849-26)			**Matrix: Soil**					

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-14-15-30' (0.5-1')_Prepared (A6J0849-26)			**Matrix: Soil**					
Batch: 6110374								
Lead	**6.58**	0.110	0.220	mg/kg dry	10	11/10/16 17:37	EPA 6020A	
BR-14-15-30' (1-1.5')_Prepared (A6J0849-27)			**Matrix: Soil**					
Batch: 6110374								
Lead	**6.26**	0.114	0.228	mg/kg dry	10	11/10/16 17:40	EPA 6020A	
BR-14->30' (0-0.5')_Prepared (A6J0849-28)			**Matrix: Soil**					
Batch: 6110374								
Lead	**9.95**	0.110	0.220	mg/kg dry	10	11/10/16 17:44	EPA 6020A	
BR-14->30' (0.5-1')_Prepared (A6J0849-29)			**Matrix: Soil**					
Batch: 6110374								
Lead	**11.8**	0.112	0.225	mg/kg dry	10	11/10/16 17:48	EPA 6020A	
BR-14->30' (1-1.5')_Prepared (A6J0849-30)			**Matrix: Soil**					
Batch: 6110374								
Lead	**9.10**	0.116	0.232	mg/kg dry	10	11/10/16 17:52	EPA 6020A	
BR-15-15-30' (0-0.5')_Prepared (A6J0849-31)			**Matrix: Soil**					
Batch: 6110374								
Lead	**8.39**	0.108	0.216	mg/kg dry	10	11/10/16 17:55	EPA 6020A	
BR-15-15-30' (0.5-1')_Prepared (A6J0849-32)			**Matrix: Soil**					
Batch: 6110374								
Lead	**5.22**	0.115	0.229	mg/kg dry	10	11/10/16 17:59	EPA 6020A	
BR-15-15-30' (1-1.5')_Prepared (A6J0849-33)			**Matrix: Soil**					
Batch: 6110374								
Lead	**4.44**	0.111	0.221	mg/kg dry	10	11/10/16 18:14	EPA 6020A	
BR-15->30' (0-0.5')_Prepared (A6J0849-34)			**Matrix: Soil**					
Batch: 6110374								
Lead	**8.65**	0.116	0.232	mg/kg dry	10	11/10/16 18:18	EPA 6020A	
BR-15->30' (0.5-1')_Prepared (A6J0849-35)			**Matrix: Soil**					
Batch: 6110374								
Lead	**3.77**	0.110	0.220	mg/kg dry	10	11/10/16 18:21	EPA 6020A	
BR-15->30' (1-1.5')_Prepared (A6J0849-36)			**Matrix: Soil**					
Batch: 6110374								
Lead	**3.79**	0.103	0.206	mg/kg dry	10	11/10/16 18:25	EPA 6020A	
BR-16-0-15' (0-0.5')_Prepared (A6J0849-37)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-16-0-15' (0-0.5')_Prepared (A6J0849-37)			**Matrix: Soil**					
Batch: 6110374								
Lead	**1.02**	0.108	0.215	mg/kg dry	10	11/10/16 18:29	EPA 6020A	
BR-16-0-15' (0.5-1')_Prepared (A6J0849-38)			**Matrix: Soil**					
Batch: 6110374								
Lead	**3.82**	0.108	0.217	mg/kg dry	10	11/10/16 18:33	EPA 6020A	
BR-16-0-15' (1-1.5')_Prepared (A6J0849-39)			**Matrix: Soil**					
Batch: 6110374								
Lead	**11.2**	0.113	0.225	mg/kg dry	10	11/10/16 18:40	EPA 6020A	
BR-16-15-30' (0-0.5')_Prepared (A6J0849-40)			**Matrix: Soil**					
Batch: 6110376								
Lead	**4.01**	0.104	0.209	mg/kg dry	10	11/10/16 01:56	EPA 6020A	
Grind Blank (A6J0849-41)			**Matrix: Solid**					
Batch: 6110523								
Lead	ND	0.102	0.205	mg/kg	10	11/14/16 15:47	EPA 6020A	
BR-16-15-30' (0.5-1')_Prepared (A6J0892-21)			**Matrix: Soil**					
Batch: 6110275								
Lead	**3.53**	0.113	0.227	mg/kg dry	10	11/04/16 20:17	EPA 6020A	
BR-16-15-30' (1-1.5')_Prepared (A6J0892-22)			**Matrix: Soil**					
Batch: 6110275								
Lead	**3.09**	0.117	0.234	mg/kg dry	10	11/04/16 20:21	EPA 6020A	
BR-16->30' (0-0.5')_Prepared (A6J0892-23)			**Matrix: Soil**					
Batch: 6110275								
Lead	**3.93**	0.121	0.241	mg/kg dry	10	11/04/16 20:24	EPA 6020A	
BR-16->30' (0.5-1')_Prepared (A6J0892-24)			**Matrix: Soil**					
Batch: 6110275								
Lead	**3.50**	0.109	0.217	mg/kg dry	10	11/04/16 20:28	EPA 6020A	
BR-16->30' (1-1.5')_Prepared (A6J0892-25)			**Matrix: Soil**					
Batch: 6110275								
Lead	**4.15**	0.116	0.232	mg/kg dry	10	11/04/16 20:32	EPA 6020A	
BR-17-0-15' (0-0.5')_Prepared (A6J0892-26)			**Matrix: Soil**					
Batch: 6110275								
Lead	**2.45**	0.110	0.221	mg/kg dry	10	11/04/16 20:35	EPA 6020A	
BR-17-0-15' (0.5-1')_Prepared (A6J0892-27)			**Matrix: Soil**					

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Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-17-0-15' (0.5-1')_Prepared (A6J0892-27)			**Matrix: Soil**					
Batch: 6110275								
Lead	**2.42**	0.110	0.221	mg/kg dry	10	11/04/16 20:39	EPA 6020A	
BR-17-0-15' (1-1.5')_Prepared (A6J0892-28)			**Matrix: Soil**					
Batch: 6110275								
Lead	**7.61**	0.108	0.217	mg/kg dry	10	11/04/16 20:43	EPA 6020A	
BR-17-15-30' (0-0.5')_Prepared (A6J0892-29)			**Matrix: Soil**					
Batch: 6110275								
Lead	**31.0**	0.101	0.203	mg/kg dry	10	11/04/16 20:46	EPA 6020A	
BR-17-15-30' (0.5-1')_Prepared (A6J0892-30)			**Matrix: Soil**					
Batch: 6110275								
Lead	**26.1**	0.109	0.217	mg/kg dry	10	11/04/16 21:12	EPA 6020A	
BR-17-15-30' (1-1.5')_Prepared (A6J0892-31)			**Matrix: Soil**					
Batch: 6110275								
Lead	**24.0**	0.0984	0.197	mg/kg dry	10	11/04/16 21:16	EPA 6020A	
BR-17-15-30' (1-1.5') DUP_Prepared (A6J0892-32)			**Matrix: Soil**					
Batch: 6110275								
Lead	**8.64**	0.114	0.229	mg/kg dry	10	11/04/16 21:21	EPA 6020A	
BR-17->30' (0-0.5')_Prepared (A6J0892-33)			**Matrix: Soil**					
Batch: 6110275								
Lead	**31.3**	0.102	0.204	mg/kg dry	10	11/04/16 21:25	EPA 6020A	
BR-17->30' (0.5-1')_Prepared (A6J0892-34)			**Matrix: Soil**					
Batch: 6110275								
Lead	**16.4**	0.110	0.220	mg/kg dry	10	11/04/16 21:28	EPA 6020A	
BR-17->30' (1-1.5')_Prepared (A6J0892-35)			**Matrix: Soil**					
Batch: 6110275								
Lead	**11.2**	0.110	0.221	mg/kg dry	10	11/04/16 21:32	EPA 6020A	
BR-18-15-30' (0-0.5')_Prepared (A6J0892-36)			**Matrix: Soil**					
Batch: 6110275								
Lead	**17.0**	0.0990	0.198	mg/kg dry	10	11/04/16 21:36	EPA 6020A	
BR-18-15-30' (0.5-1')_Prepared (A6J0892-37)			**Matrix: Soil**					
Batch: 6110275								
Lead	**6.84**	0.103	0.207	mg/kg dry	10	11/04/16 21:40	EPA 6020A	
BR-18-15-30' (1-1.5')_Prepared (A6J0892-38)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-18-15-30' (1-1.5')_Prepared (A6J0892-38)			**Matrix: Soil**					
Batch: 6110275								
Lead	**6.62**	0.103	0.207	mg/kg dry	10	11/04/16 21:58	EPA 6020A	
BR-18->30' (0-0.5')_Prepared (A6J0892-39)			**Matrix: Soil**					
Batch: 6110376								
Lead	**66.1**	0.111	0.223	mg/kg dry	10	11/10/16 01:59	EPA 6020A	
BR-18->30' (0.5-1')_Prepared (A6J0892-40)			**Matrix: Soil**					
Batch: 6110376								
Lead	**7.83**	0.110	0.220	mg/kg dry	10	11/10/16 02:02	EPA 6020A	
Grind Blank (A6J0892-41)			**Matrix: Solid**					
Batch: 6110224								
Lead	ND	0.107	0.214	mg/kg	10	11/04/16 14:50	EPA 6020A	
BR-18->30' (1-1.5')_Prepared (A6J0893-21)			**Matrix: Soil**					
Batch: 6110376								
Lead	**5.13**	0.108	0.217	mg/kg dry	10	11/10/16 02:05	EPA 6020A	
BR-19-15-30' (0-0.5')_Prepared (A6J0893-22)			**Matrix: Soil**					
Batch: 6110376								
Lead	**10.3**	0.110	0.220	mg/kg dry	10	11/10/16 02:08	EPA 6020A	
BR-19-15-30' (0.5-1')_Prepared (A6J0893-23)			**Matrix: Soil**					
Batch: 6110376								
Lead	**4.22**	0.105	0.211	mg/kg dry	10	11/10/16 02:14	EPA 6020A	
BR-19-15-30' (1-1.5')_Prepared (A6J0893-24)			**Matrix: Soil**					
Batch: 6110376								
Lead	**4.22**	0.115	0.229	mg/kg dry	10	11/10/16 02:17	EPA 6020A	
BR-19->30' (0-0.5')_Prepared (A6J0893-25)			**Matrix: Soil**					
Batch: 6110376								
Lead	**6.28**	0.113	0.226	mg/kg dry	10	11/10/16 02:20	EPA 6020A	
BR-19->30' (0.5-1')_Prepared (A6J0893-26)			**Matrix: Soil**					
Batch: 6110376								
Lead	**6.14**	0.106	0.213	mg/kg dry	10	11/10/16 02:32	EPA 6020A	
BR-19->30' (1-1.5')_Prepared (A6J0893-27)			**Matrix: Soil**					
Batch: 6110376								
Lead	**5.70**	0.111	0.222	mg/kg dry	10	11/10/16 16:07	EPA 6020A	
BR-20-15-30' (0-0.5')_Prepared (A6J0893-28)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-20-15-30' (0-0.5')_Prepared (A6J0893-28)			**Matrix: Soil**					
Batch: 6110376								
Lead	**44.2**	0.106	0.212	mg/kg dry	10	11/10/16 16:10	EPA 6020A	
BR-20-15-30' (0.5-1')_Prepared (A6J0893-29)			**Matrix: Soil**					
Batch: 6110376								
Lead	**57.6**	0.110	0.221	mg/kg dry	10	11/10/16 16:13	EPA 6020A	
BR-20-15-30' (1-1.5')_Prepared (A6J0893-30)			**Matrix: Soil**					
Batch: 6110376								
Lead	**46.6**	0.105	0.211	mg/kg dry	10	11/10/16 16:34	EPA 6020A	
BR-20->30' (0-0.5')_Prepared (A6J0893-31)			**Matrix: Soil**					
Batch: 6110376								
Lead	**14.1**	0.101	0.203	mg/kg dry	10	11/10/16 16:37	EPA 6020A	
BR-20->30' (0.5-1')_Prepared (A6J0893-32)			**Matrix: Soil**					
Batch: 6110376								
Lead	**5.35**	0.113	0.227	mg/kg dry	10	11/10/16 16:40	EPA 6020A	
BR-20->30' (1-1.5')_Prepared (A6J0893-33)			**Matrix: Soil**					
Batch: 6110376								
Lead	**9.19**	0.103	0.206	mg/kg dry	10	11/10/16 16:43	EPA 6020A	
BR-21-0-15' (0-0.5')_Prepared (A6J0893-34)			**Matrix: Soil**					
Batch: 6110376								
Lead	**160**	0.110	0.219	mg/kg dry	10	11/10/16 16:46	EPA 6020A	
BR-21-0-15' (0.5-1')_Prepared (A6J0893-35)			**Matrix: Soil**					
Batch: 6110376								
Lead	**25.4**	0.114	0.227	mg/kg dry	10	11/10/16 16:49	EPA 6020A	
BR-21-0-15' (1-1.5')_Prepared (A6J0893-36)			**Matrix: Soil**					
Batch: 6110376								
Lead	**29.3**	0.120	0.240	mg/kg dry	10	11/10/16 16:52	EPA 6020A	
BR-21-15-30' (0-0.5')_Prepared (A6J0893-37)			**Matrix: Soil**					
Batch: 6110692								
Lead	**27.6**	0.112	0.224	mg/kg dry	10	11/17/16 19:55	EPA 6020A	
BR-21-15-30' (0.5-1')_Prepared (A6J0893-38)			**Matrix: Soil**					
Batch: 6110692								
Lead	**27.9**	0.111	0.221	mg/kg dry	10	11/17/16 19:59	EPA 6020A	
BR-21-15-30' (1-1.5')_Prepared (A6J0893-39)			**Matrix: Soil**					

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Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-21-15-30' (1-1.5')_Prepared (A6J0893-39)			**Matrix: Soil**					
Batch: 6110692								
Lead	**10.1**	0.111	0.222	mg/kg dry	10	11/17/16 20:14	EPA 6020A	
BR-21->30' (0-0.5')_Prepared (A6J0893-40)			**Matrix: Soil**					
Batch: 6110692								
Lead	**15.1**	0.112	0.224	mg/kg dry	10	11/17/16 20:17	EPA 6020A	
Grind Blank (A6J0893-41)			**Matrix: Solid**					
Batch: 6110511								
Lead	**0.143**	0.110	0.220	mg/kg	10	11/15/16 19:17	EPA 6020A	J
BR-21->30' (0.5-1')_Prepared (A6J0925-21)			**Matrix: Soil**					
Batch: 6110692								
Lead	**4.91**	0.111	0.221	mg/kg dry	10	11/17/16 20:21	EPA 6020A	
BR-21->30' (1-1.5')_Prepared (A6J0925-22)			**Matrix: Soil**					
Batch: 6110692								
Lead	**4.10**	0.112	0.225	mg/kg dry	10	11/17/16 20:29	EPA 6020A	
BR-22-0-15' (0-0.5')_Prepared (A6J0925-23)			**Matrix: Soil**					
Batch: 6110692								
Lead	**3.52**	0.114	0.229	mg/kg dry	10	11/17/16 20:33	EPA 6020A	
BR-22-0-15' (0.5-1')_Prepared (A6J0925-24)			**Matrix: Soil**					
Batch: 6110692								
Lead	**2.53**	0.104	0.209	mg/kg dry	10	11/17/16 20:36	EPA 6020A	
BR-22-0-15' (1-1.5')_Prepared (A6J0925-25)			**Matrix: Soil**					
Batch: 6110692								
Lead	**4.53**	0.101	0.202	mg/kg dry	10	11/17/16 20:40	EPA 6020A	
BR-22-15-30' (0-0.5')_Prepared (A6J0925-26)			**Matrix: Soil**					
Batch: 6110692								
Lead	**9.57**	0.101	0.203	mg/kg dry	10	11/17/16 20:44	EPA 6020A	
BR-22-15-30' (0.5-1')_Prepared (A6J0925-27)			**Matrix: Soil**					
Batch: 6110692								
Lead	**5.45**	0.111	0.222	mg/kg dry	10	11/17/16 20:48	EPA 6020A	
BR-22-15-30' (1-1.5')_Prepared (A6J0925-28)			**Matrix: Soil**					
Batch: 6110692								
Lead	**4.78**	0.102	0.204	mg/kg dry	10	11/17/16 21:06	EPA 6020A	
BR-22->30' (0-0.5')_Prepared (A6J0925-29)			**Matrix: Soil**					

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ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-22->30' (0-0.5')_Prepared (A6J0925-29)			**Matrix: Soil**					
Batch: 6110692								
Lead	**6.83**	0.110	0.221	mg/kg dry	10	11/17/16 21:10	EPA 6020A	
BR-22->30' (0.5-1')_Prepared (A6J0925-30)			**Matrix: Soil**					
Batch: 6110692								
Lead	**6.04**	0.111	0.222	mg/kg dry	10	11/17/16 21:13	EPA 6020A	
BR-22->30' (1-1.5')_Prepared (A6J0925-31)			**Matrix: Soil**					
Batch: 6110692								
Lead	**5.08**	0.109	0.218	mg/kg dry	10	11/17/16 21:17	EPA 6020A	
BR-23-0-15' (0-0.5')_Prepared (A6J0925-32)			**Matrix: Soil**					
Batch: 6110692								
Lead	**13.4**	0.108	0.216	mg/kg dry	10	11/17/16 21:21	EPA 6020A	
BR-23-0-15' (0.5-1')_Prepared (A6J0925-33)			**Matrix: Soil**					
Batch: 6110692								
Lead	**16.2**	0.107	0.213	mg/kg dry	10	11/17/16 21:37	EPA 6020A	
BR-23-15-30' (0-0.5')_Prepared (A6J0925-34)			**Matrix: Soil**					
Batch: 6110692								
Lead	**41.1**	0.111	0.222	mg/kg dry	10	11/17/16 21:41	EPA 6020A	
BR-23-15-30' (0.5-1')_Prepared (A6J0925-35)			**Matrix: Soil**					
Batch: 6110692								
Lead	**132**	0.115	0.231	mg/kg dry	10	11/17/16 21:56	EPA 6020A	
BR-23-15-30' (1-1.5')_Prepared (A6J0925-36)			**Matrix: Soil**					
Batch: 6110696								
Lead	**90.4**	0.110	0.220	mg/kg dry	10	11/17/16 21:22	EPA 6020A	
BR-23->30' (0-0.5')_Prepared (A6J0925-37)			**Matrix: Soil**					
Batch: 6110696								
Lead	**27.7**	0.106	0.213	mg/kg dry	10	11/17/16 21:28	EPA 6020A	
BR-23->30' (0.5-1')_Prepared (A6J0925-38)			**Matrix: Soil**					
Batch: 6110696								
Lead	**119**	0.108	0.215	mg/kg dry	10	11/17/16 21:31	EPA 6020A	
BR-23->30' (1-1.5')_Prepared (A6J0925-39)			**Matrix: Soil**					
Batch: 6110696								
Lead	**7.56**	0.105	0.209	mg/kg dry	10	11/17/16 21:34	EPA 6020A	
BR-24-0-15' (0-0.5')_Prepared (A6J0925-40)			**Matrix: Soil**					

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-24-0-15' (0-0.5')_Prepared (A6J0925-40)			**Matrix: Soil**					
Batch: 6110696								
Lead	**7.11**	0.110	0.221	mg/kg dry	10	11/17/16 21:40	EPA 6020A	
Grind Blank (A6J0925-41)			**Matrix: Solid**					
Batch: 6110640								
Lead	ND	0.0980	0.196	mg/kg	10	11/17/16 15:28	EPA 6020A	
BR-24-0-15' (0.5-1')_Prepared (A6J0950-18)			**Matrix: Soil**					
Batch: 6110696								
Lead	**16.0**	0.112	0.224	mg/kg dry	10	11/17/16 21:43	EPA 6020A	
BR-24-0-15' (1-1.5')_Prepared (A6J0950-19)			**Matrix: Soil**					
Batch: 6110696								
Lead	**3.26**	0.110	0.220	mg/kg dry	10	11/17/16 21:46	EPA 6020A	
BR-24-15-30' (0-0.5')_Prepared (A6J0950-20)			**Matrix: Soil**					
Batch: 6110696								
Lead	**7.58**	0.112	0.224	mg/kg dry	10	11/17/16 21:49	EPA 6020A	
BR-24-15-30' (0.5-1')_Prepared (A6J0950-21)			**Matrix: Soil**					
Batch: 6110696								
Lead	**7.60**	0.110	0.219	mg/kg dry	10	11/17/16 21:52	EPA 6020A	
BR-24-15-30' (1-1.5')_Prepared (A6J0950-22)			**Matrix: Soil**					
Batch: 6110696								
Lead	**9.56**	0.112	0.224	mg/kg dry	10	11/17/16 22:04	EPA 6020A	
BR-24->30' (0-0.5')_Prepared (A6J0950-23)			**Matrix: Soil**					
Batch: 6110696								
Lead	**3.78**	0.113	0.225	mg/kg dry	10	11/17/16 22:07	EPA 6020A	
BR-24->30' (0.5-1')_Prepared (A6J0950-24)			**Matrix: Soil**					
Batch: 6110696								
Lead	**4.31**	0.105	0.211	mg/kg dry	10	11/17/16 22:10	EPA 6020A	
BR-24->30' (1-1.5')_Prepared (A6J0950-25)			**Matrix: Soil**					
Batch: 6110696								
Lead	**4.23**	0.113	0.226	mg/kg dry	10	11/17/16 22:13	EPA 6020A	
BR-25-0-15' (0-0.5')_Prepared (A6J0950-26)			**Matrix: Soil**					
Batch: 6110696								
Lead	**10.9**	0.108	0.216	mg/kg dry	10	11/17/16 22:17	EPA 6020A	
BR-25-0-15' (0.5-1')_Prepared (A6J0950-27)			**Matrix: Soil**					

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-25-0-15' (0.5-1')_Prepared (A6J0950-27)			**Matrix: Soil**					
Batch: 6110696								
Lead	**14.7**	0.109	0.218	mg/kg dry	10	11/17/16 22:20	EPA 6020A	
BR-25-0-15' (1-1.5')_Prepared (A6J0950-28)			**Matrix: Soil**					
Batch: 6110696								
Lead	**18.5**	0.104	0.208	mg/kg dry	10	11/17/16 22:32	EPA 6020A	
BR-25-15-30' (0-0.5')_Prepared (A6J0950-29)			**Matrix: Soil**					
Batch: 6110696								
Lead	**9.05**	0.105	0.210	mg/kg dry	10	11/17/16 22:44	EPA 6020A	
BR-25-15-30' (0.5-1')_Prepared (A6J0950-30)			**Matrix: Soil**					
Batch: 6110696								
Lead	**4.39**	0.0983	0.197	mg/kg dry	10	11/17/16 22:47	EPA 6020A	
BR-25-15-30' (1-1.5')_Prepared (A6J0950-31)			**Matrix: Soil**					
Batch: 6110696								
Lead	**3.56**	0.106	0.212	mg/kg dry	10	11/17/16 22:50	EPA 6020A	
BR-25->30' (0-0.5')_Prepared (A6J0950-32)			**Matrix: Soil**					
Batch: 6110732								
Lead	**6.64**	0.110	0.219	mg/kg dry	10	11/21/16 16:10	EPA 6020A	
BR-25->30' (0.5-1')_Prepared (A6J0950-33)			**Matrix: Soil**					
Batch: 6110732								
Lead	**6.52**	0.111	0.223	mg/kg dry	10	11/21/16 16:14	EPA 6020A	
BR-25->30' (1-1.5')_Prepared (A6J0950-34)			**Matrix: Soil**					
Batch: 6110732								
Lead	**3.90**	0.106	0.212	mg/kg dry	10	11/21/16 16:18	EPA 6020A	
Grind Blank (A6J0950-38)			**Matrix: Solid**					
Batch: 6110640								
Lead	**0.131**	0.109	0.218	mg/kg	10	11/17/16 15:31	EPA 6020A	J
Grind Blank (A6J0950-38RE2)			**Matrix: Solid**					
Batch: 6110781								
Lead	**0.137**	0.108	0.216	mg/kg	10	11/22/16 10:34	EPA 6020A	J

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-01-0-15' (0-0.5')_Prepared (A6J0556-21)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**97.9**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	
BR-01-0-15' (0.5-1')_Prepared (A6J0556-22)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**97.9**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	
BR-01-0-15' (1-1.5')_Prepared (A6J0556-23)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**97.9**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	
BR-01-15-30' (0-0.5')_Prepared (A6J0556-24)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**97.9**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	
BR-01-15-30' (0.5-1')_Prepared (A6J0556-25)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**97.9**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	
BR-01-15-30' (1-1.5')_Prepared (A6J0556-26)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**97.9**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	
BR-01->30' (0-0.5')_Prepared (A6J0556-27)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**98.3**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	
BR-01->30' (0.5-1')_Prepared (A6J0556-28)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**96.6**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	
BR-01->30' (1-1.5')_Prepared (A6J0556-29)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**96.6**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	
BR-02-15-30' (0-0.5')_Prepared (A6J0556-30)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**96.7**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	
BR-02-15-30' (0-0.5') DUP_Prepared (A6J0556-31)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**96.6**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	
BR-02-15-30' (0.5-1')_Prepared (A6J0556-32)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**96.5**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	
BR-02-15-30' (1-1.5')_Prepared (A6J0556-33)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**96.5**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	
BR-02->30' (0-0.5')_Prepared (A6J0556-34)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**96.5**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	
BR-02->30' (0.5-1')_Prepared (A6J0556-35)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**96.6**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	
BR-02->30' (1-1.5')_Prepared (A6J0556-36)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**97.1**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-03-15-30' (0-0.5')_Prepared (A6J0556-37)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**94.2**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	
BR-03-15-30' (0.5-1')_Prepared (A6J0556-38)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**95.7**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	
BR-03-15-30' (1-1.5')_Prepared (A6J0556-39)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**92.7**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	
BR-03->30' (0-0.5')_Prepared (A6J0556-40)			**Matrix: Soil**		**Batch: 6100912**			
% Solids	**93.8**	---	1.00	% by Weight	1	10/25/16 09:29	EPA 8000C	
BR-03->30' (0.5-1')_Prepared (A6J0562-21)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**92.5**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-03->30' (1-1.5')_Prepared (A6J0562-22)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**91.9**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-04-0-15' (0-0.5')_Prepared (A6J0562-23)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**98.5**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-04-0-15' (0.5-1')_Prepared (A6J0562-24)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**98.6**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-04-0-15' (1-1.5')_Prepared (A6J0562-25)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**98.5**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-04-15-30' (0-0.5')_Prepared (A6J0562-26)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**98.1**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-04-15-30' (0.5-1')_Prepared (A6J0562-27)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**98.2**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-04-15-30' (1-1.5')_Prepared (A6J0562-28)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**97.8**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-04->30' (0-0.5')_Prepared (A6J0562-29)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**97.8**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-04->30' (0.5-1')_Prepared (A6J0562-30)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**98.0**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-04->30' (1-1.5')_Prepared (A6J0562-31)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**98.0**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-05-15-30' (0-0.5')_Prepared (A6J0562-32)			**Matrix: Soil**		**Batch: 6100860**			

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-05-15-30' (0-0.5')_Prepared (A6J0562-32)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**96.9**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-05-15-30' (0.5-1')_Prepared (A6J0562-33)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**97.1**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-05-15-30' (1-1.5')_Prepared (A6J0562-34)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**96.9**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-05->30 (0-0.5')_Prepared (A6J0562-35)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**97.7**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-05->30 (0.5-1')_Prepared (A6J0562-36)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**96.5**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-05->30' (1-1.5')_Prepared (A6J0562-37)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**95.7**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-06-0-15' (0-0.5')_Prepared (A6J0562-38)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**97.1**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-06-0-15' (0.5-1')_Prepared (A6J0562-39)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**94.9**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-06-0-15' (1-1.5')_Prepared (A6J0562-40)			**Matrix: Soil**		**Batch: 6100860**			
% Solids	**94.5**	---	1.00	% by Weight	1	10/24/16 09:31	EPA 8000C	
BR-06-15-30' (0-0.5')_Prepared (A6J0598-21)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**97.2**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-06-15-30' (0.5-1')_Prepared (A6J0598-22)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**97.6**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-06-15-30' (1-1.5')_Prepared (A6J0598-23)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**97.4**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-06->30' (0-0.5')_Prepared (A6J0598-24)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**97.8**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-06->30' (0.5-1')_Prepared (A6J0598-25)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**97.8**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-06->30' (1-1.5')_Prepared (A6J0598-26)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**97.5**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-06->30' (1-1.5') DUP_Prepared (A6J0598-27)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**97.7**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-07-0-15' (0-0.5')_Prepared (A6J0598-28)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**98.1**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-07-0-15' (0.5-1')_Prepared (A6J0598-29)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**98.1**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-07-0-15' (1-1.5')_Prepared (A6J0598-30)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**98.1**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-07-15-30' (0-0.5')_Prepared (A6J0598-31)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**98.3**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-07-15-30' (0.5-1')_Prepared (A6J0598-32)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**98.3**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-07-15-30' (1-1.5')_Prepared (A6J0598-33)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**98.1**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-07->30' (0-0.5')_Prepared (A6J0598-34)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**98.3**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-07->30' (0.5-1')_Prepared (A6J0598-35)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**98.3**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-07->30' (1-1.5')_Prepared (A6J0598-36)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**98.2**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-08-15-30' (0-0.5')_Prepared (A6J0598-37)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**96.2**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-08-15-30' (0.5-1')_Prepared (A6J0598-38)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**96.4**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-08-15-30' (1-1.5')_Prepared (A6J0598-39)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**96.7**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-08->30' (0-0.5')_Prepared (A6J0598-40)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**95.9**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-08->30' (0.5-1')_Prepared (A6J0754-21)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**95.4**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-08->30' (1-1.5')_Prepared (A6J0754-22)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**97.4**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-09-15-30' (0-0.5')_Prepared (A6J0754-23)			**Matrix: Soil**		**Batch: 6101108**			

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-09-15-30' (0-0.5')_Prepared (A6J0754-23)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**95.4**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-09-15-30' (0.5-1')_Prepared (A6J0754-24)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**95.1**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-09-15-30' (1-1.5')_Prepared (A6J0754-25)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**94.0**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-09->30' (0-0.5')_Prepared (A6J0754-26)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**95.6**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-09->30' DUP (0-0.5')_Prepared (A6J0754-27)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**95.6**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-09->30' (0.5-1')_Prepared (A6J0754-28)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**95.9**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-09->30' (1-1.5')_Prepared (A6J0754-29)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**95.9**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-10-0-15' (0-0.5')_Prepared (A6J0754-30)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**97.7**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-10-0-15' (0.5-1')_Prepared (A6J0754-31)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**96.5**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-10-0-15' (1-1.5')_Prepared (A6J0754-32)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**96.3**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-10-15-30' (0-0.5')_Prepared (A6J0754-33)			**Matrix: Soil**		**Batch: 6101108**			
% Solids	**97.0**	---	1.00	% by Weight	1	10/29/16 10:00	EPA 8000C	
BR-10-15-30' (0.5-1')_Prepared (A6J0754-34)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**95.6**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-10-15-30' (1-1.5')_Prepared (A6J0754-35)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**93.9**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-10->30' (0-0.5')_Prepared (A6J0754-36)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**96.6**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-10->30' (0-0.5') DUP_Prepared (A6J0754-37)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**96.8**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-10->30' (0.5-1')_Prepared (A6J0754-38)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**96.2**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-10->30' (1-1.5')_Prepared (A6J0754-39)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**95.0**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-11-0-15' (0-0.5')_Prepared (A6J0754-40)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**97.8**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-11-0-15' (0.5-1')_Prepared (A6J0823-21)			**Matrix: Soil**		**Batch: 6101132**			
% Solids	**98.3**	---	1.00	% by Weight	1	10/31/16 09:13	EPA 8000C	
BR-11-0-15' (1-1.5')_Prepared (A6J0823-22)			**Matrix: Soil**		**Batch: 6101132**			
% Solids	**98.2**	---	1.00	% by Weight	1	10/31/16 09:13	EPA 8000C	
BR-11-15-30' (0-0.5')_Prepared (A6J0823-23)			**Matrix: Soil**		**Batch: 6101132**			
% Solids	**95.6**	---	1.00	% by Weight	1	10/31/16 09:13	EPA 8000C	
BR-11-15-30' (0.5-1')_Prepared (A6J0823-24)			**Matrix: Soil**		**Batch: 6101132**			
% Solids	**97.7**	---	1.00	% by Weight	1	10/31/16 09:13	EPA 8000C	
BR-11-15-30' (1-1.5')_Prepared (A6J0823-25)			**Matrix: Soil**		**Batch: 6101132**			
% Solids	**96.1**	---	1.00	% by Weight	1	10/31/16 09:13	EPA 8000C	
BR-11->30' (0-0.5')_Prepared (A6J0823-26)			**Matrix: Soil**		**Batch: 6101132**			
% Solids	**94.2**	---	1.00	% by Weight	1	10/31/16 09:13	EPA 8000C	
BR-11->30' (0.5-1')_Prepared (A6J0823-27)			**Matrix: Soil**		**Batch: 6110394**			
% Solids	**94.6**	---	1.00	% by Weight	1	11/09/16 08:52	EPA 8000C	A-01, X
BR-11->30' (1-1.5')_Prepared (A6J0823-28)			**Matrix: Soil**		**Batch: 6101132**			
% Solids	**93.6**	---	1.00	% by Weight	1	10/31/16 09:13	EPA 8000C	
BR-12-0-15' (0-0.5')_Prepared (A6J0823-29)			**Matrix: Soil**		**Batch: 6101132**			
% Solids	**98.7**	---	1.00	% by Weight	1	10/31/16 09:13	EPA 8000C	
BR-12-0-15' (0.5-1')_Prepared (A6J0823-30)			**Matrix: Soil**		**Batch: 6101132**			
% Solids	**99.0**	---	1.00	% by Weight	1	10/31/16 09:13	EPA 8000C	
BR-12-0-15' (1-1.5')_Prepared (A6J0823-31)			**Matrix: Soil**		**Batch: 6101132**			
% Solids	**99.0**	---	1.00	% by Weight	1	10/31/16 09:13	EPA 8000C	
BR-12-15-30' (0-0.5')_Prepared (A6J0823-32)			**Matrix: Soil**		**Batch: 6101132**			
% Solids	**95.3**	---	1.00	% by Weight	1	10/31/16 09:13	EPA 8000C	
BR-12-15-30' (0.5-1')_Prepared (A6J0823-33)			**Matrix: Soil**		**Batch: 6101132**			
% Solids	**96.3**	---	1.00	% by Weight	1	10/31/16 09:13	EPA 8000C	
BR-12->30' (0-0.5')_Prepared (A6J0823-34)			**Matrix: Soil**		**Batch: 6101132**			

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-12->30' (0-0.5')_Prepared (A6J0823-34)			**Matrix: Soil**		**Batch: 6101132**			
% Solids	**95.1**	---	1.00	% by Weight	1	10/31/16 09:13	EPA 8000C	
BR-12->30' (0.5-1')_Prepared (A6J0823-35)			**Matrix: Soil**		**Batch: 6101132**			
% Solids	**95.8**	---	1.00	% by Weight	1	10/31/16 09:13	EPA 8000C	
BR-13-15-30' (0-0.5')_Prepared (A6J0823-36)			**Matrix: Soil**		**Batch: 6101132**			
% Solids	**91.9**	---	1.00	% by Weight	1	10/31/16 09:13	EPA 8000C	
BR-13-15-30' (0.5-1')_Prepared (A6J0823-37)			**Matrix: Soil**		**Batch: 6101132**			
% Solids	**94.6**	---	1.00	% by Weight	1	10/31/16 09:13	EPA 8000C	
BR-13-15-30' (1-1.5')_Prepared (A6J0823-38)			**Matrix: Soil**		**Batch: 6101132**			
% Solids	**95.3**	---	1.00	% by Weight	1	10/31/16 09:13	EPA 8000C	
BR-13->30' (0-0.5')_Prepared (A6J0823-39)			**Matrix: Soil**		**Batch: 6101132**			
% Solids	**95.7**	---	1.00	% by Weight	1	10/31/16 09:13	EPA 8000C	
BR-13->30' (0.5-1')_Prepared (A6J0823-40)			**Matrix: Soil**		**Batch: 6101132**			
% Solids	**94.5**	---	1.00	% by Weight	1	10/31/16 09:13	EPA 8000C	
BR-13->30' (1-1.5')_Prepared (A6J0849-21)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**93.1**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	
BR-14-0-15' (0-0.5')_Prepared (A6J0849-22)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**98.2**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	
BR-14-0-15' (0.5-1')_Prepared (A6J0849-23)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**97.4**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	
BR-14-0-15' (1-1.5')_Prepared (A6J0849-24)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**96.8**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	
BR-14-15-30' (0-0.5')_Prepared (A6J0849-25)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**96.5**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	
BR-14-15-30' (0.5-1')_Prepared (A6J0849-26)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**94.8**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	
BR-14-15-30' (1-1.5')_Prepared (A6J0849-27)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**95.4**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	
BR-14->30' (0-0.5')_Prepared (A6J0849-28)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**94.8**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	
BR-14->30' (0.5-1')_Prepared (A6J0849-29)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**95.0**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-14->30' (1-1.5')_Prepared (A6J0849-30)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**95.2**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	
BR-15-15-30' (0-0.5')_Prepared (A6J0849-31)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**95.8**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	
BR-15-15-30' (0.5-1')_Prepared (A6J0849-32)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**95.7**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	
BR-15-15-30' (1-1.5')_Prepared (A6J0849-33)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**95.2**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	
BR-15->30' (0-0.5')_Prepared (A6J0849-34)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**91.8**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	
BR-15->30' (0.5-1')_Prepared (A6J0849-35)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**95.6**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	
BR-15->30' (1-1.5')_Prepared (A6J0849-36)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**95.6**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	
BR-16-0-15' (0-0.5')_Prepared (A6J0849-37)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**99.7**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	
BR-16-0-15' (0.5-1')_Prepared (A6J0849-38)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**99.1**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	
BR-16-0-15' (1-1.5')_Prepared (A6J0849-39)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**95.3**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	
BR-16-15-30' (0-0.5')_Prepared (A6J0849-40)			**Matrix: Soil**		**Batch: 6110117**			
% Solids	**92.3**	---	1.00	% by Weight	1	11/02/16 08:24	EPA 8000C	
BR-16-15-30' (0.5-1')_Prepared (A6J0892-21)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**91.8**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-16-15-30' (1-1.5')_Prepared (A6J0892-22)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**92.9**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-16->30' (0-0.5')_Prepared (A6J0892-23)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**92.0**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-16->30' (0.5-1')_Prepared (A6J0892-24)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**91.8**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-16->30' (1-1.5')_Prepared (A6J0892-25)			**Matrix: Soil**		**Batch: 6110167**			

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-16->30' (1-1.5')_Prepared (A6J0892-25)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**91.8**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-17-0-15' (0-0.5')_Prepared (A6J0892-26)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**99.7**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-17-0-15' (0.5-1')_Prepared (A6J0892-27)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**99.7**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-17-0-15' (1-1.5')_Prepared (A6J0892-28)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**99.5**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-17-15-30' (0-0.5')_Prepared (A6J0892-29)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**99.2**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-17-15-30' (0.5-1')_Prepared (A6J0892-30)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**99.2**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-17-15-30' (1-1.5')_Prepared (A6J0892-31)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**99.1**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-17-15-30' (1-1.5') DUP_Prepared (A6J0892-32)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**95.7**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-17->30' (0-0.5')_Prepared (A6J0892-33)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**98.8**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-17->30' (0.5-1')_Prepared (A6J0892-34)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**95.8**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-17->30' (1-1.5')_Prepared (A6J0892-35)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**95.9**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-18-15-30' (0-0.5')_Prepared (A6J0892-36)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**98.8**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-18-15-30' (0.5-1')_Prepared (A6J0892-37)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**99.1**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-18-15-30' (1-1.5')_Prepared (A6J0892-38)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**99.1**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-18->30' (0-0.5')_Prepared (A6J0892-39)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**96.0**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	
BR-18->30' (0.5-1')_Prepared (A6J0892-40)			**Matrix: Soil**		**Batch: 6110167**			
% Solids	**95.9**	---	1.00	% by Weight	1	11/03/16 08:40	EPA 8000C	

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-18->30' (1-1.5')_Prepared (A6J0893-21)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**95.7**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-19-15-30' (0-0.5')_Prepared (A6J0893-22)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**97.0**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-19-15-30' (0.5-1')_Prepared (A6J0893-23)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**96.2**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-19-15-30' (1-1.5')_Prepared (A6J0893-24)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**95.4**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-19->30' (0-0.5')_Prepared (A6J0893-25)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**97.3**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-19->30' (0.5-1')_Prepared (A6J0893-26)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**97.5**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-19->30' (1-1.5')_Prepared (A6J0893-27)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**97.6**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-20-15-30' (0-0.5')_Prepared (A6J0893-28)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**98.6**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-20-15-30' (0.5-1')_Prepared (A6J0893-29)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**98.3**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-20-15-30' (1-1.5')_Prepared (A6J0893-30)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**97.4**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-20->30' (0-0.5')_Prepared (A6J0893-31)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**96.8**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-20->30' (0.5-1')_Prepared (A6J0893-32)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**96.9**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-20->30' (1-1.5')_Prepared (A6J0893-33)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**96.6**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-21-0-15' (0-0.5')_Prepared (A6J0893-34)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**97.8**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-21-0-15' (0.5-1')_Prepared (A6J0893-35)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**95.1**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-21-0-15' (1-1.5')_Prepared (A6J0893-36)			**Matrix: Soil**		**Batch: 6110214**			

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-21-0-15' (1-1.5')_Prepared (A6J0893-36)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**91.5**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-21-15-30' (0-0.5')_Prepared (A6J0893-37)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**95.8**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-21-15-30' (0.5-1')_Prepared (A6J0893-38)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**95.8**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-21-15-30' (1-1.5')_Prepared (A6J0893-39)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**95.6**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-21->30' (0-0.5')_Prepared (A6J0893-40)			**Matrix: Soil**		**Batch: 6110214**			
% Solids	**95.8**	---	1.00	% by Weight	1	11/04/16 09:14	EPA 8000C	
BR-21->30' (0.5-1')_Prepared (A6J0925-21)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**95.7**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	
BR-21->30' (1-1.5')_Prepared (A6J0925-22)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**95.6**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	
BR-22-0-15' (0-0.5')_Prepared (A6J0925-23)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**95.3**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	
BR-22-0-15' (0.5-1')_Prepared (A6J0925-24)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**97.9**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	
BR-22-0-15' (1-1.5')_Prepared (A6J0925-25)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**97.2**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	
BR-22-15-30' (0-0.5')_Prepared (A6J0925-26)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**96.5**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	
BR-22-15-30' (0.5-1')_Prepared (A6J0925-27)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**95.4**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	
BR-22-15-30' (1-1.5')_Prepared (A6J0925-28)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**95.5**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	
BR-22->30' (0-0.5')_Prepared (A6J0925-29)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**94.7**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	
BR-22->30' (0.5-1')_Prepared (A6J0925-30)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**96.8**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	
BR-22->30' (1-1.5')_Prepared (A6J0925-31)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**96.8**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-23-0-15' (0-0.5')_Prepared (A6J0925-32)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**99.4**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	
BR-23-0-15' (0.5-1')_Prepared (A6J0925-33)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**99.3**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	
BR-23-15-30' (0-0.5')_Prepared (A6J0925-34)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**96.1**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	
BR-23-15-30' (0.5-1')_Prepared (A6J0925-35)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**95.2**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	
BR-23-15-30' (1-1.5')_Prepared (A6J0925-36)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**96.5**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	
BR-23->30' (0-0.5')_Prepared (A6J0925-37)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**98.4**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	
BR-23->30' (0.5-1')_Prepared (A6J0925-38)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**96.9**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	
BR-23->30' (1-1.5')_Prepared (A6J0925-39)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**99.3**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	
BR-24-0-15' (0-0.5')_Prepared (A6J0925-40)			**Matrix: Soil**		**Batch: 6110271**			
% Solids	**99.2**	---	1.00	% by Weight	1	11/05/16 09:36	EPA 8000C	
BR-24-0-15' (0.5-1')_Prepared (A6J0950-18)			**Matrix: Soil**		**Batch: 6110367**			
% Solids	**98.2**	---	1.00	% by Weight	1	11/09/16 08:43	EPA 8000C	
BR-24-0-15' (1-1.5')_Prepared (A6J0950-19)			**Matrix: Soil**		**Batch: 6110367**			
% Solids	**98.9**	---	1.00	% by Weight	1	11/09/16 08:43	EPA 8000C	
BR-24-15-30' (0-0.5')_Prepared (A6J0950-20)			**Matrix: Soil**		**Batch: 6110367**			
% Solids	**98.7**	---	1.00	% by Weight	1	11/09/16 08:43	EPA 8000C	
BR-24-15-30' (0.5-1')_Prepared (A6J0950-21)			**Matrix: Soil**		**Batch: 6110367**			
% Solids	**98.8**	---	1.00	% by Weight	1	11/09/16 08:43	EPA 8000C	
BR-24-15-30' (1-1.5')_Prepared (A6J0950-22)			**Matrix: Soil**		**Batch: 6110367**			
% Solids	**98.9**	---	1.00	% by Weight	1	11/09/16 08:43	EPA 8000C	
BR-24->30' (0-0.5')_Prepared (A6J0950-23)			**Matrix: Soil**		**Batch: 6110367**			
% Solids	**97.8**	---	1.00	% by Weight	1	11/09/16 08:43	EPA 8000C	
BR-24->30' (0.5-1')_Prepared (A6J0950-24)			**Matrix: Soil**		**Batch: 6110367**			

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BR-24->30' (0.5-1')_Prepared (A6J0950-24)			**Matrix: Soil**		**Batch: 6110367**			
% Solids	**97.6**	---	1.00	% by Weight	1	11/09/16 08:43	EPA 8000C	
BR-24->30' (1-1.5')_Prepared (A6J0950-25)			**Matrix: Soil**		**Batch: 6110367**			
% Solids	**97.8**	---	1.00	% by Weight	1	11/09/16 08:43	EPA 8000C	
BR-25-0-15' (0-0.5')_Prepared (A6J0950-26)			**Matrix: Soil**		**Batch: 6110367**			
% Solids	**98.8**	---	1.00	% by Weight	1	11/09/16 08:43	EPA 8000C	
BR-25-0-15' (0.5-1')_Prepared (A6J0950-27)			**Matrix: Soil**		**Batch: 6110367**			
% Solids	**98.8**	---	1.00	% by Weight	1	11/09/16 08:43	EPA 8000C	
BR-25-0-15' (1-1.5')_Prepared (A6J0950-28)			**Matrix: Soil**		**Batch: 6110367**			
% Solids	**98.9**	---	1.00	% by Weight	1	11/09/16 08:43	EPA 8000C	
BR-25-15-30' (0-0.5')_Prepared (A6J0950-29)			**Matrix: Soil**		**Batch: 6110367**			
% Solids	**98.8**	---	1.00	% by Weight	1	11/09/16 08:43	EPA 8000C	
BR-25-15-30' (0.5-1')_Prepared (A6J0950-30)			**Matrix: Soil**		**Batch: 6110367**			
% Solids	**99.0**	---	1.00	% by Weight	1	11/09/16 08:43	EPA 8000C	
BR-25-15-30' (1-1.5')_Prepared (A6J0950-31)			**Matrix: Soil**		**Batch: 6110367**			
% Solids	**98.4**	---	1.00	% by Weight	1	11/09/16 08:43	EPA 8000C	
BR-25->30' (0-0.5')_Prepared (A6J0950-32)			**Matrix: Soil**		**Batch: 6110367**			
% Solids	**98.2**	---	1.00	% by Weight	1	11/09/16 08:43	EPA 8000C	
BR-25->30' (0.5-1')_Prepared (A6J0950-33)			**Matrix: Soil**		**Batch: 6110367**			
% Solids	**98.0**	---	1.00	% by Weight	1	11/09/16 08:43	EPA 8000C	
BR-25->30' (1-1.5')_Prepared (A6J0950-34)			**Matrix: Soil**		**Batch: 6110367**			
% Solids	**98.6**	---	1.00	% by Weight	1	11/09/16 08:43	EPA 8000C	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6100946 - EPA 3546							**Soil**					
Blank (6100946-BLK1)					Prepared: 10/25/16 11:26 Analyzed: 10/25/16 16:32							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 86 %*	*Limits: 44-115 %*				*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*90 %*	*54-127 %*				*"*				
LCS (6100946-BS1)					Prepared: 10/25/16 11:26 Analyzed: 10/25/16 16:58							
EPA 8270D (SIM)												
Acenaphthene	773	2.00	4.00	ug/kg wet	1	800	---	97	40-122%	---	---	
Acenaphthylene	736	2.00	4.00	"	"	"	---	92	32-132%	---	---	
Anthracene	775	2.00	4.00	"	"	"	---	97	47-123%	---	---	
Benz(a)anthracene	720	2.00	4.00	"	"	"	---	90	49-126%	---	---	
Benzo(a)pyrene	826	2.00	4.00	"	"	"	---	103	45-129%	---	---	
Benzo(b)fluoranthene	816	2.00	4.00	"	"	"	---	102	45-132%	---	---	
Benzo(k)fluoranthene	845	2.00	4.00	"	"	"	---	106	47-132%	---	---	
Benzo(g,h,i)perylene	656	2.00	4.00	"	"	"	---	82	43-134%	---	---	
Chrysene	717	2.00	4.00	"	"	"	---	90	50-124%	---	---	
Dibenz(a,h)anthracene	790	2.00	4.00	"	"	"	---	99	45-134%	---	---	
Dibenzofuran	756	2.00	4.00	"	"	"	---	95	44-120%	---	---	

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12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6100946 - EPA 3546									Soil			
LCS (6100946-BS1)					Prepared: 10/25/16 11:26 Analyzed: 10/25/16 16:58							
EPA 8270D (SIM)												
Fluoranthene	768	2.00	4.00	ug/kg wet	"	"	---	96	50-127%	---	---	
Fluorene	753	2.00	4.00	"	"	"	---	94	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	691	2.00	4.00	"	"	"	---	86	45-133%	---	---	
1-Methylnaphthalene	732	4.00	8.00	"	"	"	---	92	40-120%	---	---	
2-Methylnaphthalene	735	4.00	8.00	"	"	"	---	92	38-122%	---	---	
Naphthalene	694	4.00	8.00	"	"	"	---	87	35-123%	---	---	
Phenanthrene	698	2.00	4.00	"	"	"	---	87	50-121%	---	---	
Pyrene	767	2.00	4.00	"	"	"	---	96	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 88 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*89 %*	*54-127 %*			*"*					
Duplicate (6100946-DUP1)					Prepared: 10/25/16 11:27 Analyzed: 10/25/16 20:53							
QC Source Sample: BR-04-15-30' (1-1.5')_Prepared (A6J0562-28)												
EPA 8270D (SIM)												
Acenaphthene	ND	2.03	4.05	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	2.03	4.05	"	"	---	ND	---	---	---	30%	
Anthracene	ND	2.03	4.05	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	2.03	4.05	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	2.03	4.05	"	"	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	2.03	4.05	"	"	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	2.03	4.05	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	2.03	4.05	"	"	---	ND	---	---	---	30%	
Chrysene	ND	2.03	4.05	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	2.03	4.05	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	2.03	4.05	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	2.03	4.05	"	"	---	ND	---	---	---	30%	
Fluorene	ND	2.03	4.05	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.05	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	4.05	8.11	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	4.05	8.11	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	4.05	8.11	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	2.03	4.05	"	"	---	ND	---	---	---	30%	
Pyrene	ND	2.03	4.05	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*	*Limits: 44-115 %*			*Dilution: 1x*					

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6100946 - EPA 3546							**Soil**					
Duplicate (6100946-DUP1)					Prepared: 10/25/16 11:27 Analyzed: 10/25/16 20:53							
QC Source Sample: BR-04-15-30' (1-1.5')_Prepared (A6J0562-28)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 86 %*	*Limits: 54-127 %*			*Dilution: 1x*					
Matrix Spike (6100946-MS1)					Prepared: 10/25/16 11:26 Analyzed: 10/25/16 21:19							
QC Source Sample: BR-04-15-30' (1-1.5')_Prepared (A6J0562-28)												
EPA 8270D (SIM)												
Acenaphthene	609	2.00	4.00	ug/kg dry	1	800	ND	76	40-122%	---	---	
Acenaphthylene	584	2.00	4.00	"	"	"	ND	73	32-132%	---	---	
Anthracene	598	2.00	4.00	"	"	"	ND	75	47-123%	---	---	
Benz(a)anthracene	557	2.00	4.00	"	"	"	ND	70	49-126%	---	---	
Benzo(a)pyrene	620	2.00	4.00	"	"	"	ND	78	45-129%	---	---	
Benzo(b)fluoranthene	634	2.00	4.00	"	"	"	ND	79	45-132%	---	---	
Benzo(k)fluoranthene	628	2.00	4.00	"	"	"	ND	79	47-132%	---	---	
Benzo(g,h,i)perylene	494	2.00	4.00	"	"	"	ND	62	43-134%	---	---	
Chrysene	559	2.00	4.00	"	"	"	ND	70	50-124%	---	---	
Dibenz(a,h)anthracene	599	2.00	4.00	"	"	"	ND	75	45-134%	---	---	
Dibenzofuran	589	2.00	4.00	"	"	"	ND	74	44-120%	---	---	
Fluoranthene	595	2.00	4.00	"	"	"	ND	74	50-127%	---	---	
Fluorene	577	2.00	4.00	"	"	"	ND	72	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	519	2.00	4.00	"	"	"	ND	65	45-133%	---	---	
1-Methylnaphthalene	585	4.00	8.00	"	"	"	ND	73	40-120%	---	---	
2-Methylnaphthalene	582	4.00	8.00	"	"	"	ND	73	38-122%	---	---	
Naphthalene	546	4.00	8.00	"	"	"	ND	68	35-123%	---	---	
Phenanthrene	541	2.00	4.00	"	"	"	ND	68	50-121%	---	---	
Pyrene	589	2.00	4.00	"	"	"	ND	74	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 72 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*74 %*	*54-127 %*			*"*					
Matrix Spike Dup (6100946-MSD1)					Prepared: 10/25/16 11:27 Analyzed: 10/25/16 21:45							T-02
QC Source Sample: BR-04-15-30' (1-1.5')_Prepared (A6J0562-28)												
EPA 8270D (SIM)												
Acenaphthene	685	2.01	4.03	ug/kg dry	1	806	ND	85	40-122%	12	30%	
Acenaphthylene	654	2.01	4.03	"	"	"	ND	81	32-132%	11	30%	
Anthracene	680	2.01	4.03	"	"	"	ND	84	47-123%	13	30%	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6100946 - EPA 3546							**Soil**					
Matrix Spike Dup (6100946-MSD1)					Prepared: 10/25/16 11:27 Analyzed: 10/25/16 21:45							T-02
QC Source Sample: BR-04-15-30' (1-1.5')_Prepared (A6J0562-28)												
EPA 8270D (SIM)												
Benz(a)anthracene	618	2.01	4.03	ug/kg dry	"	"	ND	77	49-126%	10	30%	
Benzo(a)pyrene	693	2.01	4.03	"	"	"	ND	86	45-129%	11	30%	
Benzo(b)fluoranthene	705	2.01	4.03	"	"	"	ND	87	45-132%	10	30%	
Benzo(k)fluoranthene	700	2.01	4.03	"	"	"	ND	87	47-132%	11	30%	
Benzo(g,h,i)perylene	553	2.01	4.03	"	"	"	ND	69	43-134%	11	30%	
Chrysene	615	2.01	4.03	"	"	"	ND	76	50-124%	10	30%	
Dibenz(a,h)anthracene	645	2.01	4.03	"	"	"	ND	80	45-134%	7	30%	
Dibenzofuran	664	2.01	4.03	"	"	"	ND	82	44-120%	12	30%	
Fluoranthene	686	2.01	4.03	"	"	"	ND	85	50-127%	14	30%	
Fluorene	656	2.01	4.03	"	"	"	ND	81	43-125%	13	30%	
Indeno(1,2,3-cd)pyrene	581	2.01	4.03	"	"	"	ND	72	45-133%	11	30%	
1-Methylnaphthalene	658	4.03	8.06	"	"	"	ND	82	40-120%	12	30%	
2-Methylnaphthalene	650	4.03	8.06	"	"	"	ND	81	38-122%	11	30%	
Naphthalene	614	4.03	8.06	"	"	"	ND	76	35-123%	12	30%	
Phenanthrene	611	2.01	4.03	"	"	"	ND	76	50-121%	12	30%	
Pyrene	672	2.01	4.03	"	"	"	ND	83	47-127%	13	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*		*Limits: 44-115 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*76 %*		*54-127 %*			*"*				

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6101065 - EPA 3546							**Soil**					
Blank (6101065-BLK1)					Prepared: 10/27/16 12:07 Analyzed: 10/28/16 10:36							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 95 %*	*Limits: 44-115 %*				*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*101 %*	*54-127 %*				*"*				
LCS (6101065-BS1)					Prepared: 10/27/16 12:07 Analyzed: 10/28/16 11:02							
EPA 8270D (SIM)												
Acenaphthene	781	2.00	4.00	ug/kg wet	1	800	---	98	40-122%	---	---	
Acenaphthylene	754	2.00	4.00	"	"	"	---	94	32-132%	---	---	
Anthracene	771	2.00	4.00	"	"	"	---	96	47-123%	---	---	
Benz(a)anthracene	726	2.00	4.00	"	"	"	---	91	49-126%	---	---	
Benzo(a)pyrene	811	2.00	4.00	"	"	"	---	101	45-129%	---	---	
Benzo(b)fluoranthene	754	2.00	4.00	"	"	"	---	94	45-132%	---	---	
Benzo(k)fluoranthene	809	2.00	4.00	"	"	"	---	101	47-132%	---	---	
Benzo(g,h,i)perylene	680	2.00	4.00	"	"	"	---	85	43-134%	---	---	
Chrysene	731	2.00	4.00	"	"	"	---	91	50-124%	---	---	
Dibenz(a,h)anthracene	777	2.00	4.00	"	"	"	---	97	45-134%	---	---	
Dibenzofuran	748	2.00	4.00	"	"	"	---	93	44-120%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6101065 - EPA 3546							**Soil**					
LCS (6101065-BS1)					Prepared: 10/27/16 12:07 Analyzed: 10/28/16 11:02							
EPA 8270D (SIM)												
Fluoranthene	785	2.00	4.00	ug/kg wet	"	"	---	98	50-127%	---	---	
Fluorene	745	2.00	4.00	"	"	"	---	93	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	693	2.00	4.00	"	"	"	---	87	45-133%	---	---	
1-Methylnaphthalene	720	4.00	8.00	"	"	"	---	90	40-120%	---	---	
2-Methylnaphthalene	716	4.00	8.00	"	"	"	---	89	38-122%	---	---	
Naphthalene	678	4.00	8.00	"	"	"	---	85	35-123%	---	---	
Phenanthrene	692	2.00	4.00	"	"	"	---	86	50-121%	---	---	
Pyrene	774	2.00	4.00	"	"	"	---	97	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 89 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*89 %*	*54-127 %*			*"*					
Duplicate (6101065-DUP1)					Prepared: 10/27/16 12:07 Analyzed: 10/28/16 20:34							H-08
QC Source Sample: BR-01-15-30' (0.5-1')_Prepared (A6J0556-25)												
EPA 8270D (SIM)												
Acenaphthene	ND	1.96	3.91	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	1.96	3.91	"	"	---	ND	---	---	---	30%	
Anthracene	ND	1.96	3.91	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	3.91	3.91	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	1.96	3.91	"	"	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	1.96	3.91	"	"	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	1.96	3.91	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	1.96	3.91	"	"	---	ND	---	---	---	30%	
Chrysene	ND	3.91	3.91	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	1.96	3.91	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	1.96	3.91	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	1.96	3.91	"	"	---	ND	---	---	---	30%	
Fluorene	ND	1.96	3.91	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	1.96	3.91	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	3.91	7.83	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	3.91	7.83	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	3.91	7.83	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	1.96	3.91	"	"	---	ND	---	---	---	30%	
Pyrene	ND	1.96	3.91	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*			*Dilution: 1x*					

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6101065 - EPA 3546							**Soil**					
Duplicate (6101065-DUP1)					Prepared: 10/27/16 12:07		Analyzed: 10/28/16 20:34					H-08
QC Source Sample: BR-01-15-30' (0.5-1')_Prepared (A6J0556-25)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 80 %*	*Limits: 54-127 %*			*Dilution: 1x*					
Matrix Spike (6101065-MS1)					Prepared: 10/27/16 12:07		Analyzed: 10/28/16 21:00					H-08
QC Source Sample: BR-01-15-30' (0.5-1')_Prepared (A6J0556-25)												
EPA 8270D (SIM)												
Acenaphthene	684	1.93	3.85	ug/kg dry	1	770	ND	89	40-122%	---	---	
Acenaphthylene	641	1.93	3.85	"	"	"	ND	83	32-132%	---	---	
Anthracene	767	1.93	3.85	"	"	"	ND	100	47-123%	---	---	
Benz(a)anthracene	732	1.93	3.85	"	"	"	ND	95	49-126%	---	---	
Benzo(a)pyrene	816	1.93	3.85	"	"	"	ND	106	45-129%	---	---	
Benzo(b)fluoranthene	800	1.93	3.85	"	"	"	ND	104	45-132%	---	---	
Benzo(k)fluoranthene	806	1.93	3.85	"	"	"	ND	105	47-132%	---	---	
Benzo(g,h,i)perylene	591	1.93	3.85	"	"	"	ND	77	43-134%	---	---	
Chrysene	729	1.93	3.85	"	"	"	ND	94	50-124%	---	---	
Dibenz(a,h)anthracene	769	1.93	3.85	"	"	"	ND	100	45-134%	---	---	
Dibenzofuran	685	1.93	3.85	"	"	"	ND	89	44-120%	---	---	
Fluoranthene	806	1.93	3.85	"	"	"	ND	105	50-127%	---	---	
Fluorene	711	1.93	3.85	"	"	"	ND	92	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	675	1.93	3.85	"	"	"	ND	88	45-133%	---	---	
1-Methylnaphthalene	571	3.85	7.70	"	"	"	ND	74	40-120%	---	---	
2-Methylnaphthalene	554	3.85	7.70	"	"	"	ND	72	38-122%	---	---	
Naphthalene	500	3.85	7.70	"	"	"	ND	65	35-123%	---	---	
Phenanthrene	676	1.93	3.85	"	"	"	ND	88	50-121%	---	---	
Pyrene	812	1.93	3.85	"	"	"	ND	105	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*88 %*	*54-127 %*			*"*					
Matrix Spike Dup (6101065-MSD1)					Prepared: 10/27/16 12:07		Analyzed: 10/28/16 21:26					H-08, T-02
QC Source Sample: BR-01-15-30' (0.5-1')_Prepared (A6J0556-25)												
EPA 8270D (SIM)												
Acenaphthene	748	1.91	3.82	ug/kg dry	1	764	ND	98	40-122%	9	30%	
Acenaphthylene	719	1.91	3.82	"	"	"	ND	94	32-132%	11	30%	
Anthracene	740	1.91	3.82	"	"	"	ND	97	47-123%	4	30%	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6101065 - EPA 3546							**Soil**					
Matrix Spike Dup (6101065-MSD1)					Prepared: 10/27/16 12:07		Analyzed: 10/28/16 21:26					H-08, T-02
QC Source Sample: BR-01-15-30' (0.5-1')_Prepared (A6J0556-25)												
EPA 8270D (SIM)												
Benz(a)anthracene	706	1.91	3.82	ug/kg dry	"	"	ND	92	49-126%	4	30%	
Benzo(a)pyrene	791	1.91	3.82	"	"	"	ND	103	45-129%	3	30%	
Benzo(b)fluoranthene	763	1.91	3.82	"	"	"	ND	100	45-132%	5	30%	
Benzo(k)fluoranthene	771	1.91	3.82	"	"	"	ND	101	47-132%	4	30%	
Benzo(g,h,i)perylene	571	1.91	3.82	"	"	"	ND	75	43-134%	3	30%	
Chrysene	710	1.91	3.82	"	"	"	ND	93	50-124%	3	30%	
Dibenz(a,h)anthracene	755	1.91	3.82	"	"	"	ND	99	45-134%	2	30%	
Dibenzofuran	728	1.91	3.82	"	"	"	ND	95	44-120%	6	30%	
Fluoranthene	792	1.91	3.82	"	"	"	ND	104	50-127%	2	30%	
Fluorene	721	1.91	3.82	"	"	"	ND	94	43-125%	1	30%	
Indeno(1,2,3-cd)pyrene	651	1.91	3.82	"	"	"	ND	85	45-133%	4	30%	
1-Methylnaphthalene	694	3.82	7.64	"	"	"	ND	91	40-120%	19	30%	
2-Methylnaphthalene	684	3.82	7.64	"	"	"	ND	90	38-122%	21	30%	
Naphthalene	628	3.82	7.64	"	"	"	ND	82	35-123%	23	30%	
Phenanthrene	665	1.91	3.82	"	"	"	ND	87	50-121%	2	30%	
Pyrene	789	1.91	3.82	"	"	"	ND	103	47-127%	3	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 85 %*		*Limits: 44-115 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*81 %*		*54-127 %*			*"*				

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6101105 - EPA 3546							**Soil**					
Blank (6101105-BLK1)					Prepared: 10/28/16 10:07 Analyzed: 10/30/16 12:17							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 79 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*92 %*	*54-127 %*			*"*					
LCS (6101105-BS1)					Prepared: 10/28/16 10:07 Analyzed: 10/30/16 12:43							
EPA 8270D (SIM)												
Acenaphthene	761	2.00	4.00	ug/kg wet	1	800	---	95	40-122%	---	---	
Acenaphthylene	734	2.00	4.00	"	"	"	---	92	32-132%	---	---	
Anthracene	758	2.00	4.00	"	"	"	---	95	47-123%	---	---	
Benz(a)anthracene	726	2.00	4.00	"	"	"	---	91	49-126%	---	---	
Benzo(a)pyrene	806	2.00	4.00	"	"	"	---	101	45-129%	---	---	
Benzo(b)fluoranthene	785	2.00	4.00	"	"	"	---	98	45-132%	---	---	
Benzo(k)fluoranthene	782	2.00	4.00	"	"	"	---	98	47-132%	---	---	
Benzo(g,h,i)perylene	677	2.00	4.00	"	"	"	---	85	43-134%	---	---	
Chrysene	719	2.00	4.00	"	"	"	---	90	50-124%	---	---	
Dibenz(a,h)anthracene	783	2.00	4.00	"	"	"	---	98	45-134%	---	---	
Dibenzofuran	737	2.00	4.00	"	"	"	---	92	44-120%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6101105 - EPA 3546									Soil			
LCS (6101105-BS1)					Prepared: 10/28/16 10:07 Analyzed: 10/30/16 12:43							
EPA 8270D (SIM)												
Fluoranthene	759	2.00	4.00	ug/kg wet	"	"	---	95	50-127%	---	---	
Fluorene	726	2.00	4.00	"	"	"	---	91	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	701	2.00	4.00	"	"	"	---	88	45-133%	---	---	
1-Methylnaphthalene	734	4.00	8.00	"	"	"	---	92	40-120%	---	---	
2-Methylnaphthalene	733	4.00	8.00	"	"	"	---	92	38-122%	---	---	
Naphthalene	682	4.00	8.00	"	"	"	---	85	35-123%	---	---	
Phenanthrene	689	2.00	4.00	"	"	"	---	86	50-121%	---	---	
Pyrene	747	2.00	4.00	"	"	"	---	93	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 85 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*92 %*	*54-127 %*			*"*					
Duplicate (6101105-DUP1)					Prepared: 10/28/16 10:09 Analyzed: 10/30/16 22:14							H-08
QC Source Sample: BR-11-0-15' (0-0.5')_Prepared (A6J0754-40)												
EPA 8270D (SIM)												
Acenaphthene	ND	5.04	10.1	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	5.04	10.1	"	"	---	ND	---	---	---	30%	
Anthracene	ND	5.04	10.1	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	121	121	"	"	---	ND	---	---	---	30%	R-02
Carbazole	ND	5.04	10.1	"	"	---	ND	---	---	---	30%	
Chrysene	ND	131	131	"	"	---	ND	---	---	---	30%	R-02
Dibenzofuran	ND	5.04	10.1	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	5.04	10.1	"	"	---	ND	---	---	---	30%	
Fluorene	ND	5.04	10.1	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	10.1	20.2	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	10.1	20.2	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	10.1	20.2	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	5.04	10.1	"	"	---	ND	---	---	---	30%	
Pyrene	ND	5.04	10.1	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 85 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*100 %*	*54-127 %*			*"*					
Duplicate (6101105-DUP2)					Prepared: 10/31/16 10:34 Analyzed: 10/31/16 14:45							H-08, R-04
QC Source Sample: BR-11-0-15' (0-0.5')_Prepared (A6J0754-40RE1)												
EPA 8270D (SIM)												

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AMENDED REPORT

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503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6101105 - EPA 3546								**Soil**				
Duplicate (6101105-DUP2)					Prepared: 10/31/16 10:34		Analyzed: 10/31/16 14:45					H-08, R-04
QC Source Sample: BR-11-0-15' (0-0.5')_Prepared (A6J0754-40RE1)												
EPA 8270D (SIM)												
Benzo(a)pyrene	ND	101	202	ug/kg dry	20	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	101	202	"	"	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	101	202	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	101	202	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	101	202	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	101	202	"	"	---	ND	---	---	---	30%	
Matrix Spike (6101105-MS1)					Prepared: 10/28/16 10:07		Analyzed: 10/30/16 22:40					H-08
QC Source Sample: BR-11-0-15' (0-0.5')_Prepared (A6J0754-40)												
EPA 8270D (SIM)												
Acenaphthene	728	4.97	9.93	ug/kg dry	1	795	ND	92	40-122%	---	---	
Acenaphthylene	681	4.97	9.93	"	"	"	ND	86	32-132%	---	---	
Anthracene	706	4.97	9.93	"	"	"	ND	89	47-123%	---	---	
Benz(a)anthracene	727	4.97	9.93	"	"	"	ND	86	49-126%	---	---	
Chrysene	756	4.97	9.93	"	"	"	ND	88	50-124%	---	---	
Dibenzofuran	732	4.97	9.93	"	"	"	ND	92	44-120%	---	---	
Fluoranthene	759	4.97	9.93	"	"	"	ND	96	50-127%	---	---	
Fluorene	730	4.97	9.93	"	"	"	ND	92	43-125%	---	---	
1-Methylnaphthalene	679	9.93	19.9	"	"	"	ND	85	40-120%	---	---	
2-Methylnaphthalene	669	9.93	19.9	"	"	"	ND	84	38-122%	---	---	
Naphthalene	632	9.93	19.9	"	"	"	ND	80	35-123%	---	---	
Phenanthrene	666	4.97	9.93	"	"	"	ND	84	50-121%	---	---	
Pyrene	756	4.97	9.93	"	"	"	ND	95	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 84 %*		*Limits: 44-115 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*95 %*		*54-127 %*			*"*				
Matrix Spike (6101105-MS2)					Prepared: 10/31/16 10:34		Analyzed: 10/31/16 15:11					H-08
QC Source Sample: BR-11-0-15' (0-0.5')_Prepared (A6J0754-40RE1)												
EPA 8270D (SIM)												
Benzo(a)pyrene	704	99.3	199	ug/kg dry	20	795	ND	89	45-129%	---	---	
Benzo(b)fluoranthene	727	99.3	199	"	"	"	ND	92	45-132%	---	---	
Benzo(k)fluoranthene	779	99.3	199	"	"	"	ND	98	47-132%	---	---	
Benzo(g,h,i)perylene	628	99.3	199	"	"	"	ND	79	43-134%	---	---	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6101105 - EPA 3546							**Soil**					
Matrix Spike (6101105-MS2)					Prepared: 10/31/16 10:34		Analyzed: 10/31/16 15:11					H-08
QC Source Sample: BR-11-0-15' (0-0.5')_Prepared (A6J0754-40RE1)												
EPA 8270D (SIM)												
Dibenz(a,h)anthracene	672	99.3	199	ug/kg dry	"	"	ND	85	45-134%	---	---	
Indeno(1,2,3-cd)pyrene	796	99.3	199	"	"	"	ND	100	45-133%	---	---	
Matrix Spike Dup (6101105-MSD1)					Prepared: 10/28/16 10:16		Analyzed: 10/30/16 23:06					H-08
QC Source Sample: BR-11-0-15' (0-0.5')_Prepared (A6J0754-40)												
EPA 8270D (SIM)												
Acenaphthene	735	4.97	9.94	ug/kg dry	1	795	ND	92	40-122%	0.9	30%	
Acenaphthylene	697	4.97	9.94	"	"	"	ND	88	32-132%	2	30%	
Anthracene	728	4.97	9.94	"	"	"	ND	92	47-123%	3	30%	
Benz(a)anthracene	717	4.97	9.94	"	"	"	ND	85	49-126%	1	30%	
Chrysene	760	4.97	9.94	"	"	"	ND	89	50-124%	0.6	30%	
Dibenzofuran	736	4.97	9.94	"	"	"	ND	93	44-120%	0.6	30%	
Fluoranthene	756	4.97	9.94	"	"	"	ND	95	50-127%	0.4	30%	
Fluorene	733	4.97	9.94	"	"	"	ND	92	43-125%	0.4	30%	
1-Methylnaphthalene	700	9.94	19.9	"	"	"	ND	88	40-120%	3	30%	
2-Methylnaphthalene	686	9.94	19.9	"	"	"	ND	86	38-122%	2	30%	
Naphthalene	652	9.94	19.9	"	"	"	ND	82	35-123%	3	30%	
Phenanthrene	661	4.97	9.94	"	"	"	ND	83	50-121%	0.7	30%	
Pyrene	741	4.97	9.94	"	"	"	ND	93	47-127%	2	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 84 %*		*Limits: 44-115 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*99 %*		*54-127 %*			*"*				
Matrix Spike Dup (6101105-MSD2)					Prepared: 10/31/16 10:34		Analyzed: 10/31/16 15:37					H-08
QC Source Sample: BR-11-0-15' (0-0.5')_Prepared (A6J0754-40RE1)												
EPA 8270D (SIM)												
Benzo(a)pyrene	694	99.4	199	ug/kg dry	20	795	ND	87	45-129%	1	30%	
Benzo(b)fluoranthene	702	99.4	199	"	"	"	ND	88	45-132%	4	30%	
Benzo(k)fluoranthene	763	99.4	199	"	"	"	ND	96	47-132%	2	30%	
Benzo(g,h,i)perylene	622	99.4	199	"	"	"	ND	78	43-134%	1	30%	
Dibenz(a,h)anthracene	676	99.4	199	"	"	"	ND	85	45-134%	0.7	30%	
Indeno(1,2,3-cd)pyrene	621	99.4	199	"	"	"	ND	78	45-133%	25	30%	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6101127 - EPA 3546							**Soil**					
Blank (6101127-BLK1)					Prepared: 10/29/16 08:10 Analyzed: 11/01/16 10:22							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 86 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*102 %*	*54-127 %*			*"*					
LCS (6101127-BS1)					Prepared: 10/29/16 08:10 Analyzed: 11/01/16 10:48							
EPA 8270D (SIM)												
Acenaphthene	810	2.00	4.00	ug/kg wet	1	800	---	101	40-122%	---	---	
Acenaphthylene	775	2.00	4.00	"	"	"	---	97	32-132%	---	---	
Anthracene	813	2.00	4.00	"	"	"	---	102	47-123%	---	---	
Benz(a)anthracene	768	2.00	4.00	"	"	"	---	96	49-126%	---	---	
Benzo(a)pyrene	846	2.00	4.00	"	"	"	---	106	45-129%	---	---	
Benzo(b)fluoranthene	822	2.00	4.00	"	"	"	---	103	45-132%	---	---	
Benzo(k)fluoranthene	848	2.00	4.00	"	"	"	---	106	47-132%	---	---	
Benzo(g,h,i)perylene	711	2.00	4.00	"	"	"	---	89	43-134%	---	---	
Chrysene	768	2.00	4.00	"	"	"	---	96	50-124%	---	---	
Dibenz(a,h)anthracene	825	2.00	4.00	"	"	"	---	103	45-134%	---	---	
Dibenzofuran	787	2.00	4.00	"	"	"	---	98	44-120%	---	---	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6101127 - EPA 3546									Soil			
LCS (6101127-BS1)					Prepared: 10/29/16 08:10 Analyzed: 11/01/16 10:48							
EPA 8270D (SIM)												
Fluoranthene	811	2.00	4.00	ug/kg wet	"	"	---	101	50-127%	---	---	
Fluorene	789	2.00	4.00	"	"	"	---	99	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	741	2.00	4.00	"	"	"	---	93	45-133%	---	---	
1-Methylnaphthalene	753	4.00	8.00	"	"	"	---	94	40-120%	---	---	
2-Methylnaphthalene	754	4.00	8.00	"	"	"	---	94	38-122%	---	---	
Naphthalene	686	4.00	8.00	"	"	"	---	86	35-123%	---	---	
Phenanthrene	735	2.00	4.00	"	"	"	---	92	50-121%	---	---	
Pyrene	797	2.00	4.00	"	"	"	---	100	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 87 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*97 %*	*54-127 %*			*"*					
Duplicate (6101127-DUP2)					Prepared: 10/29/16 08:10 Analyzed: 12/06/16 13:37							H-08
QC Source Sample: BR-11-0-15' (0.5-1')_Prepared (A6J0823-21)												
EPA 8270D (SIM)												
Acenaphthene	ND	5.98	12.0	ug/kg dry	3	---	ND	---	---	---	30%	
Acenaphthylene	ND	5.98	12.0	"	"	---	ND	---	---	---	30%	
Anthracene	ND	5.98	12.0	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	12.0	12.0	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	5.98	12.0	"	"	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	5.98	12.0	"	"	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	5.98	12.0	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	**13.7**	5.98	12.0	"	"	---	10.1	---	---	30	30%	
Chrysene	ND	12.0	12.0	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	5.98	12.0	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	5.98	12.0	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	5.98	12.0	"	"	---	ND	---	---	---	30%	
Fluorene	ND	5.98	12.0	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	5.98	12.0	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	12.0	23.9	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	12.0	23.9	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	12.0	23.9	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	5.98	12.0	"	"	---	ND	---	---	---	30%	
Pyrene	ND	5.98	12.0	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*	*Limits: 44-115 %*			*Dilution: 3x*					

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6101127 - EPA 3546							**Soil**					
Duplicate (6101127-DUP2)				Prepared: 10/29/16 08:10		Analyzed: 12/06/16 13:37						H-08
QC Source Sample: BR-11-0-15' (0.5-1')_Prepared (A6J0823-21)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)				*Recovery: 82 %*		*Limits: 54-127 %*						*Dilution: 3x*
Matrix Spike (6101127-MS2)				Prepared: 10/29/16 08:10		Analyzed: 12/06/16 13:11						H-08
QC Source Sample: BR-13->30' (0.5-1')_Prepared (A6J0823-40)												
EPA 8270D (SIM)												
Acenaphthene	468	1.99	3.99	ug/kg dry	1	798	ND	59	40-122%	---	---	
Acenaphthylene	492	1.99	3.99	"	"	"	ND	62	32-132%	---	---	
Anthracene	542	1.99	3.99	"	"	"	ND	68	47-123%	---	---	
Benz(a)anthracene	581	1.99	3.99	"	"	"	ND	73	49-126%	---	---	
Benzo(a)pyrene	445	1.99	3.99	"	"	"	ND	56	45-129%	---	---	
Benzo(b)fluoranthene	571	1.99	3.99	"	"	"	ND	72	45-132%	---	---	
Benzo(k)fluoranthene	520	1.99	3.99	"	"	"	ND	65	47-132%	---	---	
Benzo(g,h,i)perylene	496	1.99	3.99	"	"	"	ND	62	43-134%	---	---	
Chrysene	475	1.99	3.99	"	"	"	ND	60	50-124%	---	---	
Dibenz(a,h)anthracene	514	1.99	3.99	"	"	"	ND	64	45-134%	---	---	
Dibenzofuran	478	1.99	3.99	"	"	"	ND	60	44-120%	---	---	
Fluoranthene	529	1.99	3.99	"	"	"	ND	66	50-127%	---	---	
Fluorene	489	1.99	3.99	"	"	"	ND	61	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	514	1.99	3.99	"	"	"	ND	64	45-133%	---	---	
1-Methylnaphthalene	461	3.99	7.98	"	"	"	ND	58	40-120%	---	---	
2-Methylnaphthalene	489	3.99	7.98	"	"	"	ND	61	38-122%	---	---	
Naphthalene	440	3.99	7.98	"	"	"	ND	55	35-123%	---	---	
Phenanthrene	480	1.99	3.99	"	"	"	ND	60	50-121%	---	---	
Pyrene	505	1.99	3.99	"	"	"	ND	63	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)				*Recovery: 56 %*		*Limits: 44-115 %*						*Dilution: 1x*
p-Terphenyl-d14 (Surr)				*62 %*		*54-127 %*						*"*

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110268 - EPA 3546							**Soil**					
Blank (6110268-BLK1)					Prepared: 11/04/16 10:05 Analyzed: 11/07/16 18:15							
EPA 8270D (SIM)												
Acenaphthene	ND	1.67	3.33	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Anthracene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	**2.40**	1.67	3.33	"	"	---	---	---	---	---	---	B-02, J
Benzo(b)fluoranthene	**2.92**	1.67	3.33	"	"	---	---	---	---	---	---	B-02, J
Benzo(k)fluoranthene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	**2.81**	1.67	3.33	"	"	---	---	---	---	---	---	B-02, J
Chrysene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Fluorene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	**2.98**	1.67	3.33	"	"	---	---	---	---	---	---	B-02, J
1-Methylnaphthalene	ND	3.33	6.67	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.33	6.67	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.33	6.67	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Pyrene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*89 %*	*54-127 %*			*"*					
LCS (6110268-BS1)					Prepared: 11/04/16 10:05 Analyzed: 11/07/16 18:41							
EPA 8270D (SIM)												
Acenaphthene	743	2.00	4.00	ug/kg wet	1	800	---	93	40-122%	---	---	
Acenaphthylene	708	2.00	4.00	"	"	"	---	89	32-132%	---	---	
Anthracene	745	2.00	4.00	"	"	"	---	93	47-123%	---	---	
Benz(a)anthracene	713	2.00	4.00	"	"	"	---	89	49-126%	---	---	
Benzo(a)pyrene	788	2.00	4.00	"	"	"	---	99	45-129%	---	---	B-02
Benzo(b)fluoranthene	756	2.00	4.00	"	"	"	---	94	45-132%	---	---	B-02
Benzo(k)fluoranthene	775	2.00	4.00	"	"	"	---	97	47-132%	---	---	
Benzo(g,h,i)perylene	661	2.00	4.00	"	"	"	---	83	43-134%	---	---	B-02
Chrysene	719	2.00	4.00	"	"	"	---	90	50-124%	---	---	
Dibenz(a,h)anthracene	767	2.00	4.00	"	"	"	---	96	45-134%	---	---	
Dibenzofuran	725	2.00	4.00	"	"	"	---	91	44-120%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110268 - EPA 3546									Soil			
LCS (6110268-BS1)					Prepared: 11/04/16 10:05 Analyzed: 11/07/16 18:41							
EPA 8270D (SIM)												
Fluoranthene	781	2.00	4.00	ug/kg wet	"	"	---	98	50-127%	---	---	
Fluorene	717	2.00	4.00	"	"	"	---	90	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	691	2.00	4.00	"	"	"	---	86	45-133%	---	---	B-02
1-Methylnaphthalene	698	4.00	8.00	"	"	"	---	87	40-120%	---	---	
2-Methylnaphthalene	705	4.00	8.00	"	"	"	---	88	38-122%	---	---	
Naphthalene	636	4.00	8.00	"	"	"	---	79	35-123%	---	---	
Phenanthrene	667	2.00	4.00	"	"	"	---	83	50-121%	---	---	
Pyrene	779	2.00	4.00	"	"	"	---	97	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*83 %*	*54-127 %*			*"*					
Duplicate (6110268-DUP1)					Prepared: 11/04/16 10:06 Analyzed: 11/08/16 03:46							H-08
QC Source Sample: BR-06->30' (0.5-1')_Prepared (A6J0598-25)												
EPA 8270D (SIM)												
Acenaphthene	ND	1.93	3.85	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	1.93	3.85	"	"	---	ND	---	---	---	30%	
Anthracene	ND	1.93	3.85	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	1.93	3.85	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	1.93	3.85	"	"	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	1.93	3.85	"	"	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	1.93	3.85	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	1.93	3.85	"	"	---	ND	---	---	---	30%	
Chrysene	ND	1.93	3.85	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	1.93	3.85	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	1.93	3.85	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	1.93	3.85	"	"	---	ND	---	---	---	30%	
Fluorene	ND	1.93	3.85	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	1.93	3.85	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	3.85	7.71	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	3.85	7.71	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	3.85	7.71	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	1.93	3.85	"	"	---	ND	---	---	---	30%	
Pyrene	ND	1.93	3.85	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*			*Dilution: 1x*					

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110268 - EPA 3546							Soil					
Duplicate (6110268-DUP1)					Prepared: 11/04/16 10:06 Analyzed: 11/08/16 03:46							H-08
QC Source Sample: BR-06->30' (0.5-1')_Prepared (A6J0598-25)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 82 %*	*Limits: 54-127 %*			*Dilution: 1x*					
Matrix Spike (6110268-MS1)					Prepared: 11/04/16 10:05 Analyzed: 11/08/16 04:12							H-08
QC Source Sample: BR-06->30' (0.5-1')_Prepared (A6J0598-25)												
EPA 8270D (SIM)												
Acenaphthene	617	1.85	3.71	ug/kg dry	1	741	ND	83	40-122%	---	---	
Acenaphthylene	587	1.85	3.71	"	"	"	ND	79	32-132%	---	---	
Anthracene	613	1.85	3.71	"	"	"	ND	83	47-123%	---	---	
Benz(a)anthracene	610	1.85	3.71	"	"	"	ND	82	49-126%	---	---	
Benzo(a)pyrene	669	1.85	3.71	"	"	"	ND	90	45-129%	---	---	
Benzo(b)fluoranthene	674	1.85	3.71	"	"	"	ND	91	45-132%	---	---	
Benzo(k)fluoranthene	676	1.85	3.71	"	"	"	ND	91	47-132%	---	---	
Benzo(g,h,i)perylene	534	1.85	3.71	"	"	"	ND	72	43-134%	---	---	
Chrysene	620	1.85	3.71	"	"	"	ND	84	50-124%	---	---	
Dibenz(a,h)anthracene	650	1.85	3.71	"	"	"	ND	88	45-134%	---	---	
Dibenzofuran	594	1.85	3.71	"	"	"	ND	80	44-120%	---	---	
Fluoranthene	633	1.85	3.71	"	"	"	ND	85	50-127%	---	---	
Fluorene	587	1.85	3.71	"	"	"	ND	79	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	574	1.85	3.71	"	"	"	ND	77	45-133%	---	---	
1-Methylnaphthalene	578	3.71	7.41	"	"	"	ND	78	40-120%	---	---	
2-Methylnaphthalene	576	3.71	7.41	"	"	"	ND	78	38-122%	---	---	
Naphthalene	535	3.71	7.41	"	"	"	ND	72	35-123%	---	---	
Phenanthrene	561	1.85	3.71	"	"	"	ND	76	50-121%	---	---	
Pyrene	621	1.85	3.71	"	"	"	ND	84	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*83 %*	*54-127 %*			*"*					
Matrix Spike Dup (6110268-MSD1)					Prepared: 11/04/16 10:06 Analyzed: 11/08/16 04:38							H-08
QC Source Sample: BR-06->30' (0.5-1')_Prepared (A6J0598-25)												
EPA 8270D (SIM)												
Acenaphthene	563	1.77	3.54	ug/kg dry	1	707	ND	80	40-122%	9	30%	
Acenaphthylene	535	1.77	3.54	"	"	"	ND	76	32-132%	9	30%	
Anthracene	576	1.77	3.54	"	"	"	ND	81	47-123%	6	30%	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110268 - EPA 3546							**Soil**					
Matrix Spike Dup (6110268-MSD1)					Prepared: 11/04/16 10:06		Analyzed: 11/08/16 04:38					H-08
QC Source Sample: BR-06->30' (0.5-1')_Prepared (A6J0598-25)												
EPA 8270D (SIM)												
Benz(a)anthracene	573	1.77	3.54	ug/kg dry	"	"	ND	81	49-126%	6	30%	
Benzo(a)pyrene	628	1.77	3.54	"	"	"	ND	89	45-129%	6	30%	
Benzo(b)fluoranthene	629	1.77	3.54	"	"	"	ND	89	45-132%	7	30%	
Benzo(k)fluoranthene	639	1.77	3.54	"	"	"	ND	90	47-132%	6	30%	
Benzo(g,h,i)perylene	489	1.77	3.54	"	"	"	ND	69	43-134%	9	30%	
Chrysene	576	1.77	3.54	"	"	"	ND	81	50-124%	7	30%	
Dibenz(a,h)anthracene	608	1.77	3.54	"	"	"	ND	86	45-134%	7	30%	
Dibenzofuran	543	1.77	3.54	"	"	"	ND	77	44-120%	9	30%	
Fluoranthene	602	1.77	3.54	"	"	"	ND	85	50-127%	5	30%	
Fluorene	543	1.77	3.54	"	"	"	ND	77	43-125%	8	30%	
Indeno(1,2,3-cd)pyrene	534	1.77	3.54	"	"	"	ND	76	45-133%	7	30%	
1-Methylnaphthalene	535	3.54	7.07	"	"	"	ND	76	40-120%	8	30%	
2-Methylnaphthalene	528	3.54	7.07	"	"	"	ND	75	38-122%	9	30%	
Naphthalene	487	3.54	7.07	"	"	"	ND	69	35-123%	9	30%	
Phenanthrene	526	1.77	3.54	"	"	"	ND	74	50-121%	6	30%	
Pyrene	595	1.77	3.54	"	"	"	ND	84	47-127%	4	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*		*Limits: 44-115 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*83 %*		*54-127 %*			*"*				

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AMENDED REPORT

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Tigard, OR 97223
503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110298 - EPA 3546							Soil					
Blank (6110298-BLK1)					Prepared: 11/05/16 08:12 Analyzed: 11/08/16 10:13							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 84 %*	*Limits: 44-115 %*				*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*90 %*	*54-127 %*				*"*				
LCS (6110298-BS1)					Prepared: 11/05/16 08:12 Analyzed: 11/08/16 10:39							
EPA 8270D (SIM)												
Acenaphthene	766	2.00	4.00	ug/kg wet	1	800	---	96	40-122%	---	---	
Acenaphthylene	732	2.00	4.00	"	"	"	---	91	32-132%	---	---	
Anthracene	756	2.00	4.00	"	"	"	---	95	47-123%	---	---	
Benz(a)anthracene	757	2.00	4.00	"	"	"	---	95	49-126%	---	---	
Benzo(a)pyrene	826	2.00	4.00	"	"	"	---	103	45-129%	---	---	
Benzo(b)fluoranthene	771	2.00	4.00	"	"	"	---	96	45-132%	---	---	
Benzo(k)fluoranthene	819	2.00	4.00	"	"	"	---	102	47-132%	---	---	
Benzo(g,h,i)perylene	701	2.00	4.00	"	"	"	---	88	43-134%	---	---	
Chrysene	755	2.00	4.00	"	"	"	---	94	50-124%	---	---	
Dibenz(a,h)anthracene	806	2.00	4.00	"	"	"	---	101	45-134%	---	---	
Dibenzofuran	736	2.00	4.00	"	"	"	---	92	44-120%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110298 - EPA 3546									Soil			
LCS (6110298-BS1)					Prepared: 11/05/16 08:12 Analyzed: 11/08/16 10:39							
EPA 8270D (SIM)												
Fluoranthene	804	2.00	4.00	ug/kg wet	"	"	---	101	50-127%	---	---	
Fluorene	730	2.00	4.00	"	"	"	---	91	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	736	2.00	4.00	"	"	"	---	92	45-133%	---	---	
1-Methylnaphthalene	710	4.00	8.00	"	"	"	---	89	40-120%	---	---	
2-Methylnaphthalene	704	4.00	8.00	"	"	"	---	88	38-122%	---	---	
Naphthalene	662	4.00	8.00	"	"	"	---	83	35-123%	---	---	
Phenanthrene	685	2.00	4.00	"	"	"	---	86	50-121%	---	---	
Pyrene	805	2.00	4.00	"	"	"	---	101	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 87 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*89 %*	*54-127 %*			*"*					
Duplicate (6110298-DUP2)					Prepared: 11/05/16 08:12 Analyzed: 11/09/16 19:58							H-08, R-04
QC Source Sample: BR-14-0-15' (0-0.5')_Prepared (A6J0849-22RE1)												
EPA 8270D (SIM)												
Acenaphthene	ND	14.0	27.9	ug/kg dry	3	---	ND	---	---	---	30%	
Acenaphthylene	ND	14.0	27.9	"	"	---	ND	---	---	---	30%	
Anthracene	ND	14.0	27.9	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	14.0	27.9	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	14.0	27.9	"	"	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	14.0	27.9	"	"	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	14.0	27.9	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	14.0	27.9	"	"	---	ND	---	---	---	30%	
Chrysene	ND	14.0	27.9	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	14.0	27.9	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	14.0	27.9	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	14.0	27.9	"	"	---	ND	---	---	---	30%	
Fluorene	ND	14.0	27.9	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	14.0	27.9	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	27.9	55.8	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	27.9	55.8	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	27.9	55.8	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	14.0	27.9	"	"	---	ND	---	---	---	30%	
Pyrene	ND	14.0	27.9	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 83 %*	*Limits: 44-115 %*			*Dilution: 3x*					

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110298 - EPA 3546							**Soil**					
Duplicate (6110298-DUP2)					Prepared: 11/05/16 08:12		Analyzed: 11/09/16 19:58					H-08, R-04
QC Source Sample: BR-14-0-15' (0-0.5')_Prepared (A6J0849-22RE1)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 89 %*	*Limits: 54-127 %*			*Dilution: 3x*					
Matrix Spike (6110298-MS2)					Prepared: 11/05/16 08:12		Analyzed: 12/06/16 15:47					H-08
QC Source Sample: BR-14-0-15' (0-0.5')_Prepared (A6J0849-22RE1)												
EPA 8270D (SIM)												
Acenaphthene	696	14.6	29.2	ug/kg dry	3	778	ND	89	40-122%	---	---	
Acenaphthylene	726	14.6	29.2	"	"	"	ND	93	32-132%	---	---	
Anthracene	864	14.6	29.2	"	"	"	ND	111	47-123%	---	---	
Benz(a)anthracene	936	14.6	29.2	"	"	"	ND	120	49-126%	---	---	
Benzo(a)pyrene	933	14.6	29.2	"	"	"	ND	120	45-129%	---	---	
Benzo(b)fluoranthene	947	14.6	29.2	"	"	"	ND	122	45-132%	---	---	
Benzo(k)fluoranthene	879	14.6	29.2	"	"	"	ND	113	47-132%	---	---	
Benzo(g,h,i)perylene	864	14.6	29.2	"	"	"	ND	111	43-134%	---	---	
Chrysene	770	14.6	29.2	"	"	"	ND	99	50-124%	---	---	
Dibenz(a,h)anthracene	869	14.6	29.2	"	"	"	ND	112	45-134%	---	---	
Dibenzofuran	738	14.6	29.2	"	"	"	ND	95	44-120%	---	---	
Fluoranthene	824	14.6	29.2	"	"	"	ND	106	50-127%	---	---	
Fluorene	771	14.6	29.2	"	"	"	ND	99	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	838	14.6	29.2	"	"	"	ND	108	45-133%	---	---	
1-Methylnaphthalene	675	29.2	58.3	"	"	"	ND	87	40-120%	---	---	
2-Methylnaphthalene	702	29.2	58.3	"	"	"	ND	90	38-122%	---	---	
Naphthalene	620	29.2	58.3	"	"	"	ND	80	35-123%	---	---	
Phenanthrene	759	14.6	29.2	"	"	"	ND	98	50-121%	---	---	
Pyrene	799	14.6	29.2	"	"	"	ND	103	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 92 %*	*Limits: 44-115 %*			*Dilution: 3x*					
p-Terphenyl-d14 (Surr)			*100 %*	*54-127 %*			*"*					
Matrix Spike Dup (6110298-MSD2)					Prepared: 11/05/16 08:12		Analyzed: 12/06/16 16:13					H-08
QC Source Sample: BR-14-0-15' (0-0.5')_Prepared (A6J0849-22RE1)												
EPA 8270D (SIM)												
Acenaphthene	587	14.1	28.3	ug/kg dry	3	754	ND	78	40-122%	17	30%	
Acenaphthylene	615	14.1	28.3	"	"	"	ND	82	32-132%	16	30%	
Anthracene	745	14.1	28.3	"	"	"	ND	99	47-123%	15	30%	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110298 - EPA 3546							**Soil**					
Matrix Spike Dup (6110298-MSD2)					Prepared: 11/05/16 08:12		Analyzed: 12/06/16 16:13					H-08
QC Source Sample: BR-14-0-15' (0-0.5')_Prepared (A6J0849-22RE1)												
EPA 8270D (SIM)												
Benz(a)anthracene	800	14.1	28.3	ug/kg dry	"	"	ND	106	49-126%	16	30%	
Benzo(a)pyrene	802	14.1	28.3	"	"	"	ND	106	45-129%	15	30%	
Benzo(b)fluoranthene	811	14.1	28.3	"	"	"	ND	108	45-132%	16	30%	
Benzo(k)fluoranthene	763	14.1	28.3	"	"	"	ND	101	47-132%	14	30%	
Benzo(g,h,i)perylene	732	14.1	28.3	"	"	"	ND	97	43-134%	16	30%	
Chrysene	658	14.1	28.3	"	"	"	ND	87	50-124%	16	30%	
Dibenz(a,h)anthracene	722	14.1	28.3	"	"	"	ND	96	45-134%	19	30%	
Dibenzofuran	630	14.1	28.3	"	"	"	ND	84	44-120%	16	30%	
Fluoranthene	713	14.1	28.3	"	"	"	ND	95	50-127%	15	30%	
Fluorene	660	14.1	28.3	"	"	"	ND	88	43-125%	15	30%	
Indeno(1,2,3-cd)pyrene	717	14.1	28.3	"	"	"	ND	95	45-133%	16	30%	
1-Methylnaphthalene	537	28.3	56.6	"	"	"	ND	71	40-120%	23	30%	
2-Methylnaphthalene	556	28.3	56.6	"	"	"	ND	74	38-122%	23	30%	
Naphthalene	423	28.3	56.6	"	"	"	ND	56	35-123%	38	30%	Q-24
Phenanthrene	650	14.1	28.3	"	"	"	ND	86	50-121%	16	30%	
Pyrene	687	14.1	28.3	"	"	"	ND	91	47-127%	15	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*		*Limits: 44-115 %*			*Dilution: 3x*				
p-Terphenyl-d14 (Surr)			*86 %*		*54-127 %*			*"*				

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110299 - EPA 3546							Soil					
Blank (6110299-BLK1)					Prepared: 11/05/16 08:25 Analyzed: 11/10/16 16:29							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 89 %*	*Limits: 44-115 %*				*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*89 %*	*54-127 %*				*"*				
LCS (6110299-BS1)					Prepared: 11/05/16 08:25 Analyzed: 11/10/16 16:55							
EPA 8270D (SIM)												
Acenaphthene	763	2.00	4.00	ug/kg wet	1	800	---	95	40-122%	---	---	
Acenaphthylene	739	2.00	4.00	"	"	"	---	92	32-132%	---	---	
Anthracene	738	2.00	4.00	"	"	"	---	92	47-123%	---	---	
Benz(a)anthracene	724	2.00	4.00	"	"	"	---	91	49-126%	---	---	
Benzo(a)pyrene	789	2.00	4.00	"	"	"	---	99	45-129%	---	---	
Benzo(b)fluoranthene	756	2.00	4.00	"	"	"	---	95	45-132%	---	---	
Benzo(k)fluoranthene	767	2.00	4.00	"	"	"	---	96	47-132%	---	---	
Benzo(g,h,i)perylene	701	2.00	4.00	"	"	"	---	88	43-134%	---	---	
Chrysene	716	2.00	4.00	"	"	"	---	89	50-124%	---	---	
Dibenz(a,h)anthracene	763	2.00	4.00	"	"	"	---	95	45-134%	---	---	
Dibenzofuran	738	2.00	4.00	"	"	"	---	92	44-120%	---	---	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110299 - EPA 3546									Soil			
LCS (6110299-BS1)					Prepared: 11/05/16 08:25 Analyzed: 11/10/16 16:55							
EPA 8270D (SIM)												
Fluoranthene	775	2.00	4.00	ug/kg wet	"	"	---	97	50-127%	---	---	
Fluorene	717	2.00	4.00	"	"	"	---	90	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	707	2.00	4.00	"	"	"	---	88	45-133%	---	---	
1-Methylnaphthalene	711	4.00	8.00	"	"	"	---	89	40-120%	---	---	
2-Methylnaphthalene	703	4.00	8.00	"	"	"	---	88	38-122%	---	---	
Naphthalene	663	4.00	8.00	"	"	"	---	83	35-123%	---	---	
Phenanthrene	668	2.00	4.00	"	"	"	---	84	50-121%	---	---	
Pyrene	769	2.00	4.00	"	"	"	---	96	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 84 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*83 %*	*54-127 %*			*"*					
Duplicate (6110299-DUP2)					Prepared: 11/05/16 08:25 Analyzed: 12/06/16 17:57							H-08, R-04
QC Source Sample: BR-17-15-30' (0-0.5')_Prepared (A6J0892-29)												
EPA 8270D (SIM)												
Acenaphthene	ND	14.4	28.8	ug/kg dry	3	---	ND	---	---	---	30%	
Acenaphthylene	ND	14.4	28.8	"	"	---	ND	---	---	---	30%	
Anthracene	ND	14.4	28.8	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	28.8	28.8	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	**15.8**	14.4	28.8	"	"	---	ND	---	---	---	30%	J
Benzo(b)fluoranthene	ND	14.4	28.8	"	"	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	14.4	28.8	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	**26.2**	14.4	28.8	"	"	---	19.8	---	---	28	30%	J
Chrysene	ND	28.8	28.8	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	14.4	28.8	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	14.4	28.8	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	14.4	28.8	"	"	---	ND	---	---	---	30%	
Fluorene	ND	14.4	28.8	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	14.4	28.8	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	28.8	57.7	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	28.8	57.7	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	28.8	57.7	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	14.4	28.8	"	"	---	ND	---	---	---	30%	
Pyrene	ND	14.4	28.8	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 80 %*	*Limits: 44-115 %*			*Dilution: 3x*					

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110299 - EPA 3546							**Soil**					
Duplicate (6110299-DUP2)					Prepared: 11/05/16 08:25		Analyzed: 12/06/16 17:57					H-08, R-04
QC Source Sample: BR-17-15-30' (0-0.5')_Prepared (A6J0892-29)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 82 %*	*Limits: 54-127 %*			*Dilution: 3x*					
Matrix Spike (6110299-MS2)					Prepared: 11/05/16 08:25		Analyzed: 12/06/16 18:23					H-08
QC Source Sample: BR-17-15-30' (0-0.5')_Prepared (A6J0892-29)												
EPA 8270D (SIM)												
Acenaphthene	687	14.8	29.6	ug/kg dry	3	789	ND	87	40-122%	---	---	
Acenaphthylene	733	14.8	29.6	"	"	"	ND	93	32-132%	---	---	
Anthracene	834	14.8	29.6	"	"	"	ND	106	47-123%	---	---	
Benz(a)anthracene	896	14.8	29.6	"	"	"	ND	111	49-126%	---	---	
Benzo(a)pyrene	894	14.8	29.6	"	"	"	ND	113	45-129%	---	---	
Benzo(b)fluoranthene	891	14.8	29.6	"	"	"	ND	113	45-132%	---	---	
Benzo(k)fluoranthene	805	14.8	29.6	"	"	"	ND	102	47-132%	---	---	
Benzo(g,h,i)perylene	790	14.8	29.6	"	"	"	19.8	98	43-134%	---	---	
Chrysene	751	14.8	29.6	"	"	"	ND	93	50-124%	---	---	
Dibenz(a,h)anthracene	807	14.8	29.6	"	"	"	ND	102	45-134%	---	---	
Dibenzofuran	721	14.8	29.6	"	"	"	ND	91	44-120%	---	---	
Fluoranthene	792	14.8	29.6	"	"	"	ND	100	50-127%	---	---	
Fluorene	748	14.8	29.6	"	"	"	ND	95	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	769	14.8	29.6	"	"	"	ND	97	45-133%	---	---	
1-Methylnaphthalene	698	29.6	59.2	"	"	"	ND	88	40-120%	---	---	
2-Methylnaphthalene	728	29.6	59.2	"	"	"	ND	92	38-122%	---	---	
Naphthalene	654	29.6	59.2	"	"	"	ND	83	35-123%	---	---	
Phenanthrene	732	14.8	29.6	"	"	"	ND	93	50-121%	---	---	
Pyrene	765	14.8	29.6	"	"	"	ND	97	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 80 %*	*Limits: 44-115 %*			*Dilution: 3x*					
p-Terphenyl-d14 (Surr)			*77 %*	*54-127 %*			*"*					
Matrix Spike Dup (6110299-MSD2)					Prepared: 11/05/16 08:25		Analyzed: 12/06/16 18:49					H-08
QC Source Sample: BR-17-15-30' (0-0.5')_Prepared (A6J0892-29)												
EPA 8270D (SIM)												
Acenaphthene	652	14.9	29.8	ug/kg dry	3	794	ND	82	40-122%	5	30%	
Acenaphthylene	700	14.9	29.8	"	"	"	ND	88	32-132%	4	30%	
Anthracene	788	14.9	29.8	"	"	"	ND	99	47-123%	6	30%	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110299 - EPA 3546							**Soil**					
Matrix Spike Dup (6110299-MSD2)					Prepared: 11/05/16 08:25 Analyzed: 12/06/16 18:49							H-08
QC Source Sample: BR-17-15-30' (0-0.5')_Prepared (A6J0892-29)												
EPA 8270D (SIM)												
Benz(a)anthracene	847	14.9	29.8	ug/kg dry	"	"	ND	104	49-126%	6	30%	
Benzo(a)pyrene	855	14.9	29.8	"	"	"	ND	108	45-129%	4	30%	
Benzo(b)fluoranthene	875	14.9	29.8	"	"	"	ND	110	45-132%	2	30%	
Benzo(k)fluoranthene	801	14.9	29.8	"	"	"	ND	101	47-132%	0.6	30%	
Benzo(g,h,i)perylene	779	14.9	29.8	"	"	"	19.8	96	43-134%	1	30%	
Chrysene	702	14.9	29.8	"	"	"	ND	86	50-124%	7	30%	
Dibenz(a,h)anthracene	795	14.9	29.8	"	"	"	ND	100	45-134%	2	30%	
Dibenzofuran	681	14.9	29.8	"	"	"	ND	86	44-120%	6	30%	
Fluoranthene	732	14.9	29.8	"	"	"	ND	92	50-127%	8	30%	
Fluorene	698	14.9	29.8	"	"	"	ND	88	43-125%	7	30%	
Indeno(1,2,3-cd)pyrene	775	14.9	29.8	"	"	"	ND	98	45-133%	0.7	30%	
1-Methylnaphthalene	666	29.8	59.6	"	"	"	ND	84	40-120%	5	30%	
2-Methylnaphthalene	694	29.8	59.6	"	"	"	ND	87	38-122%	5	30%	
Naphthalene	625	29.8	59.6	"	"	"	ND	79	35-123%	5	30%	
Phenanthrene	686	14.9	29.8	"	"	"	ND	86	50-121%	6	30%	
Pyrene	704	14.9	29.8	"	"	"	ND	89	47-127%	8	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 44-115 %*		*Dilution: 3x*						
p-Terphenyl-d14 (Surr)			*79 %*	*54-127 %*		*"*						

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110353 - EPA 3546							**Soil**					
Blank (6110353-BLK1)					Prepared: 11/08/16 07:16 Analyzed: 11/12/16 10:26							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 81 %*	*Limits: 44-115 %*				*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*85 %*	*54-127 %*				*"*				
LCS (6110353-BS1)					Prepared: 11/08/16 07:16 Analyzed: 11/12/16 10:52							
EPA 8270D (SIM)												
Acenaphthene	721	2.00	4.00	ug/kg wet	1	800	---	90	40-122%	---	---	
Acenaphthylene	705	2.00	4.00	"	"	"	---	88	32-132%	---	---	
Anthracene	733	2.00	4.00	"	"	"	---	92	47-123%	---	---	
Benz(a)anthracene	704	2.00	4.00	"	"	"	---	88	49-126%	---	---	
Benzo(a)pyrene	794	2.00	4.00	"	"	"	---	99	45-129%	---	---	
Benzo(b)fluoranthene	721	2.00	4.00	"	"	"	---	90	45-132%	---	---	
Benzo(k)fluoranthene	771	2.00	4.00	"	"	"	---	96	47-132%	---	---	
Benzo(g,h,i)perylene	666	2.00	4.00	"	"	"	---	83	43-134%	---	---	
Chrysene	709	2.00	4.00	"	"	"	---	89	50-124%	---	---	
Dibenz(a,h)anthracene	768	2.00	4.00	"	"	"	---	96	45-134%	---	---	
Dibenzofuran	695	2.00	4.00	"	"	"	---	87	44-120%	---	---	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110353 - EPA 3546									Soil			
LCS (6110353-BS1)					Prepared: 11/08/16 07:16 Analyzed: 11/12/16 10:52							
EPA 8270D (SIM)												
Fluoranthene	777	2.00	4.00	ug/kg wet	"	"	---	97	50-127%	---	---	
Fluorene	682	2.00	4.00	"	"	"	---	85	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	691	2.00	4.00	"	"	"	---	86	45-133%	---	---	
1-Methylnaphthalene	673	4.00	8.00	"	"	"	---	84	40-120%	---	---	
2-Methylnaphthalene	654	4.00	8.00	"	"	"	---	82	38-122%	---	---	
Naphthalene	621	4.00	8.00	"	"	"	---	78	35-123%	---	---	
Phenanthrene	654	2.00	4.00	"	"	"	---	82	50-121%	---	---	
Pyrene	765	2.00	4.00	"	"	"	---	96	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*		*Limits: 44-115 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*78 %*		*54-127 %*			*"*				
Duplicate (6110353-DUP1)					Prepared: 11/08/16 07:16 Analyzed: 11/12/16 20:23							H-08
QC Source Sample: BR-20-15-30' (0-0.5')_Prepared (A6J0893-28)												
EPA 8270D (SIM)												
Acenaphthene	ND	14.1	28.2	ug/kg dry	3	---	ND	---	---	---	30%	
Acenaphthylene	ND	14.1	28.2	"	"	---	ND	---	---	---	30%	
Anthracene	ND	14.1	28.2	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	56.3	56.3	"	"	---	ND	---	---	---	30%	R-02
Benzo(a)pyrene	**20.3**	14.1	28.2	"	"	---	14.7	---	---	32	30%	Q-05, J
Benzo(b)fluoranthene	**27.8**	14.1	28.2	"	"	---	19.3	---	---	36	30%	J
Benzo(k)fluoranthene	ND	14.1	28.2	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	**35.8**	14.1	28.2	"	"	---	33.4	---	---	7	30%	
Chrysene	ND	63.4	63.4	"	"	---	ND	---	---	---	30%	R-02
Dibenz(a,h)anthracene	ND	14.1	28.2	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	14.1	28.2	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	14.1	28.2	"	"	---	ND	---	---	---	30%	
Fluorene	ND	14.1	28.2	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	14.1	28.2	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	28.2	56.3	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	28.2	56.3	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	28.2	56.3	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	14.1	28.2	"	"	---	ND	---	---	---	30%	
Pyrene	ND	14.1	28.2	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 94 %*		*Limits: 44-115 %*			*Dilution: 3x*				

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110353 - EPA 3546							**Soil**					
Duplicate (6110353-DUP1)					Prepared: 11/08/16 07:16 Analyzed: 11/12/16 20:23							H-08
QC Source Sample: BR-20-15-30' (0-0.5')_Prepared (A6J0893-28)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 96 %*	*Limits: 54-127 %*			*Dilution: 3x*					
Duplicate (6110353-DUP4)					Prepared: 11/08/16 07:21 Analyzed: 12/06/16 22:15							H-08
QC Source Sample: BR-20-15-30' (0.5-1')_Prepared (A6J0893-29)												
EPA 8270D (SIM)												
Acenaphthene	ND	14.3	28.5	ug/kg dry	3	---	ND	---	---	---	30%	
Acenaphthylene	ND	14.3	28.5	"	"	---	ND	---	---	---	30%	
Anthracene	ND	14.3	28.5	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	53.5	53.5	"	"	---	ND	---	---	---	30%	R-02
Benzo(a)pyrene	**26.4**	14.3	28.5	"	"	---	17.2	---	---	42	30%	Q-05, J
Benzo(b)fluoranthene	**29.4**	14.3	28.5	"	"	---	21.8	---	---	30	30%	M-02
Benzo(k)fluoranthene	ND	14.3	28.5	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	**44.9**	14.3	28.5	"	"	---	32.6	---	---	32	30%	Q-05
Chrysene	ND	49.9	49.9	"	"	---	ND	---	---	---	30%	R-02
Dibenz(a,h)anthracene	ND	14.3	28.5	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	14.3	28.5	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	14.3	28.5	"	"	---	ND	---	---	---	30%	
Fluorene	ND	14.3	28.5	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	**15.8**	14.3	28.5	"	"	---	ND	---	---	---	30%	J
1-Methylnaphthalene	ND	28.5	57.0	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	28.5	57.0	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	28.5	57.0	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	14.3	28.5	"	"	---	ND	---	---	---	30%	
Pyrene	ND	14.3	28.5	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 80 %*	*Limits: 44-115 %*			*Dilution: 3x*					
p-Terphenyl-d14 (Surr)			*85 %*	*54-127 %*			*"*					
Matrix Spike (6110353-MS4)					Prepared: 11/08/16 07:21 Analyzed: 12/06/16 21:24							H-08
QC Source Sample: BR-20-15-30' (0-0.5')_Prepared (A6J0893-28)												
EPA 8270D (SIM)												
Acenaphthene	650	14.1	28.3	ug/kg dry	3	755	ND	86	40-122%	---	---	
Acenaphthylene	697	14.1	28.3	"	"	"	ND	92	32-132%	---	---	
Anthracene	811	14.1	28.3	"	"	"	ND	107	47-123%	---	---	

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110353 - EPA 3546							**Soil**					
Matrix Spike (6110353-MS4)					Prepared: 11/08/16 07:21		Analyzed: 12/06/16 21:24					H-08
QC Source Sample: BR-20-15-30' (0-0.5')_Prepared (A6J0893-28)												
EPA 8270D (SIM)												
Benz(a)anthracene	869	14.1	28.3	ug/kg dry	"	"	ND	109	49-126%	---	---	
Benzo(a)pyrene	877	14.1	28.3	"	"	"	14.7	114	45-129%	---	---	
Benzo(b)fluoranthene	931	14.1	28.3	"	"	"	19.3	121	45-132%	---	---	
Benzo(k)fluoranthene	810	14.1	28.3	"	"	"	ND	107	47-132%	---	---	
Benzo(g,h,i)perylene	742	14.1	28.3	"	"	"	33.4	94	43-134%	---	---	
Chrysene	741	14.1	28.3	"	"	"	ND	92	50-124%	---	---	
Dibenz(a,h)anthracene	821	14.1	28.3	"	"	"	ND	109	45-134%	---	---	
Dibenzofuran	685	14.1	28.3	"	"	"	ND	91	44-120%	---	---	
Fluoranthene	747	14.1	28.3	"	"	"	ND	99	50-127%	---	---	
Fluorene	713	14.1	28.3	"	"	"	ND	94	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	764	14.1	28.3	"	"	"	ND	101	45-133%	---	---	
1-Methylnaphthalene	642	28.3	56.6	"	"	"	ND	85	40-120%	---	---	
2-Methylnaphthalene	671	28.3	56.6	"	"	"	ND	89	38-122%	---	---	
Naphthalene	589	28.3	56.6	"	"	"	ND	78	35-123%	---	---	
Phenanthrene	699	14.1	28.3	"	"	"	ND	93	50-121%	---	---	
Pyrene	721	14.1	28.3	"	"	"	ND	96	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*		*Limits: 44-115 %*		*Dilution: 3x*					
p-Terphenyl-d14 (Surr)			*82 %*		*54-127 %*		*"*					
Matrix Spike (6110353-MS5)					Prepared: 11/08/16 07:21		Analyzed: 12/06/16 22:41					H-08
QC Source Sample: BR-20-15-30' (0.5-1')_Prepared (A6J0893-29)												
EPA 8270D (SIM)												
Acenaphthene	635	19.5	39.1	ug/kg dry	4	782	ND	81	40-122%	---	---	
Acenaphthylene	684	19.5	39.1	"	"	"	ND	87	32-132%	---	---	
Anthracene	785	19.5	39.1	"	"	"	ND	100	47-123%	---	---	
Benz(a)anthracene	841	19.5	39.1	"	"	"	ND	102	49-126%	---	---	
Benzo(a)pyrene	872	19.5	39.1	"	"	"	ND	112	45-129%	---	---	
Benzo(b)fluoranthene	902	19.5	39.1	"	"	"	21.8	113	45-132%	---	---	
Benzo(k)fluoranthene	801	19.5	39.1	"	"	"	ND	102	47-132%	---	---	
Benzo(g,h,i)perylene	681	19.5	39.1	"	"	"	32.6	83	43-134%	---	---	
Chrysene	715	19.5	39.1	"	"	"	ND	86	50-124%	---	---	
Dibenz(a,h)anthracene	785	19.5	39.1	"	"	"	ND	100	45-134%	---	---	
Dibenzofuran	673	19.5	39.1	"	"	"	ND	86	44-120%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110353 - EPA 3546							**Soil**					
Matrix Spike (6110353-MS5)					Prepared: 11/08/16 07:21		Analyzed: 12/06/16 22:41					H-08
QC Source Sample: BR-20-15-30' (0.5-1')_Prepared (A6J0893-29)												
EPA 8270D (SIM)												
Fluoranthene	743	19.5	39.1	ug/kg dry	"	"	ND	95	50-127%	---	---	
Fluorene	697	19.5	39.1	"	"	"	ND	89	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	721	19.5	39.1	"	"	"	ND	92	45-133%	---	---	
1-Methylnaphthalene	651	39.1	78.2	"	"	"	ND	83	40-120%	---	---	
2-Methylnaphthalene	679	39.1	78.2	"	"	"	ND	87	38-122%	---	---	
Naphthalene	608	39.1	78.2	"	"	"	ND	78	35-123%	---	---	
Phenanthrene	673	19.5	39.1	"	"	"	ND	86	50-121%	---	---	
Pyrene	717	19.5	39.1	"	"	"	ND	92	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 44-115 %*			*Dilution: 4x*					
p-Terphenyl-d14 (Surr)			*78 %*	*54-127 %*			*"*					
Matrix Spike Dup (6110353-MSD4)					Prepared: 11/08/16 07:21		Analyzed: 12/06/16 21:50					H-08
QC Source Sample: BR-20-15-30' (0-0.5')_Prepared (A6J0893-28)												
EPA 8270D (SIM)												
Acenaphthene	680	14.6	29.1	ug/kg dry	3	776	ND	88	40-122%	4	30%	
Acenaphthylene	731	14.6	29.1	"	"	"	ND	94	32-132%	5	30%	
Anthracene	837	14.6	29.1	"	"	"	ND	108	47-123%	3	30%	
Benz(a)anthracene	895	14.6	29.1	"	"	"	ND	109	49-126%	3	30%	
Benzo(a)pyrene	916	14.6	29.1	"	"	"	14.7	116	45-129%	4	30%	
Benzo(b)fluoranthene	937	14.6	29.1	"	"	"	19.3	118	45-132%	0.6	30%	
Benzo(k)fluoranthene	843	14.6	29.1	"	"	"	ND	109	47-132%	4	30%	
Benzo(g,h,i)perylene	747	14.6	29.1	"	"	"	33.4	92	43-134%	0.6	30%	
Chrysene	765	14.6	29.1	"	"	"	ND	93	50-124%	3	30%	
Dibenz(a,h)anthracene	844	14.6	29.1	"	"	"	ND	109	45-134%	3	30%	
Dibenzofuran	712	14.6	29.1	"	"	"	ND	92	44-120%	4	30%	
Fluoranthene	794	14.6	29.1	"	"	"	ND	102	50-127%	6	30%	
Fluorene	740	14.6	29.1	"	"	"	ND	95	43-125%	4	30%	
Indeno(1,2,3-cd)pyrene	786	14.6	29.1	"	"	"	ND	101	45-133%	3	30%	
1-Methylnaphthalene	689	29.1	58.2	"	"	"	ND	89	40-120%	7	30%	
2-Methylnaphthalene	721	29.1	58.2	"	"	"	ND	93	38-122%	7	30%	
Naphthalene	652	29.1	58.2	"	"	"	ND	84	35-123%	10	30%	
Phenanthrene	715	14.6	29.1	"	"	"	ND	92	50-121%	2	30%	
Pyrene	764	14.6	29.1	"	"	"	ND	98	47-127%	6	30%	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110353 - EPA 3546							Soil					
Matrix Spike Dup (6110353-MSD4)					Prepared: 11/08/16 07:21		Analyzed: 12/06/16 21:50					H-08
QC Source Sample: BR-20-15-30' (0-0.5')_Prepared (A6J0893-28)												
EPA 8270D (SIM)												
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 85 %*		*Limits: 44-115 %*			*Dilution: 3x*				
p-Terphenyl-d14 (Surr)			*86 %*		*54-127 %*			*"*				
Matrix Spike Dup (6110353-MSD5)					Prepared: 11/08/16 07:21		Analyzed: 12/06/16 23:07					H-08
QC Source Sample: BR-20-15-30' (0.5-1')_Prepared (A6J0893-29)												
EPA 8270D (SIM)												
Acenaphthene	630	19.3	38.5	ug/kg dry	4	770	ND	82	40-122%	0.8	30%	
Acenaphthylene	678	19.3	38.5	"	"	"	ND	88	32-132%	0.9	30%	
Anthracene	774	19.3	38.5	"	"	"	ND	101	47-123%	1	30%	
Benz(a)anthracene	834	19.3	38.5	"	"	"	ND	102	49-126%	0.8	30%	
Benzo(a)pyrene	861	19.3	38.5	"	"	"	ND	112	45-129%	1	30%	
Benzo(b)fluoranthene	881	19.3	38.5	"	"	"	21.8	112	45-132%	2	30%	
Benzo(k)fluoranthene	814	19.3	38.5	"	"	"	ND	106	47-132%	2	30%	
Benzo(g,h,i)perylene	690	19.3	38.5	"	"	"	32.6	85	43-134%	1	30%	
Chrysene	705	19.3	38.5	"	"	"	ND	86	50-124%	1	30%	
Dibenz(a,h)anthracene	784	19.3	38.5	"	"	"	ND	102	45-134%	0.2	30%	
Dibenzofuran	653	19.3	38.5	"	"	"	ND	85	44-120%	3	30%	
Fluoranthene	719	19.3	38.5	"	"	"	ND	93	50-127%	3	30%	
Fluorene	676	19.3	38.5	"	"	"	ND	88	43-125%	3	30%	
Indeno(1,2,3-cd)pyrene	731	19.3	38.5	"	"	"	ND	95	45-133%	1	30%	
1-Methylnaphthalene	646	38.5	77.0	"	"	"	ND	84	40-120%	0.8	30%	
2-Methylnaphthalene	672	38.5	77.0	"	"	"	ND	87	38-122%	1	30%	
Naphthalene	601	38.5	77.0	"	"	"	ND	78	35-123%	1	30%	
Phenanthrene	667	19.3	38.5	"	"	"	ND	87	50-121%	0.9	30%	
Pyrene	693	19.3	38.5	"	"	"	ND	90	47-127%	3	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 81 %*		*Limits: 44-115 %*			*Dilution: 4x*				
p-Terphenyl-d14 (Surr)			*86 %*		*54-127 %*			*"*				

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AMENDED REPORT

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Tigard, OR 97223
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110375 - EPA 3546							**Soil**					
Blank (6110375-BLK1)					Prepared: 11/08/16 12:32 Analyzed: 11/13/16 13:12							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 87 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*105 %*	*54-127 %*			*"*					
LCS (6110375-BS1)					Prepared: 11/08/16 12:32 Analyzed: 11/13/16 13:38							
EPA 8270D (SIM)												
Acenaphthene	787	2.00	4.00	ug/kg wet	1	800	---	98	40-122%	---	---	
Acenaphthylene	773	2.00	4.00	"	"	"	---	97	32-132%	---	---	
Anthracene	775	2.00	4.00	"	"	"	---	97	47-123%	---	---	
Benz(a)anthracene	771	2.00	4.00	"	"	"	---	96	49-126%	---	---	
Benzo(a)pyrene	852	2.00	4.00	"	"	"	---	107	45-129%	---	---	
Benzo(b)fluoranthene	851	2.00	4.00	"	"	"	---	106	45-132%	---	---	
Benzo(k)fluoranthene	847	2.00	4.00	"	"	"	---	106	47-132%	---	---	
Benzo(g,h,i)perylene	694	2.00	4.00	"	"	"	---	87	43-134%	---	---	
Chrysene	765	2.00	4.00	"	"	"	---	96	50-124%	---	---	
Dibenz(a,h)anthracene	825	2.00	4.00	"	"	"	---	103	45-134%	---	---	
Dibenzofuran	756	2.00	4.00	"	"	"	---	95	44-120%	---	---	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110375 - EPA 3546									Soil			
LCS (6110375-BS1)					Prepared: 11/08/16 12:32 Analyzed: 11/13/16 13:38							
EPA 8270D (SIM)												
Fluoranthene	796	2.00	4.00	ug/kg wet	"	"	---	100	50-127%	---	---	
Fluorene	753	2.00	4.00	"	"	"	---	94	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	730	2.00	4.00	"	"	"	---	91	45-133%	---	---	
1-Methylnaphthalene	719	4.00	8.00	"	"	"	---	90	40-120%	---	---	
2-Methylnaphthalene	715	4.00	8.00	"	"	"	---	89	38-122%	---	---	
Naphthalene	663	4.00	8.00	"	"	"	---	83	35-123%	---	---	
Phenanthrene	701	2.00	4.00	"	"	"	---	88	50-121%	---	---	
Pyrene	796	2.00	4.00	"	"	"	---	100	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 85 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*93 %*	*54-127 %*			*"*					
Duplicate (6110375-DUP1)					Prepared: 11/08/16 12:33 Analyzed: 11/13/16 23:09							H-08
QC Source Sample: BR-23-0-15' (0-0.5')_Prepared (A6J0925-32)												
EPA 8270D (SIM)												
Acenaphthene	ND	5.83	11.7	ug/kg dry	3	---	ND	---	---	---	30%	
Acenaphthylene	ND	5.83	11.7	"	"	---	ND	---	---	---	30%	
Anthracene	ND	5.83	11.7	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	5.83	11.7	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	**6.67**	5.83	11.7	"	"	---	8.37	---	---	23	30%	J
Benzo(b)fluoranthene	**19.9**	5.83	11.7	"	"	---	22.3	---	---	11	30%	M-02
Benzo(k)fluoranthene	**7.02**	5.83	11.7	"	"	---	ND	---	---	---	30%	J
Benzo(g,h,i)perylene	**19.0**	5.83	11.7	"	"	---	21.6	---	---	13	30%	
Chrysene	**19.0**	5.83	11.7	"	"	---	21.8	---	---	14	30%	M-02
Dibenz(a,h)anthracene	ND	5.83	11.7	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	5.83	11.7	"	"	---	ND	---	---	---	30%	
Fluoranthene	**11.7**	5.83	11.7	"	"	---	13.9	---	---	18	30%	
Fluorene	ND	5.83	11.7	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	**9.85**	5.83	11.7	"	"	---	11.9	---	---	19	30%	J
1-Methylnaphthalene	ND	11.7	23.3	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	11.7	23.3	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	11.7	23.3	"	"	---	ND	---	---	---	30%	
Phenanthrene	**7.30**	5.83	11.7	"	"	---	8.23	---	---	12	30%	J
Pyrene	**11.7**	5.83	11.7	"	"	---	13.3	---	---	13	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*			*Dilution: 3x*					

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110375 - EPA 3546							**Soil**					
Duplicate (6110375-DUP1)					Prepared: 11/08/16 12:33 Analyzed: 11/13/16 23:09							H-08
QC Source Sample: BR-23-0-15' (0-0.5')_Prepared (A6J0925-32)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 111 %*	*Limits: 54-127 %*			*Dilution: 3x*					
Matrix Spike (6110375-MS2)					Prepared: 11/08/16 12:33 Analyzed: 12/06/16 20:32							H-08
QC Source Sample: BR-23-0-15' (0-0.5')_Prepared (A6J0925-32)												
EPA 8270D (SIM)												
Acenaphthene	538	9.58	19.2	ug/kg dry	5	766	ND	70	40-122%	---	---	
Acenaphthylene	572	9.58	19.2	"	"	"	ND	75	32-132%	---	---	
Anthracene	684	9.58	19.2	"	"	"	ND	89	47-123%	---	---	
Benz(a)anthracene	751	9.58	19.2	"	"	"	ND	98	49-126%	---	---	
Benzo(a)pyrene	751	9.58	19.2	"	"	"	ND	98	45-129%	---	---	
Benzo(b)fluoranthene	784	9.58	19.2	"	"	"	22.3	99	45-132%	---	---	
Benzo(k)fluoranthene	697	9.58	19.2	"	"	"	ND	91	47-132%	---	---	
Benzo(g,h,i)perylene	655	9.58	19.2	"	"	"	21.6	83	43-134%	---	---	
Chrysene	618	9.58	19.2	"	"	"	21.8	78	50-124%	---	---	
Dibenz(a,h)anthracene	697	9.58	19.2	"	"	"	ND	91	45-134%	---	---	
Dibenzofuran	565	9.58	19.2	"	"	"	ND	74	44-120%	---	---	
Fluoranthene	650	9.58	19.2	"	"	"	13.9	83	50-127%	---	---	
Fluorene	595	9.58	19.2	"	"	"	ND	78	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	666	9.58	19.2	"	"	"	11.9	85	45-133%	---	---	
1-Methylnaphthalene	521	19.2	38.3	"	"	"	ND	68	40-120%	---	---	
2-Methylnaphthalene	538	19.2	38.3	"	"	"	ND	70	38-122%	---	---	
Naphthalene	475	19.2	38.3	"	"	"	ND	62	35-123%	---	---	
Phenanthrene	598	9.58	19.2	"	"	"	ND	78	50-121%	---	---	
Pyrene	618	9.58	19.2	"	"	"	13.3	79	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 44-115 %*			*Dilution: 5x*					
p-Terphenyl-d14 (Surr)			*75 %*	*54-127 %*			*"*					
Matrix Spike Dup (6110375-MSD2)					Prepared: 11/08/16 12:33 Analyzed: 12/06/16 20:58							H-08
QC Source Sample: BR-23-0-15' (0-0.5')_Prepared (A6J0925-32)												
EPA 8270D (SIM)												
Acenaphthene	619	9.52	19.0	ug/kg dry	5	762	ND	81	40-122%	14	30%	
Acenaphthylene	658	9.52	19.0	"	"	"	ND	86	32-132%	14	30%	
Anthracene	776	9.52	19.0	"	"	"	ND	102	47-123%	13	30%	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110375 - EPA 3546							**Soil**					
Matrix Spike Dup (6110375-MSD2)					Prepared: 11/08/16 12:33 Analyzed: 12/06/16 20:58							H-08
QC Source Sample: BR-23-0-15' (0-0.5')_Prepared (A6J0925-32)												
EPA 8270D (SIM)												
Benz(a)anthracene	849	9.52	19.0	ug/kg dry	"	"	ND	111	49-126%	12	30%	
Benzo(a)pyrene	844	9.52	19.0	"	"	"	ND	111	45-129%	12	30%	
Benzo(b)fluoranthene	872	9.52	19.0	"	"	"	22.3	112	45-132%	11	30%	
Benzo(k)fluoranthene	804	9.52	19.0	"	"	"	ND	106	47-132%	14	30%	
Benzo(g,h,i)perylene	734	9.52	19.0	"	"	"	21.6	93	43-134%	11	30%	
Chrysene	705	9.52	19.0	"	"	"	21.8	90	50-124%	13	30%	
Dibenz(a,h)anthracene	791	9.52	19.0	"	"	"	ND	104	45-134%	13	30%	
Dibenzofuran	648	9.52	19.0	"	"	"	ND	85	44-120%	14	30%	
Fluoranthene	736	9.52	19.0	"	"	"	13.9	95	50-127%	12	30%	
Fluorene	678	9.52	19.0	"	"	"	ND	89	43-125%	13	30%	
Indeno(1,2,3-cd)pyrene	746	9.52	19.0	"	"	"	11.9	96	45-133%	11	30%	
1-Methylnaphthalene	604	19.0	38.1	"	"	"	ND	79	40-120%	15	30%	
2-Methylnaphthalene	626	19.0	38.1	"	"	"	ND	82	38-122%	15	30%	
Naphthalene	557	19.0	38.1	"	"	"	ND	73	35-123%	16	30%	
Phenanthrene	674	9.52	19.0	"	"	"	ND	88	50-121%	12	30%	
Pyrene	697	9.52	19.0	"	"	"	13.3	90	47-127%	12	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*		*Dilution: 5x*						
p-Terphenyl-d14 (Surr)			*80 %*	*54-127 %*		*"*						

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110429 - EPA 3546							**Soil**					
Blank (6110429-BLK1)					Prepared: 11/10/16 07:08 Analyzed: 11/14/16 11:28							
EPA 8270D (SIM)												
Acenaphthene	ND	1.67	3.33	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Anthracene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Chrysene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Fluorene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.33	6.67	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.33	6.67	"	"	---	---	---	---	---	---	
Naphthalene	**3.94**	3.33	6.67	"	"	---	---	---	---	---	---	B-02, J
Phenanthrene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Pyrene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 90 %*	*Limits: 44-115 %*				*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*101 %*	*54-127 %*				*"*				
LCS (6110429-BS1)					Prepared: 11/10/16 07:08 Analyzed: 11/14/16 11:54							
EPA 8270D (SIM)												
Acenaphthene	762	2.00	4.00	ug/kg wet	1	800	---	95	40-122%	---	---	
Acenaphthylene	754	2.00	4.00	"	"	"	---	94	32-132%	---	---	
Anthracene	747	2.00	4.00	"	"	"	---	93	47-123%	---	---	
Benz(a)anthracene	723	2.00	4.00	"	"	"	---	90	49-126%	---	---	
Benzo(a)pyrene	772	2.00	4.00	"	"	"	---	96	45-129%	---	---	
Benzo(b)fluoranthene	822	2.00	4.00	"	"	"	---	103	45-132%	---	---	
Benzo(k)fluoranthene	813	2.00	4.00	"	"	"	---	102	47-132%	---	---	
Benzo(g,h,i)perylene	667	2.00	4.00	"	"	"	---	83	43-134%	---	---	
Chrysene	718	2.00	4.00	"	"	"	---	90	50-124%	---	---	
Dibenz(a,h)anthracene	757	2.00	4.00	"	"	"	---	95	45-134%	---	---	
Dibenzofuran	737	2.00	4.00	"	"	"	---	92	44-120%	---	---	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

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503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110429 - EPA 3546									Soil			
LCS (6110429-BS1)					Prepared: 11/10/16 07:08 Analyzed: 11/14/16 11:54							
EPA 8270D (SIM)												
Fluoranthene	768	2.00	4.00	ug/kg wet	"	"	---	96	50-127%	---	---	
Fluorene	861	2.00	4.00	"	"	"	---	108	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	700	2.00	4.00	"	"	"	---	87	45-133%	---	---	
1-Methylnaphthalene	724	4.00	8.00	"	"	"	---	91	40-120%	---	---	
2-Methylnaphthalene	721	4.00	8.00	"	"	"	---	90	38-122%	---	---	
Naphthalene	665	4.00	8.00	"	"	"	---	83	35-123%	---	---	B-02
Phenanthrene	674	2.00	4.00	"	"	"	---	84	50-121%	---	---	
Pyrene	760	2.00	4.00	"	"	"	---	95	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 87 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*97 %*	*54-127 %*			*"*					
Duplicate (6110429-DUP2)					Prepared: 11/10/16 07:09 Analyzed: 12/06/16 19:15							H-08
QC Source Sample: BR-25-0-15' (0.5-1')_Prepared (A6J0950-27)												
EPA 8270D (SIM)												
Acenaphthene	ND	1.96	3.92	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	1.96	3.92	"	"	---	ND	---	---	---	30%	
Anthracene	ND	1.96	3.92	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	1.96	3.92	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	**2.18**	1.96	3.92	"	"	---	ND	---	---	---	30%	J
Benzo(b)fluoranthene	**2.29**	1.96	3.92	"	"	---	ND	---	---	---	30%	J
Benzo(k)fluoranthene	ND	1.96	3.92	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	**3.67**	1.96	3.92	"	"	---	2.69	---	---	31	30%	Q-05, J
Chrysene	ND	1.96	3.92	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	1.96	3.92	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	1.96	3.92	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	1.96	3.92	"	"	---	ND	---	---	---	30%	
Fluorene	ND	1.96	3.92	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	1.96	3.92	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	3.92	7.84	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	3.92	7.84	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	3.92	7.84	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	1.96	3.92	"	"	---	ND	---	---	---	30%	
Pyrene	ND	1.96	3.92	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*			*Dilution: 1x*					

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110429 - EPA 3546							**Soil**					
Duplicate (6110429-DUP2)					Prepared: 11/10/16 07:09		Analyzed: 12/06/16 19:15					H-08
QC Source Sample: BR-25-0-15' (0.5-1')_Prepared (A6J0950-27)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 95 %*	*Limits: 54-127 %*			*Dilution: 1x*					
Matrix Spike (6110429-MS1)					Prepared: 11/10/16 07:08		Analyzed: 11/14/16 22:46					H-08, T-02
QC Source Sample: BR-25-0-15' (0.5-1')_Prepared (A6J0950-27)												
EPA 8270D (SIM)												
Acenaphthene	554	1.97	3.94	ug/kg dry	1	788	ND	70	40-122%	---	---	
Acenaphthylene	523	1.97	3.94	"	"	"	ND	66	32-132%	---	---	
Anthracene	684	1.97	3.94	"	"	"	ND	87	47-123%	---	---	
Benz(a)anthracene	692	1.97	3.94	"	"	"	ND	88	49-126%	---	---	
Benzo(a)pyrene	750	1.97	3.94	"	"	"	ND	95	45-129%	---	---	
Benzo(b)fluoranthene	777	1.97	3.94	"	"	"	ND	99	45-132%	---	---	
Benzo(k)fluoranthene	808	1.97	3.94	"	"	"	ND	103	47-132%	---	---	
Benzo(g,h,i)perylene	598	1.97	3.94	"	"	"	2.69	76	43-134%	---	---	
Chrysene	701	1.97	3.94	"	"	"	ND	89	50-124%	---	---	
Dibenz(a,h)anthracene	723	1.97	3.94	"	"	"	ND	92	45-134%	---	---	
Dibenzofuran	555	1.97	3.94	"	"	"	ND	70	44-120%	---	---	
Fluoranthene	706	1.97	3.94	"	"	"	ND	90	50-127%	---	---	
Fluorene	587	1.97	3.94	"	"	"	ND	75	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	654	1.97	3.94	"	"	"	ND	83	45-133%	---	---	
1-Methylnaphthalene	471	3.94	7.88	"	"	"	ND	60	40-120%	---	---	
2-Methylnaphthalene	462	3.94	7.88	"	"	"	ND	59	38-122%	---	---	
Naphthalene	443	3.94	7.88	"	"	"	ND	56	35-123%	---	---	B-02
Phenanthrene	619	1.97	3.94	"	"	"	ND	79	50-121%	---	---	
Pyrene	688	1.97	3.94	"	"	"	ND	87	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 62 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*108 %*	*54-127 %*			*"*					
Matrix Spike Dup (6110429-MSD1)					Prepared: 11/10/16 07:09		Analyzed: 11/14/16 23:12					H-08, T-02
QC Source Sample: BR-25-0-15' (0.5-1')_Prepared (A6J0950-27)												
EPA 8270D (SIM)												
Acenaphthene	592	1.97	3.95	ug/kg dry	1	790	ND	75	40-122%	7	30%	
Acenaphthylene	561	1.97	3.95	"	"	"	ND	71	32-132%	7	30%	
Anthracene	719	1.97	3.95	"	"	"	ND	91	47-123%	5	30%	

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AMENDED REPORT

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110429 - EPA 3546							**Soil**					
Matrix Spike Dup (6110429-MSD1)					Prepared: 11/10/16 07:09		Analyzed: 11/14/16 23:12					H-08, T-02
QC Source Sample: BR-25-0-15' (0.5-1')_Prepared (A6J0950-27)												
EPA 8270D (SIM)												
Benz(a)anthracene	713	1.97	3.95	ug/kg dry	"	"	ND	90	49-126%	3	30%	
Benzo(a)pyrene	770	1.97	3.95	"	"	"	ND	98	45-129%	3	30%	
Benzo(b)fluoranthene	805	1.97	3.95	"	"	"	ND	102	45-132%	3	30%	
Benzo(k)fluoranthene	841	1.97	3.95	"	"	"	ND	106	47-132%	4	30%	
Benzo(g,h,i)perylene	604	1.97	3.95	"	"	"	2.69	76	43-134%	1	30%	
Chrysene	714	1.97	3.95	"	"	"	ND	90	50-124%	2	30%	
Dibenz(a,h)anthracene	744	1.97	3.95	"	"	"	ND	94	45-134%	3	30%	
Dibenzofuran	597	1.97	3.95	"	"	"	ND	76	44-120%	7	30%	
Fluoranthene	734	1.97	3.95	"	"	"	ND	93	50-127%	4	30%	
Fluorene	728	1.97	3.95	"	"	"	ND	92	43-125%	21	30%	
Indeno(1,2,3-cd)pyrene	664	1.97	3.95	"	"	"	ND	84	45-133%	1	30%	
1-Methylnaphthalene	488	3.95	7.90	"	"	"	ND	62	40-120%	3	30%	
2-Methylnaphthalene	481	3.95	7.90	"	"	"	ND	61	38-122%	4	30%	
Naphthalene	434	3.95	7.90	"	"	"	ND	55	35-123%	2	30%	B-02
Phenanthrene	652	1.97	3.95	"	"	"	ND	83	50-121%	5	30%	
Pyrene	721	1.97	3.95	"	"	"	ND	91	47-127%	5	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*		*Limits: 44-115 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*109 %*		*54-127 %*			*"*				

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110460 - EPA 3546							**Soil**					
Blank (6110460-BLK1)					Prepared: 11/10/16 13:39 Analyzed: 11/11/16 17:55							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 96 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*101 %*	*54-127 %*			*"*					
LCS (6110460-BS1)					Prepared: 11/10/16 13:39 Analyzed: 11/11/16 18:21							
EPA 8270D (SIM)												
Acenaphthene	792	2.00	4.00	ug/kg wet	1	800	---	99	40-122%	---	---	
Acenaphthylene	778	2.00	4.00	"	"	"	---	97	32-132%	---	---	
Anthracene	795	2.00	4.00	"	"	"	---	99	47-123%	---	---	
Benz(a)anthracene	759	2.00	4.00	"	"	"	---	95	49-126%	---	---	
Benzo(a)pyrene	831	2.00	4.00	"	"	"	---	104	45-129%	---	---	
Benzo(b)fluoranthene	833	2.00	4.00	"	"	"	---	104	45-132%	---	---	
Benzo(k)fluoranthene	870	2.00	4.00	"	"	"	---	109	47-132%	---	---	
Benzo(g,h,i)perylene	687	2.00	4.00	"	"	"	---	86	43-134%	---	---	
Chrysene	745	2.00	4.00	"	"	"	---	93	50-124%	---	---	
Dibenz(a,h)anthracene	808	2.00	4.00	"	"	"	---	101	45-134%	---	---	
Dibenzofuran	772	2.00	4.00	"	"	"	---	96	44-120%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110460 - EPA 3546							Soil					
LCS (6110460-BS1)					Prepared: 11/10/16 13:39 Analyzed: 11/11/16 18:21							
EPA 8270D (SIM)												
Fluoranthene	812	2.00	4.00	ug/kg wet	"	"	---	101	50-127%	---	---	
Fluorene	754	2.00	4.00	"	"	"	---	94	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	732	2.00	4.00	"	"	"	---	92	45-133%	---	---	
1-Methylnaphthalene	754	4.00	8.00	"	"	"	---	94	40-120%	---	---	
2-Methylnaphthalene	750	4.00	8.00	"	"	"	---	94	38-122%	---	---	
Naphthalene	694	4.00	8.00	"	"	"	---	87	35-123%	---	---	
Phenanthrene	696	2.00	4.00	"	"	"	---	87	50-121%	---	---	
Pyrene	815	2.00	4.00	"	"	"	---	102	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 90 %*		*Limits: 44-115 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*91 %*		*54-127 %*			*"*				
LCS Dup (6110460-BSD1)					Prepared: 11/10/16 13:39 Analyzed: 11/11/16 18:47							Q-19
EPA 8270D (SIM)												
Acenaphthene	794	2.00	4.00	ug/kg wet	1	800	---	99	40-122%	0.1	30%	
Acenaphthylene	761	2.00	4.00	"	"	"	---	95	32-132%	2	30%	
Anthracene	769	2.00	4.00	"	"	"	---	96	47-123%	3	30%	
Benz(a)anthracene	748	2.00	4.00	"	"	"	---	94	49-126%	1	30%	
Benzo(a)pyrene	828	2.00	4.00	"	"	"	---	103	45-129%	0.4	30%	
Benzo(b)fluoranthene	855	2.00	4.00	"	"	"	---	107	45-132%	3	30%	
Benzo(k)fluoranthene	832	2.00	4.00	"	"	"	---	104	47-132%	4	30%	
Benzo(g,h,i)perylene	710	2.00	4.00	"	"	"	---	89	43-134%	3	30%	
Chrysene	750	2.00	4.00	"	"	"	---	94	50-124%	0.7	30%	
Dibenz(a,h)anthracene	815	2.00	4.00	"	"	"	---	102	45-134%	0.9	30%	
Dibenzofuran	758	2.00	4.00	"	"	"	---	95	44-120%	2	30%	
Fluoranthene	807	2.00	4.00	"	"	"	---	101	50-127%	0.6	30%	
Fluorene	755	2.00	4.00	"	"	"	---	94	43-125%	0.09	30%	
Indeno(1,2,3-cd)pyrene	741	2.00	4.00	"	"	"	---	93	45-133%	1	30%	
1-Methylnaphthalene	758	4.00	8.00	"	"	"	---	95	40-120%	0.5	30%	
2-Methylnaphthalene	755	4.00	8.00	"	"	"	---	94	38-122%	0.7	30%	
Naphthalene	692	4.00	8.00	"	"	"	---	86	35-123%	0.4	30%	
Phenanthrene	693	2.00	4.00	"	"	"	---	87	50-121%	0.4	30%	
Pyrene	808	2.00	4.00	"	"	"	---	101	47-127%	0.9	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 90 %*		*Limits: 44-115 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*91 %*		*54-127 %*			*"*				

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110520 - EPA 3546							Soil					
Blank (6110520-BLK1)					Prepared: 11/14/16 07:26 Analyzed: 11/15/16 13:47							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 88 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*97 %*	*54-127 %*			*"*					
LCS (6110520-BS1)					Prepared: 11/14/16 07:26 Analyzed: 11/15/16 14:13							
EPA 8270D (SIM)												
Acenaphthene	790	2.00	4.00	ug/kg wet	1	800	---	99	40-122%	---	---	
Acenaphthylene	766	2.00	4.00	"	"	"	---	96	32-132%	---	---	
Anthracene	750	2.00	4.00	"	"	"	---	94	47-123%	---	---	
Benz(a)anthracene	743	2.00	4.00	"	"	"	---	93	49-126%	---	---	
Benzo(a)pyrene	815	2.00	4.00	"	"	"	---	102	45-129%	---	---	
Benzo(b)fluoranthene	793	2.00	4.00	"	"	"	---	99	45-132%	---	---	
Benzo(k)fluoranthene	797	2.00	4.00	"	"	"	---	100	47-132%	---	---	
Benzo(g,h,i)perylene	725	2.00	4.00	"	"	"	---	91	43-134%	---	---	
Chrysene	753	2.00	4.00	"	"	"	---	94	50-124%	---	---	
Dibenz(a,h)anthracene	801	2.00	4.00	"	"	"	---	100	45-134%	---	---	
Dibenzofuran	756	2.00	4.00	"	"	"	---	94	44-120%	---	---	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110520 - EPA 3546							Soil					
LCS (6110520-BS1)					Prepared: 11/14/16 07:26 Analyzed: 11/15/16 14:13							
EPA 8270D (SIM)												
Fluoranthene	806	2.00	4.00	ug/kg wet	"	"	---	101	50-127%	---	---	
Fluorene	746	2.00	4.00	"	"	"	---	93	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	743	2.00	4.00	"	"	"	---	93	45-133%	---	---	
1-Methylnaphthalene	739	4.00	8.00	"	"	"	---	92	40-120%	---	---	
2-Methylnaphthalene	731	4.00	8.00	"	"	"	---	91	38-122%	---	---	
Naphthalene	679	4.00	8.00	"	"	"	---	85	35-123%	---	---	
Phenanthrene	683	2.00	4.00	"	"	"	---	85	50-121%	---	---	
Pyrene	803	2.00	4.00	"	"	"	---	100	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 89 %*		*Limits: 44-115 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*91 %*		*54-127 %*			*"*				
LCS Dup (6110520-BSD1)					Prepared: 11/14/16 07:27 Analyzed: 11/15/16 14:38							Q-19
EPA 8270D (SIM)												
Acenaphthene	793	2.00	4.00	ug/kg wet	1	800	---	99	40-122%	0.5	30%	
Acenaphthylene	764	2.00	4.00	"	"	"	---	95	32-132%	0.3	30%	
Anthracene	747	2.00	4.00	"	"	"	---	93	47-123%	0.4	30%	
Benz(a)anthracene	743	2.00	4.00	"	"	"	---	93	49-126%	0.02	30%	
Benzo(a)pyrene	801	2.00	4.00	"	"	"	---	100	45-129%	2	30%	
Benzo(b)fluoranthene	797	2.00	4.00	"	"	"	---	100	45-132%	0.5	30%	
Benzo(k)fluoranthene	784	2.00	4.00	"	"	"	---	98	47-132%	2	30%	
Benzo(g,h,i)perylene	728	2.00	4.00	"	"	"	---	91	43-134%	0.4	30%	
Chrysene	750	2.00	4.00	"	"	"	---	94	50-124%	0.4	30%	
Dibenz(a,h)anthracene	797	2.00	4.00	"	"	"	---	100	45-134%	0.4	30%	
Dibenzofuran	756	2.00	4.00	"	"	"	---	94	44-120%	0.04	30%	
Fluoranthene	785	2.00	4.00	"	"	"	---	98	50-127%	3	30%	
Fluorene	736	2.00	4.00	"	"	"	---	92	43-125%	1	30%	
Indeno(1,2,3-cd)pyrene	734	2.00	4.00	"	"	"	---	92	45-133%	1	30%	
1-Methylnaphthalene	739	4.00	8.00	"	"	"	---	92	40-120%	0.06	30%	
2-Methylnaphthalene	730	4.00	8.00	"	"	"	---	91	38-122%	0.2	30%	
Naphthalene	682	4.00	8.00	"	"	"	---	85	35-123%	0.4	30%	
Phenanthrene	680	2.00	4.00	"	"	"	---	85	50-121%	0.4	30%	
Pyrene	791	2.00	4.00	"	"	"	---	99	47-127%	2	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 90 %*		*Limits: 44-115 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*90 %*		*54-127 %*			*"*				

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120859 - EPA 3546/3640A (GPC)							**Soil**					
Blank (6120859-BLK1)					Prepared: 12/27/16 07:23	Analyzed: 12/29/16 13:01						C-05
EPA 8270D (SIM)												
Acenaphthene	ND	9.09	18.2	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	9.09	18.2	"	"	---	---	---	---	---	---	
Anthracene	ND	9.09	18.2	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	9.09	18.2	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	9.09	18.2	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	9.09	18.2	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	9.09	18.2	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	9.09	18.2	"	"	---	---	---	---	---	---	
Chrysene	ND	9.09	18.2	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	9.09	18.2	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	9.09	18.2	"	"	---	---	---	---	---	---	
Fluoranthene	ND	9.09	18.2	"	"	---	---	---	---	---	---	
Fluorene	ND	9.09	18.2	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	9.09	18.2	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	18.2	36.4	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	18.2	36.4	"	"	---	---	---	---	---	---	
Naphthalene	ND	18.2	36.4	"	"	---	---	---	---	---	---	
Phenanthrene	ND	9.09	18.2	"	"	---	---	---	---	---	---	
Pyrene	ND	9.09	18.2	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*		*Dilution: 1x*						
p-Terphenyl-d14 (Surr)			*89 %*	*54-127 %*		*"*						
LCS (6120859-BS1)					Prepared: 12/27/16 07:23	Analyzed: 12/29/16 13:27						C-05
EPA 8270D (SIM)												
Acenaphthene	420	10.0	20.0	ug/kg wet	1	800	---	53	40-122%	---	---	
Acenaphthylene	443	10.0	20.0	"	"	"	---	55	32-132%	---	---	
Anthracene	548	10.0	20.0	"	"	"	---	69	47-123%	---	---	
Benz(a)anthracene	748	10.0	20.0	"	"	"	---	94	49-126%	---	---	
Benzo(a)pyrene	758	10.0	20.0	"	"	"	---	95	45-129%	---	---	
Benzo(b)fluoranthene	762	10.0	20.0	"	"	"	---	95	45-132%	---	---	
Benzo(k)fluoranthene	726	10.0	20.0	"	"	"	---	91	47-132%	---	---	
Benzo(g,h,i)perylene	634	10.0	20.0	"	"	"	---	79	43-134%	---	---	
Chrysene	636	10.0	20.0	"	"	"	---	79	50-124%	---	---	
Dibenz(a,h)anthracene	673	10.0	20.0	"	"	"	---	84	45-134%	---	---	
Dibenzofuran	458	10.0	20.0	"	"	"	---	57	44-120%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120859 - EPA 3546/3640A (GPC)							**Soil**					
LCS (6120859-BS1)					Prepared: 12/27/16 07:23		Analyzed: 12/29/16 13:27					C-05
EPA 8270D (SIM)												
Fluoranthene	693	10.0	20.0	ug/kg wet	"	"	---	87	50-127%	---	---	
Fluorene	486	10.0	20.0	"	"	"	---	61	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	689	10.0	20.0	"	"	"	---	86	45-133%	---	---	
1-Methylnaphthalene	445	20.0	40.0	"	"	"	---	56	40-120%	---	---	
2-Methylnaphthalene	465	20.0	40.0	"	"	"	---	58	38-122%	---	---	
Naphthalene	426	20.0	40.0	"	"	"	---	53	35-123%	---	---	
Phenanthrene	486	10.0	20.0	"	"	"	---	61	50-121%	---	---	
Pyrene	683	10.0	20.0	"	"	"	---	85	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 50 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*81 %*	*54-127 %*			*"*					
Duplicate (6120859-DUP1)					Prepared: 12/27/16 07:23		Analyzed: 12/29/16 14:18					C-05, H-08
QC Source Sample: BR-10-0-15' (0.5-1')_Prepared (A6J0754-31RE4)												
EPA 8270D (SIM)												
Acenaphthene	ND	9.60	19.2	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	9.60	19.2	"	"	---	ND	---	---	---	30%	
Anthracene	ND	9.60	19.2	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	19.2	19.2	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	9.60	19.2	"	"	---	10.2	---	---		30%	
Benzo(b)fluoranthene	**11.8**	9.60	19.2	"	"	---	11.9	---	---	0.9	30%	J
Benzo(k)fluoranthene	ND	9.60	19.2	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	**21.4**	9.60	19.2	"	"	---	21.4	---	---	0.07	30%	
Chrysene	ND	19.2	19.2	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	9.60	19.2	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	9.60	19.2	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	9.60	19.2	"	"	---	ND	---	---	---	30%	
Fluorene	ND	9.60	19.2	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	9.60	19.2	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	19.2	38.4	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	19.2	38.4	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	19.2	38.4	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	9.60	19.2	"	"	---	ND	---	---	---	30%	
Pyrene	ND	9.60	19.2	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*			*Dilution: 1x*					

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AMENDED REPORT

12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120859 - EPA 3546/3640A (GPC)							**Soil**					
Duplicate (6120859-DUP1)					Prepared: 12/27/16 07:23		Analyzed: 12/29/16 14:18					C-05, H-08
QC Source Sample: BR-10-0-15' (0.5-1')_Prepared (A6J0754-31RE4)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 95 %*	*Limits: 54-127 %*			*Dilution: 1x*					
Matrix Spike (6120859-MS1)					Prepared: 12/27/16 07:23		Analyzed: 12/29/16 16:02					C-05, H-08
QC Source Sample: BR-24-15-30' (0.5-1')_Prepared (A6J0950-21RE3)												
EPA 8270D (SIM)												
Acenaphthene	724	9.91	19.8	ug/kg dry	1	793	ND	91	40-122%	---	---	
Acenaphthylene	767	9.91	19.8	"	"	"	ND	97	32-132%	---	---	
Anthracene	1010	9.91	19.8	"	"	"	ND	127	47-123%	---	---	Q-01
Benz(a)anthracene	1080	9.91	19.8	"	"	"	ND	131	49-126%	---	---	Q-02
Benzo(a)pyrene	1080	9.91	19.8	"	"	"	19.0	134	45-129%	---	---	Q-01
Benzo(b)fluoranthene	1110	9.91	19.8	"	"	"	31.2	137	45-132%	---	---	Q-02
Benzo(k)fluoranthene	978	9.91	19.8	"	"	"	ND	123	47-132%	---	---	
Benzo(g,h,i)perylene	850	9.91	19.8	"	"	"	36.3	103	43-134%	---	---	
Chrysene	914	9.91	19.8	"	"	"	ND	110	50-124%	---	---	
Dibenz(a,h)anthracene	968	9.91	19.8	"	"	"	12.2	121	45-134%	---	---	
Dibenzofuran	784	9.91	19.8	"	"	"	ND	99	44-120%	---	---	
Fluoranthene	982	9.91	19.8	"	"	"	ND	124	50-127%	---	---	
Fluorene	879	9.91	19.8	"	"	"	ND	111	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	905	9.91	19.8	"	"	"	ND	114	45-133%	---	---	
1-Methylnaphthalene	673	19.8	39.6	"	"	"	ND	85	40-120%	---	---	
2-Methylnaphthalene	699	19.8	39.6	"	"	"	ND	88	38-122%	---	---	
Naphthalene	560	19.8	39.6	"	"	"	ND	71	35-123%	---	---	
Phenanthrene	868	9.91	19.8	"	"	"	ND	109	50-121%	---	---	
Pyrene	938	9.91	19.8	"	"	"	ND	118	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 84 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*118 %*	*54-127 %*			*"*					

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6101067 - EPA 3051A							**Soil**					
Blank (6101067-BLK2)					Prepared: 10/27/16 12:11		Analyzed: 10/28/16 12:53					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	Q-16
LCS (6101067-BS2)					Prepared: 10/27/16 12:11		Analyzed: 10/28/16 13:11					
EPA 6020A												
Lead	53.4	0.100	0.200	mg/kg wet	10	50.0	---	107	80-120%	---	---	Q-16
Duplicate (6101067-DUP1)					Prepared: 10/27/16 12:11		Analyzed: 10/28/16 13:23					
QC Source Sample: BR-01-15-30' (0.5-1')_Prepared (A6J0556-25)												
EPA 6020A												
Lead	**4.32**	0.105	0.211	mg/kg dry	10	---	4.16	---	---	4	40%	
Duplicate (6101067-DUP2)					Prepared: 10/27/16 12:11		Analyzed: 10/28/16 13:26					
QC Source Sample: BR-01-15-30' (0.5-1')_Prepared (A6J0556-25)												
EPA 6020A												
Lead	**4.19**	0.105	0.210	mg/kg dry	10	---	4.16	---	---	0.7	40%	
Matrix Spike (6101067-MS1)					Prepared: 10/27/16 12:11		Analyzed: 10/28/16 13:29					
QC Source Sample: BR-01-15-30' (0.5-1')_Prepared (A6J0556-25)												
EPA 6020A												
Lead	58.2	0.103	0.207	mg/kg dry	10	51.7	4.16	105	75-125%	---	---	

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6101070 - EPA 3051A							**Soil**					
Blank (6101070-BLK1)					Prepared: 10/27/16 13:20		Analyzed: 10/31/16 20:39					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6101070-BS1)					Prepared: 10/27/16 13:20		Analyzed: 10/31/16 21:03					
EPA 6020A												
Lead	52.8	0.100	0.200	mg/kg wet	10	50.0	---	106	80-120%	---	---	
Duplicate (6101070-DUP1)					Prepared: 10/27/16 13:20		Analyzed: 10/31/16 22:26					
QC Source Sample: BR-04-15-30' (1-1.5')_Prepared (A6J0562-28)												
EPA 6020A												
Lead	**6.29**	0.100	0.201	mg/kg dry	10	---	6.96	---	---	10	40%	
Duplicate (6101070-DUP2)					Prepared: 10/27/16 13:20		Analyzed: 10/31/16 22:32					
QC Source Sample: BR-04-15-30' (1-1.5')_Prepared (A6J0562-28)												
EPA 6020A												
Lead	**7.17**	0.107	0.213	mg/kg dry	10	---	6.96	---	---	3	40%	
Matrix Spike (6101070-MS1)					Prepared: 10/27/16 13:20		Analyzed: 10/31/16 22:29					
QC Source Sample: BR-04-15-30' (1-1.5')_Prepared (A6J0562-28)												
EPA 6020A												
Lead	65.8	0.111	0.222	mg/kg dry	10	55.5	6.96	106	75-125%	---	---	
Matrix Spike (6101070-MS2)					Prepared: 10/27/16 13:20		Analyzed: 10/31/16 21:31					
QC Source Sample: BR-02->30' (1-1.5')_Prepared (A6J0556-36)												
EPA 6020A												
Lead	55.0	0.111	0.221	mg/kg dry	10	55.4	2.72	94	75-125%	---	---	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6101077 - EPA 3051A							**Soil**					
Blank (6101077-BLK1)					Prepared: 10/27/16 16:00		Analyzed: 10/31/16 22:41					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6101077-BS1)					Prepared: 10/27/16 16:00		Analyzed: 10/31/16 22:53					
EPA 6020A												
Lead	52.2	0.100	0.200	mg/kg wet	10	50.0	---	104	80-120%	---	---	
Duplicate (6101077-DUP1)					Prepared: 10/27/16 16:00		Analyzed: 10/31/16 23:08					
QC Source Sample: BR-05-15-30' (1-1.5')_Prepared (A6J0562-34)												
EPA 6020A												
Lead	**3.58**	0.107	0.213	mg/kg dry	10	---	3.58	---	---	0.1	40%	
Matrix Spike (6101077-MS1)					Prepared: 10/27/16 16:00		Analyzed: 10/31/16 23:11					
QC Source Sample: BR-05-15-30' (1-1.5')_Prepared (A6J0562-34)												
EPA 6020A												
Lead	59.0	0.111	0.221	mg/kg dry	10	55.4	3.58	100	75-125%	---	---	
Matrix Spike (6101077-MS2)					Prepared: 10/27/16 16:00		Analyzed: 11/01/16 00:17					
QC Source Sample: BR-09->30' (1-1.5')_Prepared (A6J0754-29)												
EPA 6020A												
Lead	64.4	0.114	0.227	mg/kg dry	10	56.8	8.29	99	75-125%	---	---	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6101101 - EPA 3051A							**Soil**					
Blank (6101101-BLK1)					Prepared: 10/28/16 09:29		Analyzed: 11/01/16 00:26					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6101101-BS1)					Prepared: 10/28/16 09:29		Analyzed: 11/01/16 00:29					
EPA 6020A												
Lead	51.5	0.100	0.200	mg/kg wet	10	50.0	---	103	80-120%	---	---	
Duplicate (6101101-DUP1)					Prepared: 10/28/16 09:29		Analyzed: 11/01/16 00:57					
QC Source Sample: BR-06->30' (0.5-1')_Prepared (A6J0598-25)												
EPA 6020A												
Lead	**3.76**	0.110	0.221	mg/kg dry	10	---	3.64	---	---	3	40%	
Duplicate (6101101-DUP2)					Prepared: 10/28/16 09:29		Analyzed: 11/01/16 01:00					
QC Source Sample: BR-06->30' (0.5-1')_Prepared (A6J0598-25)												
EPA 6020A												
Lead	**3.47**	0.109	0.218	mg/kg dry	10	---	3.64	---	---	5	40%	
Matrix Spike (6101101-MS1)					Prepared: 10/28/16 09:29		Analyzed: 11/01/16 01:03					
QC Source Sample: BR-06->30' (0.5-1')_Prepared (A6J0598-25)												
EPA 6020A												
Lead	58.2	0.103	0.206	mg/kg dry	10	51.4	3.64	106	75-125%	---	---	
Matrix Spike (6101101-MS2)					Prepared: 10/28/16 09:29		Analyzed: 11/01/16 01:54					
QC Source Sample: BR-10->30' (0.5-1')_Prepared (A6J0754-38)												
EPA 6020A												
Lead	66.3	0.107	0.214	mg/kg dry	10	53.5	9.29	107	75-125%	---	---	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6101110 - EPA 3051A									Soil			
Blank (6101110-BLK1)					Prepared: 10/28/16 10:47		Analyzed: 11/01/16 15:12					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6101110-BS1)					Prepared: 10/28/16 10:47		Analyzed: 11/01/16 15:15					
EPA 6020A												
Lead	52.8	0.100	0.200	mg/kg wet	10	50.0	---	106	80-120%	---	---	
Duplicate (6101110-DUP1)					Prepared: 10/28/16 10:47		Analyzed: 11/01/16 16:04					
QC Source Sample: BR-11-0-15' (0-0.5')_Prepared (A6J0754-40)												
EPA 6020A												
Lead	**10.1**	0.109	0.218	mg/kg dry	10	---	9.19	---	---	9	40%	
Duplicate (6101110-DUP2)					Prepared: 10/28/16 10:47		Analyzed: 11/01/16 16:07					
QC Source Sample: BR-11-0-15' (0-0.5')_Prepared (A6J0754-40)												
EPA 6020A												
Lead	**7.88**	0.109	0.219	mg/kg dry	10	---	9.19	---	---	15	40%	
Matrix Spike (6101110-MS1)					Prepared: 10/28/16 10:47		Analyzed: 11/01/16 16:10					
QC Source Sample: BR-11-0-15' (0-0.5')_Prepared (A6J0754-40)												
EPA 6020A												
Lead	65.8	0.102	0.205	mg/kg dry	10	51.2	9.19	111	75-125%	---	---	

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110224 - EPA 3051A									Solid			
Blank (6110224-BLK1)					Prepared: 11/03/16 11:03 Analyzed: 11/04/16 14:05							
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg	10	---	---	---	---	---	---	
LCS (6110224-BS1)					Prepared: 11/03/16 11:03 Analyzed: 11/04/16 14:08							
EPA 6020A												
Lead	55.2	0.100	0.200	mg/kg	10	50.0	---	110	80-120%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110270 - EPA 3051A									Soil			
Blank (6110270-BLK1)					Prepared: 11/04/16 10:20		Analyzed: 11/04/16 17:22					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6110270-BS1)					Prepared: 11/04/16 10:20		Analyzed: 11/04/16 17:26					
EPA 6020A												
Lead	47.8	0.100	0.200	mg/kg wet	10	50.0	---	96	80-120%	---	---	
Duplicate (6110270-DUP1)					Prepared: 11/04/16 10:20		Analyzed: 11/04/16 18:48					
QC Source Sample: BR-12-0-15' (0-0.5')_Prepared (A6J0823-29)												
EPA 6020A												
Lead	**6.33**	0.109	0.218	mg/kg dry	10	---	5.50	---	---	14	40%	
Duplicate (6110270-DUP2)					Prepared: 11/04/16 10:20		Analyzed: 11/04/16 18:51					
QC Source Sample: BR-12-0-15' (0-0.5')_Prepared (A6J0823-29)												
EPA 6020A												
Lead	**5.11**	0.103	0.206	mg/kg dry	10	---	5.50	---	---	7	40%	
Matrix Spike (6110270-MS1)					Prepared: 11/04/16 10:20		Analyzed: 11/04/16 18:55					
QC Source Sample: BR-12-0-15' (0-0.5')_Prepared (A6J0823-29)												
EPA 6020A												
Lead	59.3	0.106	0.212	mg/kg dry	10	53.0	5.50	102	75-125%	---	---	
Matrix Spike (6110270-MS2)					Prepared: 11/04/16 10:20		Analyzed: 11/04/16 19:43					
QC Source Sample: BR-13-15-30' (1-1.5')_Prepared (A6J0823-38)												
EPA 6020A												
Lead	67.9	0.104	0.208	mg/kg dry	10	52.1	18.6	95	75-125%	---	---	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110275 - EPA 3051A							**Soil**					
Blank (6110275-BLK1)					Prepared: 11/04/16 11:30		Analyzed: 11/04/16 19:55					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6110275-BS1)					Prepared: 11/04/16 11:30		Analyzed: 11/04/16 19:58					
EPA 6020A												
Lead	50.4	0.100	0.200	mg/kg wet	10	50.0	---	101	80-120%	---	---	
Duplicate (6110275-DUP1)					Prepared: 11/04/16 11:30		Analyzed: 11/04/16 20:50					
QC Source Sample: BR-17-15-30' (0-0.5')_Prepared (A6J0892-29)												
EPA 6020A												
Lead	**31.0**	0.104	0.209	mg/kg dry	10	---	31.0	---	---	0.2	40%	
Duplicate (6110275-DUP2)					Prepared: 11/04/16 11:30		Analyzed: 11/04/16 21:05					
QC Source Sample: BR-17-15-30' (0-0.5')_Prepared (A6J0892-29)												
EPA 6020A												
Lead	**32.4**	0.0993	0.199	mg/kg dry	10	---	31.0	---	---	4	40%	
Matrix Spike (6110275-MS1)					Prepared: 11/04/16 11:30		Analyzed: 11/04/16 21:09					
QC Source Sample: BR-17-15-30' (0-0.5')_Prepared (A6J0892-29)												
EPA 6020A												
Lead	81.5	0.0987	0.197	mg/kg dry	10	49.4	31.0	102	75-125%	---	---	
Matrix Spike (6110275-MS2)					Prepared: 11/04/16 11:30		Analyzed: 11/04/16 21:54					
QC Source Sample: BR-18-15-30' (0.5-1')_Prepared (A6J0892-37)												
EPA 6020A												
Lead	60.0	0.107	0.213	mg/kg dry	10	53.4	6.84	100	75-125%	---	---	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110374 - EPA 3051A									Soil			
Blank (6110374-BLK1)					Prepared: 11/08/16 12:15		Analyzed: 11/10/16 16:47					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6110374-BS1)					Prepared: 11/08/16 12:15		Analyzed: 11/10/16 16:51					
EPA 6020A												
Lead	48.3	0.100	0.200	mg/kg wet	10	50.0	---	97	80-120%	---	---	
Duplicate (6110374-DUP1)					Prepared: 11/08/16 12:15		Analyzed: 11/10/16 17:02					
QC Source Sample: BR-14-0-15' (0-0.5')_Prepared (A6J0849-22)												
EPA 6020A												
Lead	**11.4**	0.111	0.223	mg/kg dry	10	---	11.9	---	---	4	40%	
Duplicate (6110374-DUP2)					Prepared: 11/08/16 12:15		Analyzed: 11/10/16 17:06					
QC Source Sample: BR-14-0-15' (0-0.5')_Prepared (A6J0849-22)												
EPA 6020A												
Lead	**12.0**	0.111	0.222	mg/kg dry	10	---	11.9	---	---	0.8	40%	
Matrix Spike (6110374-MS1)					Prepared: 11/08/16 12:15		Analyzed: 11/10/16 17:10					
QC Source Sample: BR-14-0-15' (0-0.5')_Prepared (A6J0849-22)												
EPA 6020A												
Lead	59.9	0.108	0.216	mg/kg dry	10	54.0	11.9	89	75-125%	---	---	
Matrix Spike (6110374-MS2)					Prepared: 11/08/16 12:15		Analyzed: 11/10/16 18:36					
QC Source Sample: BR-16-0-15' (0.5-1')_Prepared (A6J0849-38)												
EPA 6020A												
Lead	51.9	0.0980	0.196	mg/kg dry	10	49.0	3.82	98	75-125%	---	---	

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110376 - EPA 3051A									Soil			
Blank (6110376-BLK1)					Prepared: 11/08/16 13:12		Analyzed: 11/10/16 01:41					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6110376-BS1)					Prepared: 11/08/16 13:12		Analyzed: 11/10/16 01:53					
EPA 6020A												
Lead	52.3	0.100	0.200	mg/kg wet	10	50.0	---	105	80-120%	---	---	
Duplicate (6110376-DUP1)					Prepared: 11/08/16 13:12		Analyzed: 11/10/16 16:16					
QC Source Sample: BR-20-15-30' (0.5-1')_Prepared (A6J0893-29)												
EPA 6020A												
Lead	**53.6**	0.103	0.207	mg/kg dry	10	---	57.6	---	---	7	40%	
Duplicate (6110376-DUP2)					Prepared: 11/08/16 13:12		Analyzed: 11/10/16 16:19					
QC Source Sample: BR-20-15-30' (0.5-1')_Prepared (A6J0893-29)												
EPA 6020A												
Lead	**51.8**	0.100	0.201	mg/kg dry	10	---	57.6	---	---	11	40%	
Matrix Spike (6110376-MS1)					Prepared: 11/08/16 13:12		Analyzed: 11/10/16 16:31					
QC Source Sample: BR-20-15-30' (0.5-1')_Prepared (A6J0893-29)												
EPA 6020A												
Lead	108	0.105	0.210	mg/kg dry	10	52.6	57.6	96	75-125%	---	---	
Matrix Spike (6110376-MS2)					Prepared: 11/08/16 13:12		Analyzed: 11/10/16 02:11					
QC Source Sample: BR-19-15-30' (0-0.5')_Prepared (A6J0893-22)												
EPA 6020A												
Lead	62.0	0.110	0.220	mg/kg dry	10	55.0	10.3	94	75-125%	---	---	

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110511 - EPA 3051A											**Solid**	
Blank (6110511-BLK1)					Prepared: 11/11/16 16:03		Analyzed: 11/15/16 19:02					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg	10	---	---	---	---	---	---	
LCS (6110511-BS1)					Prepared: 11/11/16 16:03		Analyzed: 11/15/16 19:05					
EPA 6020A												
Lead	51.1	0.100	0.200	mg/kg	10	50.0	---	102	80-120%	---	---	

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Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110523 - EPA 3051A									Solid			
Blank (6110523-BLK1)					Prepared: 11/14/16 08:54 Analyzed: 11/14/16 15:40							
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg	10	---	---	---	---	---	---	
LCS (6110523-BS1)					Prepared: 11/14/16 08:54 Analyzed: 11/14/16 15:43							
EPA 6020A												
Lead	49.9	0.100	0.200	mg/kg	10	50.0	---	100	80-120%	---	---	

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110640 - EPA 3051A											**Solid**	
Blank (6110640-BLK1)					Prepared: 11/16/16 14:26 Analyzed: 11/17/16 15:22							
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg	10	---	---	---	---	---	---	
LCS (6110640-BS1)					Prepared: 11/16/16 14:26 Analyzed: 11/17/16 15:25							
EPA 6020A												
Lead	57.2	0.100	0.200	mg/kg	10	50.0	---	114	80-120%	---	---	

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Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110692 - EPA 3051A									Soil			
Blank (6110692-BLK1)					Prepared: 11/17/16 14:56 Analyzed: 11/17/16 19:48							
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6110692-BS1)					Prepared: 11/17/16 14:56 Analyzed: 11/17/16 19:51							
EPA 6020A												
Lead	47.6	0.100	0.200	mg/kg wet	10	50.0	---	95	80-120%	---	---	
Duplicate (6110692-DUP1)					Prepared: 11/17/16 14:56 Analyzed: 11/17/16 21:25							
QC Source Sample: BR-23-0-15' (0-0.5')_Prepared (A6J0925-32)												
EPA 6020A												
Lead	**13.6**	0.102	0.205	mg/kg dry	10	---	13.4	---	---	1	40%	
Duplicate (6110692-DUP2)					Prepared: 11/17/16 14:56 Analyzed: 11/17/16 21:29							
QC Source Sample: BR-23-0-15' (0-0.5')_Prepared (A6J0925-32)												
EPA 6020A												
Lead	**13.8**	0.0972	0.194	mg/kg dry	10	---	13.4	---	---	3	40%	
Matrix Spike (6110692-MS1)					Prepared: 11/17/16 14:56 Analyzed: 11/17/16 21:33							
QC Source Sample: BR-23-0-15' (0-0.5')_Prepared (A6J0925-32)												
EPA 6020A												
Lead	56.8	0.0979	0.196	mg/kg dry	10	49.0	13.4	89	75-125%	---	---	
Matrix Spike (6110692-MS2)					Prepared: 11/17/16 14:56 Analyzed: 11/17/16 20:25							
QC Source Sample: BR-21->30' (0.5-1')_Prepared (A6J0925-21)												
EPA 6020A												
Lead	54.1	0.114	0.228	mg/kg dry	10	57.0	4.91	86	75-125%	---	---	

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110696 - EPA 3051A									Soil			
Blank (6110696-BLK1)					Prepared: 11/17/16 16:41		Analyzed: 11/17/16 21:07					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6110696-BS1)					Prepared: 11/17/16 16:41		Analyzed: 11/17/16 21:10					
EPA 6020A												
Lead	57.2	0.100	0.200	mg/kg wet	10	50.0	---	114	80-120%	---	---	
Duplicate (6110696-DUP1)					Prepared: 11/17/16 16:41		Analyzed: 11/17/16 22:23					
QC Source Sample: BR-25-0-15' (0.5-1')_Prepared (A6J0950-27)												
EPA 6020A												
Lead	**14.6**	0.106	0.213	mg/kg dry	10	---	14.7	---	---	0.7	40%	
Duplicate (6110696-DUP2)					Prepared: 11/17/16 16:41		Analyzed: 11/17/16 22:26					
QC Source Sample: BR-25-0-15' (0.5-1')_Prepared (A6J0950-27)												
EPA 6020A												
Lead	**14.8**	0.109	0.218	mg/kg dry	10	---	14.7	---	---	1	40%	
Matrix Spike (6110696-MS1)					Prepared: 11/17/16 16:41		Analyzed: 11/17/16 22:29					
QC Source Sample: BR-25-0-15' (0.5-1')_Prepared (A6J0950-27)												
EPA 6020A												
Lead	69.4	0.0992	0.198	mg/kg dry	10	49.6	14.7	110	75-125%	---	---	
Matrix Spike (6110696-MS2)					Prepared: 11/17/16 16:41		Analyzed: 11/17/16 21:37					
QC Source Sample: BR-23->30' (1-1.5')_Prepared (A6J0925-39)												
EPA 6020A												
Lead	67.1	0.106	0.213	mg/kg dry	10	53.2	7.56	112	75-125%	---	---	

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Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110732 - EPA 3051A									Soil			
Blank (6110732-BLK1)					Prepared: 11/18/16 13:33 Analyzed: 11/21/16 16:03							
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6110732-BS1)					Prepared: 11/18/16 13:33 Analyzed: 11/21/16 16:07							
EPA 6020A												
Lead	50.7	0.100	0.200	mg/kg wet	10	50.0	---	101	80-120%	---	---	

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QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110781 - EPA 3051A							**Solid**					
Blank (6110781-BLK1)					Prepared: 11/21/16 15:44 Analyzed: 11/22/16 10:27							
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg	10	---	---	---	---	---	---	
LCS (6110781-BS1)					Prepared: 11/21/16 15:44 Analyzed: 11/22/16 10:31							
EPA 6020A												
Lead	50.0	0.100	0.200	mg/kg	10	50.0	---	100	80-120%	---	---	

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6100860 - Total Solids (Dry Weight)											**Soil**	
Duplicate (6100860-DUP1)					Prepared: 10/21/16 11:06		Analyzed: 10/24/16 09:31					
QC Source Sample: BR-04->30' (0.5-1')_Prepared (A6J0562-30)												
EPA 8000C												
% Solids	**97.9**	---	1.00	% by Weight	1	---	98.0	---	---	0.09	10%	
Duplicate (6100860-DUP2)					Prepared: 10/21/16 11:06		Analyzed: 10/24/16 09:31					
QC Source Sample: BR-06-0-15' (1-1.5')_Prepared (A6J0562-40)												
EPA 8000C												
% Solids	**94.4**	---	1.00	% by Weight	1	---	94.5	---	---	0.05	10%	
Batch 6100912 - Total Solids (Dry Weight)											**Soil**	
Duplicate (6100912-DUP1)					Prepared: 10/24/16 13:11		Analyzed: 10/25/16 09:29					
QC Source Sample: BR-02-15-30' (0-0.5')_Prepared (A6J0556-30)												
EPA 8000C												
% Solids	**96.6**	---	1.00	% by Weight	1	---	96.7	---	---	0.08	10%	
Duplicate (6100912-DUP2)					Prepared: 10/24/16 13:11		Analyzed: 10/25/16 09:29					
QC Source Sample: BR-03->30' (0-0.5')_Prepared (A6J0556-40)												
EPA 8000C												
% Solids	**93.7**	---	1.00	% by Weight	1	---	93.8	---	---	0.2	10%	
Batch 6101108 - Total Solids (Dry Weight)											**Soil**	
Duplicate (6101108-DUPC)					Prepared: 10/28/16 13:31		Analyzed: 10/29/16 10:00					
QC Source Sample: BR-10-0-15' (0-0.5')_Prepared (A6J0754-30)												
EPA 8000C												
% Solids	**97.7**	---	1.00	% by Weight	1	---	97.7	---	---	0.02	10%	
Duplicate (6101108-DUPD)					Prepared: 10/28/16 13:31		Analyzed: 10/29/16 10:00					
QC Source Sample: BR-08->30' (0-0.5')_Prepared (A6J0598-40)												
EPA 8000C												
% Solids	**96.0**	---	1.00	% by Weight	1	---	95.9	---	---	0.1	10%	

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6101108 - Total Solids (Dry Weight)								Soil				
Duplicate (6101108-DUPE)					Prepared: 10/28/16 13:31		Analyzed: 10/29/16 10:00					
QC Source Sample: BR-07-0-15' (1-1.5')_Prepared (A6J0598-30)												
EPA 8000C												
% Solids	**98.4**	---	1.00	% by Weight	1	---	98.1	---	---	0.4	10%	
Batch 6101132 - Total Solids (Dry Weight)								Soil				
Duplicate (6101132-DUP1)					Prepared: 10/29/16 11:28		Analyzed: 10/31/16 09:13					
QC Source Sample: BR-11-0-15' (0.5-1')_Prepared (A6J0823-21)												
EPA 8000C												
% Solids	**98.3**	---	1.00	% by Weight	1	---	98.3	---	---	0.04	10%	
Duplicate (6101132-DUP2)					Prepared: 10/29/16 11:28		Analyzed: 10/31/16 09:13					
QC Source Sample: BR-13->30' (0-0.5')_Prepared (A6J0823-39)												
EPA 8000C												
% Solids	**95.6**	---	1.00	% by Weight	1	---	95.7	---	---	0.1	10%	
Batch 6110117 - Total Solids (Dry Weight)								Soil				
Duplicate (6110117-DUP1)					Prepared: 11/01/16 11:08		Analyzed: 11/02/16 08:24					
QC Source Sample: BR-14->30' (1-1.5')_Prepared (A6J0849-30)												
EPA 8000C												
% Solids	**95.0**	---	1.00	% by Weight	1	---	95.2	---	---	0.1	10%	
Duplicate (6110117-DUP2)					Prepared: 11/01/16 11:08		Analyzed: 11/02/16 08:24					
QC Source Sample: BR-16-15-30' (0-0.5')_Prepared (A6J0849-40)												
EPA 8000C												
% Solids	**91.9**	---	1.00	% by Weight	1	---	92.3	---	---	0.4	10%	
Batch 6110167 - Total Solids (Dry Weight)								Soil				
Duplicate (6110167-DUP1)					Prepared: 11/02/16 09:21		Analyzed: 11/03/16 08:40					

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110167 - Total Solids (Dry Weight)											**Soil**	
Duplicate (6110167-DUP1)					Prepared: 11/02/16 09:21		Analyzed: 11/03/16 08:40					
QC Source Sample: BR-16->30' (0-0.5')_Prepared (A6J0892-23)												
EPA 8000C												
% Solids	**91.9**	---	1.00	% by Weight	1	---	92.0	---	---	0.09	10%	
Duplicate (6110167-DUP2)					Prepared: 11/02/16 09:21		Analyzed: 11/03/16 08:40					
QC Source Sample: BR-17->30' (0-0.5')_Prepared (A6J0892-33)												
EPA 8000C												
% Solids	**98.7**	---	1.00	% by Weight	1	---	98.8	---	---	0.02	10%	
Batch 6110214 - Total Solids (Dry Weight)											**Soil**	
Duplicate (6110214-DUP1)					Prepared: 11/03/16 09:30		Analyzed: 11/04/16 09:14					
QC Source Sample: BR-20-15-30' (1-1.5')_Prepared (A6J0893-30)												
EPA 8000C												
% Solids	**97.4**	---	1.00	% by Weight	1	---	97.4	---	---	0.02	10%	
Duplicate (6110214-DUP2)					Prepared: 11/03/16 09:30		Analyzed: 11/04/16 09:14					
QC Source Sample: BR-21->30' (0-0.5')_Prepared (A6J0893-40)												
EPA 8000C												
% Solids	**95.9**	---	1.00	% by Weight	1	---	95.8	---	---	0.03	10%	
Batch 6110271 - Total Solids (Dry Weight)											**Soil**	
Duplicate (6110271-DUP1)					Prepared: 11/04/16 10:27		Analyzed: 11/05/16 09:36					
QC Source Sample: BR-22->30' (0.5-1')_Prepared (A6J0925-30)												
EPA 8000C												
% Solids	**96.9**	---	1.00	% by Weight	1	---	96.8	---	---	0.04	10%	
Duplicate (6110271-DUP2)					Prepared: 11/04/16 10:27		Analyzed: 11/05/16 09:36					
QC Source Sample: BR-24-0-15' (0-0.5')_Prepared (A6J0925-40)												
EPA 8000C												
% Solids	**99.2**	---	1.00	% by Weight	1	---	99.2	---	---	0.01	10%	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110367 - Total Solids (Dry Weight)											**Soil**	
Duplicate (6110367-DUP1)					Prepared: 11/08/16 11:05		Analyzed: 11/09/16 08:43					
QC Source Sample: BR-25-0-15' (0.5-1')_Prepared (A6J0950-27)												
EPA 8000C												
% Solids	**98.5**	---	1.00	% by Weight	1	---	98.8	---	---	0.3	10%	
Batch 6110394 - Total Solids (Dry Weight)											**Soil**	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6100946							
A6J0562-21	Soil	EPA 8270D (SIM)	10/11/16 13:09	10/25/16 11:26	10.06g/2mL	10g/2mL	0.99
A6J0562-22	Soil	EPA 8270D (SIM)	10/11/16 13:14	10/25/16 11:26	10.02g/2mL	10g/2mL	1.00
A6J0562-23RE1	Soil	EPA 8270D (SIM)	10/11/16 13:43	10/25/16 11:26	10.2g/2mL	10g/2mL	0.98
A6J0562-24RE1	Soil	EPA 8270D (SIM)	10/11/16 13:49	10/25/16 11:26	10.25g/5mL	10g/2mL	2.44
A6J0562-25RE1	Soil	EPA 8270D (SIM)	10/11/16 14:00	10/25/16 11:26	10.11g/5mL	10g/2mL	2.47
A6J0562-26	Soil	EPA 8270D (SIM)	10/11/16 14:04	10/25/16 11:26	10.17g/2mL	10g/2mL	0.98
A6J0562-27	Soil	EPA 8270D (SIM)	10/11/16 14:07	10/25/16 11:26	10.05g/2mL	10g/2mL	1.00
A6J0562-28	Soil	EPA 8270D (SIM)	10/11/16 14:11	10/25/16 11:26	10.07g/2mL	10g/2mL	0.99
A6J0562-29	Soil	EPA 8270D (SIM)	10/11/16 14:15	10/25/16 11:26	10.15g/2mL	10g/2mL	0.99
A6J0562-30	Soil	EPA 8270D (SIM)	10/11/16 14:19	10/25/16 11:26	10.04g/2mL	10g/2mL	1.00
A6J0562-31	Soil	EPA 8270D (SIM)	10/11/16 14:25	10/25/16 11:26	10.05g/2mL	10g/2mL	1.00
A6J0562-32	Soil	EPA 8270D (SIM)	10/11/16 15:08	10/25/16 11:26	10.09g/2mL	10g/2mL	0.99
A6J0562-33	Soil	EPA 8270D (SIM)	10/11/16 15:15	10/25/16 11:26	10.15g/2mL	10g/2mL	0.99
A6J0562-34	Soil	EPA 8270D (SIM)	10/11/16 15:20	10/25/16 11:26	10.13g/2mL	10g/2mL	0.99
A6J0562-35	Soil	EPA 8270D (SIM)	10/11/16 15:24	10/25/16 11:26	10.11g/2mL	10g/2mL	0.99
A6J0562-36	Soil	EPA 8270D (SIM)	10/11/16 15:29	10/25/16 11:26	10.23g/2mL	10g/2mL	0.98
A6J0562-37	Soil	EPA 8270D (SIM)	10/11/16 15:35	10/25/16 11:26	10.31g/2mL	10g/2mL	0.97
A6J0562-38	Soil	EPA 8270D (SIM)	10/11/16 15:51	10/25/16 11:26	10.05g/2mL	10g/2mL	1.00
A6J0562-39	Soil	EPA 8270D (SIM)	10/11/16 15:59	10/25/16 11:26	10.19g/2mL	10g/2mL	0.98
A6J0562-40	Soil	EPA 8270D (SIM)	10/11/16 16:04	10/25/16 11:26	10.21g/2mL	10g/2mL	0.98
Batch: 6101065							
A6J0556-21	Soil	EPA 8270D (SIM)	10/11/16 09:41	10/27/16 12:07	10.821g/2mL	10g/2mL	0.92
A6J0556-22	Soil	EPA 8270D (SIM)	10/11/16 09:50	10/27/16 12:07	10.402g/2mL	10g/2mL	0.96
A6J0556-23	Soil	EPA 8270D (SIM)	10/11/16 10:10	10/27/16 12:07	10.505g/2mL	10g/2mL	0.95
A6J0556-24	Soil	EPA 8270D (SIM)	10/11/16 10:15	10/27/16 12:07	10.284g/2mL	10g/2mL	0.97
A6J0556-25	Soil	EPA 8270D (SIM)	10/11/16 10:22	10/27/16 12:07	10.73g/2mL	10g/2mL	0.93
A6J0556-26	Soil	EPA 8270D (SIM)	10/11/16 10:27	10/27/16 12:07	10.548g/2mL	10g/2mL	0.95
A6J0556-27	Soil	EPA 8270D (SIM)	10/11/16 10:35	10/27/16 12:07	10.353g/2mL	10g/2mL	0.97
A6J0556-28	Soil	EPA 8270D (SIM)	10/11/16 10:38	10/27/16 12:07	10.358g/2mL	10g/2mL	0.97
A6J0556-29	Soil	EPA 8270D (SIM)	10/11/16 10:42	10/27/16 12:07	10.212g/2mL	10g/2mL	0.98
A6J0556-30	Soil	EPA 8270D (SIM)	10/11/16 11:21	10/27/16 12:07	10.756g/2mL	10g/2mL	0.93
A6J0556-31	Soil	EPA 8270D (SIM)	10/11/16 11:21	10/27/16 12:07	10.038g/2mL	10g/2mL	1.00
A6J0556-32	Soil	EPA 8270D (SIM)	10/11/16 11:30	10/27/16 12:07	10.333g/2mL	10g/2mL	0.97

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Lisa Domenighini, Client Services Manager

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0556-33	Soil	EPA 8270D (SIM)	10/11/16 11:42	10/27/16 12:07	10.925g/2mL	10g/2mL	0.92
A6J0556-34	Soil	EPA 8270D (SIM)	10/11/16 11:51	10/27/16 12:07	10.811g/2mL	10g/2mL	0.93
A6J0556-35	Soil	EPA 8270D (SIM)	10/11/16 11:56	10/27/16 12:07	10.602g/2mL	10g/2mL	0.94
A6J0556-36	Soil	EPA 8270D (SIM)	10/11/16 12:04	10/27/16 12:07	10.187g/2mL	10g/2mL	0.98
A6J0556-37	Soil	EPA 8270D (SIM)	10/11/16 12:51	10/27/16 12:07	10.438g/2mL	10g/2mL	0.96
A6J0556-38	Soil	EPA 8270D (SIM)	10/11/16 12:56	10/27/16 12:07	10.751g/2mL	10g/2mL	0.93
A6J0556-39	Soil	EPA 8270D (SIM)	10/11/16 13:00	10/27/16 12:07	10.86g/2mL	10g/2mL	0.92
A6J0556-40	Soil	EPA 8270D (SIM)	10/11/16 13:06	10/27/16 12:07	10.655g/2mL	10g/2mL	0.94
A6J0556-41	Solid	EPA 8270D (SIM)	10/11/16 00:00	10/27/16 12:09	10.397g/2mL	10g/2mL	0.96
Batch: 6101105							
A6J0754-21	Soil	EPA 8270D (SIM)	10/11/16 18:10	10/28/16 10:07	10.34g/2mL	10g/2mL	0.97
A6J0754-22	Soil	EPA 8270D (SIM)	10/11/16 18:14	10/28/16 10:07	10.47g/2mL	10g/2mL	0.96
A6J0754-23	Soil	EPA 8270D (SIM)	10/12/16 09:06	10/28/16 10:07	10.29g/2mL	10g/2mL	0.97
A6J0754-24	Soil	EPA 8270D (SIM)	10/12/16 09:12	10/28/16 10:07	10.55g/2mL	10g/2mL	0.95
A6J0754-25	Soil	EPA 8270D (SIM)	10/12/16 09:17	10/28/16 10:07	10.36g/2mL	10g/2mL	0.97
A6J0754-26	Soil	EPA 8270D (SIM)	10/12/16 09:22	10/28/16 10:07	10.33g/2mL	10g/2mL	0.97
A6J0754-27	Soil	EPA 8270D (SIM)	10/12/16 09:22	10/28/16 10:07	10.34g/2mL	10g/2mL	0.97
A6J0754-28	Soil	EPA 8270D (SIM)	10/12/16 09:27	10/28/16 10:07	10.32g/2mL	10g/2mL	0.97
A6J0754-29	Soil	EPA 8270D (SIM)	10/12/16 09:31	10/28/16 10:07	10.48g/2mL	10g/2mL	0.95
A6J0754-30	Soil	EPA 8270D (SIM)	10/12/16 10:16	10/28/16 10:07	10.22g/2mL	10g/2mL	0.98
A6J0754-31	Soil	EPA 8270D (SIM)	10/12/16 10:25	10/28/16 10:07	10.21g/2mL	10g/2mL	0.98
A6J0754-31RE2	Soil	EPA 8270D (SIM)	10/12/16 10:25	10/28/16 10:07	10.21g/2mL	10g/2mL	0.98
A6J0754-32	Soil	EPA 8270D (SIM)	10/12/16 10:30	10/28/16 10:07	10.31g/2mL	10g/2mL	0.97
A6J0754-32RE2	Soil	EPA 8270D (SIM)	10/12/16 10:30	10/28/16 10:07	10.31g/2mL	10g/2mL	0.97
A6J0754-33	Soil	EPA 8270D (SIM)	10/12/16 10:37	10/28/16 10:15	10.31g/2mL	10g/2mL	0.97
A6J0754-33RE2	Soil	EPA 8270D (SIM)	10/12/16 10:37	10/28/16 10:15	10.31g/2mL	10g/2mL	0.97
A6J0754-34	Soil	EPA 8270D (SIM)	10/12/16 10:39	10/28/16 10:15	10.62g/2mL	10g/2mL	0.94
A6J0754-35	Soil	EPA 8270D (SIM)	10/12/16 10:43	10/28/16 10:15	10.29g/2mL	10g/2mL	0.97
A6J0754-35RE1	Soil	EPA 8270D (SIM)	10/12/16 10:43	10/28/16 10:15	10.29g/2mL	10g/2mL	0.97
A6J0754-36	Soil	EPA 8270D (SIM)	10/12/16 10:46	10/28/16 10:15	10.21g/2mL	10g/2mL	0.98
A6J0754-36RE1	Soil	EPA 8270D (SIM)	10/12/16 10:46	10/28/16 10:15	10.21g/2mL	10g/2mL	0.98
A6J0754-37	Soil	EPA 8270D (SIM)	10/12/16 10:46	10/28/16 10:15	10.6g/2mL	10g/2mL	0.94
A6J0754-38	Soil	EPA 8270D (SIM)	10/12/16 10:48	10/28/16 10:15	10.25g/2mL	10g/2mL	0.98
A6J0754-38RE1	Soil	EPA 8270D (SIM)	10/12/16 10:48	10/28/16 10:15	10.25g/2mL	10g/2mL	0.98

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0754-39	Soil	EPA 8270D (SIM)	10/12/16 10:55	10/28/16 10:15	10.25g/2mL	10g/2mL	0.98
A6J0754-40	Soil	EPA 8270D (SIM)	10/12/16 11:30	10/28/16 10:15	10.26g/5mL	10g/2mL	2.44
A6J0754-41RE1	Solid	EPA 8270D (SIM)	10/12/16 00:00	10/28/16 10:15	10.23g/2mL	10g/2mL	0.98
Batch: 6101127							
A6J0823-21	Soil	EPA 8270D (SIM)	10/12/16 11:35	10/29/16 08:10	10.217g/2mL	10g/2mL	0.98
A6J0823-22	Soil	EPA 8270D (SIM)	10/12/16 11:39	10/29/16 08:10	10.778g/2mL	10g/2mL	0.93
A6J0823-23	Soil	EPA 8270D (SIM)	10/12/16 11:44	10/29/16 08:10	10.543g/2mL	10g/2mL	0.95
A6J0823-24	Soil	EPA 8270D (SIM)	10/12/16 11:52	10/29/16 08:10	10.503g/2mL	10g/2mL	0.95
A6J0823-25	Soil	EPA 8270D (SIM)	10/12/16 11:59	10/29/16 08:10	10.929g/2mL	10g/2mL	0.92
A6J0823-26	Soil	EPA 8270D (SIM)	10/12/16 12:06	10/29/16 08:10	10.406g/2mL	10g/2mL	0.96
A6J0823-27	Soil	EPA 8270D (SIM)	10/12/16 12:10	10/29/16 08:10	10.683g/2mL	10g/2mL	0.94
A6J0823-28	Soil	EPA 8270D (SIM)	10/12/16 12:21	10/29/16 08:10	10.462g/2mL	10g/2mL	0.96
A6J0823-29	Soil	EPA 8270D (SIM)	10/12/16 12:44	10/29/16 08:10	10.59g/2mL	10g/2mL	0.94
A6J0823-30	Soil	EPA 8270D (SIM)	10/12/16 12:50	10/29/16 08:10	10.601g/2mL	10g/2mL	0.94
A6J0823-31	Soil	EPA 8270D (SIM)	10/12/16 13:01	10/29/16 08:10	10.547g/2mL	10g/2mL	0.95
A6J0823-32	Soil	EPA 8270D (SIM)	10/12/16 13:15	10/29/16 08:10	10.527g/2mL	10g/2mL	0.95
A6J0823-33	Soil	EPA 8270D (SIM)	10/12/16 13:22	10/29/16 08:10	10.282g/2mL	10g/2mL	0.97
A6J0823-34	Soil	EPA 8270D (SIM)	10/12/16 13:28	10/29/16 08:10	10.501g/2mL	10g/2mL	0.95
A6J0823-35	Soil	EPA 8270D (SIM)	10/12/16 13:36	10/29/16 08:10	10.348g/2mL	10g/2mL	0.97
A6J0823-36	Soil	EPA 8270D (SIM)	10/12/16 13:59	10/29/16 08:10	10.506g/2mL	10g/2mL	0.95
A6J0823-37	Soil	EPA 8270D (SIM)	10/12/16 14:10	10/29/16 08:10	10.691g/2mL	10g/2mL	0.94
A6J0823-38	Soil	EPA 8270D (SIM)	10/12/16 14:20	10/29/16 08:10	10.398g/2mL	10g/2mL	0.96
A6J0823-39	Soil	EPA 8270D (SIM)	10/12/16 14:25	10/29/16 08:10	10.568g/2mL	10g/2mL	0.95
A6J0823-40	Soil	EPA 8270D (SIM)	10/12/16 14:29	10/29/16 08:10	10.654g/2mL	10g/2mL	0.94
A6J0823-41	Solid	EPA 8270D (SIM)	10/12/16 00:00	10/29/16 08:18	10.882g/2mL	10g/2mL	0.92
Batch: 6110268							
A6J0562-41	Solid	EPA 8270D (SIM)	10/11/16 00:00	11/04/16 10:20	10.75g/2mL	10g/2mL	0.93
A6J0598-21	Soil	EPA 8270D (SIM)	10/11/16 16:06	11/04/16 10:05	10.84g/2mL	10g/2mL	0.92
A6J0598-22	Soil	EPA 8270D (SIM)	10/11/16 16:09	11/04/16 10:05	11.07g/2mL	10g/2mL	0.90
A6J0598-23	Soil	EPA 8270D (SIM)	10/11/16 16:12	11/04/16 10:05	10.35g/2mL	10g/2mL	0.97
A6J0598-24	Soil	EPA 8270D (SIM)	10/11/16 16:18	11/04/16 10:05	11.63g/2mL	10g/2mL	0.86
A6J0598-25	Soil	EPA 8270D (SIM)	10/11/16 16:23	11/04/16 10:05	10.59g/2mL	10g/2mL	0.94
A6J0598-26	Soil	EPA 8270D (SIM)	10/11/16 16:30	11/04/16 10:05	11.53g/2mL	10g/2mL	0.87
A6J0598-27	Soil	EPA 8270D (SIM)	10/11/16 16:30	11/04/16 10:05	11.45g/2mL	10g/2mL	0.87

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0598-28	Soil	EPA 8270D (SIM)	10/11/16 16:57	11/04/16 10:05	10.92g/2mL	10g/2mL	0.92
A6J0598-29	Soil	EPA 8270D (SIM)	10/11/16 17:01	11/04/16 10:05	11.2g/2mL	10g/2mL	0.89
A6J0598-30	Soil	EPA 8270D (SIM)	10/11/16 17:05	11/04/16 10:05	10.57g/2mL	10g/2mL	0.95
A6J0598-31	Soil	EPA 8270D (SIM)	10/11/16 17:10	11/04/16 10:05	10.21g/2mL	10g/2mL	0.98
A6J0598-32	Soil	EPA 8270D (SIM)	10/11/16 17:16	11/04/16 10:05	10.14g/2mL	10g/2mL	0.99
A6J0598-33	Soil	EPA 8270D (SIM)	10/11/16 17:17	11/04/16 10:05	10.89g/2mL	10g/2mL	0.92
A6J0598-34	Soil	EPA 8270D (SIM)	10/11/16 17:21	11/04/16 10:05	10.63g/2mL	10g/2mL	0.94
A6J0598-35	Soil	EPA 8270D (SIM)	10/11/16 17:24	11/04/16 10:05	10.52g/2mL	10g/2mL	0.95
A6J0598-36	Soil	EPA 8270D (SIM)	10/11/16 17:30	11/04/16 10:05	10.51g/2mL	10g/2mL	0.95
A6J0598-37	Soil	EPA 8270D (SIM)	10/11/16 17:47	11/04/16 10:05	10.49g/2mL	10g/2mL	0.95
A6J0598-38	Soil	EPA 8270D (SIM)	10/11/16 17:55	11/04/16 10:05	10.44g/2mL	10g/2mL	0.96
A6J0598-39	Soil	EPA 8270D (SIM)	10/11/16 17:59	11/04/16 10:05	10.72g/2mL	10g/2mL	0.93
A6J0598-40	Soil	EPA 8270D (SIM)	10/11/16 18:05	11/04/16 10:05	10.1g/2mL	10g/2mL	0.99
A6J0598-41RE1	Solid	EPA 8270D (SIM)	10/11/16 00:00	11/04/16 10:05	10.58g/2mL	10g/2mL	0.95
Batch: 6110298							
A6J0849-21	Soil	EPA 8270D (SIM)	10/12/16 14:30	11/05/16 08:12	10.58g/2mL	10g/2mL	0.95
A6J0849-22RE1	Soil	EPA 8270D (SIM)	10/12/16 15:22	11/05/16 08:12	10.42g/5mL	10g/2mL	2.40
A6J0849-23RE1	Soil	EPA 8270D (SIM)	10/12/16 15:26	11/05/16 08:12	10.42g/5mL	10g/2mL	2.40
A6J0849-24	Soil	EPA 8270D (SIM)	10/12/16 15:33	11/05/16 08:12	10.93g/2mL	10g/2mL	0.92
A6J0849-25	Soil	EPA 8270D (SIM)	10/12/16 15:38	11/05/16 08:12	10.67g/2mL	10g/2mL	0.94
A6J0849-26	Soil	EPA 8270D (SIM)	10/12/16 15:41	11/05/16 08:12	10.62g/2mL	10g/2mL	0.94
A6J0849-27	Soil	EPA 8270D (SIM)	10/12/16 15:46	11/05/16 08:12	10.99g/2mL	10g/2mL	0.91
A6J0849-28	Soil	EPA 8270D (SIM)	10/12/16 15:52	11/05/16 08:12	10.48g/2mL	10g/2mL	0.95
A6J0849-29	Soil	EPA 8270D (SIM)	10/12/16 16:02	11/05/16 08:12	10.85g/2mL	10g/2mL	0.92
A6J0849-30	Soil	EPA 8270D (SIM)	10/12/16 16:06	11/05/16 08:12	10.84g/2mL	10g/2mL	0.92
A6J0849-31	Soil	EPA 8270D (SIM)	10/12/16 16:47	11/05/16 08:12	10.43g/2mL	10g/2mL	0.96
A6J0849-32	Soil	EPA 8270D (SIM)	10/12/16 16:52	11/05/16 08:12	10.72g/2mL	10g/2mL	0.93
A6J0849-37	Soil	EPA 8270D (SIM)	10/12/16 17:40	11/05/16 08:12	10.38g/5mL	10g/2mL	2.41
A6J0849-38RE2	Soil	EPA 8270D (SIM)	10/12/16 17:45	11/05/16 08:12	10.63g/10mL	10g/2mL	4.70
A6J0849-39RE1	Soil	EPA 8270D (SIM)	10/12/16 17:51	11/05/16 08:12	10.6g/2mL	10g/2mL	0.94
A6J0849-40	Soil	EPA 8270D (SIM)	10/12/16 18:01	11/05/16 08:12	10.35g/2mL	10g/2mL	0.97
A6J0849-41	Solid	EPA 8270D (SIM)	10/12/16 00:00	11/05/16 08:12	10.85g/2mL	10g/2mL	0.92
Batch: 6110299							
A6J0892-21	Soil	EPA 8270D (SIM)	10/12/16 18:07	11/05/16 08:25	10.92g/2mL	10g/2mL	0.92

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AMENDED REPORT

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503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0892-22	Soil	EPA 8270D (SIM)	10/12/16 18:15	11/05/16 08:25	10.18g/2mL	10g/2mL	0.98
A6J0892-23	Soil	EPA 8270D (SIM)	10/12/16 18:21	11/05/16 08:25	10.13g/2mL	10g/2mL	0.99
A6J0892-24	Soil	EPA 8270D (SIM)	10/12/16 18:24	11/05/16 08:25	10.59g/2mL	10g/2mL	0.94
A6J0892-26	Soil	EPA 8270D (SIM)	10/13/16 09:07	11/05/16 08:25	10.83g/2mL	10g/2mL	0.92
A6J0892-27	Soil	EPA 8270D (SIM)	10/13/16 09:15	11/05/16 08:25	10.78g/2mL	10g/2mL	0.93
A6J0892-28	Soil	EPA 8270D (SIM)	10/13/16 09:19	11/05/16 08:25	10.4g/5mL	10g/2mL	2.40
A6J0892-29	Soil	EPA 8270D (SIM)	10/13/16 09:22	11/05/16 08:25	10.62g/5mL	10g/2mL	2.35
A6J0892-30	Soil	EPA 8270D (SIM)	10/13/16 09:27	11/05/16 08:25	10.33g/5mL	10g/2mL	2.42
A6J0892-31	Soil	EPA 8270D (SIM)	10/13/16 09:32	11/05/16 08:25	10.47g/5mL	10g/2mL	2.39
A6J0892-32	Soil	EPA 8270D (SIM)	10/13/16 09:46	11/05/16 08:25	10.15g/2mL	10g/2mL	0.99
A6J0892-33	Soil	EPA 8270D (SIM)	10/13/16 09:35	11/05/16 08:25	10.21g/5mL	10g/2mL	2.45
A6J0892-34	Soil	EPA 8270D (SIM)	10/13/16 09:40	11/05/16 08:25	10.36g/2mL	10g/2mL	0.97
A6J0892-35	Soil	EPA 8270D (SIM)	10/13/16 09:46	11/05/16 08:25	10.39g/2mL	10g/2mL	0.96
A6J0892-36	Soil	EPA 8270D (SIM)	10/13/16 10:30	11/05/16 08:25	10.8g/5mL	10g/2mL	2.31
A6J0892-37	Soil	EPA 8270D (SIM)	10/13/16 10:37	11/05/16 08:25	10.5g/2mL	10g/2mL	0.95
A6J0892-38	Soil	EPA 8270D (SIM)	10/13/16 10:45	11/05/16 08:25	10.88g/2mL	10g/2mL	0.92
A6J0892-39	Soil	EPA 8270D (SIM)	10/13/16 10:55	11/05/16 08:25	10.17g/2mL	10g/2mL	0.98
A6J0892-40	Soil	EPA 8270D (SIM)	10/13/16 11:01	11/05/16 08:25	10.78g/2mL	10g/2mL	0.93
A6J0892-41	Solid	EPA 8270D (SIM)	10/12/16 00:00	11/05/16 08:25	10.38g/2mL	10g/2mL	0.96
Batch: 6110353							
A6J0893-21	Soil	EPA 8270D (SIM)	10/13/16 11:07	11/08/16 07:16	10.82g/2mL	10g/2mL	0.92
A6J0893-22	Soil	EPA 8270D (SIM)	10/13/16 11:37	11/08/16 07:16	10.62g/2mL	10g/2mL	0.94
A6J0893-23	Soil	EPA 8270D (SIM)	10/13/16 11:43	11/08/16 07:16	10.66g/2mL	10g/2mL	0.94
A6J0893-24	Soil	EPA 8270D (SIM)	10/13/16 11:52	11/08/16 07:16	10.37g/2mL	10g/2mL	0.96
A6J0893-25	Soil	EPA 8270D (SIM)	10/13/16 11:56	11/08/16 07:16	10.54g/2mL	10g/2mL	0.95
A6J0893-26	Soil	EPA 8270D (SIM)	10/13/16 11:59	11/08/16 07:16	10.51g/2mL	10g/2mL	0.95
A6J0893-27	Soil	EPA 8270D (SIM)	10/13/16 12:03	11/08/16 07:16	10.98g/2mL	10g/2mL	0.91
A6J0893-28	Soil	EPA 8270D (SIM)	10/13/16 12:36	11/08/16 07:16	10.5g/5mL	10g/2mL	2.38
A6J0893-29	Soil	EPA 8270D (SIM)	10/13/16 12:42	11/08/16 07:16	10.65g/5mL	10g/2mL	2.35
A6J0893-30	Soil	EPA 8270D (SIM)	10/13/16 12:45	11/08/16 07:16	10.79g/5mL	10g/2mL	2.32
A6J0893-31	Soil	EPA 8270D (SIM)	10/13/16 12:50	11/08/16 07:16	10.25g/2mL	10g/2mL	0.98
A6J0893-32	Soil	EPA 8270D (SIM)	10/13/16 12:55	11/08/16 07:16	10.87g/2mL	10g/2mL	0.92
A6J0893-33RE1	Soil	EPA 8270D (SIM)	10/13/16 13:04	11/08/16 07:16	10.69g/2mL	10g/2mL	0.94
A6J0893-34	Soil	EPA 8270D (SIM)	10/13/16 13:49	11/08/16 07:16	10.46g/5mL	10g/2mL	2.39

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Lisa A Domenighini

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0893-35	Soil	EPA 8270D (SIM)	10/13/16 13:55	11/08/16 07:16	10.52g/2mL	10g/2mL	0.95
A6J0893-36	Soil	EPA 8270D (SIM)	10/13/16 14:02	11/08/16 07:16	10.54g/2mL	10g/2mL	0.95
A6J0893-37	Soil	EPA 8270D (SIM)	10/13/16 14:04	11/08/16 07:16	10.35g/2mL	10g/2mL	0.97
A6J0893-38	Soil	EPA 8270D (SIM)	10/13/16 14:09	11/08/16 07:16	10.52g/2mL	10g/2mL	0.95
A6J0893-39	Soil	EPA 8270D (SIM)	10/13/16 14:14	11/08/16 07:16	10.63g/2mL	10g/2mL	0.94
A6J0893-40	Soil	EPA 8270D (SIM)	10/13/16 14:18	11/08/16 07:16	10.43g/2mL	10g/2mL	0.96
A6J0893-41	Solid	EPA 8270D (SIM)	10/13/16 00:00	11/08/16 07:16	10.75g/2mL	10g/2mL	0.93
Batch: 6110375							
A6J0925-21	Soil	EPA 8270D (SIM)	10/13/16 14:20	11/08/16 12:32	10.41g/2mL	10g/2mL	0.96
A6J0925-22	Soil	EPA 8270D (SIM)	10/13/16 14:27	11/08/16 12:32	10.64g/2mL	10g/2mL	0.94
A6J0925-23	Soil	EPA 8270D (SIM)	10/13/16 15:20	11/08/16 12:32	10.47g/2mL	10g/2mL	0.96
A6J0925-24	Soil	EPA 8270D (SIM)	10/13/16 15:29	11/08/16 12:32	10.59g/2mL	10g/2mL	0.94
A6J0925-25	Soil	EPA 8270D (SIM)	10/13/16 15:36	11/08/16 12:32	10.64g/2mL	10g/2mL	0.94
A6J0925-26	Soil	EPA 8270D (SIM)	10/13/16 15:43	11/08/16 12:32	10.5g/2mL	10g/2mL	0.95
A6J0925-27	Soil	EPA 8270D (SIM)	10/13/16 15:45	11/08/16 12:32	10.91g/2mL	10g/2mL	0.92
A6J0925-28	Soil	EPA 8270D (SIM)	10/13/16 15:55	11/08/16 12:32	10.68g/2mL	10g/2mL	0.94
A6J0925-29	Soil	EPA 8270D (SIM)	10/13/16 16:03	11/08/16 12:32	10.27g/2mL	10g/2mL	0.97
A6J0925-30	Soil	EPA 8270D (SIM)	10/13/16 16:10	11/08/16 12:32	10.37g/2mL	10g/2mL	0.96
A6J0925-31	Soil	EPA 8270D (SIM)	10/13/16 16:18	11/08/16 12:32	10.36g/2mL	10g/2mL	0.97
A6J0925-32	Soil	EPA 8270D (SIM)	10/13/16 17:03	11/08/16 12:32	10.58g/2mL	10g/2mL	0.95
A6J0925-33	Soil	EPA 8270D (SIM)	10/13/16 17:12	11/08/16 12:32	10.84g/2mL	10g/2mL	0.92
A6J0925-34	Soil	EPA 8270D (SIM)	10/13/16 17:20	11/08/16 12:32	10.49g/2mL	10g/2mL	0.95
A6J0925-35	Soil	EPA 8270D (SIM)	10/13/16 17:28	11/08/16 12:32	10.4g/2mL	10g/2mL	0.96
A6J0925-36	Soil	EPA 8270D (SIM)	10/13/16 17:35	11/08/16 12:32	10.24g/5mL	10g/2mL	2.44
A6J0925-37	Soil	EPA 8270D (SIM)	10/13/16 17:42	11/08/16 12:32	10.3g/5mL	10g/2mL	2.43
A6J0925-38	Soil	EPA 8270D (SIM)	10/13/16 17:49	11/08/16 12:32	10.55g/2mL	10g/2mL	0.95
A6J0925-39	Soil	EPA 8270D (SIM)	10/13/16 17:55	11/08/16 12:32	10.7g/5mL	10g/2mL	2.34
A6J0925-40	Soil	EPA 8270D (SIM)	10/14/16 11:25	11/08/16 12:32	10.56g/5mL	10g/2mL	2.37
A6J0925-41	Solid	EPA 8270D (SIM)	10/13/16 11:25	11/08/16 12:32	10.79g/2mL	10g/2mL	0.93
Batch: 6110429							
A6J0950-18	Soil	EPA 8270D (SIM)	10/14/16 11:31	11/10/16 07:08	11.03g/5mL	10g/2mL	2.27
A6J0950-19	Soil	EPA 8270D (SIM)	10/14/16 11:35	11/10/16 07:08	11.28g/2mL	10g/2mL	0.89
A6J0950-22	Soil	EPA 8270D (SIM)	10/14/16 11:49	11/10/16 07:08	10.13g/5mL	10g/2mL	2.47
A6J0950-22RE1	Soil	EPA 8270D (SIM)	10/14/16 11:49	11/10/16 07:08	10.13g/5mL	10g/2mL	2.47

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0950-23	Soil	EPA 8270D (SIM)	10/14/16 11:54	11/10/16 07:08	10.77g/2mL	10g/2mL	0.93
A6J0950-24	Soil	EPA 8270D (SIM)	10/14/16 12:01	11/10/16 07:08	10.2g/2mL	10g/2mL	0.98
A6J0950-25	Soil	EPA 8270D (SIM)	10/14/16 12:11	11/10/16 07:08	10.72g/2mL	10g/2mL	0.93
A6J0950-26	Soil	EPA 8270D (SIM)	10/14/16 12:36	11/10/16 07:08	10.25g/2mL	10g/2mL	0.98
A6J0950-27	Soil	EPA 8270D (SIM)	10/14/16 12:42	11/10/16 07:08	10.2g/2mL	10g/2mL	0.98
A6J0950-28	Soil	EPA 8270D (SIM)	10/14/16 12:47	11/10/16 07:08	10.65g/5mL	10g/2mL	2.35
A6J0950-29	Soil	EPA 8270D (SIM)	10/14/16 12:54	11/10/16 07:08	10.41g/5mL	10g/2mL	2.40
A6J0950-30	Soil	EPA 8270D (SIM)	10/14/16 12:59	11/10/16 07:08	11.12g/2mL	10g/2mL	0.90
A6J0950-31	Soil	EPA 8270D (SIM)	10/14/16 13:03	11/10/16 07:08	10.13g/2mL	10g/2mL	0.99
A6J0950-32	Soil	EPA 8270D (SIM)	10/14/16 13:08	11/10/16 07:08	11.44g/5mL	10g/2mL	2.19
A6J0950-33	Soil	EPA 8270D (SIM)	10/14/16 13:12	11/10/16 07:08	11.05g/2mL	10g/2mL	0.91
A6J0950-34	Soil	EPA 8270D (SIM)	10/14/16 13:15	11/10/16 07:08	10.87g/5mL	10g/2mL	2.30
A6J0950-38	Solid	EPA 8270D (SIM)	10/14/16 00:00	11/10/16 07:08	10.89g/2mL	10g/2mL	0.92
Batch: 6110460							
A6J0849-33RE1	Soil	EPA 8270D (SIM)	10/12/16 16:58	11/10/16 13:39	10.32g/2mL	10g/2mL	0.97
A6J0849-34RE1	Soil	EPA 8270D (SIM)	10/12/16 17:05	11/10/16 13:39	10.57g/2mL	10g/2mL	0.95
A6J0849-35RE1	Soil	EPA 8270D (SIM)	10/12/16 17:09	11/10/16 13:39	10.5g/2mL	10g/2mL	0.95
A6J0849-36RE1	Soil	EPA 8270D (SIM)	10/12/16 17:13	11/10/16 13:39	10.78g/2mL	10g/2mL	0.93
Batch: 6110520							
A6J0892-25RE1	Soil	EPA 8270D (SIM)	10/12/16 18:31	11/14/16 07:26	10.86g/2mL	10g/2mL	0.92

Prep: EPA 3546/3640A (GPC)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6120859							
A6J0754-31RE4	Soil	EPA 8270D (SIM)	10/12/16 10:25	12/27/16 07:23	10.55g/10mL	10g/2mL	4.74
A6J0754-40RE3	Soil	EPA 8270D (SIM)	10/12/16 11:30	12/27/16 07:23	10.19g/10mL	10g/2mL	4.91
A6J0950-20RE3	Soil	EPA 8270D (SIM)	10/14/16 11:40	12/27/16 07:23	10.53g/10mL	10g/2mL	4.75
A6J0950-21RE3	Soil	EPA 8270D (SIM)	10/14/16 11:45	12/27/16 07:23	10.31g/10mL	10g/2mL	4.85

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6101067							
A6J0556-21	Soil	EPA 6020A	10/11/16 09:41	10/27/16 12:11	0.491g/50mL	0.5g/50mL	1.02

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AMENDED REPORT

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0556-22	Soil	EPA 6020A	10/11/16 09:50	10/27/16 12:11	0.513g/50mL	0.5g/50mL	0.98
A6J0556-23	Soil	EPA 6020A	10/11/16 10:10	10/27/16 12:11	0.492g/50mL	0.5g/50mL	1.02
A6J0556-24	Soil	EPA 6020A	10/11/16 10:15	10/27/16 12:11	0.514g/50mL	0.5g/50mL	0.97
A6J0556-25	Soil	EPA 6020A	10/11/16 10:22	10/27/16 12:11	0.482g/50mL	0.5g/50mL	1.04
A6J0556-26	Soil	EPA 6020A	10/11/16 10:27	10/27/16 12:11	0.515g/50mL	0.5g/50mL	0.97
A6J0556-27	Soil	EPA 6020A	10/11/16 10:35	10/27/16 12:11	0.486g/50mL	0.5g/50mL	1.03
A6J0556-28	Soil	EPA 6020A	10/11/16 10:38	10/27/16 12:11	0.467g/50mL	0.5g/50mL	1.07
A6J0556-29	Soil	EPA 6020A	10/11/16 10:42	10/27/16 12:11	0.506g/50mL	0.5g/50mL	0.99
A6J0556-30	Soil	EPA 6020A	10/11/16 11:21	10/27/16 12:11	0.477g/50mL	0.5g/50mL	1.05
A6J0556-31	Soil	EPA 6020A	10/11/16 11:21	10/27/16 12:11	0.51g/50mL	0.5g/50mL	0.98
Batch: 6101070							
A6J0556-32	Soil	EPA 6020A	10/11/16 11:30	10/27/16 13:20	0.469g/50mL	0.5g/50mL	1.07
A6J0556-33	Soil	EPA 6020A	10/11/16 11:42	10/27/16 13:20	0.471g/50mL	0.5g/50mL	1.06
A6J0556-34	Soil	EPA 6020A	10/11/16 11:51	10/27/16 13:20	0.513g/50mL	0.5g/50mL	0.98
A6J0556-35	Soil	EPA 6020A	10/11/16 11:56	10/27/16 13:20	0.469g/50mL	0.5g/50mL	1.07
A6J0556-36	Soil	EPA 6020A	10/11/16 12:04	10/27/16 13:20	0.518g/50mL	0.5g/50mL	0.97
A6J0556-37RE1	Soil	EPA 6020A	10/11/16 12:51	10/27/16 13:20	0.475g/50mL	0.5g/50mL	1.05
A6J0556-38	Soil	EPA 6020A	10/11/16 12:56	10/27/16 13:20	0.471g/50mL	0.5g/50mL	1.06
A6J0556-39	Soil	EPA 6020A	10/11/16 13:00	10/27/16 13:20	0.493g/50mL	0.5g/50mL	1.01
A6J0556-40	Soil	EPA 6020A	10/11/16 13:06	10/27/16 13:20	0.479g/50mL	0.5g/50mL	1.04
A6J0562-21	Soil	EPA 6020A	10/11/16 13:09	10/27/16 13:20	0.487g/50mL	0.5g/50mL	1.03
A6J0562-22	Soil	EPA 6020A	10/11/16 13:14	10/27/16 13:20	0.459g/50mL	0.5g/50mL	1.09
A6J0562-23	Soil	EPA 6020A	10/11/16 13:43	10/27/16 13:20	0.5g/50mL	0.5g/50mL	1.00
A6J0562-24	Soil	EPA 6020A	10/11/16 13:49	10/27/16 13:20	0.514g/50mL	0.5g/50mL	0.97
A6J0562-25	Soil	EPA 6020A	10/11/16 14:00	10/27/16 13:20	0.491g/50mL	0.5g/50mL	1.02
A6J0562-26	Soil	EPA 6020A	10/11/16 14:04	10/27/16 13:20	0.492g/50mL	0.5g/50mL	1.02
A6J0562-27	Soil	EPA 6020A	10/11/16 14:07	10/27/16 13:20	0.47g/50mL	0.5g/50mL	1.06
A6J0562-28	Soil	EPA 6020A	10/11/16 14:11	10/27/16 13:20	0.489g/50mL	0.5g/50mL	1.02
A6J0562-29	Soil	EPA 6020A	10/11/16 14:15	10/27/16 13:20	0.503g/50mL	0.5g/50mL	0.99
A6J0562-30	Soil	EPA 6020A	10/11/16 14:19	10/27/16 13:20	0.467g/50mL	0.5g/50mL	1.07
Batch: 6101077							
A6J0562-31	Soil	EPA 6020A	10/11/16 14:25	10/27/16 16:00	0.461g/50mL	0.5g/50mL	1.08
A6J0562-32	Soil	EPA 6020A	10/11/16 15:08	10/27/16 16:00	0.473g/50mL	0.5g/50mL	1.06
A6J0562-33	Soil	EPA 6020A	10/11/16 15:15	10/27/16 16:00	0.469g/50mL	0.5g/50mL	1.07

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0562-34	Soil	EPA 6020A	10/11/16 15:20	10/27/16 16:00	0.473g/50mL	0.5g/50mL	1.06
A6J0562-35	Soil	EPA 6020A	10/11/16 15:24	10/27/16 16:00	0.517g/50mL	0.5g/50mL	0.97
A6J0562-36	Soil	EPA 6020A	10/11/16 15:29	10/27/16 16:00	0.496g/50mL	0.5g/50mL	1.01
A6J0562-37	Soil	EPA 6020A	10/11/16 15:35	10/27/16 16:00	0.471g/50mL	0.5g/50mL	1.06
A6J0562-38	Soil	EPA 6020A	10/11/16 15:51	10/27/16 16:00	0.515g/50mL	0.5g/50mL	0.97
A6J0562-39	Soil	EPA 6020A	10/11/16 15:59	10/27/16 16:00	0.459g/50mL	0.5g/50mL	1.09
A6J0562-40	Soil	EPA 6020A	10/11/16 16:04	10/27/16 16:00	0.479g/50mL	0.5g/50mL	1.04
A6J0754-21	Soil	EPA 6020A	10/11/16 18:10	10/27/16 16:00	0.51g/50mL	0.5g/50mL	0.98
A6J0754-22	Soil	EPA 6020A	10/11/16 18:14	10/27/16 16:00	0.473g/50mL	0.5g/50mL	1.06
A6J0754-23	Soil	EPA 6020A	10/12/16 09:06	10/27/16 16:00	0.501g/50mL	0.5g/50mL	1.00
A6J0754-24	Soil	EPA 6020A	10/12/16 09:12	10/27/16 16:00	0.496g/50mL	0.5g/50mL	1.01
A6J0754-25	Soil	EPA 6020A	10/12/16 09:17	10/27/16 16:00	0.479g/50mL	0.5g/50mL	1.04
A6J0754-26	Soil	EPA 6020A	10/12/16 09:22	10/27/16 16:00	0.508g/50mL	0.5g/50mL	0.98
A6J0754-27	Soil	EPA 6020A	10/12/16 09:22	10/27/16 16:00	0.514g/50mL	0.5g/50mL	0.97
A6J0754-28	Soil	EPA 6020A	10/12/16 09:27	10/27/16 16:00	0.492g/50mL	0.5g/50mL	1.02
A6J0754-29	Soil	EPA 6020A	10/12/16 09:31	10/27/16 16:00	0.468g/50mL	0.5g/50mL	1.07
A6J0754-30	Soil	EPA 6020A	10/12/16 10:16	10/27/16 16:00	0.462g/50mL	0.5g/50mL	1.08
Batch: 6101101							
A6J0598-21	Soil	EPA 6020A	10/11/16 16:06	10/28/16 09:29	0.508g/50mL	0.5g/50mL	0.98
A6J0598-22	Soil	EPA 6020A	10/11/16 16:09	10/28/16 09:29	0.467g/50mL	0.5g/50mL	1.07
A6J0598-23	Soil	EPA 6020A	10/11/16 16:12	10/28/16 09:29	0.487g/50mL	0.5g/50mL	1.03
A6J0598-24	Soil	EPA 6020A	10/11/16 16:18	10/28/16 09:29	0.472g/50mL	0.5g/50mL	1.06
A6J0598-25	Soil	EPA 6020A	10/11/16 16:23	10/28/16 09:29	0.493g/50mL	0.5g/50mL	1.01
A6J0598-26	Soil	EPA 6020A	10/11/16 16:30	10/28/16 09:29	0.475g/50mL	0.5g/50mL	1.05
A6J0598-27	Soil	EPA 6020A	10/11/16 16:30	10/28/16 09:29	0.474g/50mL	0.5g/50mL	1.05
A6J0598-28	Soil	EPA 6020A	10/11/16 16:57	10/28/16 09:29	0.472g/50mL	0.5g/50mL	1.06
A6J0598-29	Soil	EPA 6020A	10/11/16 17:01	10/28/16 09:29	0.491g/50mL	0.5g/50mL	1.02
A6J0598-30	Soil	EPA 6020A	10/11/16 17:05	10/28/16 09:29	0.461g/50mL	0.5g/50mL	1.08
A6J0754-31	Soil	EPA 6020A	10/12/16 10:25	10/28/16 09:29	0.48g/50mL	0.5g/50mL	1.04
A6J0754-32	Soil	EPA 6020A	10/12/16 10:30	10/28/16 09:29	0.466g/50mL	0.5g/50mL	1.07
A6J0754-33	Soil	EPA 6020A	10/12/16 10:37	10/28/16 09:29	0.474g/50mL	0.5g/50mL	1.05
A6J0754-34	Soil	EPA 6020A	10/12/16 10:39	10/28/16 09:29	0.487g/50mL	0.5g/50mL	1.03
A6J0754-35	Soil	EPA 6020A	10/12/16 10:43	10/28/16 09:29	0.467g/50mL	0.5g/50mL	1.07
A6J0754-36	Soil	EPA 6020A	10/12/16 10:46	10/28/16 09:29	0.488g/50mL	0.5g/50mL	1.02

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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Tigard, OR 97223
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0754-37	Soil	EPA 6020A	10/12/16 10:46	10/28/16 09:29	0.466g/50mL	0.5g/50mL	1.07
A6J0754-38	Soil	EPA 6020A	10/12/16 10:48	10/28/16 09:29	0.497g/50mL	0.5g/50mL	1.01
A6J0754-39	Soil	EPA 6020A	10/12/16 10:55	10/28/16 09:29	0.494g/50mL	0.5g/50mL	1.01
Batch: 6101110							
A6J0598-31	Soil	EPA 6020A	10/11/16 17:10	10/28/16 10:47	0.482g/50mL	0.5g/50mL	1.04
A6J0598-32	Soil	EPA 6020A	10/11/16 17:16	10/28/16 10:47	0.486g/50mL	0.5g/50mL	1.03
A6J0598-33	Soil	EPA 6020A	10/11/16 17:17	10/28/16 10:47	0.477g/50mL	0.5g/50mL	1.05
A6J0598-34	Soil	EPA 6020A	10/11/16 17:21	10/28/16 10:47	0.496g/50mL	0.5g/50mL	1.01
A6J0598-35	Soil	EPA 6020A	10/11/16 17:24	10/28/16 10:47	0.499g/50mL	0.5g/50mL	1.00
A6J0598-36	Soil	EPA 6020A	10/11/16 17:30	10/28/16 10:47	0.468g/50mL	0.5g/50mL	1.07
A6J0598-37	Soil	EPA 6020A	10/11/16 17:47	10/28/16 10:47	0.503g/50mL	0.5g/50mL	0.99
A6J0598-38	Soil	EPA 6020A	10/11/16 17:55	10/28/16 10:47	0.466g/50mL	0.5g/50mL	1.07
A6J0598-39RE1	Soil	EPA 6020A	10/11/16 17:59	10/28/16 10:47	0.491g/50mL	0.5g/50mL	1.02
A6J0598-40	Soil	EPA 6020A	10/11/16 18:05	10/28/16 10:47	0.508g/50mL	0.5g/50mL	0.98
A6J0754-40	Soil	EPA 6020A	10/12/16 11:30	10/28/16 10:47	0.454g/50mL	0.5g/50mL	1.10
Batch: 6110224							
A6J0556-41	Solid	EPA 6020A	10/11/16 00:00	11/03/16 11:03	0.465g/50mL	0.5g/50mL	1.08
A6J0562-41	Solid	EPA 6020A	10/11/16 00:00	11/03/16 11:03	0.465g/50mL	0.5g/50mL	1.08
A6J0598-41	Solid	EPA 6020A	10/11/16 00:00	11/03/16 11:03	0.51g/50mL	0.5g/50mL	0.98
A6J0754-41	Solid	EPA 6020A	10/12/16 00:00	11/03/16 11:03	0.461g/50mL	0.5g/50mL	1.08
A6J0823-41	Solid	EPA 6020A	10/12/16 00:00	11/03/16 11:03	0.467g/50mL	0.5g/50mL	1.07
A6J0892-41	Solid	EPA 6020A	10/12/16 00:00	11/03/16 11:03	0.467g/50mL	0.5g/50mL	1.07
Batch: 6110270							
A6J0823-21	Soil	EPA 6020A	10/12/16 11:35	11/04/16 10:20	0.502g/50mL	0.5g/50mL	1.00
A6J0823-22	Soil	EPA 6020A	10/12/16 11:39	11/04/16 10:20	0.501g/50mL	0.5g/50mL	1.00
A6J0823-23	Soil	EPA 6020A	10/12/16 11:44	11/04/16 10:20	0.486g/50mL	0.5g/50mL	1.03
A6J0823-24	Soil	EPA 6020A	10/12/16 11:52	11/04/16 10:20	0.514g/50mL	0.5g/50mL	0.97
A6J0823-25	Soil	EPA 6020A	10/12/16 11:59	11/04/16 10:20	0.475g/50mL	0.5g/50mL	1.05
A6J0823-26	Soil	EPA 6020A	10/12/16 12:06	11/04/16 10:20	0.49g/50mL	0.5g/50mL	1.02
A6J0823-27	Soil	EPA 6020A	10/12/16 12:10	11/04/16 10:20	0.458g/50mL	0.5g/50mL	1.09
A6J0823-28	Soil	EPA 6020A	10/12/16 12:21	11/04/16 10:20	0.465g/50mL	0.5g/50mL	1.08
A6J0823-29	Soil	EPA 6020A	10/12/16 12:44	11/04/16 10:20	0.459g/50mL	0.5g/50mL	1.09
A6J0823-30	Soil	EPA 6020A	10/12/16 12:50	11/04/16 10:20	0.474g/50mL	0.5g/50mL	1.05
A6J0823-31	Soil	EPA 6020A	10/12/16 13:01	11/04/16 10:20	0.456g/50mL	0.5g/50mL	1.10

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0823-32	Soil	EPA 6020A	10/12/16 13:15	11/04/16 10:20	0.476g/50mL	0.5g/50mL	1.05
A6J0823-33	Soil	EPA 6020A	10/12/16 13:22	11/04/16 10:20	0.498g/50mL	0.5g/50mL	1.00
A6J0823-34	Soil	EPA 6020A	10/12/16 13:28	11/04/16 10:20	0.48g/50mL	0.5g/50mL	1.04
A6J0823-35	Soil	EPA 6020A	10/12/16 13:36	11/04/16 10:20	0.467g/50mL	0.5g/50mL	1.07
A6J0823-36	Soil	EPA 6020A	10/12/16 13:59	11/04/16 10:20	0.468g/50mL	0.5g/50mL	1.07
A6J0823-37	Soil	EPA 6020A	10/12/16 14:10	11/04/16 10:20	0.52g/50mL	0.5g/50mL	0.96
A6J0823-38	Soil	EPA 6020A	10/12/16 14:20	11/04/16 10:20	0.516g/50mL	0.5g/50mL	0.97
A6J0823-39	Soil	EPA 6020A	10/12/16 14:25	11/04/16 10:20	0.494g/50mL	0.5g/50mL	1.01
Batch: 6110275							
A6J0823-40	Soil	EPA 6020A	10/12/16 14:29	11/04/16 11:30	0.516g/50mL	0.5g/50mL	0.97
A6J0892-21	Soil	EPA 6020A	10/12/16 18:07	11/04/16 11:30	0.48g/50mL	0.5g/50mL	1.04
A6J0892-22	Soil	EPA 6020A	10/12/16 18:15	11/04/16 11:30	0.46g/50mL	0.5g/50mL	1.09
A6J0892-23	Soil	EPA 6020A	10/12/16 18:21	11/04/16 11:30	0.451g/50mL	0.5g/50mL	1.11
A6J0892-24	Soil	EPA 6020A	10/12/16 18:24	11/04/16 11:30	0.501g/50mL	0.5g/50mL	1.00
A6J0892-25	Soil	EPA 6020A	10/12/16 18:31	11/04/16 11:30	0.47g/50mL	0.5g/50mL	1.06
A6J0892-26	Soil	EPA 6020A	10/13/16 09:07	11/04/16 11:30	0.455g/50mL	0.5g/50mL	1.10
A6J0892-27	Soil	EPA 6020A	10/13/16 09:15	11/04/16 11:30	0.455g/50mL	0.5g/50mL	1.10
A6J0892-28	Soil	EPA 6020A	10/13/16 09:19	11/04/16 11:30	0.464g/50mL	0.5g/50mL	1.08
A6J0892-29	Soil	EPA 6020A	10/13/16 09:22	11/04/16 11:30	0.497g/50mL	0.5g/50mL	1.01
A6J0892-30	Soil	EPA 6020A	10/13/16 09:27	11/04/16 11:30	0.464g/50mL	0.5g/50mL	1.08
A6J0892-31	Soil	EPA 6020A	10/13/16 09:32	11/04/16 11:30	0.513g/50mL	0.5g/50mL	0.98
A6J0892-32	Soil	EPA 6020A	10/13/16 09:46	11/04/16 11:30	0.457g/50mL	0.5g/50mL	1.09
A6J0892-33	Soil	EPA 6020A	10/13/16 09:35	11/04/16 11:30	0.497g/50mL	0.5g/50mL	1.01
A6J0892-34	Soil	EPA 6020A	10/13/16 09:40	11/04/16 11:30	0.474g/50mL	0.5g/50mL	1.05
A6J0892-35	Soil	EPA 6020A	10/13/16 09:46	11/04/16 11:30	0.473g/50mL	0.5g/50mL	1.06
A6J0892-36	Soil	EPA 6020A	10/13/16 10:30	11/04/16 11:30	0.511g/50mL	0.5g/50mL	0.98
A6J0892-37	Soil	EPA 6020A	10/13/16 10:37	11/04/16 11:30	0.488g/50mL	0.5g/50mL	1.02
A6J0892-38	Soil	EPA 6020A	10/13/16 10:45	11/04/16 11:30	0.488g/50mL	0.5g/50mL	1.02
Batch: 6110374							
A6J0849-21	Soil	EPA 6020A	10/12/16 14:30	11/08/16 12:15	0.458g/50mL	0.5g/50mL	1.09
A6J0849-22	Soil	EPA 6020A	10/12/16 15:22	11/08/16 12:15	0.458g/50mL	0.5g/50mL	1.09
A6J0849-23	Soil	EPA 6020A	10/12/16 15:26	11/08/16 12:15	0.464g/50mL	0.5g/50mL	1.08
A6J0849-24	Soil	EPA 6020A	10/12/16 15:33	11/08/16 12:15	0.508g/50mL	0.5g/50mL	0.98
A6J0849-25	Soil	EPA 6020A	10/12/16 15:38	11/08/16 12:15	0.495g/50mL	0.5g/50mL	1.01

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0849-26	Soil	EPA 6020A	10/12/16 15:41	11/08/16 12:15	0.479g/50mL	0.5g/50mL	1.04
A6J0849-27	Soil	EPA 6020A	10/12/16 15:46	11/08/16 12:15	0.459g/50mL	0.5g/50mL	1.09
A6J0849-28	Soil	EPA 6020A	10/12/16 15:52	11/08/16 12:15	0.48g/50mL	0.5g/50mL	1.04
A6J0849-29	Soil	EPA 6020A	10/12/16 16:02	11/08/16 12:15	0.468g/50mL	0.5g/50mL	1.07
A6J0849-30	Soil	EPA 6020A	10/12/16 16:06	11/08/16 12:15	0.453g/50mL	0.5g/50mL	1.10
A6J0849-31	Soil	EPA 6020A	10/12/16 16:47	11/08/16 12:15	0.483g/50mL	0.5g/50mL	1.04
A6J0849-32	Soil	EPA 6020A	10/12/16 16:52	11/08/16 12:15	0.456g/50mL	0.5g/50mL	1.10
A6J0849-33	Soil	EPA 6020A	10/12/16 16:58	11/08/16 12:15	0.475g/50mL	0.5g/50mL	1.05
A6J0849-34	Soil	EPA 6020A	10/12/16 17:05	11/08/16 12:15	0.47g/50mL	0.5g/50mL	1.06
A6J0849-35	Soil	EPA 6020A	10/12/16 17:09	11/08/16 12:15	0.475g/50mL	0.5g/50mL	1.05
A6J0849-36	Soil	EPA 6020A	10/12/16 17:13	11/08/16 12:15	0.509g/50mL	0.5g/50mL	0.98
A6J0849-37	Soil	EPA 6020A	10/12/16 17:40	11/08/16 12:15	0.466g/50mL	0.5g/50mL	1.07
A6J0849-38	Soil	EPA 6020A	10/12/16 17:45	11/08/16 12:15	0.466g/50mL	0.5g/50mL	1.07
A6J0849-39	Soil	EPA 6020A	10/12/16 17:51	11/08/16 12:15	0.466g/50mL	0.5g/50mL	1.07
Batch: 6110376							
A6J0849-40	Soil	EPA 6020A	10/12/16 18:01	11/08/16 13:14	0.519g/50mL	0.5g/50mL	0.96
A6J0892-39	Soil	EPA 6020A	10/13/16 10:55	11/08/16 13:14	0.467g/50mL	0.5g/50mL	1.07
A6J0892-40	Soil	EPA 6020A	10/13/16 11:01	11/08/16 13:14	0.474g/50mL	0.5g/50mL	1.05
A6J0893-21	Soil	EPA 6020A	10/13/16 11:07	11/08/16 13:14	0.482g/50mL	0.5g/50mL	1.04
A6J0893-22	Soil	EPA 6020A	10/13/16 11:37	11/08/16 13:14	0.468g/50mL	0.5g/50mL	1.07
A6J0893-23	Soil	EPA 6020A	10/13/16 11:43	11/08/16 13:14	0.493g/50mL	0.5g/50mL	1.01
A6J0893-24	Soil	EPA 6020A	10/13/16 11:52	11/08/16 13:14	0.457g/50mL	0.5g/50mL	1.09
A6J0893-25	Soil	EPA 6020A	10/13/16 11:56	11/08/16 13:14	0.455g/50mL	0.5g/50mL	1.10
A6J0893-26	Soil	EPA 6020A	10/13/16 11:59	11/08/16 13:14	0.482g/50mL	0.5g/50mL	1.04
A6J0893-27	Soil	EPA 6020A	10/13/16 12:03	11/08/16 13:14	0.462g/50mL	0.5g/50mL	1.08
A6J0893-28	Soil	EPA 6020A	10/13/16 12:36	11/08/16 13:14	0.478g/50mL	0.5g/50mL	1.05
A6J0893-29	Soil	EPA 6020A	10/13/16 12:42	11/08/16 13:14	0.461g/50mL	0.5g/50mL	1.08
A6J0893-30	Soil	EPA 6020A	10/13/16 12:45	11/08/16 13:14	0.487g/50mL	0.5g/50mL	1.03
A6J0893-31	Soil	EPA 6020A	10/13/16 12:50	11/08/16 13:14	0.51g/50mL	0.5g/50mL	0.98
A6J0893-32	Soil	EPA 6020A	10/13/16 12:55	11/08/16 13:14	0.455g/50mL	0.5g/50mL	1.10
A6J0893-33	Soil	EPA 6020A	10/13/16 13:04	11/08/16 13:14	0.502g/50mL	0.5g/50mL	1.00
A6J0893-34	Soil	EPA 6020A	10/13/16 13:49	11/08/16 13:14	0.466g/50mL	0.5g/50mL	1.07
A6J0893-35	Soil	EPA 6020A	10/13/16 13:55	11/08/16 13:14	0.463g/50mL	0.5g/50mL	1.08
A6J0893-36	Soil	EPA 6020A	10/13/16 14:02	11/08/16 13:14	0.456g/50mL	0.5g/50mL	1.10

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6110511							
A6J0893-41	Solid	EPA 6020A	10/13/16 00:00	11/11/16 16:03	0.454g/50mL	0.5g/50mL	1.10
Batch: 6110523							
A6J0849-41	Solid	EPA 6020A	10/12/16 00:00	11/14/16 08:54	0.488g/50mL	0.5g/50mL	1.02
Batch: 6110640							
A6J0925-41	Solid	EPA 6020A	10/13/16 11:25	11/16/16 14:26	0.51g/50mL	0.5g/50mL	0.98
A6J0950-38	Solid	EPA 6020A	10/14/16 00:00	11/16/16 14:26	0.459g/50mL	0.5g/50mL	1.09
Batch: 6110692							
A6J0893-37	Soil	EPA 6020A	10/13/16 14:04	11/17/16 14:56	0.467g/50mL	0.5g/50mL	1.07
A6J0893-38	Soil	EPA 6020A	10/13/16 14:09	11/17/16 14:56	0.472g/50mL	0.5g/50mL	1.06
A6J0893-39	Soil	EPA 6020A	10/13/16 14:14	11/17/16 14:56	0.47g/50mL	0.5g/50mL	1.06
A6J0893-40	Soil	EPA 6020A	10/13/16 14:18	11/17/16 14:56	0.465g/50mL	0.5g/50mL	1.08
A6J0925-21	Soil	EPA 6020A	10/13/16 14:20	11/17/16 14:56	0.473g/50mL	0.5g/50mL	1.06
A6J0925-22	Soil	EPA 6020A	10/13/16 14:27	11/17/16 14:56	0.466g/50mL	0.5g/50mL	1.07
A6J0925-23	Soil	EPA 6020A	10/13/16 15:20	11/17/16 14:56	0.459g/50mL	0.5g/50mL	1.09
A6J0925-24	Soil	EPA 6020A	10/13/16 15:29	11/17/16 14:56	0.489g/50mL	0.5g/50mL	1.02
A6J0925-25	Soil	EPA 6020A	10/13/16 15:36	11/17/16 14:56	0.509g/50mL	0.5g/50mL	0.98
A6J0925-26	Soil	EPA 6020A	10/13/16 15:43	11/17/16 14:56	0.511g/50mL	0.5g/50mL	0.98
A6J0925-27	Soil	EPA 6020A	10/13/16 15:45	11/17/16 14:56	0.472g/50mL	0.5g/50mL	1.06
A6J0925-28	Soil	EPA 6020A	10/13/16 15:55	11/17/16 14:56	0.513g/50mL	0.5g/50mL	0.98
A6J0925-29	Soil	EPA 6020A	10/13/16 16:03	11/17/16 14:56	0.478g/50mL	0.5g/50mL	1.05
A6J0925-30	Soil	EPA 6020A	10/13/16 16:10	11/17/16 14:56	0.466g/50mL	0.5g/50mL	1.07
A6J0925-31	Soil	EPA 6020A	10/13/16 16:18	11/17/16 14:56	0.474g/50mL	0.5g/50mL	1.05
A6J0925-32	Soil	EPA 6020A	10/13/16 17:03	11/17/16 14:56	0.465g/50mL	0.5g/50mL	1.08
A6J0925-33	Soil	EPA 6020A	10/13/16 17:12	11/17/16 14:56	0.472g/50mL	0.5g/50mL	1.06
A6J0925-34	Soil	EPA 6020A	10/13/16 17:20	11/17/16 14:56	0.469g/50mL	0.5g/50mL	1.07
A6J0925-35	Soil	EPA 6020A	10/13/16 17:28	11/17/16 14:56	0.455g/50mL	0.5g/50mL	1.10
Batch: 6110696							
A6J0925-36	Soil	EPA 6020A	10/13/16 17:35	11/17/16 16:41	0.472g/50mL	0.5g/50mL	1.06
A6J0925-37	Soil	EPA 6020A	10/13/16 17:42	11/17/16 16:41	0.478g/50mL	0.5g/50mL	1.05
A6J0925-38	Soil	EPA 6020A	10/13/16 17:49	11/17/16 16:41	0.479g/50mL	0.5g/50mL	1.04
A6J0925-39	Soil	EPA 6020A	10/13/16 17:55	11/17/16 16:41	0.481g/50mL	0.5g/50mL	1.04
A6J0925-40	Soil	EPA 6020A	10/14/16 11:25	11/17/16 16:41	0.457g/50mL	0.5g/50mL	1.09
A6J0950-18	Soil	EPA 6020A	10/14/16 11:31	11/17/16 16:41	0.454g/50mL	0.5g/50mL	1.10

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0950-19	Soil	EPA 6020A	10/14/16 11:35	11/17/16 16:41	0.46g/50mL	0.5g/50mL	1.09
A6J0950-20	Soil	EPA 6020A	10/14/16 11:40	11/17/16 16:41	0.452g/50mL	0.5g/50mL	1.11
A6J0950-21	Soil	EPA 6020A	10/14/16 11:45	11/17/16 16:41	0.462g/50mL	0.5g/50mL	1.08
A6J0950-22	Soil	EPA 6020A	10/14/16 11:49	11/17/16 16:41	0.451g/50mL	0.5g/50mL	1.11
A6J0950-23	Soil	EPA 6020A	10/14/16 11:54	11/17/16 16:41	0.454g/50mL	0.5g/50mL	1.10
A6J0950-24	Soil	EPA 6020A	10/14/16 12:01	11/17/16 16:41	0.486g/50mL	0.5g/50mL	1.03
A6J0950-25	Soil	EPA 6020A	10/14/16 12:11	11/17/16 16:41	0.453g/50mL	0.5g/50mL	1.10
A6J0950-26	Soil	EPA 6020A	10/14/16 12:36	11/17/16 16:41	0.469g/50mL	0.5g/50mL	1.07
A6J0950-27	Soil	EPA 6020A	10/14/16 12:42	11/17/16 16:41	0.464g/50mL	0.5g/50mL	1.08
A6J0950-28	Soil	EPA 6020A	10/14/16 12:47	11/17/16 16:41	0.486g/50mL	0.5g/50mL	1.03
A6J0950-29	Soil	EPA 6020A	10/14/16 12:54	11/17/16 16:41	0.483g/50mL	0.5g/50mL	1.04
A6J0950-30	Soil	EPA 6020A	10/14/16 12:59	11/17/16 16:41	0.514g/50mL	0.5g/50mL	0.97
A6J0950-31	Soil	EPA 6020A	10/14/16 13:03	11/17/16 16:41	0.48g/50mL	0.5g/50mL	1.04
Batch: 6110732							
A6J0950-32	Soil	EPA 6020A	10/14/16 13:08	11/18/16 13:33	0.464g/50mL	0.5g/50mL	1.08
A6J0950-33	Soil	EPA 6020A	10/14/16 13:12	11/18/16 13:33	0.458g/50mL	0.5g/50mL	1.09
A6J0950-34	Soil	EPA 6020A	10/14/16 13:15	11/18/16 13:33	0.479g/50mL	0.5g/50mL	1.04
Batch: 6110781							
A6J0950-38RE2	Solid	EPA 6020A	10/14/16 00:00	11/21/16 15:44	0.462g/50mL	0.5g/50mL	1.08

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6100860							
A6J0562-21	Soil	EPA 8000C	10/11/16 13:09	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA
A6J0562-22	Soil	EPA 8000C	10/11/16 13:14	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA
A6J0562-23	Soil	EPA 8000C	10/11/16 13:43	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA
A6J0562-24	Soil	EPA 8000C	10/11/16 13:49	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA
A6J0562-25	Soil	EPA 8000C	10/11/16 14:00	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA
A6J0562-26	Soil	EPA 8000C	10/11/16 14:04	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA
A6J0562-27	Soil	EPA 8000C	10/11/16 14:07	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA
A6J0562-28	Soil	EPA 8000C	10/11/16 14:11	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA
A6J0562-29	Soil	EPA 8000C	10/11/16 14:15	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA
A6J0562-30	Soil	EPA 8000C	10/11/16 14:19	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0562-31	Soil	EPA 8000C	10/11/16 14:25	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA
A6J0562-32	Soil	EPA 8000C	10/11/16 15:08	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA
A6J0562-33	Soil	EPA 8000C	10/11/16 15:15	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA
A6J0562-34	Soil	EPA 8000C	10/11/16 15:20	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA
A6J0562-35	Soil	EPA 8000C	10/11/16 15:24	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA
A6J0562-36	Soil	EPA 8000C	10/11/16 15:29	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA
A6J0562-37	Soil	EPA 8000C	10/11/16 15:35	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA
A6J0562-38	Soil	EPA 8000C	10/11/16 15:51	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA
A6J0562-39	Soil	EPA 8000C	10/11/16 15:59	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA
A6J0562-40	Soil	EPA 8000C	10/11/16 16:04	10/21/16 11:06	1N/A/1N/A	1N/A/1N/A	NA
Batch: 6100912							
A6J0556-21	Soil	EPA 8000C	10/11/16 09:41	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
A6J0556-22	Soil	EPA 8000C	10/11/16 09:50	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
A6J0556-23	Soil	EPA 8000C	10/11/16 10:10	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
A6J0556-24	Soil	EPA 8000C	10/11/16 10:15	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
A6J0556-25	Soil	EPA 8000C	10/11/16 10:22	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
A6J0556-26	Soil	EPA 8000C	10/11/16 10:27	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
A6J0556-27	Soil	EPA 8000C	10/11/16 10:35	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
A6J0556-28	Soil	EPA 8000C	10/11/16 10:38	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
A6J0556-29	Soil	EPA 8000C	10/11/16 10:42	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
A6J0556-30	Soil	EPA 8000C	10/11/16 11:21	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
A6J0556-31	Soil	EPA 8000C	10/11/16 11:21	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
A6J0556-32	Soil	EPA 8000C	10/11/16 11:30	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
A6J0556-33	Soil	EPA 8000C	10/11/16 11:42	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
A6J0556-34	Soil	EPA 8000C	10/11/16 11:51	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
A6J0556-35	Soil	EPA 8000C	10/11/16 11:56	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
A6J0556-36	Soil	EPA 8000C	10/11/16 12:04	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
A6J0556-37	Soil	EPA 8000C	10/11/16 12:51	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
A6J0556-38	Soil	EPA 8000C	10/11/16 12:56	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
A6J0556-39	Soil	EPA 8000C	10/11/16 13:00	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
A6J0556-40	Soil	EPA 8000C	10/11/16 13:06	10/24/16 13:11	1N/A/1N/A	1N/A/1N/A	NA
Batch: 6101108							
A6J0598-21	Soil	EPA 8000C	10/11/16 16:06	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0598-22	Soil	EPA 8000C	10/11/16 16:09	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0598-23	Soil	EPA 8000C	10/11/16 16:12	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0598-24	Soil	EPA 8000C	10/11/16 16:18	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0598-25	Soil	EPA 8000C	10/11/16 16:23	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0598-26	Soil	EPA 8000C	10/11/16 16:30	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0598-27	Soil	EPA 8000C	10/11/16 16:30	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0598-28	Soil	EPA 8000C	10/11/16 16:57	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0598-29	Soil	EPA 8000C	10/11/16 17:01	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0598-30	Soil	EPA 8000C	10/11/16 17:05	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0598-31	Soil	EPA 8000C	10/11/16 17:10	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0598-32	Soil	EPA 8000C	10/11/16 17:16	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0598-33	Soil	EPA 8000C	10/11/16 17:17	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0598-34	Soil	EPA 8000C	10/11/16 17:21	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0598-35	Soil	EPA 8000C	10/11/16 17:24	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0598-36	Soil	EPA 8000C	10/11/16 17:30	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0598-37	Soil	EPA 8000C	10/11/16 17:47	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0598-38	Soil	EPA 8000C	10/11/16 17:55	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0598-39	Soil	EPA 8000C	10/11/16 17:59	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0598-40	Soil	EPA 8000C	10/11/16 18:05	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0754-21	Soil	EPA 8000C	10/11/16 18:10	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0754-22	Soil	EPA 8000C	10/11/16 18:14	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0754-23	Soil	EPA 8000C	10/12/16 09:06	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0754-24	Soil	EPA 8000C	10/12/16 09:12	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0754-25	Soil	EPA 8000C	10/12/16 09:17	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0754-26	Soil	EPA 8000C	10/12/16 09:22	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0754-27	Soil	EPA 8000C	10/12/16 09:22	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0754-28	Soil	EPA 8000C	10/12/16 09:27	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0754-29	Soil	EPA 8000C	10/12/16 09:31	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0754-30	Soil	EPA 8000C	10/12/16 10:16	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0754-31	Soil	EPA 8000C	10/12/16 10:25	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0754-32	Soil	EPA 8000C	10/12/16 10:30	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
A6J0754-33	Soil	EPA 8000C	10/12/16 10:37	10/28/16 13:31	1N/A/1N/A	1N/A/1N/A	NA
Batch: 6101132							
A6J0823-21	Soil	EPA 8000C	10/12/16 11:35	10/29/16 11:28	1N/A/1N/A	1N/A/1N/A	NA
A6J0823-22	Soil	EPA 8000C	10/12/16 11:39	10/29/16 11:28	1N/A/1N/A	1N/A/1N/A	NA

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0823-23	Soil	EPA 8000C	10/12/16 11:44	10/29/16 11:28	1N/A/1N/A	1N/A/1N/A	NA
A6J0823-24	Soil	EPA 8000C	10/12/16 11:52	10/29/16 11:28	1N/A/1N/A	1N/A/1N/A	NA
A6J0823-25	Soil	EPA 8000C	10/12/16 11:59	10/29/16 11:28	1N/A/1N/A	1N/A/1N/A	NA
A6J0823-26	Soil	EPA 8000C	10/12/16 12:06	10/29/16 11:28	1N/A/1N/A	1N/A/1N/A	NA
A6J0823-28	Soil	EPA 8000C	10/12/16 12:21	10/29/16 11:28	1N/A/1N/A	1N/A/1N/A	NA
A6J0823-29	Soil	EPA 8000C	10/12/16 12:44	10/29/16 11:28	1N/A/1N/A	1N/A/1N/A	NA
A6J0823-30	Soil	EPA 8000C	10/12/16 12:50	10/29/16 11:28	1N/A/1N/A	1N/A/1N/A	NA
A6J0823-31	Soil	EPA 8000C	10/12/16 13:01	10/29/16 11:28	1N/A/1N/A	1N/A/1N/A	NA
A6J0823-32	Soil	EPA 8000C	10/12/16 13:15	10/29/16 11:28	1N/A/1N/A	1N/A/1N/A	NA
A6J0823-33	Soil	EPA 8000C	10/12/16 13:22	10/29/16 11:28	1N/A/1N/A	1N/A/1N/A	NA
A6J0823-34	Soil	EPA 8000C	10/12/16 13:28	10/29/16 11:28	1N/A/1N/A	1N/A/1N/A	NA
A6J0823-35	Soil	EPA 8000C	10/12/16 13:36	10/29/16 11:28	1N/A/1N/A	1N/A/1N/A	NA
A6J0823-36	Soil	EPA 8000C	10/12/16 13:59	10/29/16 11:28	1N/A/1N/A	1N/A/1N/A	NA
A6J0823-37	Soil	EPA 8000C	10/12/16 14:10	10/29/16 11:28	1N/A/1N/A	1N/A/1N/A	NA
A6J0823-38	Soil	EPA 8000C	10/12/16 14:20	10/29/16 11:28	1N/A/1N/A	1N/A/1N/A	NA
A6J0823-39	Soil	EPA 8000C	10/12/16 14:25	10/29/16 11:28	1N/A/1N/A	1N/A/1N/A	NA
A6J0823-40	Soil	EPA 8000C	10/12/16 14:29	10/29/16 11:28	1N/A/1N/A	1N/A/1N/A	NA
Batch: 6110117							
A6J0849-21	Soil	EPA 8000C	10/12/16 14:30	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA
A6J0849-22	Soil	EPA 8000C	10/12/16 15:22	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA
A6J0849-23	Soil	EPA 8000C	10/12/16 15:26	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA
A6J0849-24	Soil	EPA 8000C	10/12/16 15:33	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA
A6J0849-25	Soil	EPA 8000C	10/12/16 15:38	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA
A6J0849-26	Soil	EPA 8000C	10/12/16 15:41	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA
A6J0849-27	Soil	EPA 8000C	10/12/16 15:46	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA
A6J0849-28	Soil	EPA 8000C	10/12/16 15:52	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA
A6J0849-29	Soil	EPA 8000C	10/12/16 16:02	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA
A6J0849-30	Soil	EPA 8000C	10/12/16 16:06	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA
A6J0849-31	Soil	EPA 8000C	10/12/16 16:47	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA
A6J0849-32	Soil	EPA 8000C	10/12/16 16:52	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA
A6J0849-33	Soil	EPA 8000C	10/12/16 16:58	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA
A6J0849-34	Soil	EPA 8000C	10/12/16 17:05	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA
A6J0849-35	Soil	EPA 8000C	10/12/16 17:09	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA
A6J0849-36	Soil	EPA 8000C	10/12/16 17:13	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA

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AMENDED REPORT

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0849-37	Soil	EPA 8000C	10/12/16 17:40	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA
A6J0849-38	Soil	EPA 8000C	10/12/16 17:45	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA
A6J0849-39	Soil	EPA 8000C	10/12/16 17:51	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA
A6J0849-40	Soil	EPA 8000C	10/12/16 18:01	11/01/16 11:08	1N/A/1N/A	1N/A/1N/A	NA
Batch: 6110167							
A6J0754-34	Soil	EPA 8000C	10/12/16 10:39	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0754-35	Soil	EPA 8000C	10/12/16 10:43	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0754-36	Soil	EPA 8000C	10/12/16 10:46	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0754-37	Soil	EPA 8000C	10/12/16 10:46	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0754-38	Soil	EPA 8000C	10/12/16 10:48	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0754-39	Soil	EPA 8000C	10/12/16 10:55	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0754-40	Soil	EPA 8000C	10/12/16 11:30	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-21	Soil	EPA 8000C	10/12/16 18:07	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-22	Soil	EPA 8000C	10/12/16 18:15	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-23	Soil	EPA 8000C	10/12/16 18:21	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-24	Soil	EPA 8000C	10/12/16 18:24	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-25	Soil	EPA 8000C	10/12/16 18:31	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-26	Soil	EPA 8000C	10/13/16 09:07	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-27	Soil	EPA 8000C	10/13/16 09:15	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-28	Soil	EPA 8000C	10/13/16 09:19	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-29	Soil	EPA 8000C	10/13/16 09:22	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-30	Soil	EPA 8000C	10/13/16 09:27	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-31	Soil	EPA 8000C	10/13/16 09:32	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-32	Soil	EPA 8000C	10/13/16 09:46	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-33	Soil	EPA 8000C	10/13/16 09:35	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-34	Soil	EPA 8000C	10/13/16 09:40	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-35	Soil	EPA 8000C	10/13/16 09:46	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-36	Soil	EPA 8000C	10/13/16 10:30	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-37	Soil	EPA 8000C	10/13/16 10:37	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-38	Soil	EPA 8000C	10/13/16 10:45	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-39	Soil	EPA 8000C	10/13/16 10:55	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
A6J0892-40	Soil	EPA 8000C	10/13/16 11:01	11/02/16 09:21	1N/A/1N/A	1N/A/1N/A	NA
Batch: 6110214							
A6J0893-21	Soil	EPA 8000C	10/13/16 11:07	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0893-22	Soil	EPA 8000C	10/13/16 11:37	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA
A6J0893-23	Soil	EPA 8000C	10/13/16 11:43	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA
A6J0893-24	Soil	EPA 8000C	10/13/16 11:52	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA
A6J0893-25	Soil	EPA 8000C	10/13/16 11:56	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA
A6J0893-26	Soil	EPA 8000C	10/13/16 11:59	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA
A6J0893-27	Soil	EPA 8000C	10/13/16 12:03	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA
A6J0893-28	Soil	EPA 8000C	10/13/16 12:36	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA
A6J0893-29	Soil	EPA 8000C	10/13/16 12:42	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA
A6J0893-30	Soil	EPA 8000C	10/13/16 12:45	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA
A6J0893-31	Soil	EPA 8000C	10/13/16 12:50	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA
A6J0893-32	Soil	EPA 8000C	10/13/16 12:55	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA
A6J0893-33	Soil	EPA 8000C	10/13/16 13:04	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA
A6J0893-34	Soil	EPA 8000C	10/13/16 13:49	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA
A6J0893-35	Soil	EPA 8000C	10/13/16 13:55	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA
A6J0893-36	Soil	EPA 8000C	10/13/16 14:02	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA
A6J0893-37	Soil	EPA 8000C	10/13/16 14:04	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA
A6J0893-38	Soil	EPA 8000C	10/13/16 14:09	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA
A6J0893-39	Soil	EPA 8000C	10/13/16 14:14	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA
A6J0893-40	Soil	EPA 8000C	10/13/16 14:18	11/03/16 09:30	1N/A/1N/A	1N/A/1N/A	NA
Batch: 6110271							
A6J0925-21	Soil	EPA 8000C	10/13/16 14:20	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA
A6J0925-22	Soil	EPA 8000C	10/13/16 14:27	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA
A6J0925-23	Soil	EPA 8000C	10/13/16 15:20	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA
A6J0925-24	Soil	EPA 8000C	10/13/16 15:29	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA
A6J0925-25	Soil	EPA 8000C	10/13/16 15:36	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA
A6J0925-26	Soil	EPA 8000C	10/13/16 15:43	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA
A6J0925-27	Soil	EPA 8000C	10/13/16 15:45	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA
A6J0925-28	Soil	EPA 8000C	10/13/16 15:55	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA
A6J0925-29	Soil	EPA 8000C	10/13/16 16:03	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA
A6J0925-30	Soil	EPA 8000C	10/13/16 16:10	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA
A6J0925-31	Soil	EPA 8000C	10/13/16 16:18	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA
A6J0925-32	Soil	EPA 8000C	10/13/16 17:03	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA
A6J0925-33	Soil	EPA 8000C	10/13/16 17:12	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA
A6J0925-34	Soil	EPA 8000C	10/13/16 17:20	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

SAMPLE PREPARATION INFORMATION

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0925-35	Soil	EPA 8000C	10/13/16 17:28	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA
A6J0925-36	Soil	EPA 8000C	10/13/16 17:35	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA
A6J0925-37	Soil	EPA 8000C	10/13/16 17:42	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA
A6J0925-38	Soil	EPA 8000C	10/13/16 17:49	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA
A6J0925-39	Soil	EPA 8000C	10/13/16 17:55	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA
A6J0925-40	Soil	EPA 8000C	10/14/16 11:25	11/04/16 10:27	1N/A/1N/A	1N/A/1N/A	NA
Batch: 6110367							
A6J0950-18	Soil	EPA 8000C	10/14/16 11:31	11/08/16 11:05	1N/A/1N/A	1N/A/1N/A	NA
A6J0950-19	Soil	EPA 8000C	10/14/16 11:35	11/08/16 11:05	1N/A/1N/A	1N/A/1N/A	NA
A6J0950-20	Soil	EPA 8000C	10/14/16 11:40	11/08/16 11:05	1N/A/1N/A	1N/A/1N/A	NA
A6J0950-21	Soil	EPA 8000C	10/14/16 11:45	11/08/16 11:05	1N/A/1N/A	1N/A/1N/A	NA
A6J0950-22	Soil	EPA 8000C	10/14/16 11:49	11/08/16 11:05	1N/A/1N/A	1N/A/1N/A	NA
A6J0950-23	Soil	EPA 8000C	10/14/16 11:54	11/08/16 11:05	1N/A/1N/A	1N/A/1N/A	NA
A6J0950-24	Soil	EPA 8000C	10/14/16 12:01	11/08/16 11:05	1N/A/1N/A	1N/A/1N/A	NA
A6J0950-25	Soil	EPA 8000C	10/14/16 12:11	11/08/16 11:05	1N/A/1N/A	1N/A/1N/A	NA
A6J0950-26	Soil	EPA 8000C	10/14/16 12:36	11/08/16 11:05	1N/A/1N/A	1N/A/1N/A	NA
A6J0950-27	Soil	EPA 8000C	10/14/16 12:42	11/08/16 11:05	1N/A/1N/A	1N/A/1N/A	NA
A6J0950-28	Soil	EPA 8000C	10/14/16 12:47	11/08/16 11:05	1N/A/1N/A	1N/A/1N/A	NA
A6J0950-29	Soil	EPA 8000C	10/14/16 12:54	11/08/16 11:05	1N/A/1N/A	1N/A/1N/A	NA
A6J0950-30	Soil	EPA 8000C	10/14/16 12:59	11/08/16 11:05	1N/A/1N/A	1N/A/1N/A	NA
A6J0950-31	Soil	EPA 8000C	10/14/16 13:03	11/08/16 11:05	1N/A/1N/A	1N/A/1N/A	NA
A6J0950-32	Soil	EPA 8000C	10/14/16 13:08	11/08/16 11:05	1N/A/1N/A	1N/A/1N/A	NA
A6J0950-33	Soil	EPA 8000C	10/14/16 13:12	11/08/16 11:05	1N/A/1N/A	1N/A/1N/A	NA
A6J0950-34	Soil	EPA 8000C	10/14/16 13:15	11/08/16 11:05	1N/A/1N/A	1N/A/1N/A	NA
Batch: 6110394							
A6J0823-27	Soil	EPA 8000C	10/12/16 12:10	11/09/16 08:16	1N/A/1N/A	1N/A/1N/A	NA

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

Notes and Definitions

Qualifiers:

A-01	Reanalyzed for Dry Weight
A-01a	Sample is Blank QC for the RSM grinding process and does not count toward the 20 client sample batch limit.
A-01b	Sample is blank QC for the RSM grinding process and does not count toward the client sample batch limit.
B-02	Analyte detected in an associated blank at a level between one-half the MRL and the MRL. (See Notes and Conventions below.)
C-05	Extract has undergone a GPC (Gel-Permeation Chromatography) cleanup per EPA 3640A. Reporting levels may be raised due to dilution necessary for cleanup. Sample Final Volume includes the GPC dilution factor, see the Prep page for details.
H-08	Sample hold time extended by freezing at -18 degrees C. Total time at 4 degrees C was less than the standard hold time.
J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
M-02	Due to matrix interference, this analyte cannot be accurately quantified. The reported result is estimated.
Q-01	Spike recovery and/or RPD is outside acceptance limits.
Q-02	Spike recovery is outside of established control limits due to matrix interference.
Q-05	Analyses are not controlled on RPD values from sample and duplicate concentrations that are below 5 times the reporting level.
Q-16	Reanalysis of an original Batch QC sample.
Q-19	Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
Q-24	RPD for spike and spike duplicate is above established control limit. Recoveries for both spike and spike duplicate are within control limits.
Q-42	Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)
R-02	The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
R-04	Reporting levels elevated due to dilution necessary for analysis.
T-02	This Batch QC sample was analyzed outside of the method specified 12 hour tune window. Results are estimated.
T-03	This sample was analyzed outside of the method specified 12 hour tune window. Results are estimated.
X	See Case Narrative.

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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Lisa Domenighini, Client Services Manager

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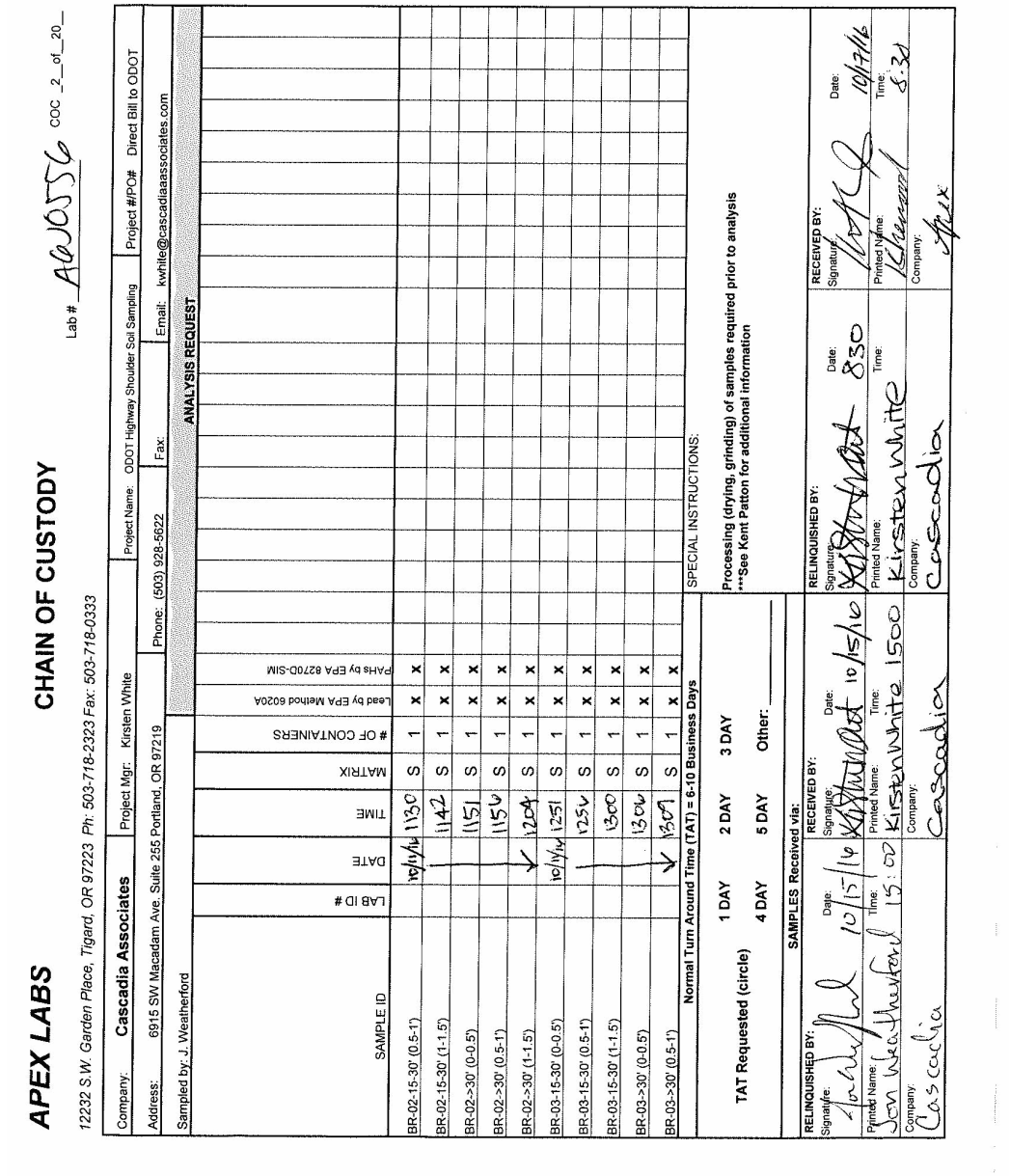
AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY** — COC _2_ of _20_ — Lab # A6J0356

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-02-15-30' (0.5-1')		10/14/16	1130	S	1	x	x
BR-02-15-30' (1-1.5')			1142	S	1	x	x
BR-02->30' (0-0.5')			1151	S	1	x	x
BR-02->30' (0.5-1')			1156	S	1	x	x
BR-02->30' (1-1.5')			1204	S	1	x	x
BR-03-15-30' (0-0.5')		10/14/16	1251	S	1	x	x
BR-03-15-30' (0.5-1')			1256	S	1	x	x
BR-03-15-30' (1-1.5')			1300	S	1	x	x
BR-03->30' (0-0.5')			1306	S	1	x	x
BR-03->30' (0.5-1')			1309	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Date: 10/15/16	Date: 10/15/16	Date: 10/15/16	Date: 10/17/16
Printed Name: Jon Weatherford	Printed Name: Kirsten White	Printed Name: Kirsten White	Printed Name:
Time: 15:00	Time: 15:00	Time: 8:30	Time: 8:32
Company: Cascadia	Company: Cascadia	Company: Cascadia	Company:

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Lisa Domenighini, Client Services Manager

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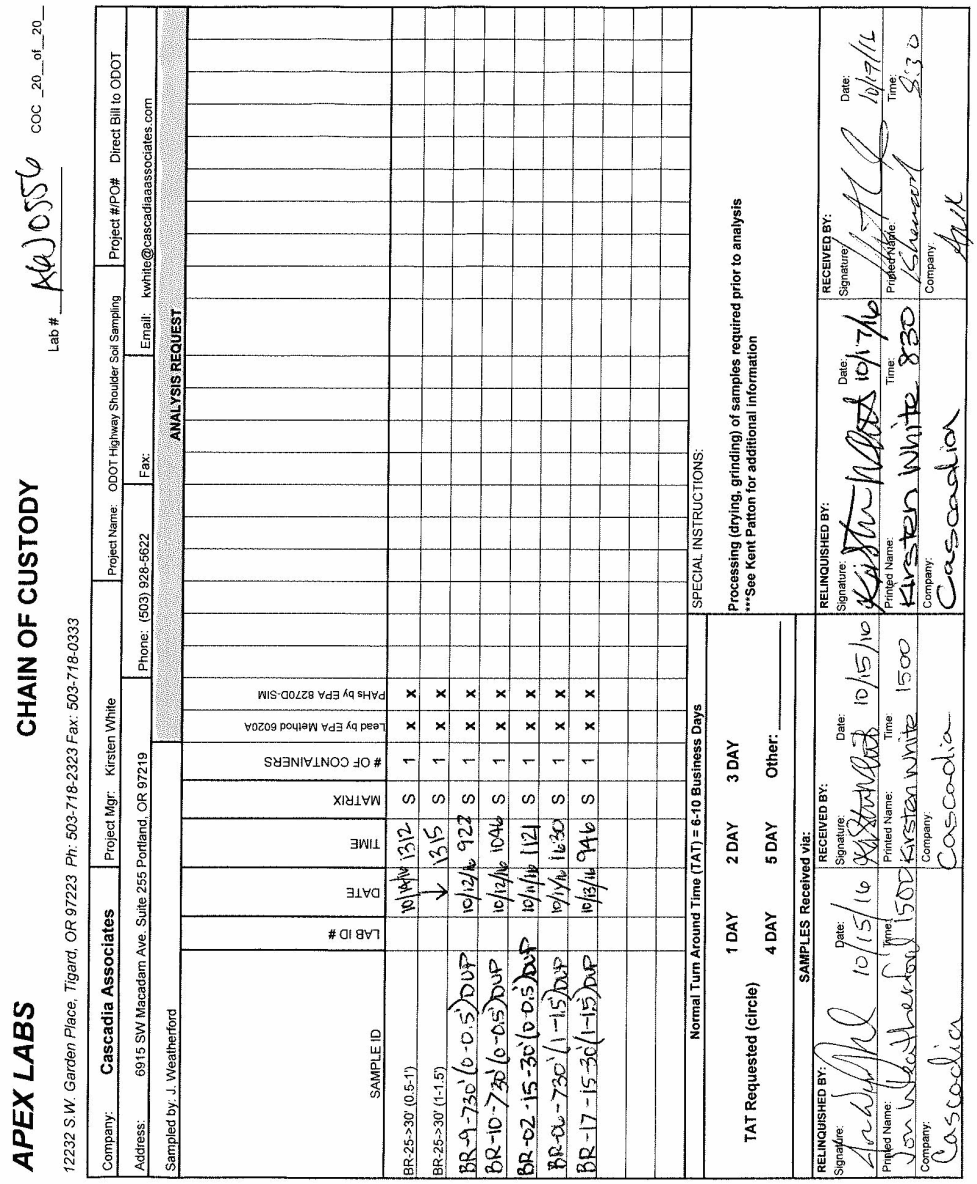
AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY** — COC _20__of_20_

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # KA0556

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-25->30' (0.5-1)		10/14/16	1312	S	1	x	x
BR-25->30' (1-1.5)		↓	1315	S	1	x	x
BR-9-730' (0-0.5') DUP		10/12/16	922	S	1	x	x
BR-10-730' (0-0.5') DUP		10/13/16	1044	S	1	x	x
BR-02-15-30' (0-0.5') DUP		10/11/16	1121	S	1	x	x
BR-08-730' (1-1.5') DUP		10/7/16	1630	S	1	x	x
BR-17-15-30' (1-1.5') DUP		10/13/16	946	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

SPECIAL INSTRUCTIONS:

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/15/16 Printed Name: Time: 1500 Company: Cascadia

RECEIVED BY: Signature: Date: 10/15/16 Printed Name: Time: 1500 Company:

RELINQUISHED BY: Signature: Date: 10/15/16 Printed Name: Time: Company:

RECEIVED BY: Signature: Date: 10/17/16 Printed Name: Kirsten White Time: 830 Company: Cascadia

RELINQUISHED BY: Signature: Date: 10/17/16 Printed Name: Kirsten White Time: 2130 Company: Cascadia

RECEIVED BY: Signature: Date: Printed Name: Time: Company:

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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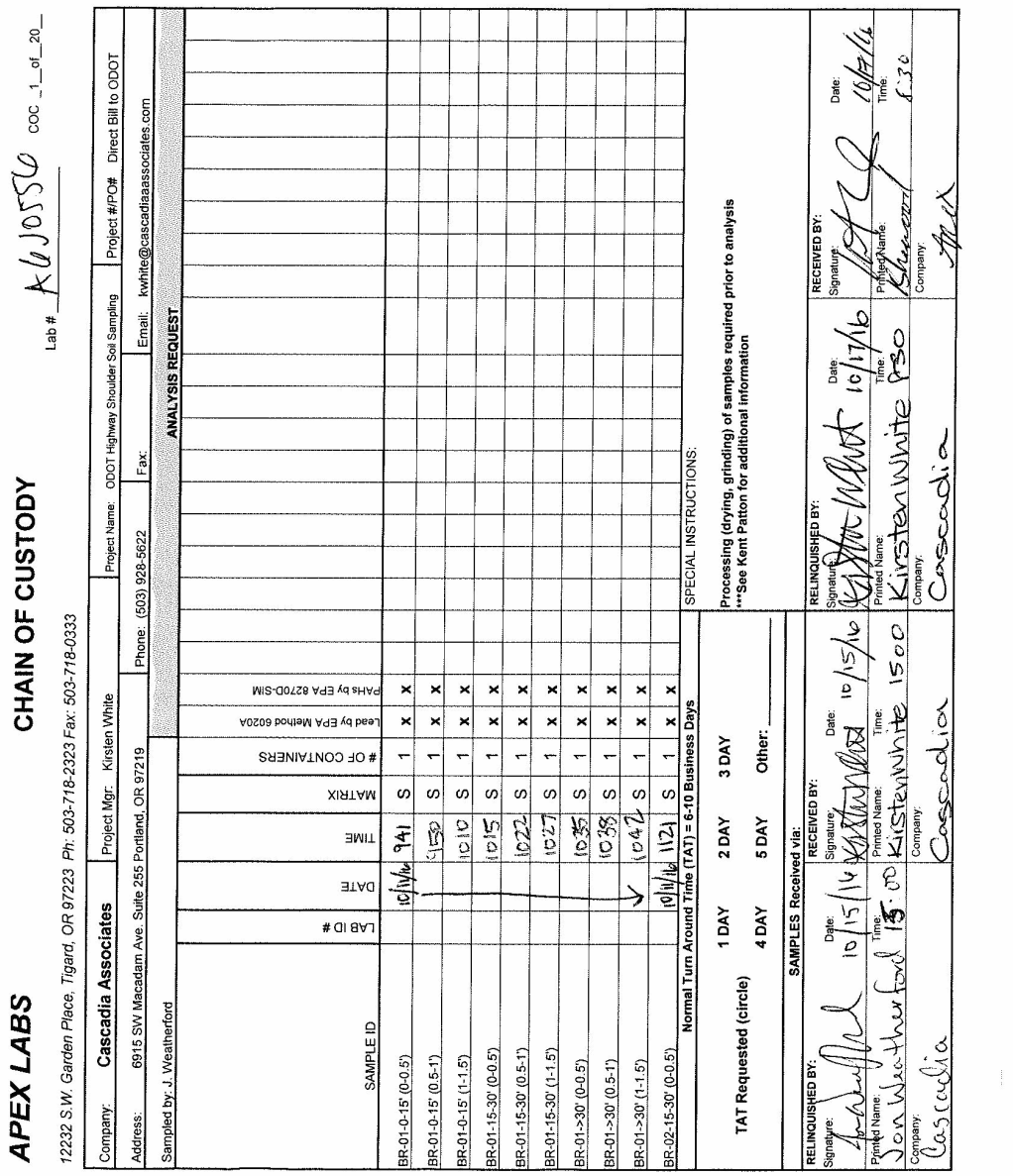
AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # KLJ0550 COC _1_ of _20_

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-01-0-15' (0-0.5)		10/14/16	941	S	1	x	x
BR-01-0-15' (0.5-1)			1350	S	1	x	x
BR-01-0-15' (1-1.5)			1010	S	1	x	x
BR-01-15-30' (0-0.5)			1015	S	1	x	x
BR-01-15-30' (0.5-1)			1022	S	1	x	x
BR-01-15-30' (1-1.5)			1027	S	1	x	x
BR-01->30' (0-0.5)			1035	S	1	x	x
BR-01->30' (0.5-1)			1038	S	1	x	x
BR-01->30' (1-1.5)		↓	1042	S	1	x	x
BR-02-15-30' (0-0.5)		10/14/16	1121	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Date: 10/15/16	Date: 10/15/16	Date: 10/17/16	Date: 10/17/16
Printed Name: Jon Weatherford	Printed Name: Kirsten White	Printed Name: Kirsten White	Printed Name:
Time: 15:00	Time: 15:00	Time: 9:30	Time: 9:30
Company: Cascadia	Company: Cascadia	Company: Cascadia	Company:

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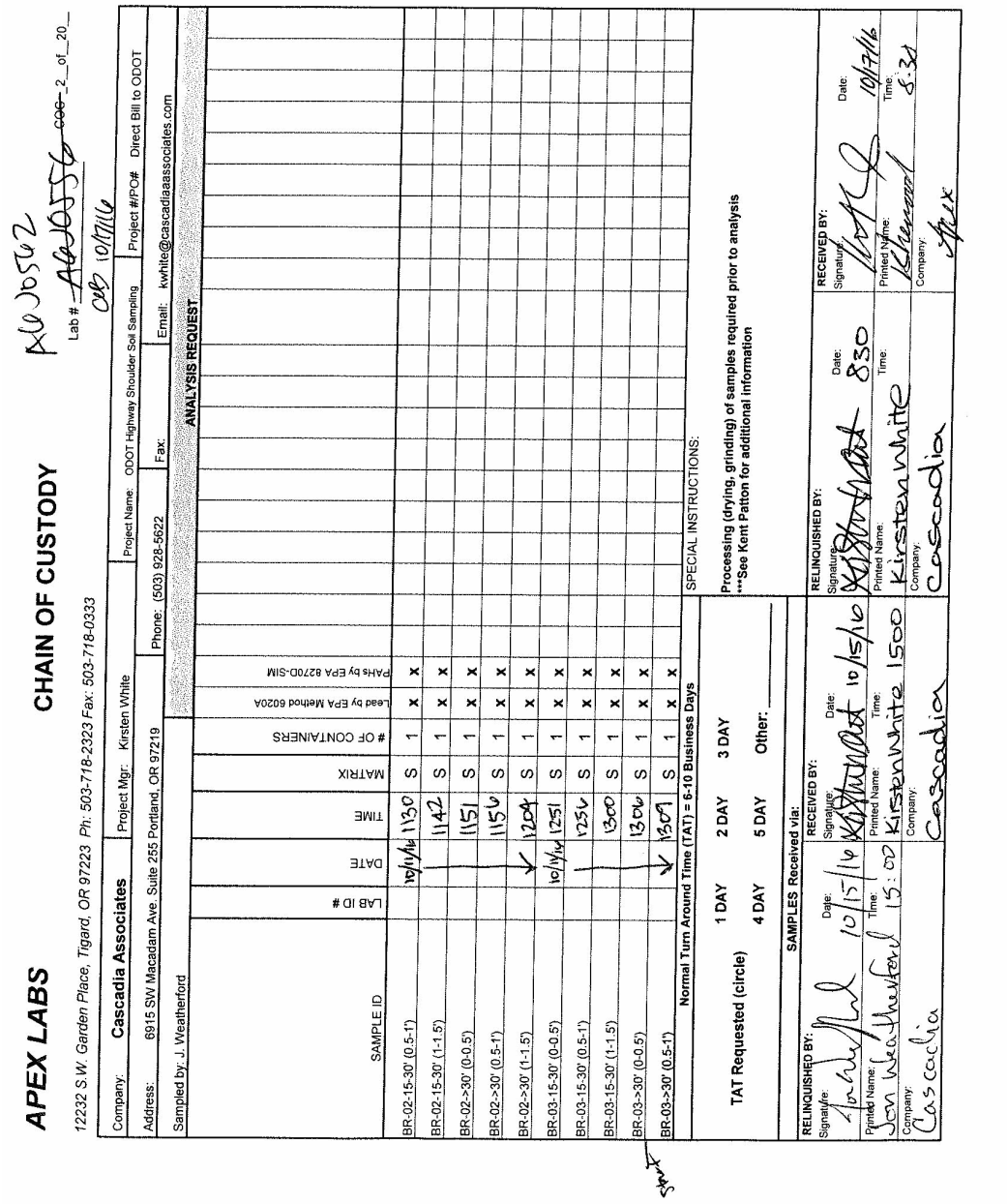
AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS **CHAIN OF CUSTODY**

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # A6J0562 ~~A6J0556~~ ~~COC~~ 2 of 20
CB 10/17/16

Company: **Cascadia Associates** Project Mgr: Kirsten White Project Name: ODOT Highway Shoulder Soil Sampling Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 Phone: (503) 928-5622 Fax: Email: kwhite@cascadiaaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-02-15-30' (0.5-1')		10/11/16	1130	S	1	x	x
BR-02-15-30' (1-1.5')			1142	S	1	x	x
BR-02-30' (0-0.5')			1151	S	1	x	x
BR-02->30' (0.5-1')			1156	S	1	x	x
BR-02->30' (1-1.5')			1204	S	1	x	x
BR-03-15-30' (0-0.5')		10/11/16	1251	S	1	x	x
BR-03-15-30' (0.5-1')			1256	S	1	x	x
BR-03-15-30' (1-1.5')			1300	S	1	x	x
BR-03->30' (0-0.5')			1306	S	1	x	x
BR-03->30' (0.5-1')			1309	S	1	x	x

Start

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

SPECIAL INSTRUCTIONS:

Processing (drying, grinding) of samples required prior to analysis
*****See Kent Patton for additional information**

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date: 10/15/16	Signature: [signature] Date: 10/15/16	Signature: [signature] Date: 830	Signature: [signature] Date: 10/17/16
Printed Name: Jon Weatherford Time: 15:00	Printed Name: Kirsten White Time: 1500	Printed Name: Kirsten White Time:	Printed Name: Khemmel Time: 8:31
Company: Cascadia	Company: Cascadia	Company: Cascadia	Company: Apex

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa Domenighini, Client Services Manager

Apex Labs

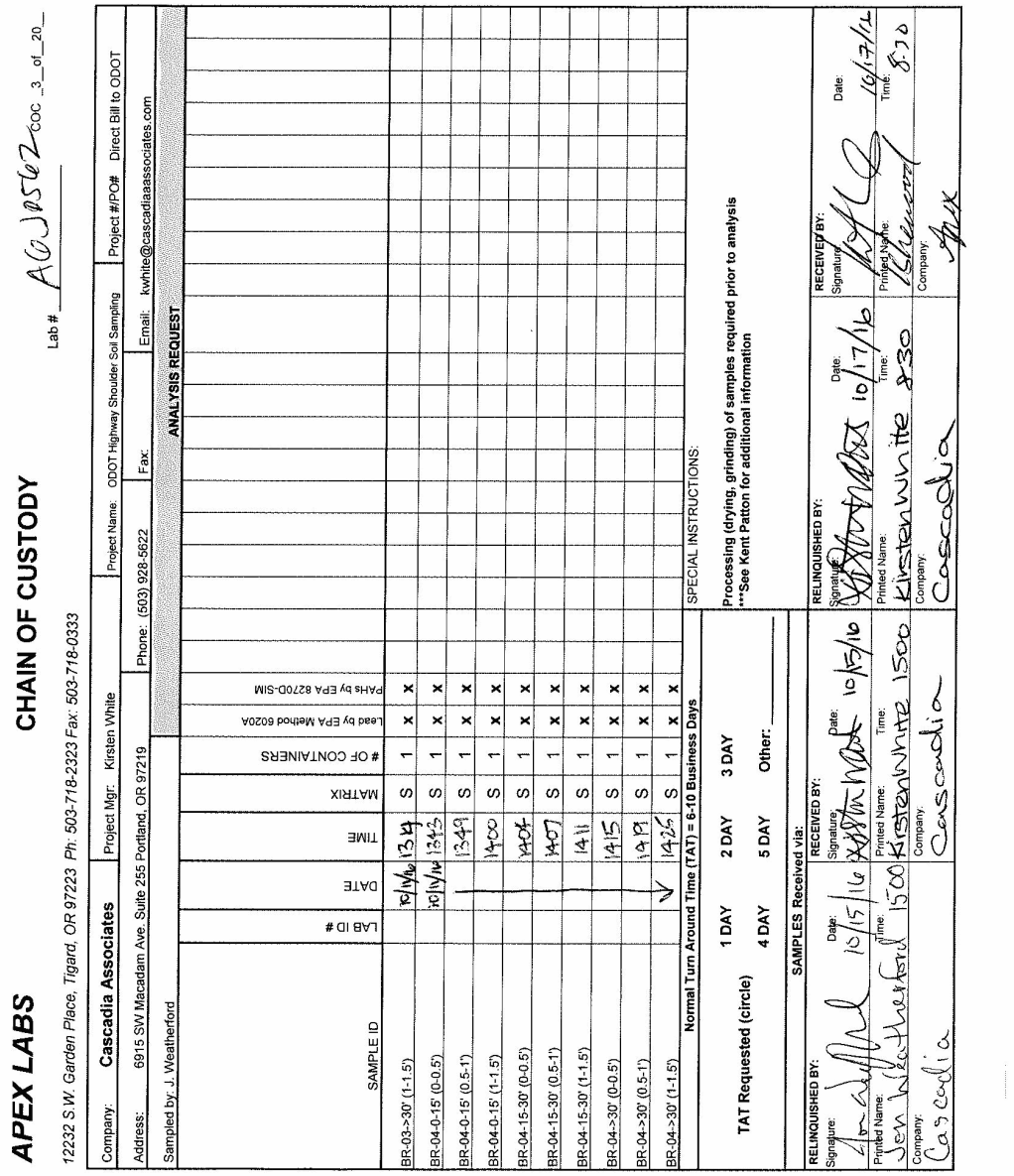
AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates
6915 SW Macadam, Suite 255
Portland, OR 97219

Project: **ODOT Clean Fill Project -- RSM**
Project Number: ODOT Clean Fill Project
Project Manager: Kirsten K. White

Reported:
03/21/17 09:46



APEX LABS — CHAIN OF CUSTODY

Lab # A6J0562 COC 3 of 20

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: **Cascadia Associates** | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-03->30' (1-1.5')		10/11/16	1314	S	1	x	x
BR-04-0-15' (0-0.5')		10/11/16	1343	S	1	x	x
BR-04-0-15' (0.5-1')			1349	S	1	x	x
BR-04-0-15' (1-1.5')			1400	S	1	x	x
BR-04-15-30' (0-0.5')			1404	S	1	x	x
BR-04-15-30' (0.5-1')			1407	S	1	x	x
BR-04-15-30' (1-1.5')			1411	S	1	x	x
BR-04->30' (0-0.5')			1415	S	1	x	x
BR-04->30' (0.5-1')			1419	S	1	x	x
BR-04->30' (1-1.5')			1425	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

SPECIAL INSTRUCTIONS:

Processing (drying, grinding) of samples required prior to analysis
*****See Kent Patton for additional information**

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date: 10/15/16	Signature: [signature] Date: 10/15/16	Signature: [signature] Date: 10/17/16	Signature: [signature] Date: 10/17/16
Printed Name: Jon Weatherford Time: 1500	Printed Name: Kirsten White Time: 1500	Printed Name: Kirsten White Time: 830	Printed Name: Sherwood Time: 8:30
Company: Cascadia	Company: Cascadia	Company: Cascadia	Company: Apex

Apex Laboratories

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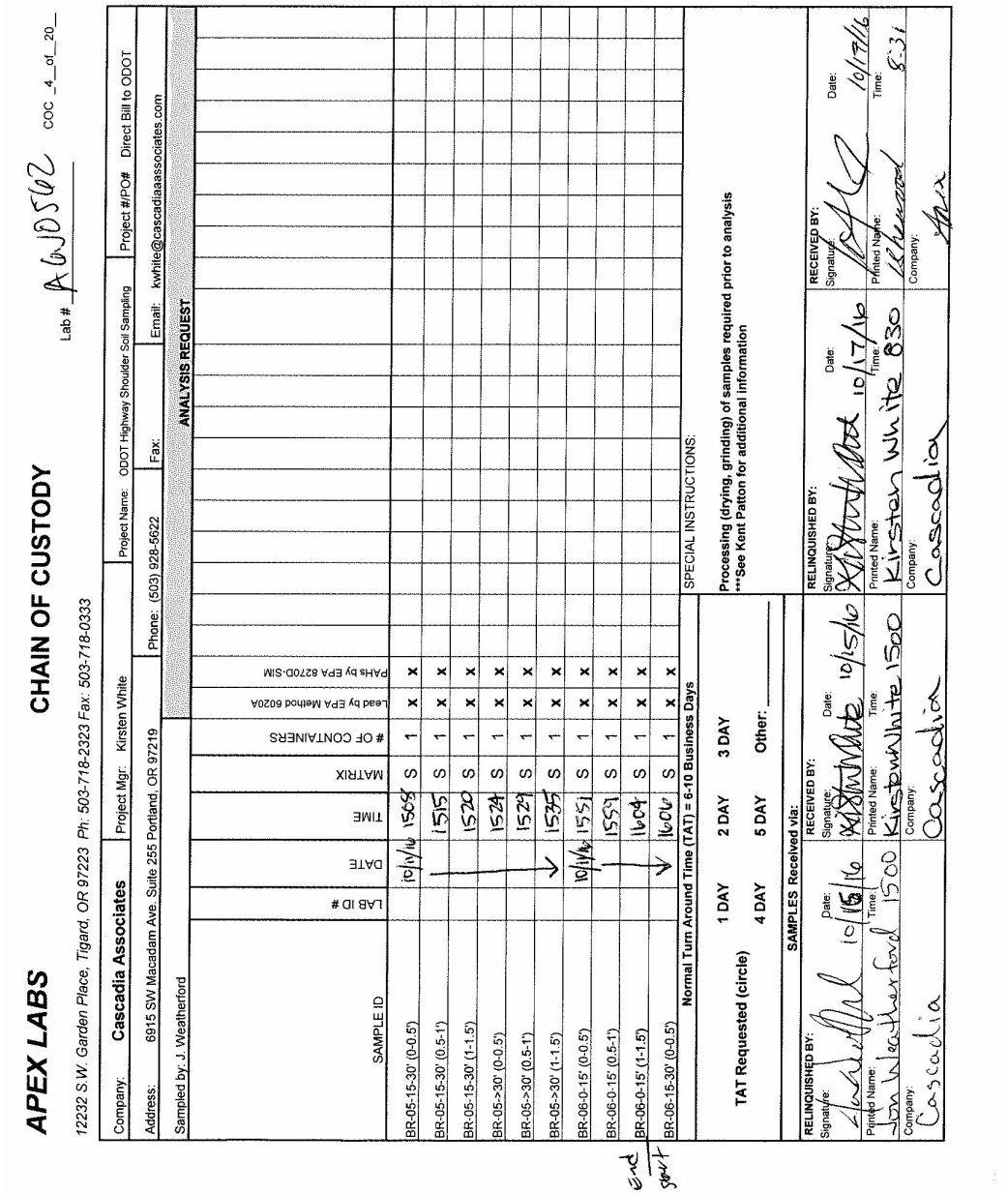
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY** — COC _4_ of _20_ — Lab # A0J0502

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-05-15-30' (0-0.5')		10/14/16	1505	S	1	X	X
BR-05-15-30' (0.5-1')			1515	S	1	X	X
BR-05-15-30' (1-1.5')			1520	S	1	X	X
BR-05->30' (0-0.5')			1524	S	1	X	X
BR-05->30' (0.5-1')			1529	S	1	X	X
BR-05->30' (1-1.5')		↓	1535	S	1	X	X
BR-06-0-15' (0-0.5')		10/14/16	1551	S	1	X	X
BR-06-0-15' (0.5-1')			1559	S	1	X	X
BR-06-0-15' (1-1.5')			1604	S	1	X	X
BR-06-15-30' (0-0.5')		↓	1610	S	1	X	X

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/15/16 Printed Name: Time: 1500 Company: Cascadia

RECEIVED BY: Signature: Date: 10/15/16 Printed Name: Time: Company:

RELINQUISHED BY: Signature: Date: 10/17/16 Printed Name: Kirsten White Time: 830 Company: Cascadia

RECEIVED BY: Signature: Date: 10/17/16 Printed Name: Time: 8:31 Company:

Apex Laboratories

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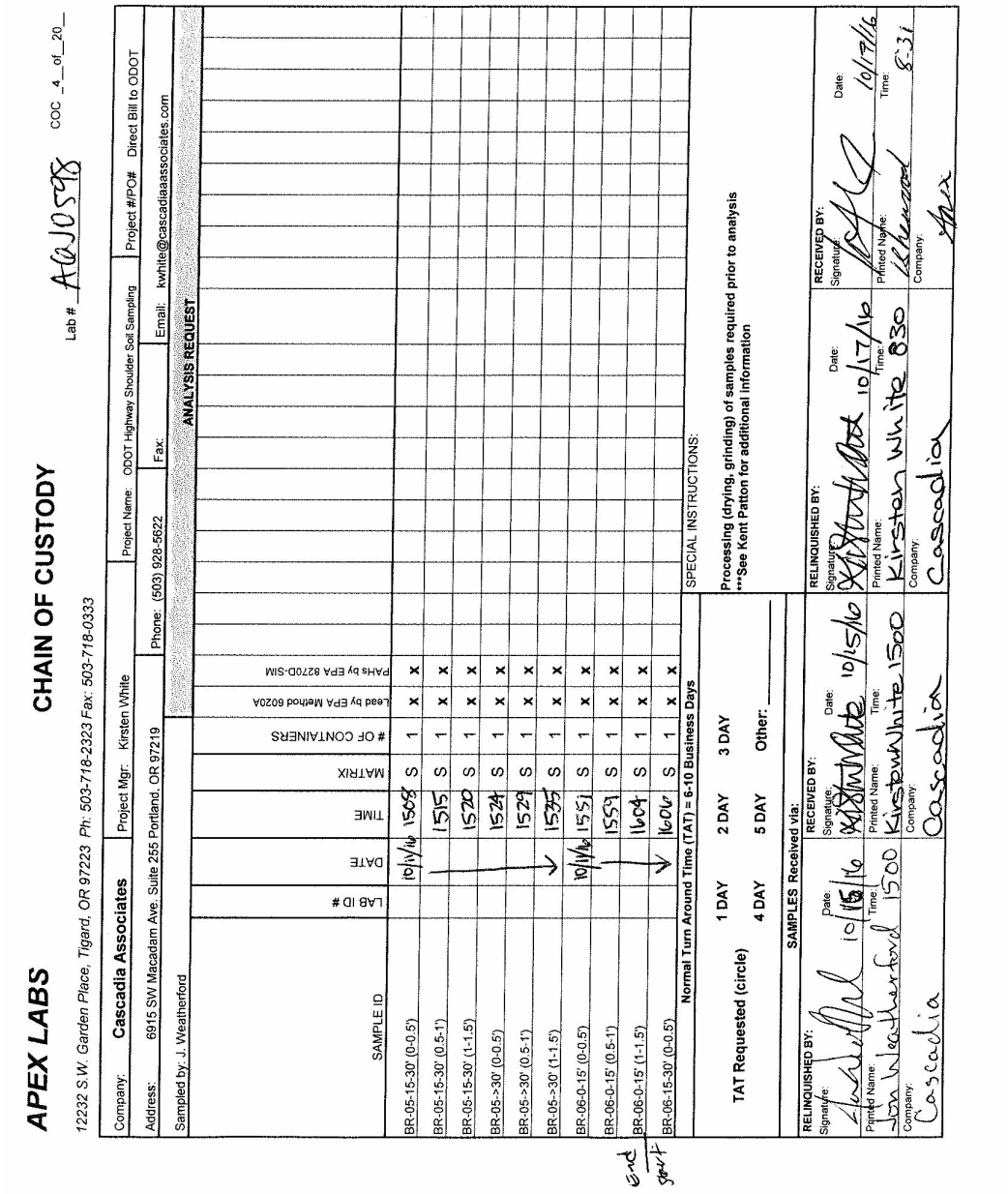
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY** — COC 4 of 20

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # A6J0595

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-05-15-30' (0-0.5')		10/14/16	1505	S	1	x	x
BR-05-15-30' (0.5-1')			1515	S	1	x	x
BR-05-15-30' (1-1.5')			1520	S	1	x	x
BR-05->30' (0-0.5')			1524	S	1	x	x
BR-05->30' (0.5-1')			1529	S	1	x	x
BR-05->30' (1-1.5')			1535	S	1	x	x
BR-06-0-15' (0-0.5')		10/14/16	1551	S	1	x	x
BR-06-0-15' (0.5-1')			1553	S	1	x	x
BR-06-0-15' (1-1.5')			1604	S	1	x	x
BR-06-15-30' (0-0.5')			1606	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/15/16 Printed Name: Time: 1500 Company: Cascadia

RECEIVED BY: Signature: Date: 10/15/16 Printed Name: Kirsten White Time: 1500 Company: Cascadia

RELINQUISHED BY: Signature: Date: 10/17/16 Printed Name: Kirsten White Time: 830 Company: Cascadia

RECEIVED BY: Signature: Date: 10/17/16 Printed Name: Time: 8:31 Company:

end
your

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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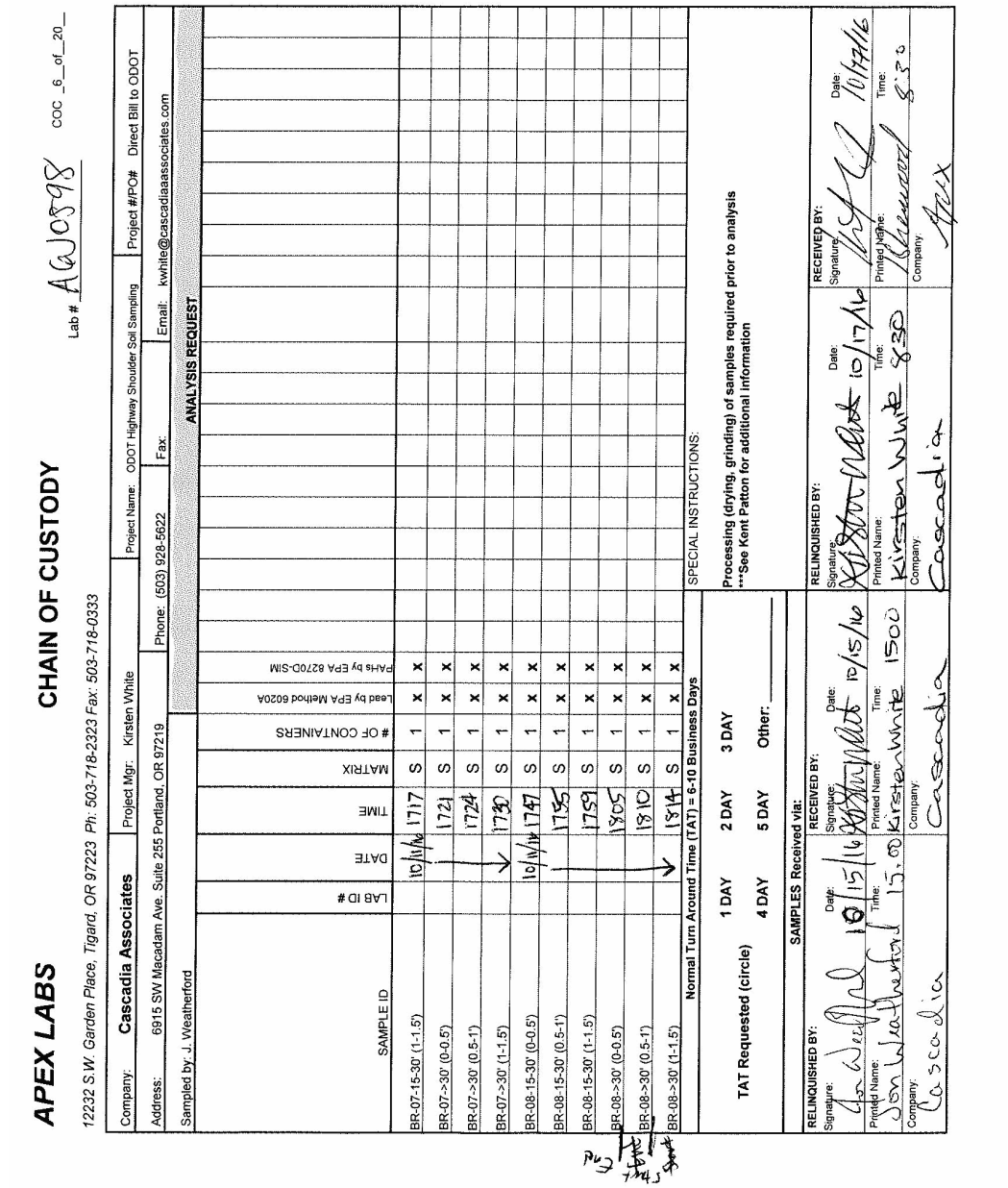
Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY** — COC _6_ of _20_

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # AQ0898

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-07-15-30' (1-1.5')		10/14/16	1717	S	1	x	x
BR-07->30' (0-0.5')			1721	S	1	x	x
BR-07->30' (0.5-1')			1724	S	1	x	x
BR-07->30' (1-1.5')			1730	S	1	x	x
BR-08-15-30' (0-0.5')		10/14/16	1747	S	1	x	x
BR-08-15-30' (0.5-1')			1755	S	1	x	x
BR-08-15-30' (1-1.5')			1759	S	1	x	x
BR-08->30' (0-0.5')			1805	S	1	x	x
BR-08->30' (0.5-1')			1810	S	1	x	x
BR-08->30' (1-1.5')			1814	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/15/16 Printed Name: Time: 1500 Company: Cascadia

RECEIVED BY: Signature: Date: 10/15/16 Printed Name: Time: Company:

RELINQUISHED BY: Signature: Date: 10/17/16 Printed Name: Kirsten White Time: 8:30 Company: Cascadia

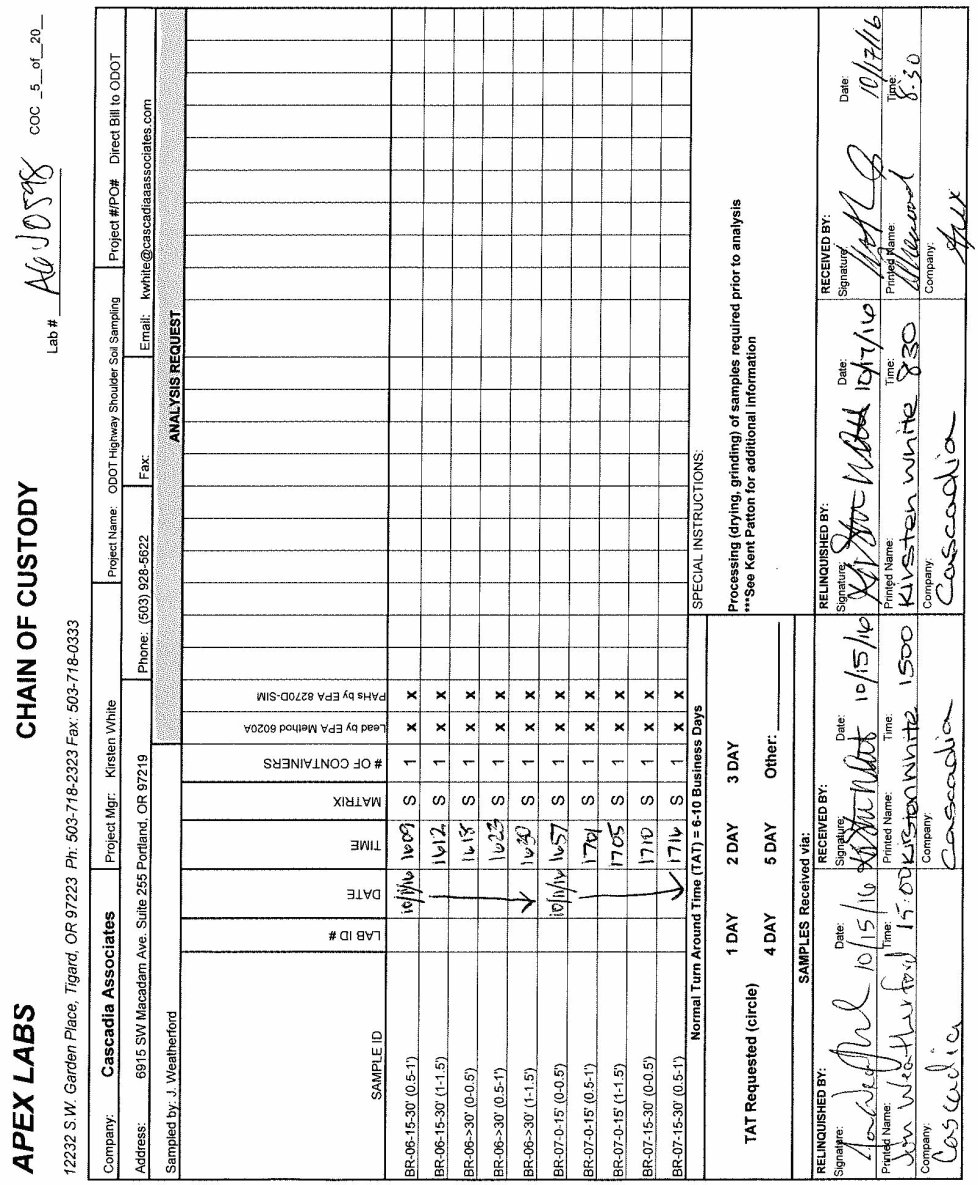
RECEIVED BY: Signature: Date: 10/17/16 Printed Name: Time: 8:30 Company: Apex

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY** — COC _5_ of _20_ — Lab # AQ0578

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-06-15-30' (0.5-1')		10/11/16	1609	S	1	X	X
BR-06-15-30' (1-1.5')			1612	S	1	X	X
BR-06->30' (0-0.5')			1615	S	1	X	X
BR-06->30' (0.5-1')			1623	S	1	X	X
BR-06->30' (1-1.5')			1630	S	1	X	X
BR-07-0-15' (0-0.5')		10/11/16	1657	S	1	X	X
BR-07-0-15' (0.5-1')			1704	S	1	X	X
BR-07-0-15' (1-1.5)			1705	S	1	X	X
BR-07-15-30' (0-0.5')			1710	S	1	X	X
BR-07-15-30' (0.5-1')			1714	S	1	X	X

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Date: 10/15/16	Date: 10/15/16	Date: 10/17/16	Date: 10/17/16
Time: 1700	Time: 1700	Time: 8:30	Time: 8:50
Printed Name: Jon Weatherford	Printed Name: Kirsten White	Printed Name: Kirsten White	Printed Name:
Company: Cascadia	Company: Cascadia	Company: Cascadia	Company:

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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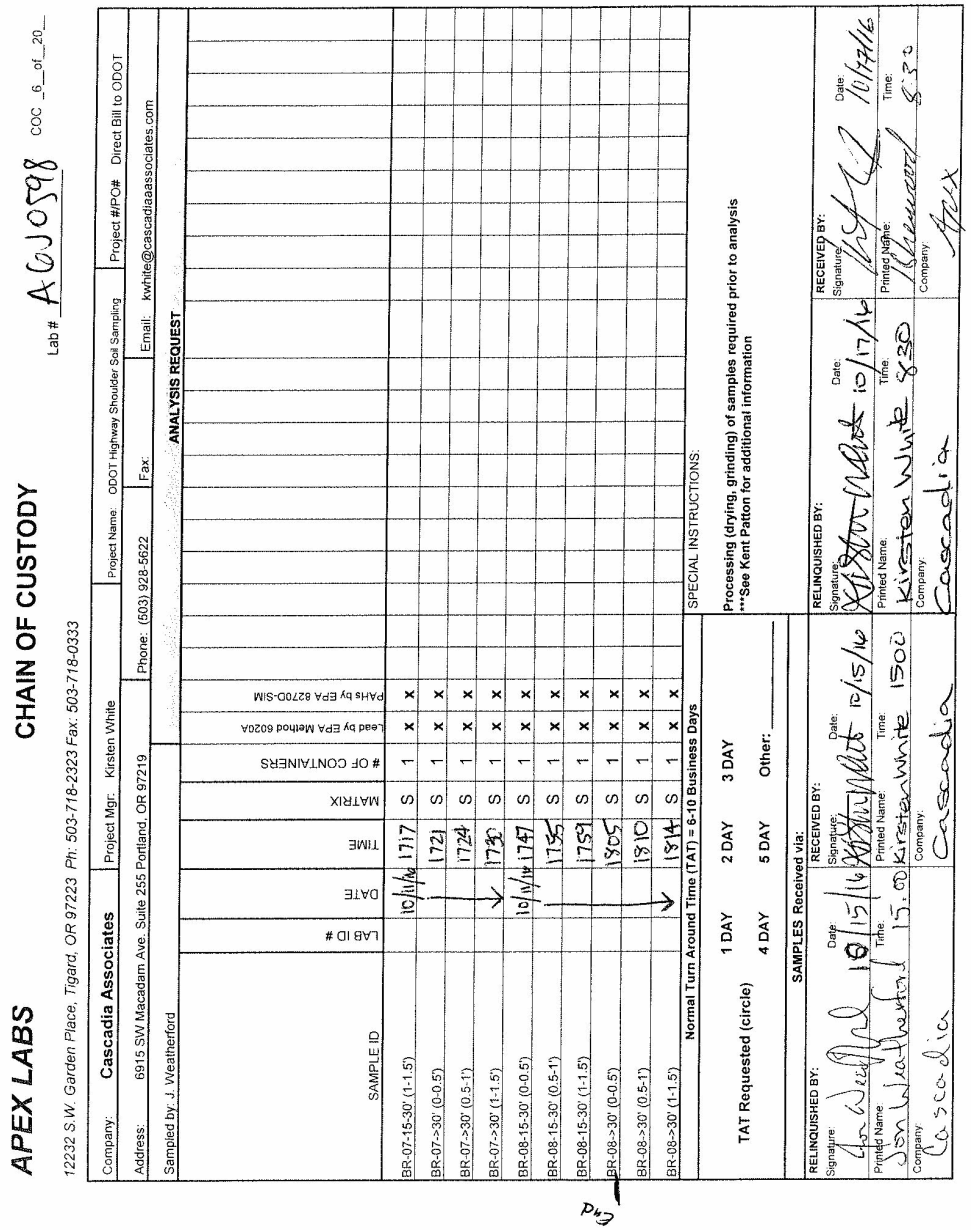
Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY** — Lab # AGJ0598 — COC _6_ of _20_

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-07-15-30' (1-1.5)		10/14/16	1717	S	1	x	x
BR-07->30' (0-0.5)			1721	S	1	x	x
BR-07->30' (0.5-1')			1724	S	1	x	x
BR-07->30' (1-1.5)			1730	S	1	x	x
BR-08-15-30' (0-0.5)		10/14/16	1747	S	1	x	x
BR-08-15-30' (0.5-1')			1755	S	1	x	x
BR-08-15-30' (1-1.5)			1759	S	1	x	x
BR-08->30' (0-0.5)			1805	S	1	x	x
BR-08->30' (0.5-1')			1810	S	1	x	x
BR-08->30' (1-1.5)			1814	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY:	Date	RECEIVED BY:	Date
Signature:	10/15/16	Signature:	10/15/16
Printed Name:	Time: 15:00	Printed Name:	Time: 1500
Company:	Cascadia	Company:	Cascadia

RELINQUISHED BY:	Date	RECEIVED BY:	Date
Signature:	10/17/16	Signature:	10/17/16
Printed Name:	Time: 8:30	Printed Name: Kirsten White	Time:
Company: Cascadia		Company:	

Apex Laboratories

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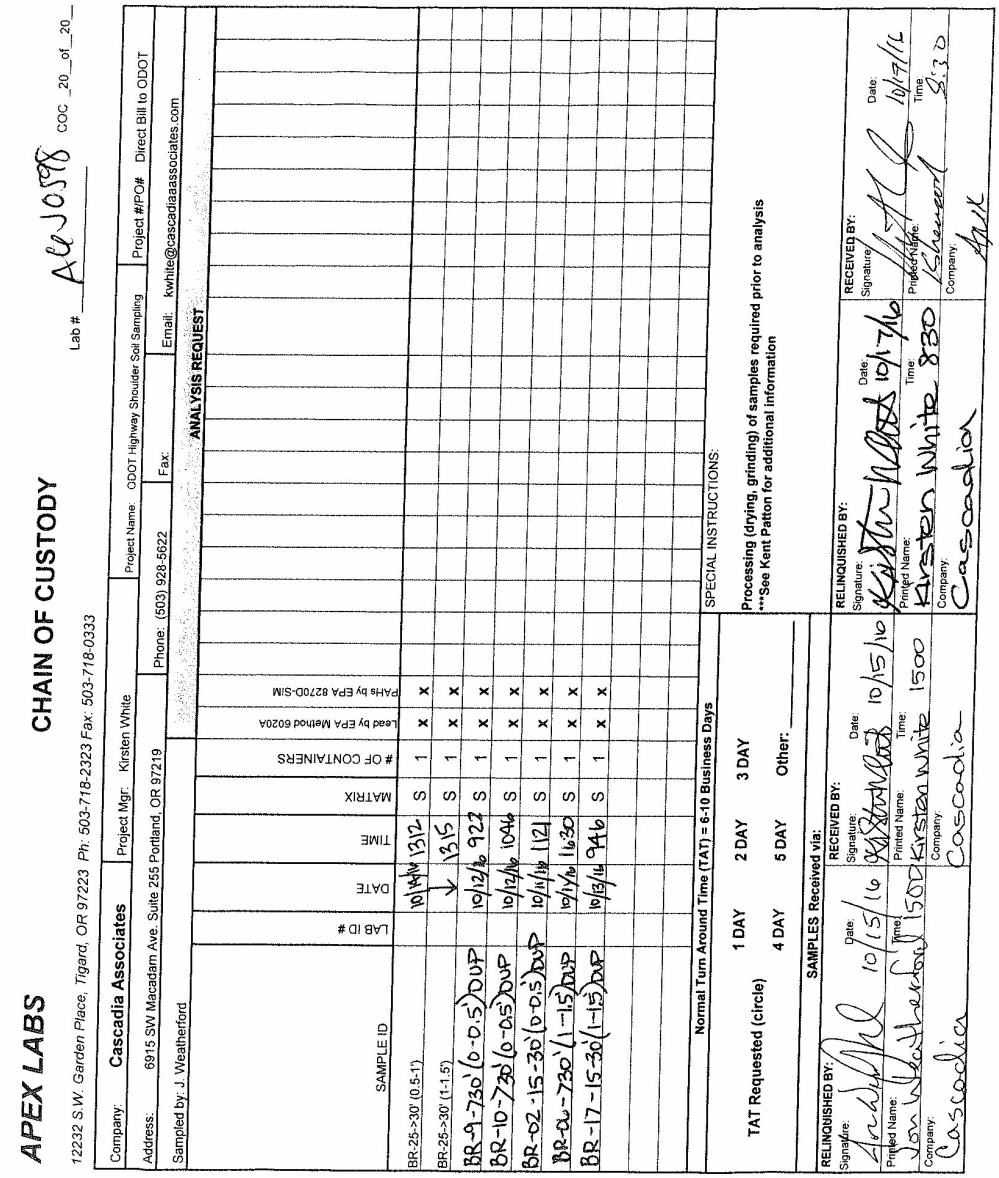
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS
12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # AQJ0598 COC _20_ of _20_

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT
Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com
Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-25->30' (0.5-1)		10/14/16	1312	S	1	x	x
BR-25->30' (1-1.5)		↓	1315	S	1	x	x
BR-9-730'(0-0.5')DUP		10/12/16	922	S	1	x	x
BR-10-730'(0-0.5')DUP		10/12/16	1040	S	1	x	x
BR-02-15-30'(0-0.5')DUP		10/11/16	1121	S	1	x	x
BR-02-730'(1-1.5')DUP		10/1/16	1630	S	1	x	x
BR-17-15-30'(1-1.5')DUP		10/13/16	946	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

SPECIAL INSTRUCTIONS:

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/15/16 Printed Name: Time: Company:

RECEIVED BY: Signature: Date: 10/15/16 Printed Name: Jon Weatherford Time: 1500 Company: Cascadia

RELINQUISHED BY: Signature: Date: 10/15/16 Printed Name: Kirsten White Time: 1500 Company: Cascadia

RECEIVED BY: Signature: Date: 10/17/16 Printed Name: Time: 8:30 Company:

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

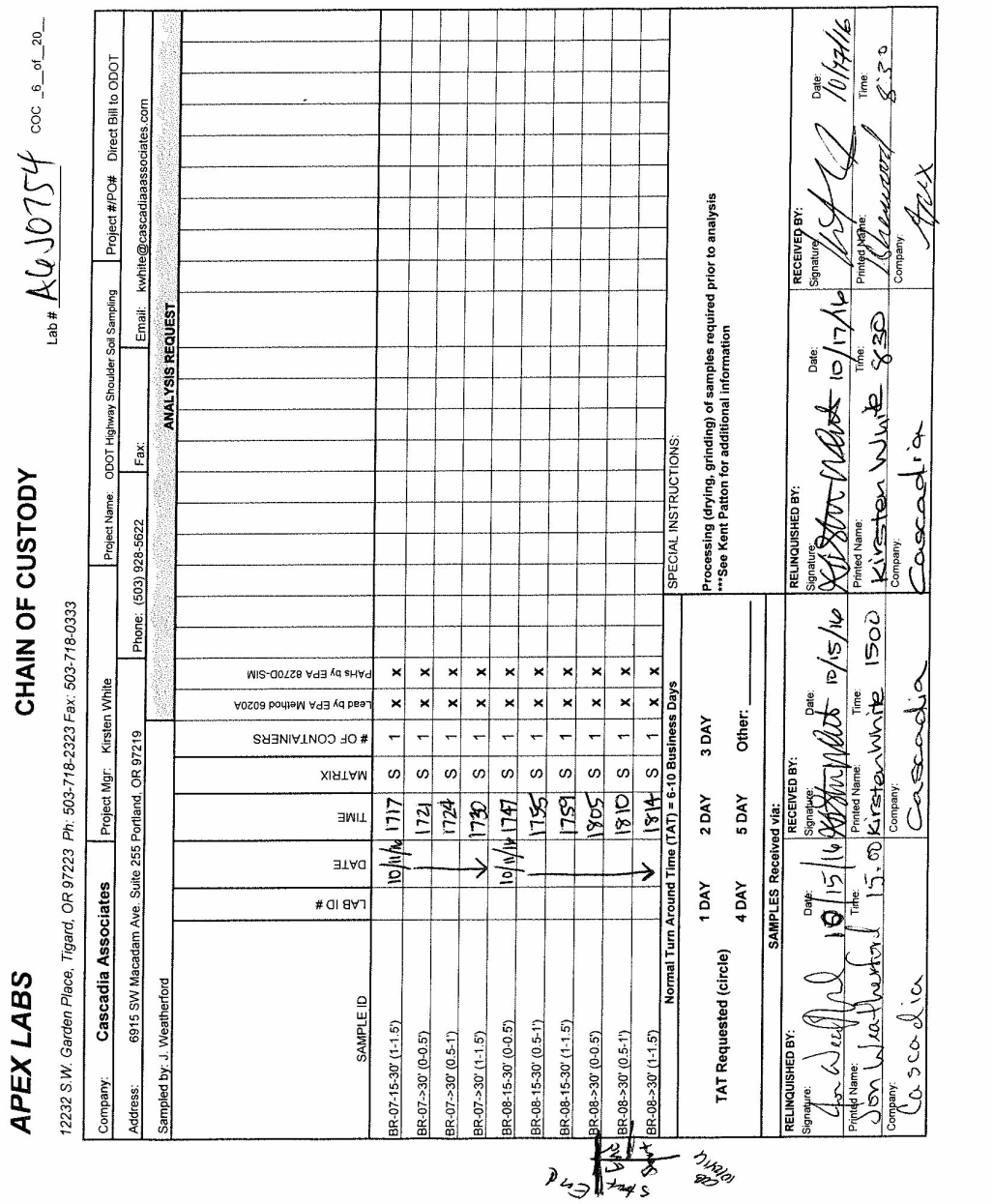
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY** — COC _6_of_20_ — Lab # AQJ0754

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-07-15-30' (1-1.5')		10/14/16	1717	S	1	X	X
BR-07->30' (0-0.5')			1721	S	1	X	X
BR-07->30' (0.5-1')			1724	S	1	X	X
BR-07->30' (1-1.5')			1730	S	1	X	X
BR-08-15-30' (0-0.5')		10/14/16	1747	S	1	X	X
BR-08-15-30' (0.5-1')			1735	S	1	X	X
BR-08-15-30' (1-1.5')			1759	S	1	X	X
BR-08->30' (0-0.5')			1805	S	1	X	X
BR-08->30' (0.5-1')			1810	S	1	X	X
BR-08->30' (1-1.5')			1814	S	1	X	X

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

SPECIAL INSTRUCTIONS:

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/15/16 Printed Name: Time: 1500 Company: Cascadia

RECEIVED BY: Signature: Date: 10/15/16 Printed Name: Kirsten White Time: 1500 Company: Cascadia

RELINQUISHED BY: Signature: Date: 10/17/16 Printed Name: Kirsten White Time: 830 Company: Cascadia

RECEIVED BY: Signature: Date: 10/17/16 Printed Name: Time: 8:30 Company: APEX

Shaw Rd — Canby Marina Dr

Apex Laboratories

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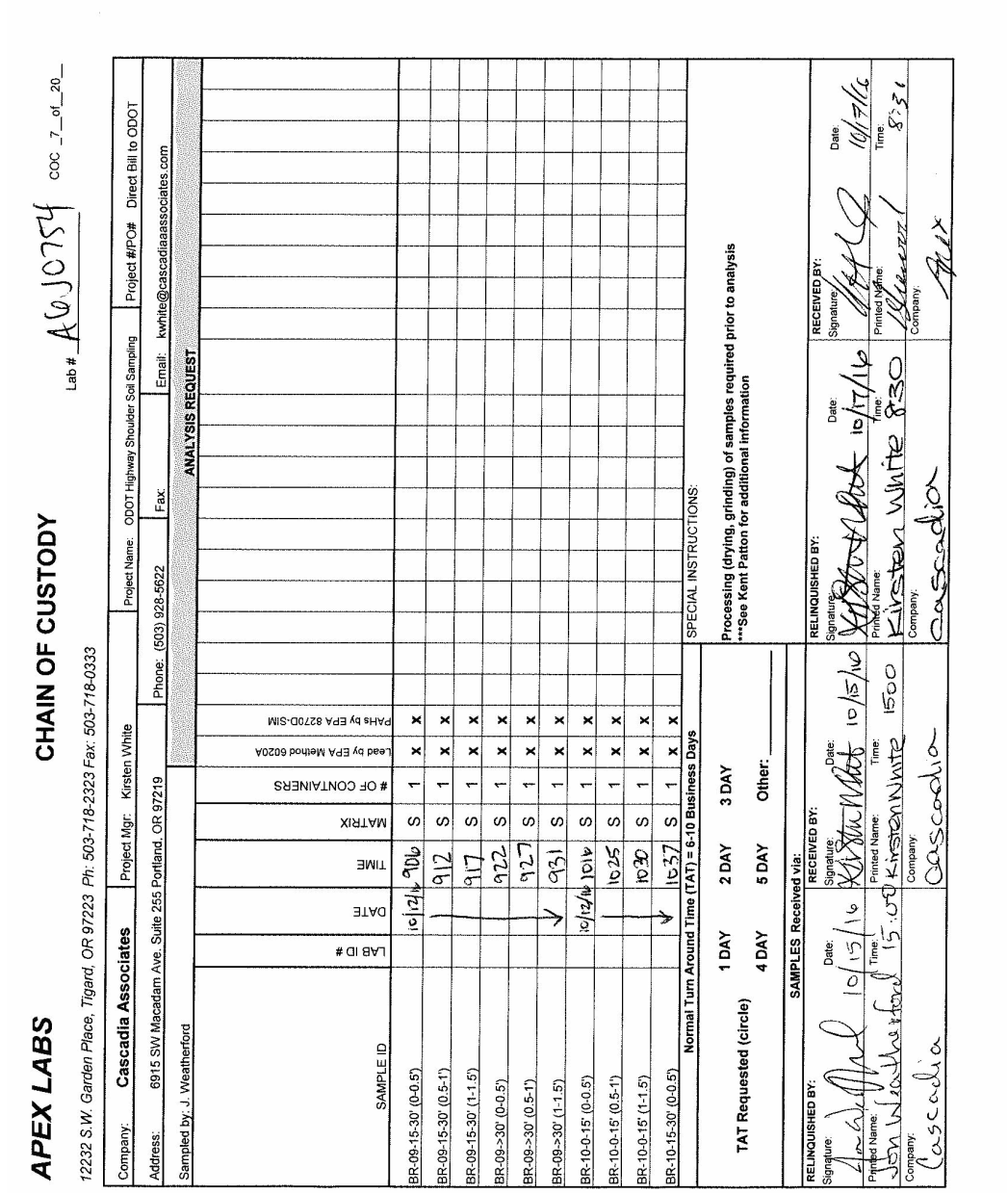
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY** — COC _7_ of _20_ — Lab # A6J0754

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-09-15-30' (0-0.5')		10/12/16	906	S	1	X	X
BR-09-15-30' (0.5-1')			912	S	1	X	X
BR-09-15-30' (1-1.5')			917	S	1	X	X
BR-09->30' (0-0.5')			922	S	1	X	X
BR-09->30' (0.5-1')			927	S	1	X	X
BR-09->30' (1-1.5')			931	S	1	X	X
BR-10-0-15' (0-0.5')		10/12/16	1014	S	1	X	X
BR-10-0-15' (0.5-1')			1025	S	1	X	X
BR-10-0-15' (1-1.5')			1030	S	1	X	X
BR-10-15-30' (0-0.5')			1037	S	1	X	X

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Date: 10/13/16	Date: 10/13/16	Date: 10/17/16	Date: 10/17/16
Time: 1500	Time: 1500	Time: 8:30	Time: 8:32
Printed Name: Jon Weatherford	Printed Name: Kirsten White	Printed Name: Kirsten White	Printed Name:
Company: Cascadia	Company: Cascadia	Company: Cascadia	Company:

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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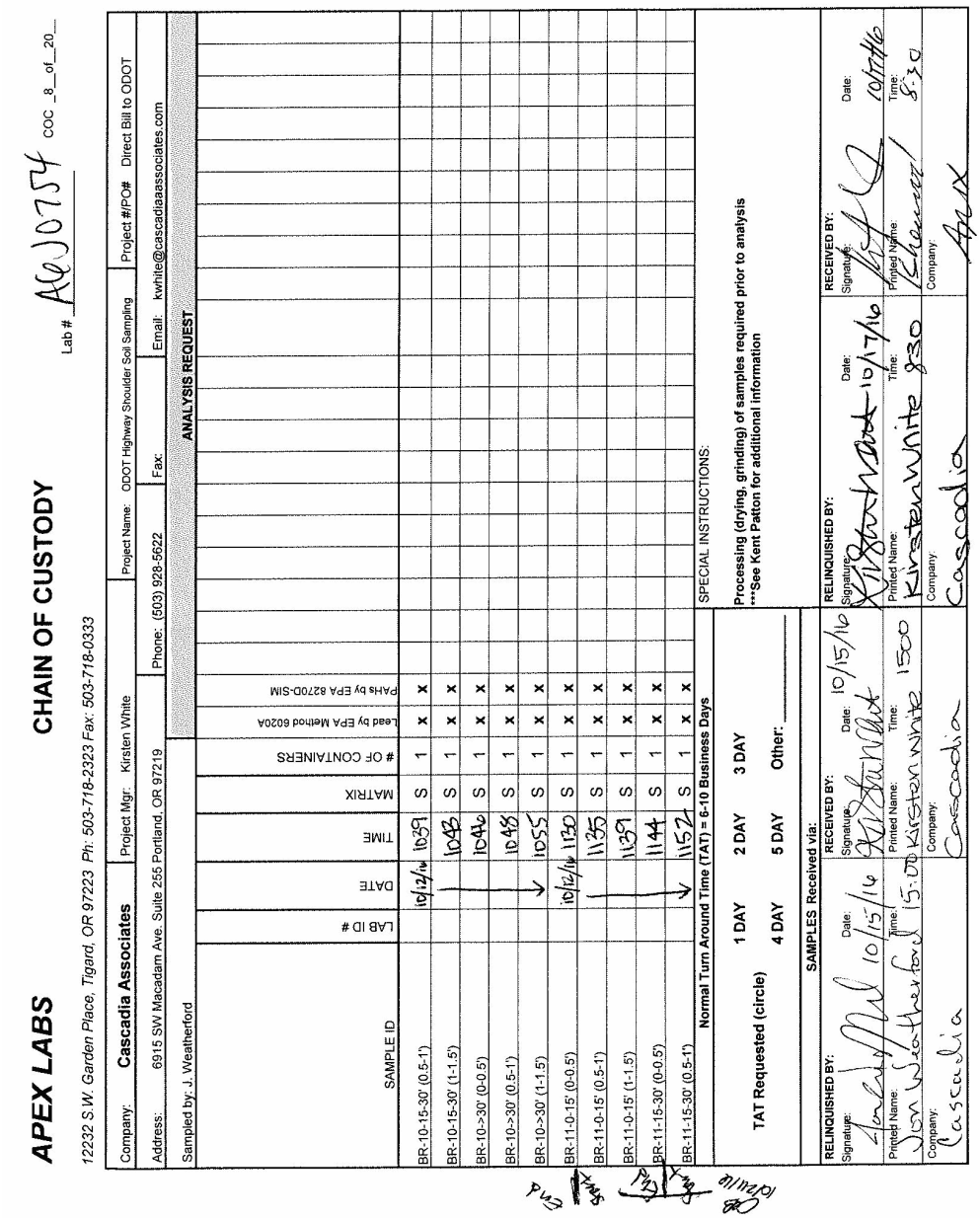
Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY** — Lab # AQJ0754 — COC _8_ of _20_

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-10-15-30' (0.5-1')		10/12/16	1039	S	1	x	x
BR-10-15-30' (1-1.5')			1043	S	1	x	x
BR-10->30' (0-0.5')			1046	S	1	x	x
BR-10->30' (0.5-1')			1048	S	1	x	x
BR-10->30' (1-1.5')			1055	S	1	x	x
BR-11-0-15' (0-0.5')		10/12/16	1130	S	1	x	x
BR-11-0-15' (0.5-1')			1135	S	1	x	x
BR-11-0-15' (1-1.5')			1139	S	1	x	x
BR-11-15-30' (0-0.5')			1144	S	1	x	x
BR-11-15-30' (0.5-1')			1152	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

SPECIAL INSTRUCTIONS:

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/15/16 Printed Name: Time: 1500 Company: Cascadia

RECEIVED BY: Signature: Date: 10/15/16 Printed Name: Kirsten White Time: 1530 Company: Cascadia

RELINQUISHED BY: Signature: Date: 10/17/16 Printed Name: Kirsten White Time: 830 Company: Cascadia

RECEIVED BY: Signature: Date: 10/17/16 Printed Name: Time: 8:30 Company: APEX

Apex Laboratories

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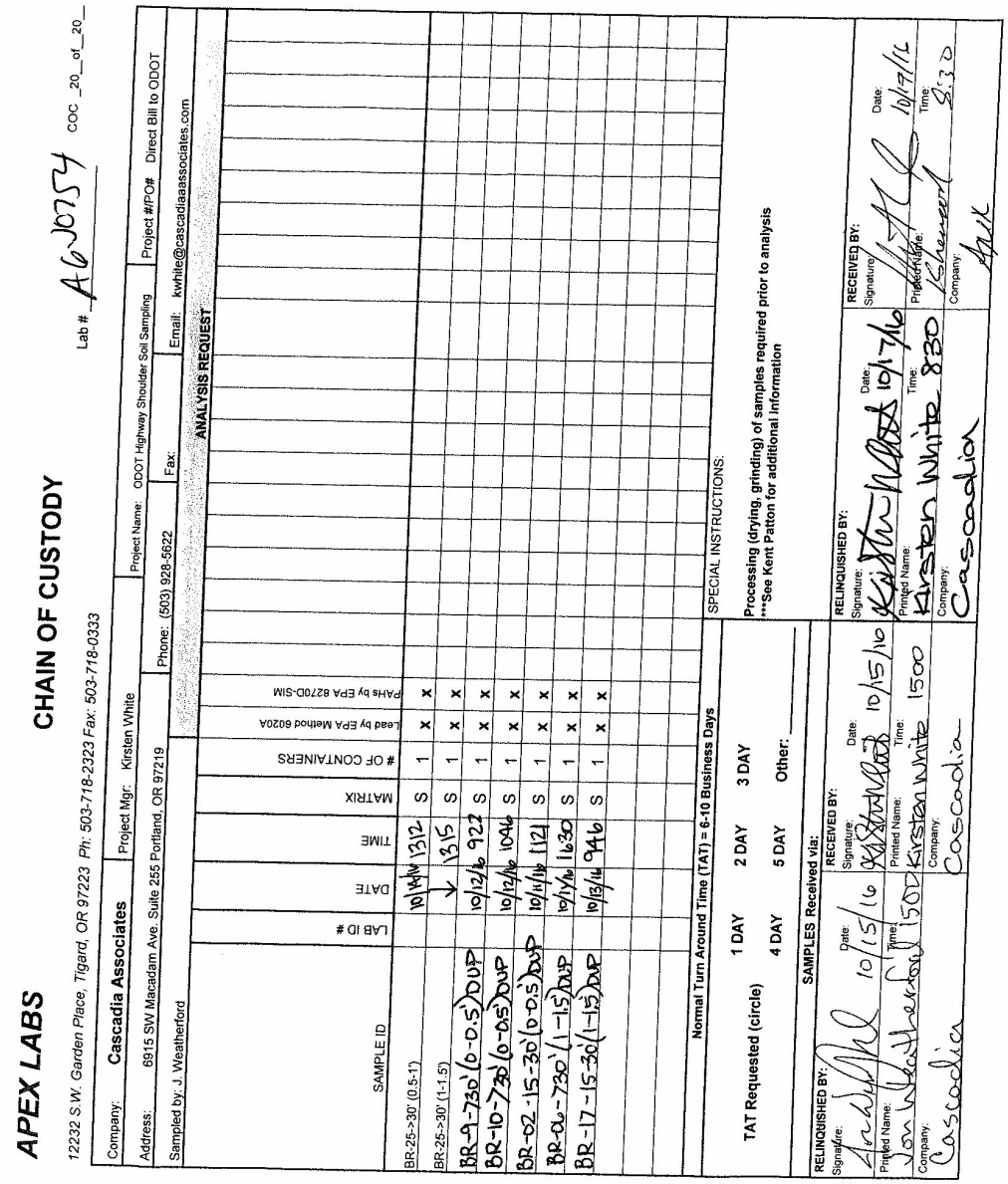
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # A6J0754 COC _20__of__20__

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-25->30' (0.5-1')		10/14/16	1312	S	1	X	X
BR-25->30' (1-1.5)		↓	1315	S	1	X	X
BR-9-730' (0-0.5') DUP		10/12/16	922	S	1	X	X
BR-10-730' (0-0.5') DUP		10/12/16	1040	S	1	X	X
BR-02-15-30' (0-0.5') DUP		10/11/16	1121	S	1	X	X
BR-04-730' (1-1.5') DUP		10/12/16	1630	S	1	X	X
BR-17-15-30' (1-1.5') DUP		10/13/16	946	S	1	X	X

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/15/16 Printed Name: Time: 1500 Company: Cascadia

RECEIVED BY: Signature: Date: 10/15/16 Printed Name: Time: 1500 Company:

RELINQUISHED BY: Signature: Date: 10/17/16 Printed Name: Kirsten White Time: 8:30 Company: Cascadia

RECEIVED BY: Signature: Date: 10/17/16 Printed Name: Time: 9:30 Company: Apex

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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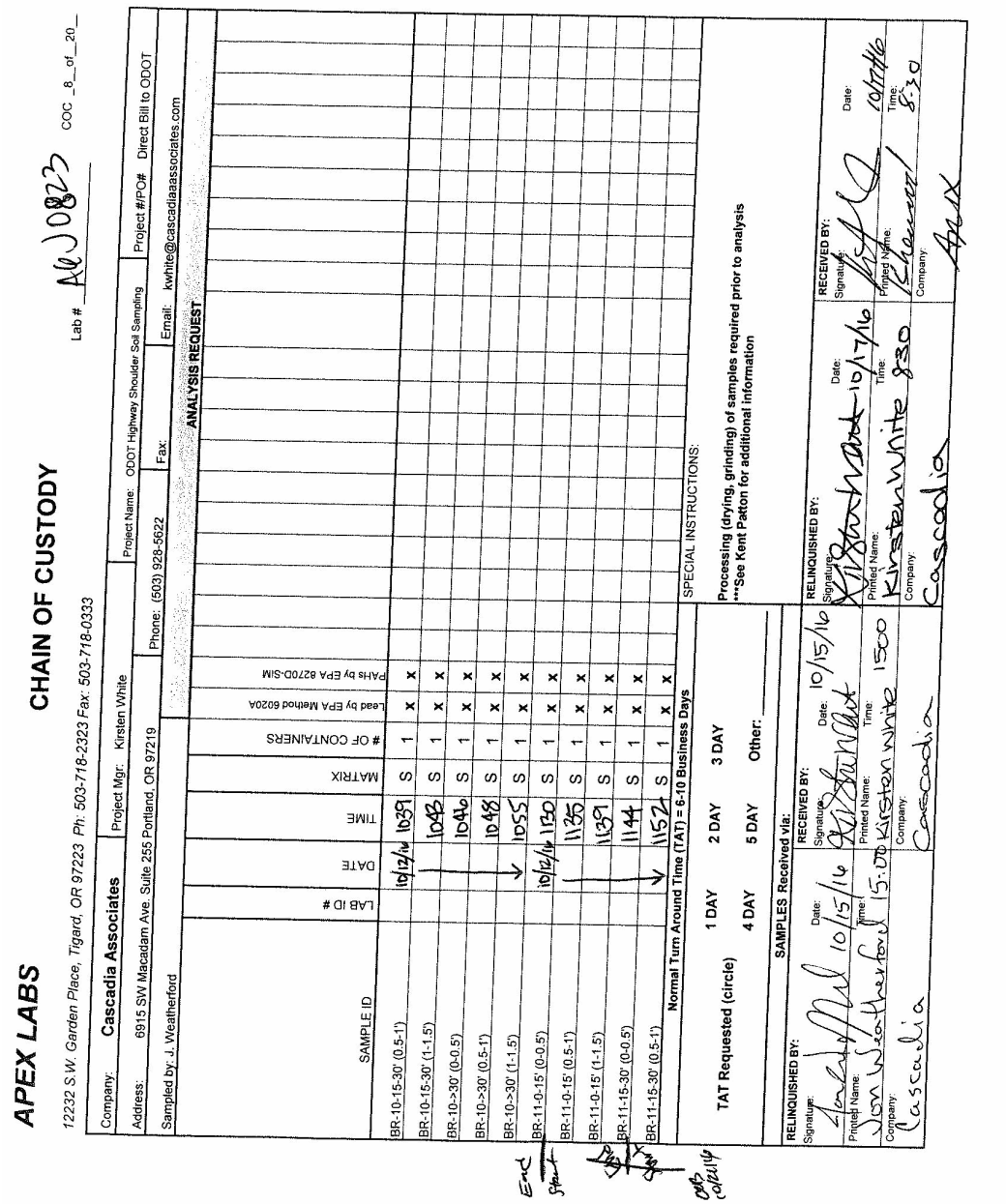
Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



Apex Laboratories

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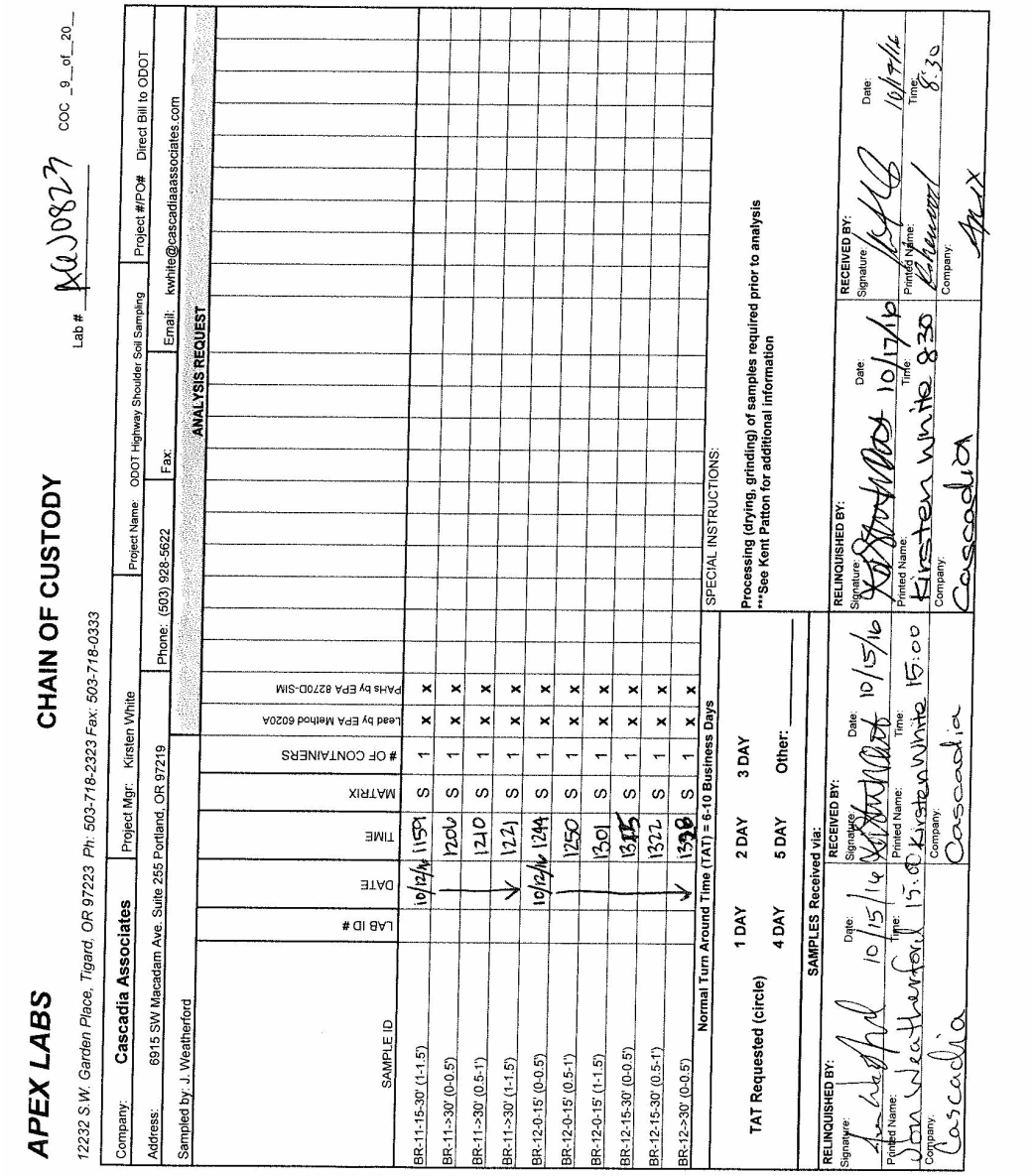
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS **CHAIN OF CUSTODY** Lab # AeJ0827 COC 9 of 20

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: **Cascadia Associates** Project Mgr: Kirsten White Project Name: ODOT Highway Shoulder Soil Sampling Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 Phone: (503) 928-5622 Fax: Email: kwhite@cascadiaaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-11-15-30' (1-1.5')		10/12/16	1159	S	1	x	x
BR-11->30' (0-0.5')			1206	S	1	x	x
BR-11->30' (0.5-1')			1210	S	1	x	x
BR-11->30' (1-1.5')			1221	S	1	x	x
BR-12-0-15' (0-0.5')		10/12/16	1244	S	1	x	x
BR-12-0-15' (0.5-1')			1250	S	1	x	x
BR-12-0-15' (1-1.5')			1301	S	1	x	x
BR-12-15-30' (0-0.5')			1315	S	1	x	x
BR-12-15-30' (0.5-1')			1322	S	1	x	x
BR-12->30' (0-0.5')			1338	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

SPECIAL INSTRUCTIONS:

Processing (drying, grinding) of samples required prior to analysis
*****See Kent Patton for additional information**

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date: 10/15/16	Signature: [signature] Date: 10/15/16	Signature: [signature] Date: 10/17/16	Signature: [signature] Date: 10/17/16
Printed Name: Jon Weatherford Time: 15:00	Printed Name: Kirsten White Time: 15:00	Printed Name: Kirsten White Time: 8:30	Printed Name: [signature] Time: 8:30
Company: Cascadia	Company: Cascadia	Company: Cascadia	Company: Apex

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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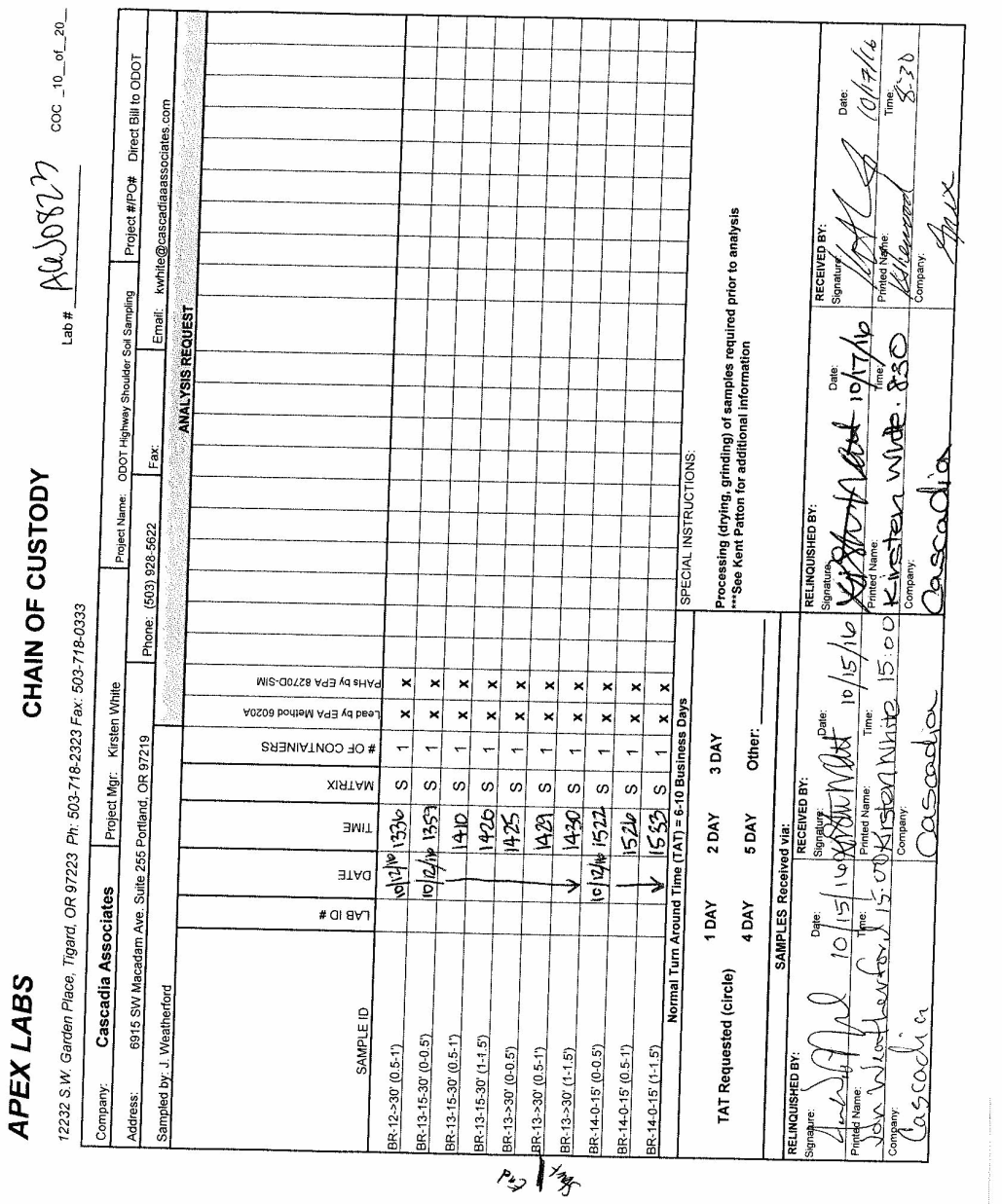
Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS **CHAIN OF CUSTODY** Lab # AeJ0827 COC _10__of__20__

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: **Cascadia Associates** Project Mgr: Kirsten White Project Name: ODOT Highway Shoulder Soil Sampling Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 Phone: (503) 928-5622 Fax: Email: kwhite@cascadiaaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-12->30' (0.5-1')		10/12/16	1336	S	1	x	x
BR-13-15-30' (0-0.5')		10/12/16	1357	S	1	x	x
BR-13-15-30' (0.5-1')			1410	S	1	x	x
BR-13-15-30' (1-1.5')			1420	S	1	x	x
BR-13->30' (0-0.5')			1425	S	1	x	x
BR-13->30' (0.5-1')			1429	S	1	x	x
BR-13->30' (1-1.5')			1430	S	1	x	x
BR-14-0-15' (0-0.5')		10/12/16	1522	S	1	x	x
BR-14-0-15' (0.5-1')			1526	S	1	x	x
BR-14-0-15' (1-1.5')			1533	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

SPECIAL INSTRUCTIONS:

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date: 10/15/16	Signature: [signature] Date: 10/15/16	Signature: [signature] Date: 10/17/16	Signature: [signature] Date: 10/17/16
Printed Name: Jon Weatherford Time: 15:00	Printed Name: Kirsten White Time: 15:00	Printed Name: Kirsten White Time: 8:30	Printed Name: [signature] Time: 8:30
Company: Cascadia	Company: Cascadia	Company: Cascadia	Company: Apex

End

Start

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

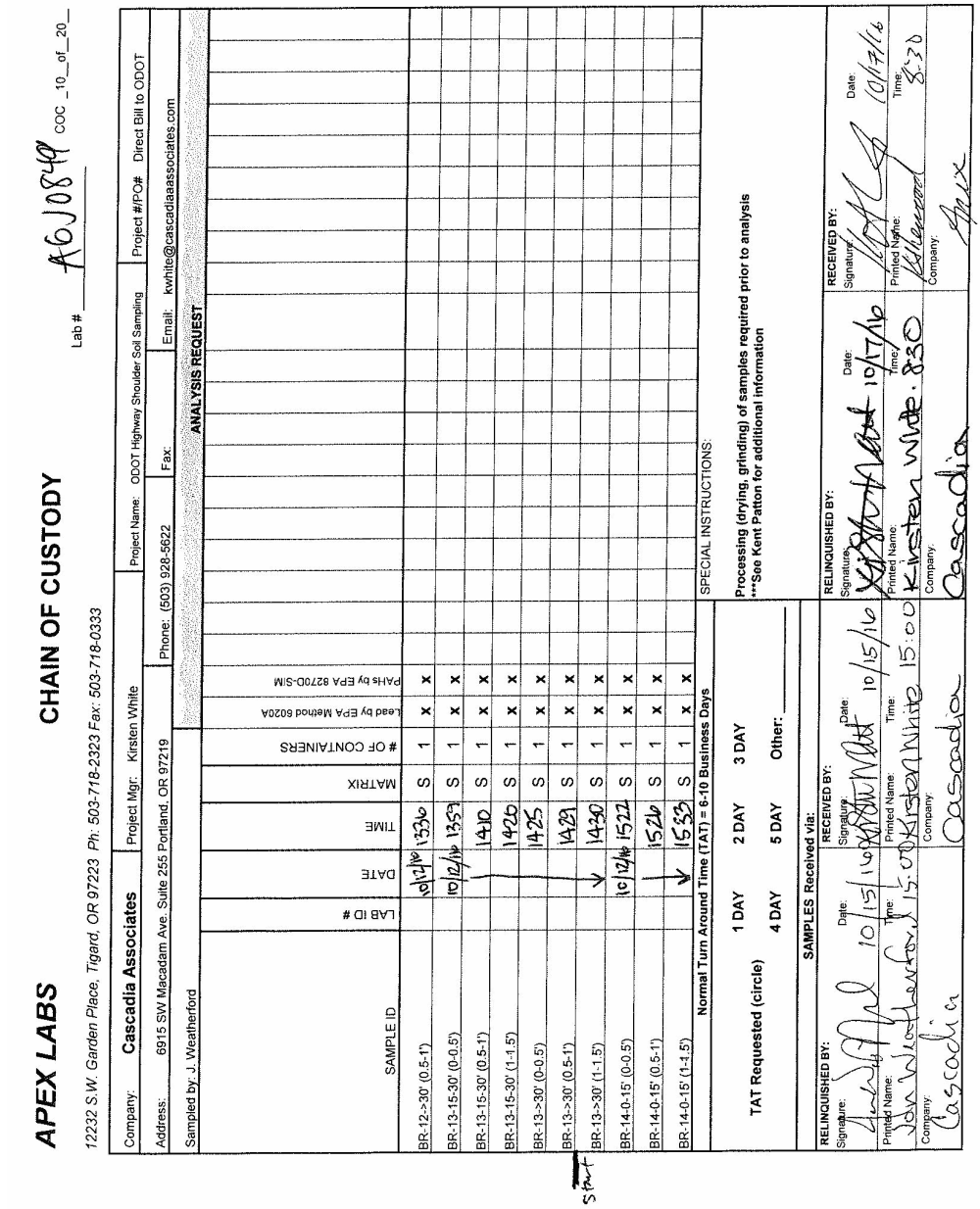
The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY** — Lab # A6J0849 — COC _10_ of _20_

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-12->30' (0.5-1')		10/12/16	1330	S	1	x	x
BR-13-15-30' (0-0.5')		10/12/16	1353	S	1	x	x
BR-13-15-30' (0.5-1')			1410	S	1	x	x
BR-13-15-30' (1-1.5')			1426	S	1	x	x
BR-13->30' (0-0.5')			1425	S	1	x	x
BR-13->30' (0.5-1')			1429	S	1	x	x
BR-13->30' (1-1.5')			1430	S	1	x	x
BR-14-0-15' (0-0.5')		10/12/16	1522	S	1	x	x
BR-14-0-15' (0.5-1')			1524	S	1	x	x
BR-14-0-15' (1-1.5')			1533	S	1	x	x

Start

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/15/16 Time: 15:00 Printed Name: Kirsten White Company: Cascadia

RECEIVED BY: Signature: Date: 10/15/16 Time: 1500 Printed Name: Company:

RELINQUISHED BY: Signature: Date: 10/17/16 Time: 8:30 Printed Name: Company: Cascadia

RECEIVED BY: Signature: Date: 10/17/16 Time: 8:30 Printed Name: Company:

Apex Laboratories

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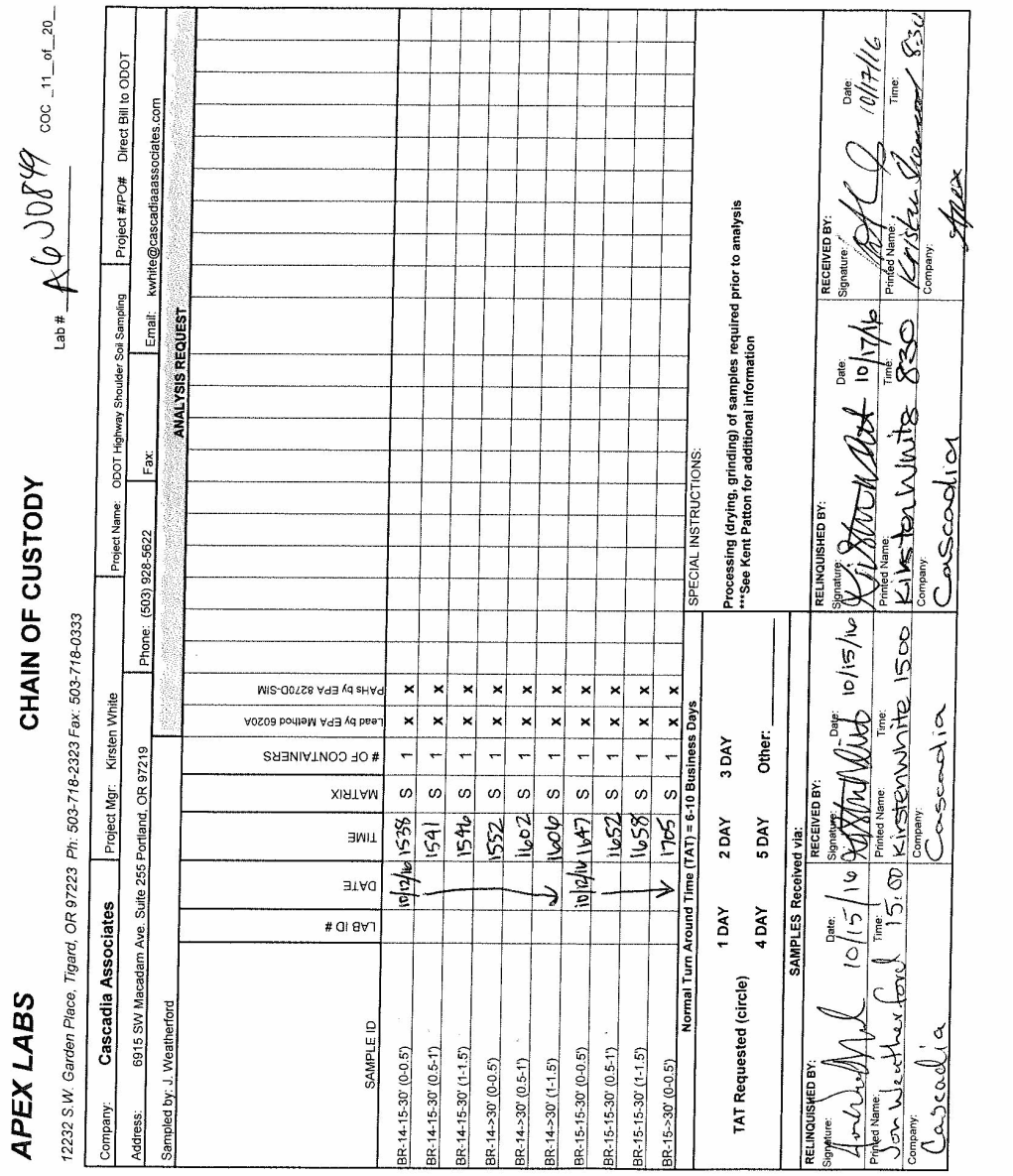
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY** — Lab # A6J0849 — COC _11_ of _20_

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-14-15-30' (0-0.5')		10/12/16	1538	S	1	x	x
BR-14-15-30' (0.5-1')			1541	S	1	x	x
BR-14-15-30' (1-1.5')			1546	S	1	x	x
BR-14->30' (0-0.5)			1552	S	1	x	x
BR-14->30' (0.5-1')			1602	S	1	x	x
BR-14->30' (1-1.5)			1606	S	1	x	x
BR-15-15-30' (0-0.5)		10/12/16	1647	S	1	x	x
BR-15-15-30' (0.5-1')			1652	S	1	x	x
BR-15-15-30' (1-1.5')			1658	S	1	x	x
BR-15->30' (0-0.5)			1705	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/15/16 Time: 15:00 Printed Name: Jon Weatherford Company: Cascadia

RECEIVED BY: Signature: Date: 10/15/16 Time: Printed Name: Kirsten White Company: Cascadia

RELINQUISHED BY: Signature: Date: 10/17/16 Time: 830 Printed Name: Kirsten White Company: Cascadia

RECEIVED BY: Signature: Date: 10/17/16 Time: 830 Printed Name: Kirsten Skinner Company: Apex

Apex Laboratories

Lisa A Domenighini

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

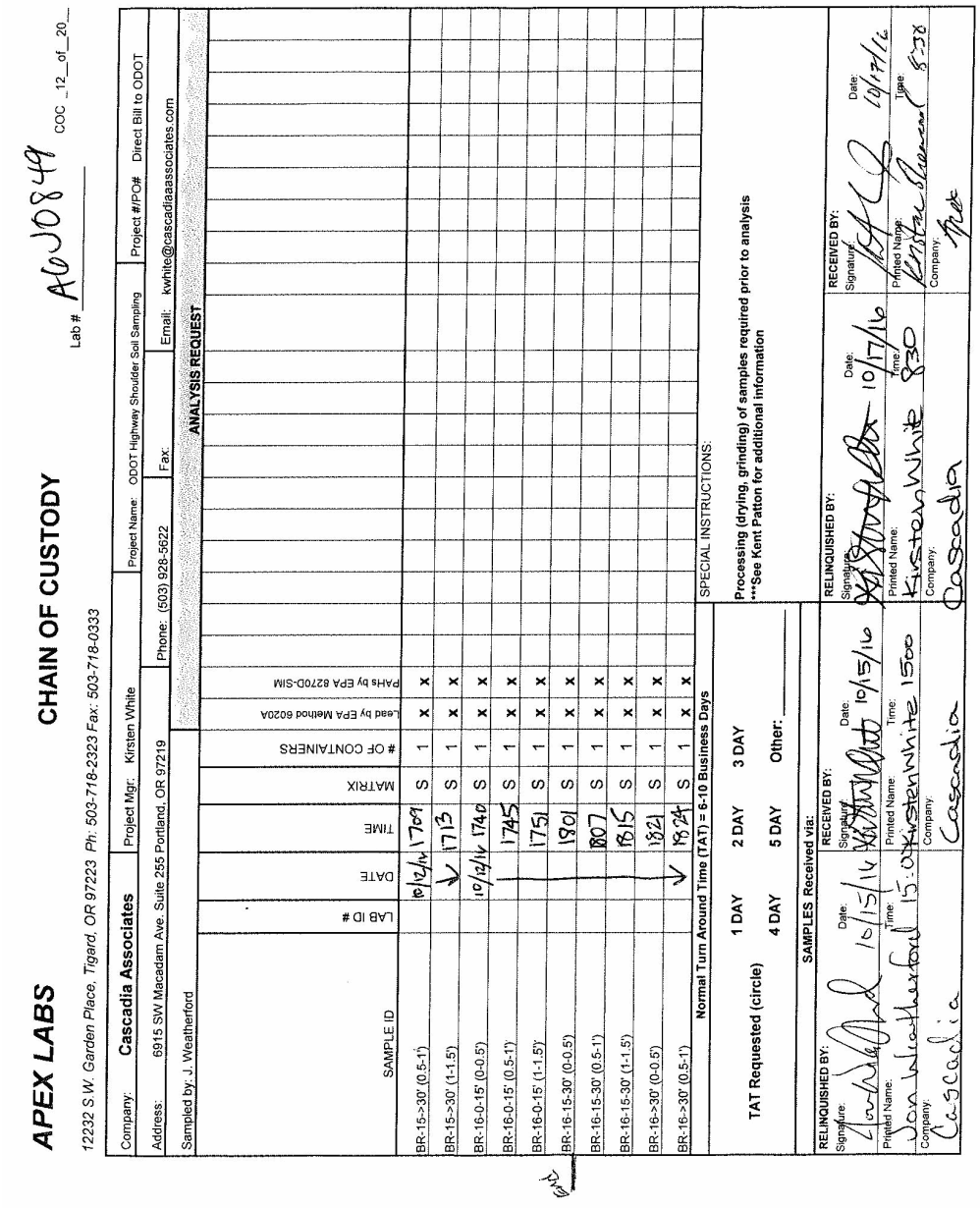
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS **CHAIN OF CUSTODY** Lab # A6J0849 COC 12 of 20

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: **Cascadia Associates** Project Mgr: Kirsten White Project Name: ODOT Highway Shoulder Soil Sampling Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 Phone: (503) 928-5622 Fax: Email: kwhite@cascadiaaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-15->30' (0.5-1')		10/12/16	1709	S	1	x	x
BR-15->30' (1-1.5')		↓	1713	S	1	x	x
BR-16-0-15' (0-0.5')		10/12/16	1740	S	1	x	x
BR-16-0-15' (0.5-1')			1745	S	1	x	x
BR-16-0-15' (1-1.5')			1751	S	1	x	x
BR-16-15-30' (0-0.5')			1801	S	1	x	x
BR-16-15-30' (0.5-1')			1807	S	1	x	x
BR-16-15-30' (1-1.5')			1815	S	1	x	x
BR-16->30' (0-0.5')			1821	S	1	x	x
BR-16->30' (0.5-1')		↓	1824	S	1	x	x

End

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

SPECIAL INSTRUCTIONS:

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date: 10/15/16	Signature: [signature] Date: 10/15/16	Signature: [signature] Date: 10/17/16	Signature: [signature] Date: 10/17/16
Printed Name: Jon Weatherford Time: 15:00	Printed Name: Kirsten White Time: 1500	Printed Name: Kirsten White Time: 830	Printed Name: Kirsten Sherwood Time: 8:30
Company: Cascadia	Company: Cascadia	Company: Cascadia	Company: Apex

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa A Domenighini

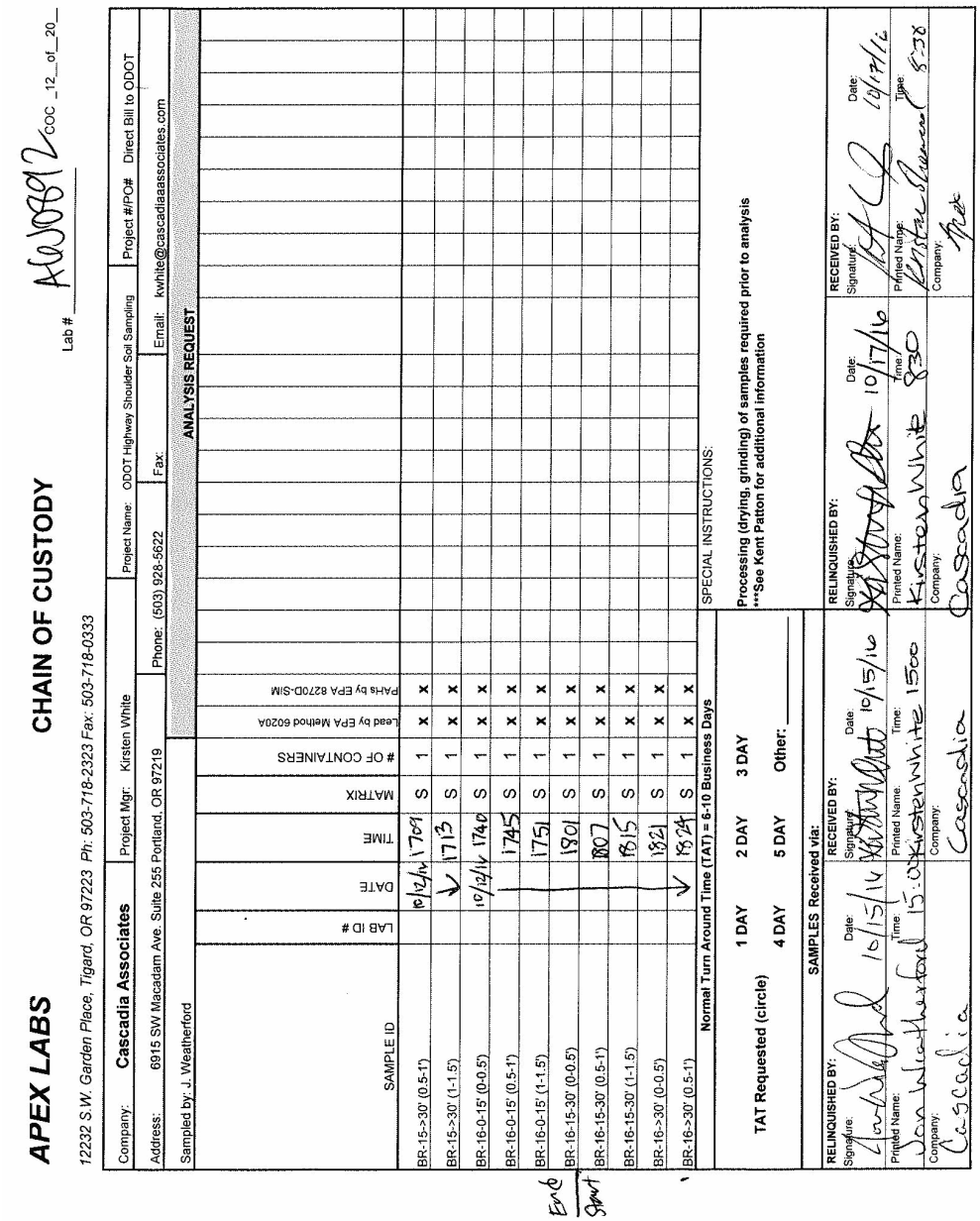
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS **CHAIN OF CUSTODY**

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # A6J0892 COC _12__of__20__

Company: **Cascadia Associates** | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO#: Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-15->30' (0.5-1')		10/12/16	1709	S	1	x	x
BR-15->30' (1-1.5')		↓	1713	S	1	x	x
BR-16-0-15' (0-0.5')		10/12/16	1740	S	1	x	x
BR-16-0-15' (0.5-1')			1745	S	1	x	x
BR-16-0-15' (1-1.5')			1751	S	1	x	x
BR-16-15-30' (0-0.5')			1801	S	1	x	x
BR-16-15-30' (0.5-1')			1807	S	1	x	x
BR-16-15-30' (1-1.5')			1815	S	1	x	x
BR-16->30' (0-0.5')			1821	S	1	x	x
BR-16->30' (0.5-1')		↓	1824	S	1	x	x

End
Start

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

SPECIAL INSTRUCTIONS:

Processing (drying, grinding) of samples required prior to analysis
*****See Kent Patton for additional information**

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date: 10/15/16	Signature: [signature] Date: 10/15/16	Signature: [signature] Date: 10/17/16	Signature: [signature] Date: 10/17/16
Printed Name: Jon Weatherford Time: 15:00	Printed Name: Kirsten White Time: 1500	Printed Name: Kirsten White Time: 830	Printed Name: Kristen Sherwood Time: 8:38
Company: Cascadia	Company: Cascadia	Company: Cascadia	Company: Apex

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa Domenighini, Client Services Manager

Apex Labs

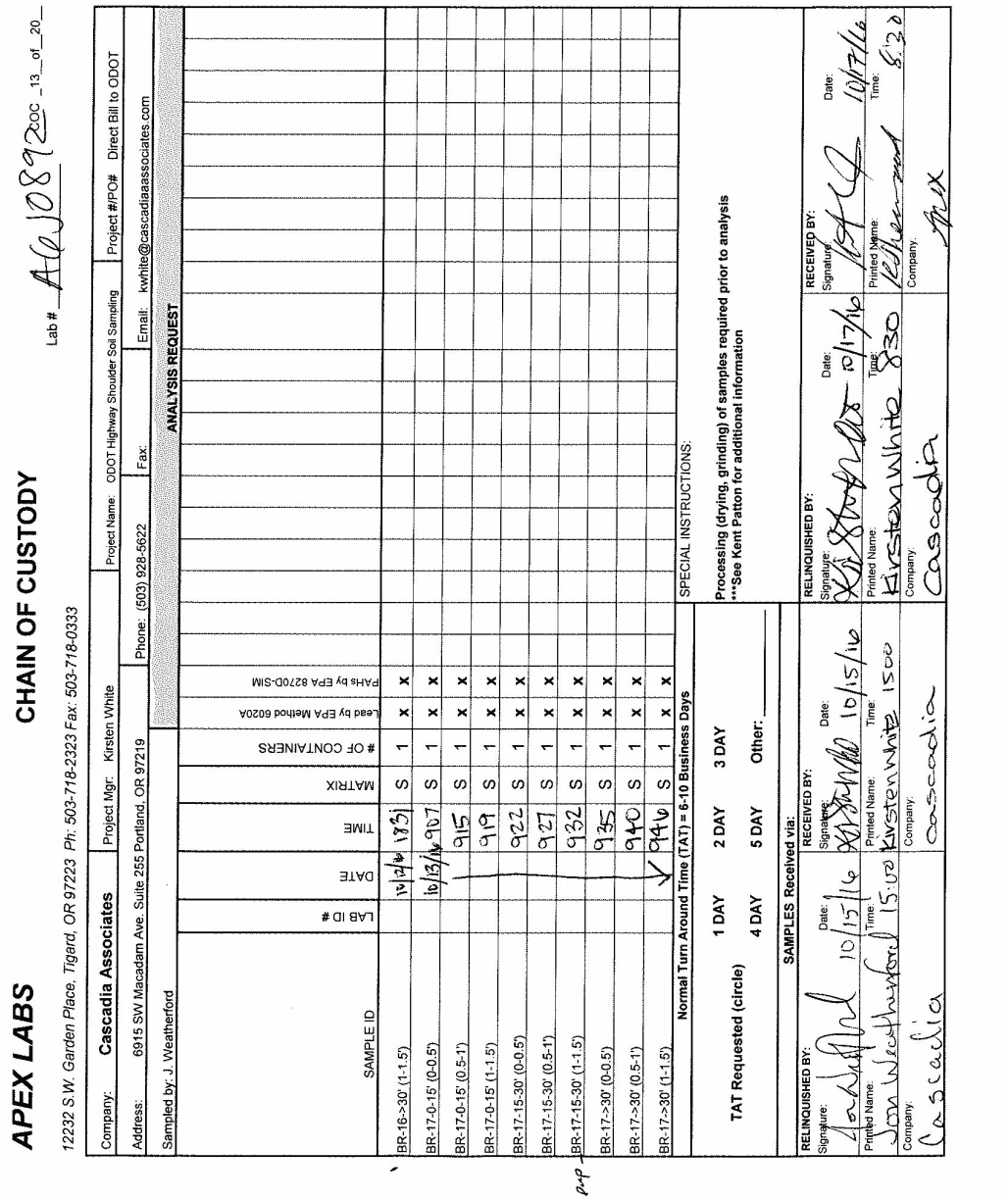
AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates
6915 SW Macadam, Suite 255
Portland, OR 97219

Project: **ODOT Clean Fill Project -- RSM**
Project Number: ODOT Clean Fill Project
Project Manager: Kirsten K. White

Reported:
03/21/17 09:46



APEX LABS

CHAIN OF CUSTODY

Lab # A6J0892 COC 13 of 20

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: **Cascadia Associates**	Project Mgr: Kirsten White	Project Name: ODOT Highway Shoulder Soil Sampling	Project #/PO# Direct Bill to ODOT
Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219	Phone: (503) 928-5622	Fax:	Email: kwhite@cascadiaaassociates.com
Sampled by: J. Weatherford			

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-16->30' (1-1.5')		10/12/16	1831	S	1	x	x
BR-17-0-15' (0-0.5')		10/13/16	907	S	1	x	x
BR-17-0-15' (0.5-1')			915	S	1	x	x
BR-17-0-15' (1-1.5')			919	S	1	x	x
BR-17-15-30' (0-0.5')			922	S	1	x	x
BR-17-15-30' (0.5-1')			927	S	1	x	x
pup BR-17-15-30' (1-1.5')			932	S	1	x	x
BR-17->30' (0-0.5')			935	S	1	x	x
BR-17->30' (0.5-1')			940	S	1	x	x
BR-17->30' (1-1.5')			946	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

SPECIAL INSTRUCTIONS:

Processing (drying, grinding) of samples required prior to analysis
*****See Kent Patton for additional information**

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date: 10/15/16	Signature: [signature] Date: 10/15/16	Signature: [signature] Date: 10/17/16	Signature: [signature] Date: 10/17/16
Printed Name: Jon Weatherford Time: 15:00	Printed Name: Kirsten White Time: 1500	Printed Name: Kirsten White Time: 830	Printed Name: [signature] Time: 8:30
Company: Cascadia	Company: cascadia	Company: Cascadia	Company: Apex

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

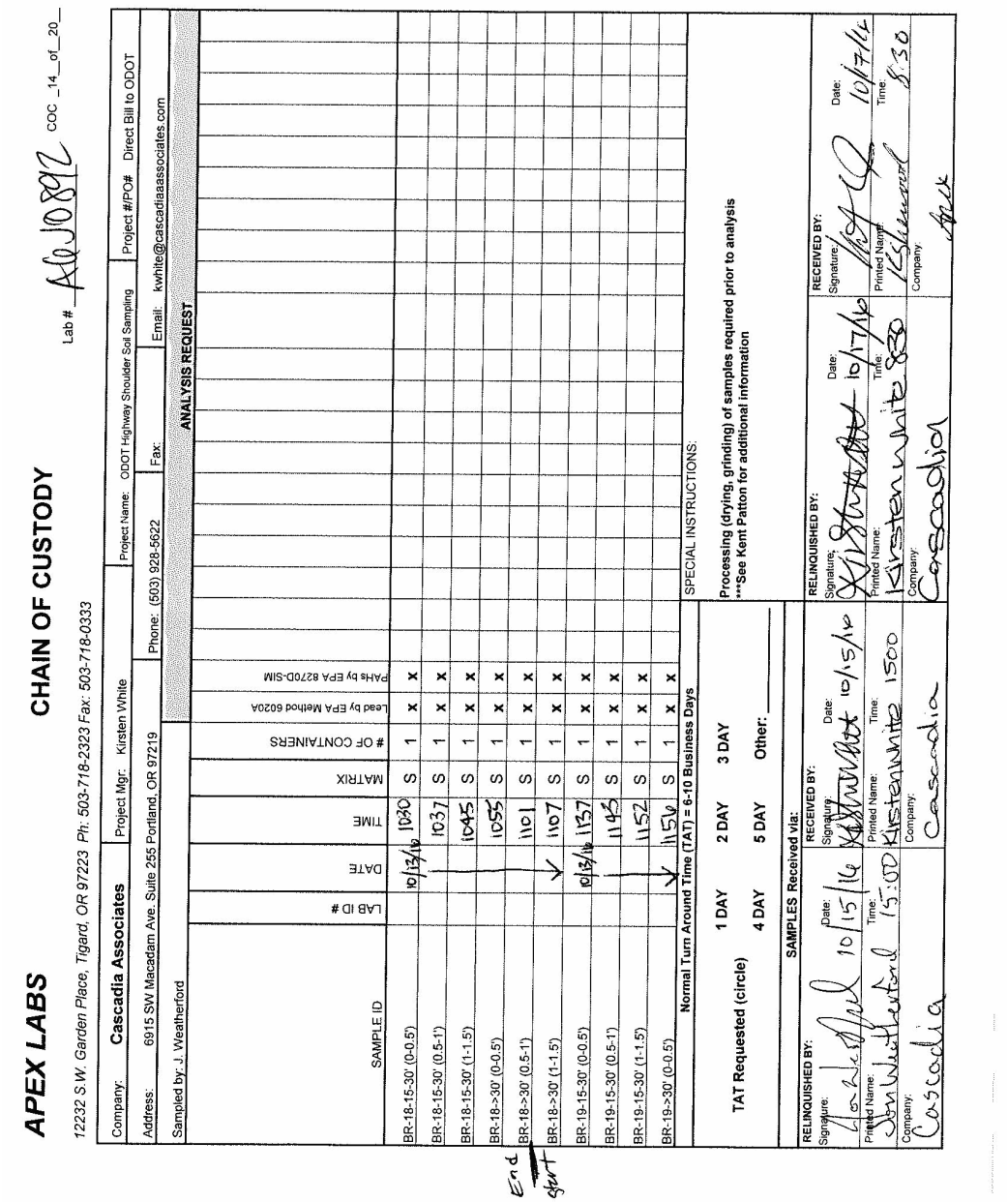
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY** — Lab # AQJ0892 — COC _14_ of _20_

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-18-15-30' (0-0.5')		10/13/16	1030	S	1	x	x
BR-18-15-30' (0.5-1')			1037	S	1	x	x
BR-18-15-30' (1-1.5')			1045	S	1	x	x
BR-18->30' (0-0.5')			1055	S	1	x	x
BR-18->30' (0.5-1')			1101	S	1	x	x
BR-18->30' (1-1.5')		↓	1107	S	1	x	x
BR-19-15-30' (0-0.5')		10/13/16	1137	S	1	x	x
BR-19-15-30' (0.5-1')			1145	S	1	x	x
BR-19-15-30' (1-1.5')			1152	S	1	x	x
BR-19->30' (0-0.5)		↓	1159	S	1	x	x

End / Start

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

SPECIAL INSTRUCTIONS:

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: Jon Weatherford	Printed Name: Kirsten White	Printed Name: Kirsten White	Printed Name:
Company: Cascadia	Company: Cascadia	Company: Cascadia	Company:
Date: 10/15/16	Date: 10/15/16	Date: 10/17/16	Date: 10/17/16
Time: 15:00	Time: 1500	Time: 8:38	Time: 8:30

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

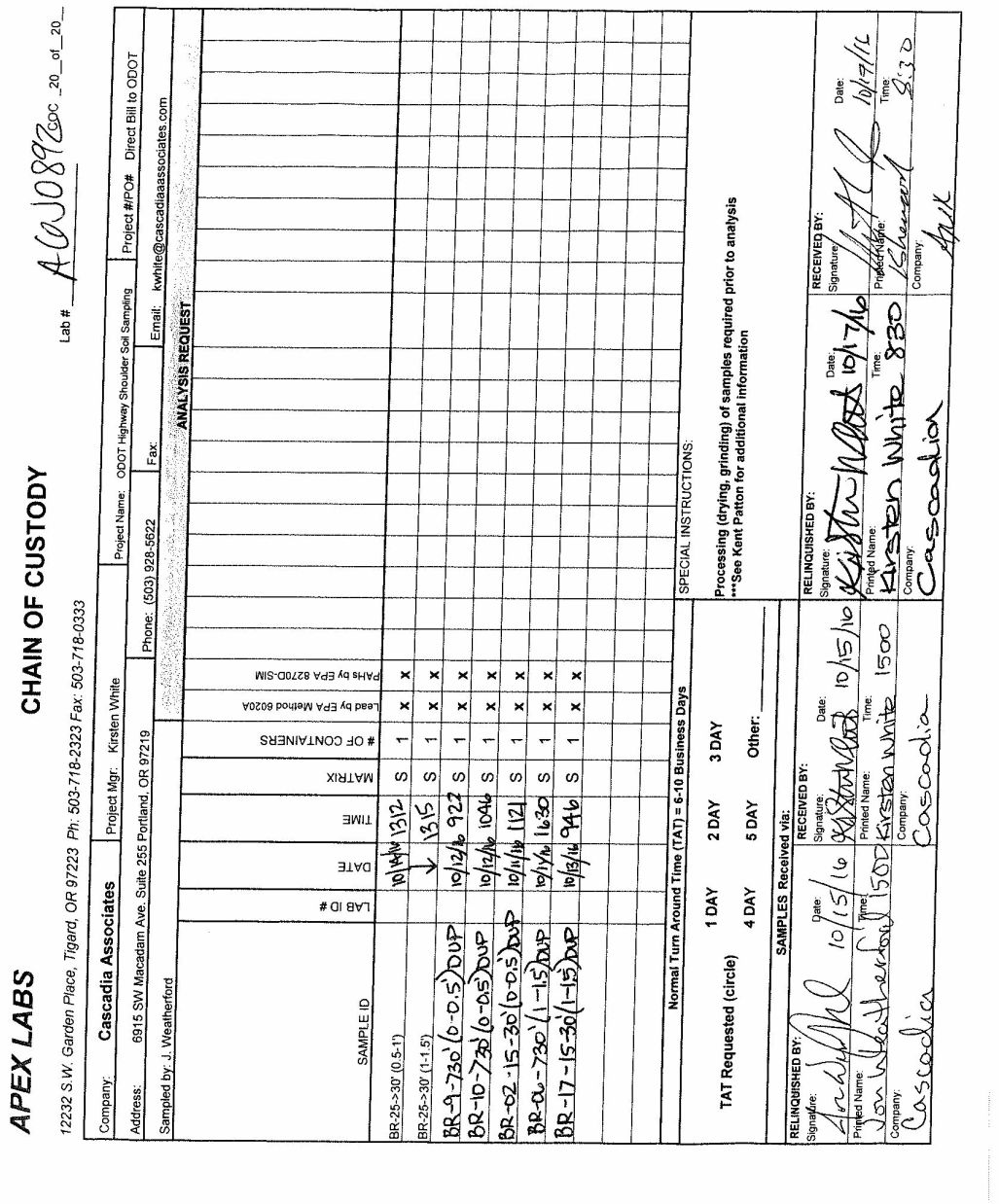
The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY**

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # A6J0892 COC _20__of__20__

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM	
BR-25->30' (0.5-1')		10/14/16	1312	S	1	x	x	
BR-25->30' (1-1.5')		↓	1315	S	1	x	x	
BR-9-7.30'(0-0.5')DUP		10/12/16	922	S	1	x	x	
BR-10-7.30'(0-0.5')DUP		10/12/16	1040	S	1	x	x	
BR-02-15-30'(0-0.5')DUP		10/11/16	1121	S	1	x	x	
BR-06-7.30'(1-1.5')DUP		10/1/16	1630	S	1	x	x	
BR-17-15-30'(1-1.5')DUP		10/13/16	946	S	1	x	x	

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/15/16 Printed Name: Time: 1500 Company: Cascadia

RECEIVED BY: Signature: Date: 10/15/16 Printed Name: Time: 1500 Company: Cascadia

RELINQUISHED BY: Signature: Date: 10/17/16 Printed Name: Kirsten White Time: 830 Company: Cascadia

RECEIVED BY: Signature: Date: 10/17/16 Printed Name: Time: 8:30 Company: Apex

Apex Laboratories

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Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

APEX LABS COOLER RECEIPT FORM

Client: Cascadia Associates Element WO#: A6 J0892

Project/Project #: ODOT Highway Shoulder Soil Sampling

Delivery info:

Date/Time Received: 10/17/16 @ 8:30 By: JMS

Delivered by: Apex___Client X ESS___FedEx___UPS___Swift___Senvoy___SDS___Other___

Cooler Inspection Inspected by: JMS : 10/17/16 @ 8:48

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	5.6	5.9	4.9	2.3			
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:	good						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: JMS : 10/25/16 @ 1835

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes___ No X Comments: BR-16 → 30'(0.5-1') time on cont. reads 1831. BR-16 → 30'(1-1.5') time on cont.

Containers/Volumes Received Appropriate for Analysis? Yes Y No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes___No___NA X

Comments:

Additional Information: reads 18:24. Time on BR-17-0-15(0.5-1') reads 9:17

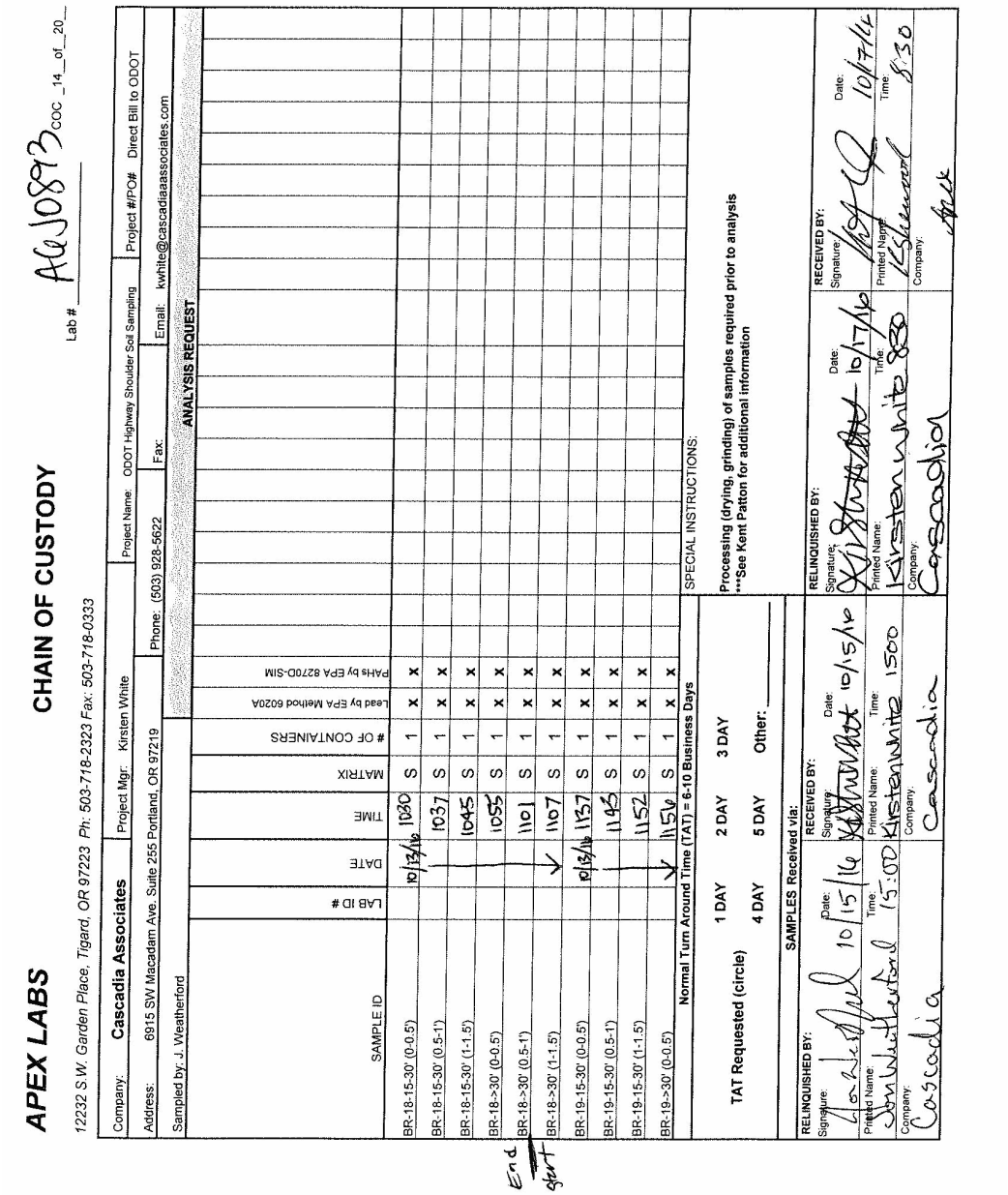
Labeled by: JMS Witness: KW Cooler Inspected by: JMS See Project Contact Form: Y

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY** — COC 14 of 20 — Lab # AQJ0893

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-18-15-30' (0-0.5')		10/13/16	1030	S	1	X	X
BR-18-15-30' (0.5-1')			1037	S	1	X	X
BR-18-15-30' (1-1.5')			1045	S	1	X	X
BR-18->30' (0-0.5')			1055	S	1	X	X
BR-18->30' (0.5-1')			1101	S	1	X	X
BR-18->30' (1-1.5')		↓	1107	S	1	X	X
BR-19-15-30' (0-0.5')		10/13/16	1137	S	1	X	X
BR-19-15-30' (0.5-1')			1145	S	1	X	X
BR-19-15-30' (1-1.5')			1152	S	1	X	X
BR-19->30' (0-0.5')		↓	1156	S	1	X	X

End
Start

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/15/16 Printed Name: Time: Company: Cascadia

RECEIVED BY: Signature: Date: 10/15/16 Printed Name: Time: 15:00 Company: Kirsten White

RELINQUISHED BY: Signature: Date: 10/17/16 Printed Name: Time: 8:30 Company: Cascadia

RECEIVED BY: Signature: Date: 10/17/16 Printed Name: Time: Company:

Apex Laboratories

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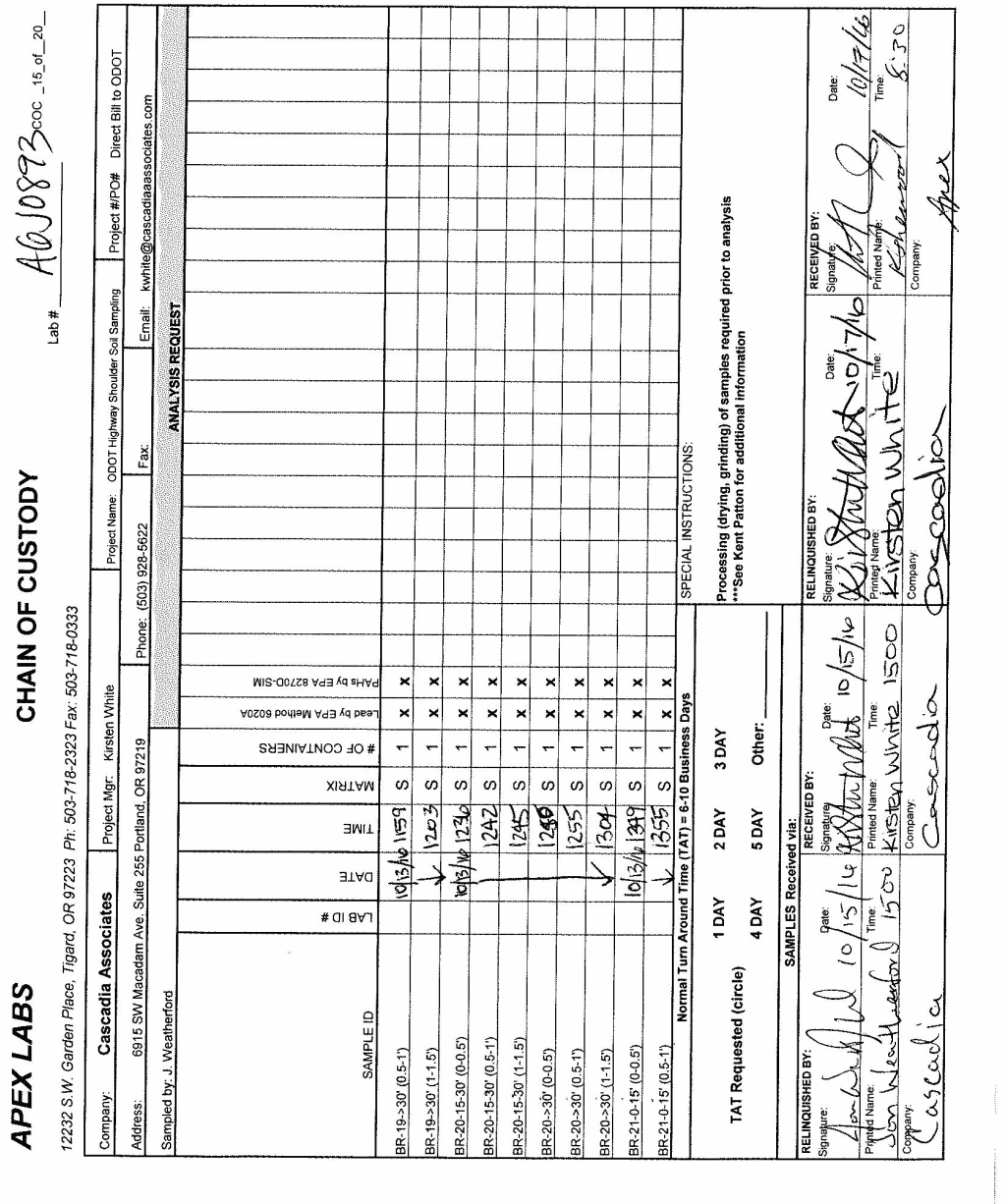
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS

CHAIN OF CUSTODY

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # AQJ0893 COC _15_of_20_

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-19->30' (0.5-1')		10/13/16	1159	S	1	x	x
BR-19->30' (1-1.5')		↓	1203	S	1	x	x
BR-20-15-30' (0-0.5')		10/13/16	1236	S	1	x	x
BR-20-15-30' (0.5-1')			1242	S	1	x	x
BR-20-15-30' (1-1.5')			1245	S	1	x	x
BR-20->30' (0-0.5')			1249	S	1	x	x
BR-20->30' (0.5-1')			1255	S	1	x	x
BR-20->30' (1-1.5')		↓	1304	S	1	x	x
BR-21-0-15' (0-0.5')		10/13/16	1319	S	1	x	x
BR-21-0-15' (0.5-1')		↓	1355	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/13/16 Time: 1500 Printed Name: Jon Weatherford Company: Cascadia

RECEIVED BY: Signature: Date: 10/13/16 Time: 1500 Printed Name: Kirsten White Company: Cascadia

RELINQUISHED BY: Signature: Date: 10/17/16 Time: Printed Name: Kirsten White Company: Cascadia

RECEIVED BY: Signature: Date: 10/17/16 Time: 8:30 Printed Name: Apex Company: Apex

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

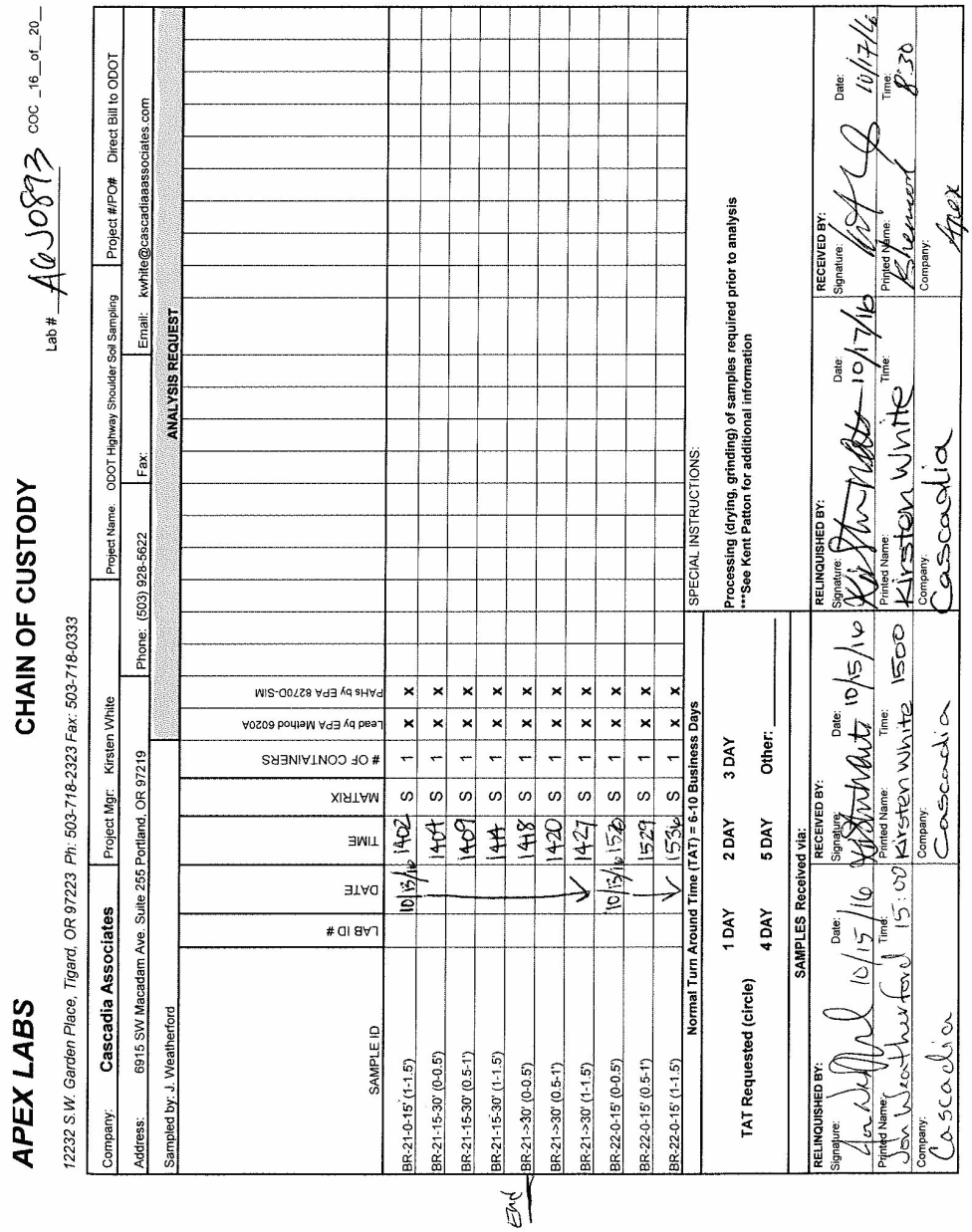
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY** — COC _16_ of _20_ — Lab # AQJ0893

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-21-0-15' (1-1.5)		10/5/16	1402	S	1	X	X
BR-21-15-30' (0-0.5)			1404	S	1	X	X
BR-21-15-30' (0.5-1')			1409	S	1	X	X
BR-21-15-30' (1-1.5)			1414	S	1	X	X
BR-21->30' (0-0.5)			1418	S	1	X	X
BR-21->30' (0.5-1')			1420	S	1	X	X
BR-21->30' (1-1.5)			1427	S	1	X	X
BR-22-0-15' (0-0.5)		10/5/16	1528	S	1	X	X
BR-22-0-15' (0.5-1')			1529	S	1	X	X
BR-22-0-15' (1-1.5)			1536	S	1	X	X

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: Jon Weatherford	Printed Name: Kirsten White	Printed Name: Kirsten White	Printed Name: Kent Patton
Company: Cascadia	Company: Cascadia	Company: Cascadia	Company: Apex
Date: 10/5/16	Date: 10/5/16	Date: 10/7/16	Date: 10/7/16
Time: 15:00	Time: 1500	Time:	Time: 8:30

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

APEX LABS COOLER RECEIPT FORM

Client: Cascadia Associates Element WO#: A6 J0893

Project/Project #: ODOT Highway Shoulder Soil Sampling

Delivery info:

Date/Time Received: 10/7/16 @ 8:30 By: JMS

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: JMS : 10/7/16 @ 8:48

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	5.6	5.9	4.9	2.3			
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:	good						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: JMS : 10/7/16 @ 1558

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes X No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes___ No___ NA —

Comments:

Additional Information:

Labeled by: CLB Witness: JMS Cooler Inspected by: CLB See Project Contact Form: Y

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

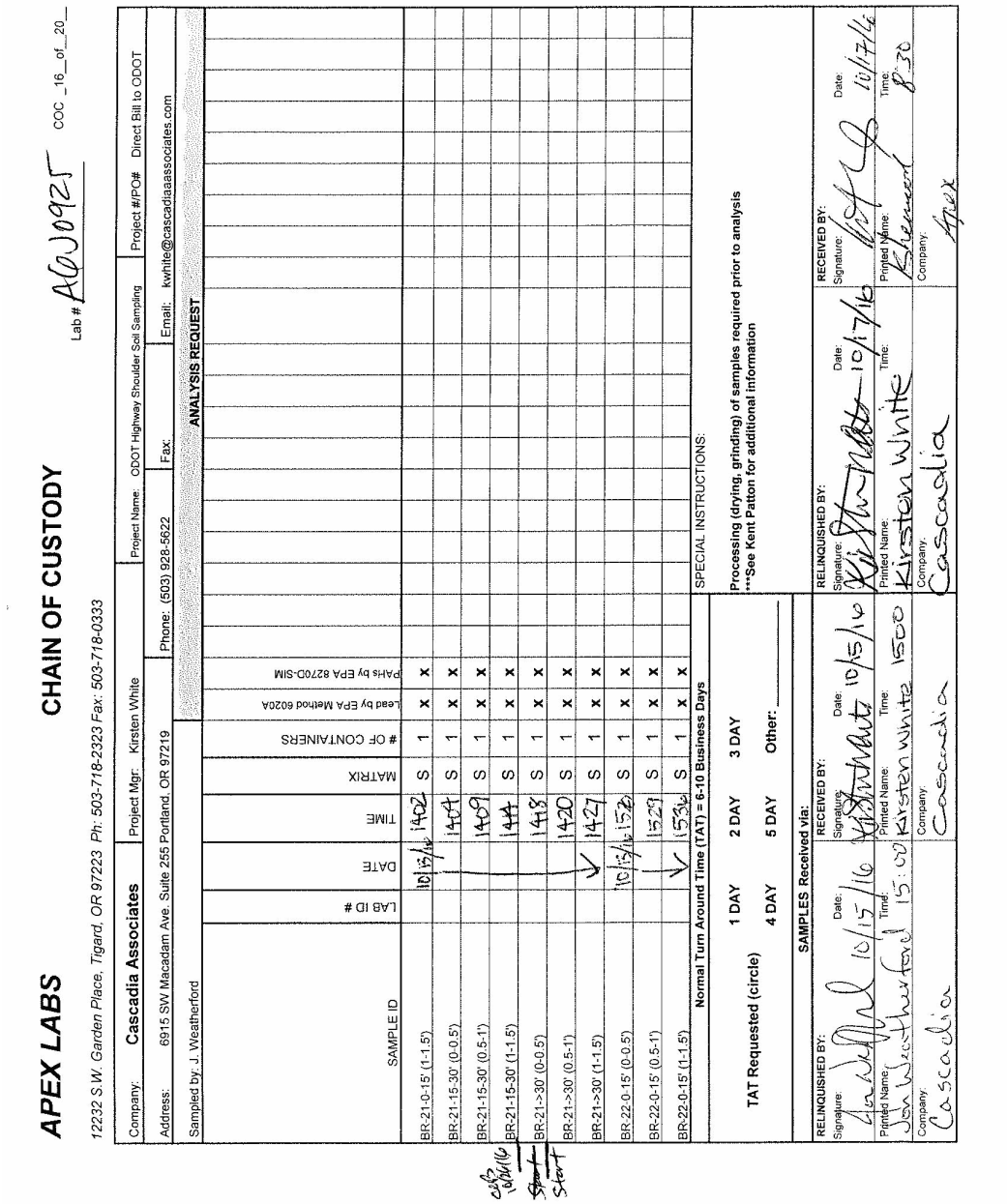
The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY** — Lab # A0J0925 — COC _16_ of _20_

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-21-0-15' (1-1.5)		10/13/16	1402	S	1	X	X
BR-21-15-30' (0-0.5)			1404	S	1	X	X
BR-21-15-30' (0.5-1)			1409	S	1	X	X
BR-21-15-30' (1-1.5)			1414	S	1	X	X
BR-21->30' (0-0.5)			1418	S	1	X	X
BR-21->30' (0.5-1)			1420	S	1	X	X
BR-21->30' (1-1.5)			1427	S	1	X	X
BR-22-0-15' (0-0.5)		10/13/16	1532	S	1	X	X
BR-22-0-15' (0.5-1)			1529	S	1	X	X
BR-22-0-15' (1-1.5)			1536	S	1	X	X

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Date: 10/15/16	Date: 10/15/16	Date: 10/17/16	Date: 10/17/16
Printed Name: Jon Weatherford	Printed Name: Kirsten White	Printed Name: Kirsten White	Printed Name: Sherman
Time: 15:00	Time: 1500	Time:	Time: 8:30
Company: Cascadia	Company: Cascadia	Company:	Company: Apex

Apex Laboratories

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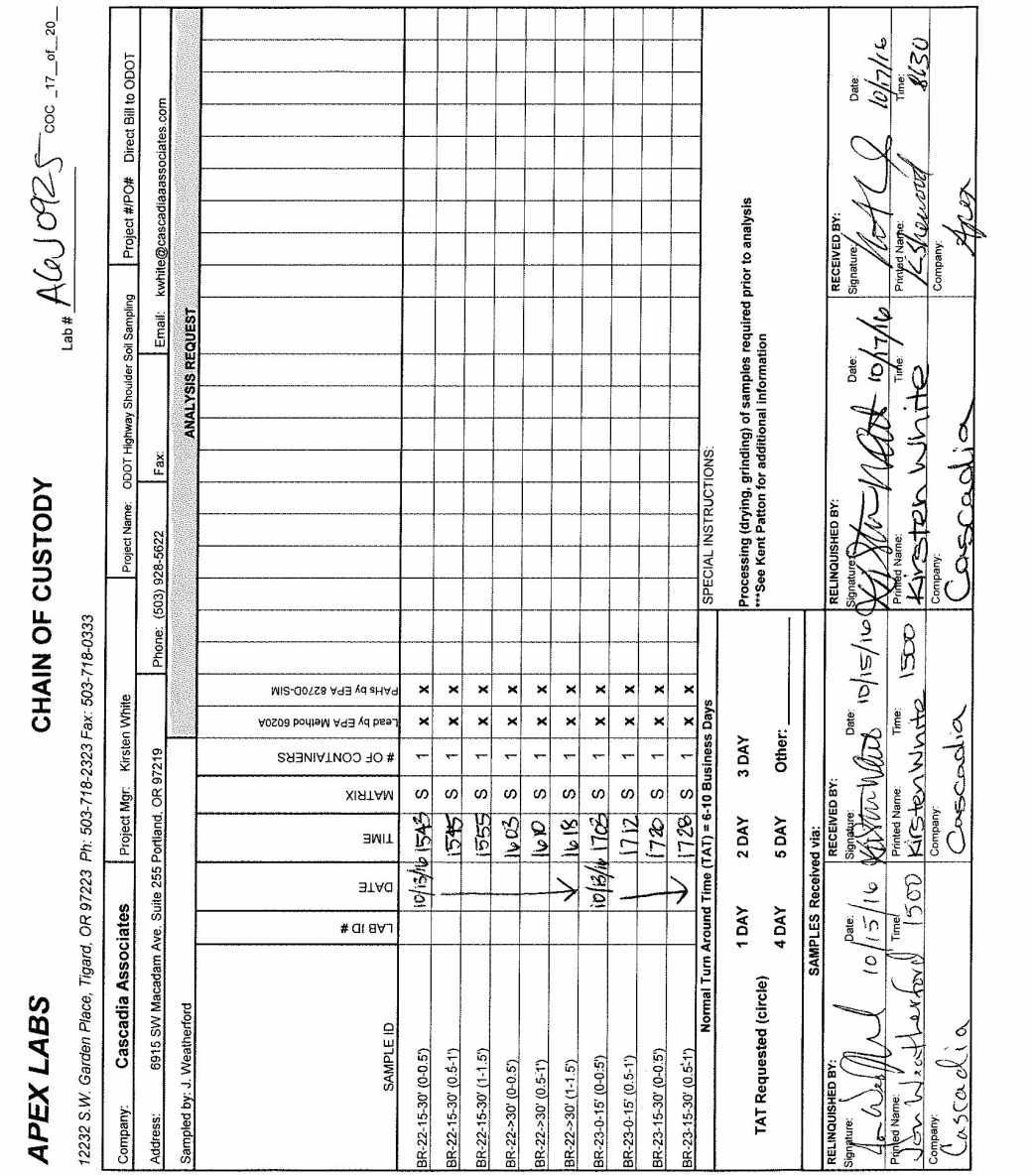
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS **CHAIN OF CUSTODY** Lab # A6J0825 COC _17_ of _20_

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-22-15-30' (0-0.5)		10/13/16	1545	S	1	X	X
BR-22-15-30' (0.5-1')			1545	S	1	X	X
BR-22-15-30' (1-1.5')			1555	S	1	X	X
BR-22->30' (0-0.5)			1603	S	1	X	X
BR-22->30' (0.5-1')			1610	S	1	X	X
BR-22->30' (1-1.5')		↓	1618	S	1	X	X
BR-23-0-15' (0-0.5')		10/13/16	1702	S	1	X	X
BR-23-0-15' (0.5-1')			1712	S	1	X	X
BR-23-15-30' (0-0.5')			1720	S	1	X	X
BR-23-15-30' (0.5-1')		↓	1728	S	1	X	X

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/15/16 Printed Name: Time: 1500 Company:

RECEIVED BY: Signature: Date: 10/15/16 Printed Name: Time: 1500 Company: Cascadia

RELINQUISHED BY: Signature: Date: 10/17/16 Printed Name: Kirsten White Time: 0930 Company: Cascadia

RECEIVED BY: Signature: Date: 10/17/16 Printed Name: K Steward Time: 0930 Company: Apex

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

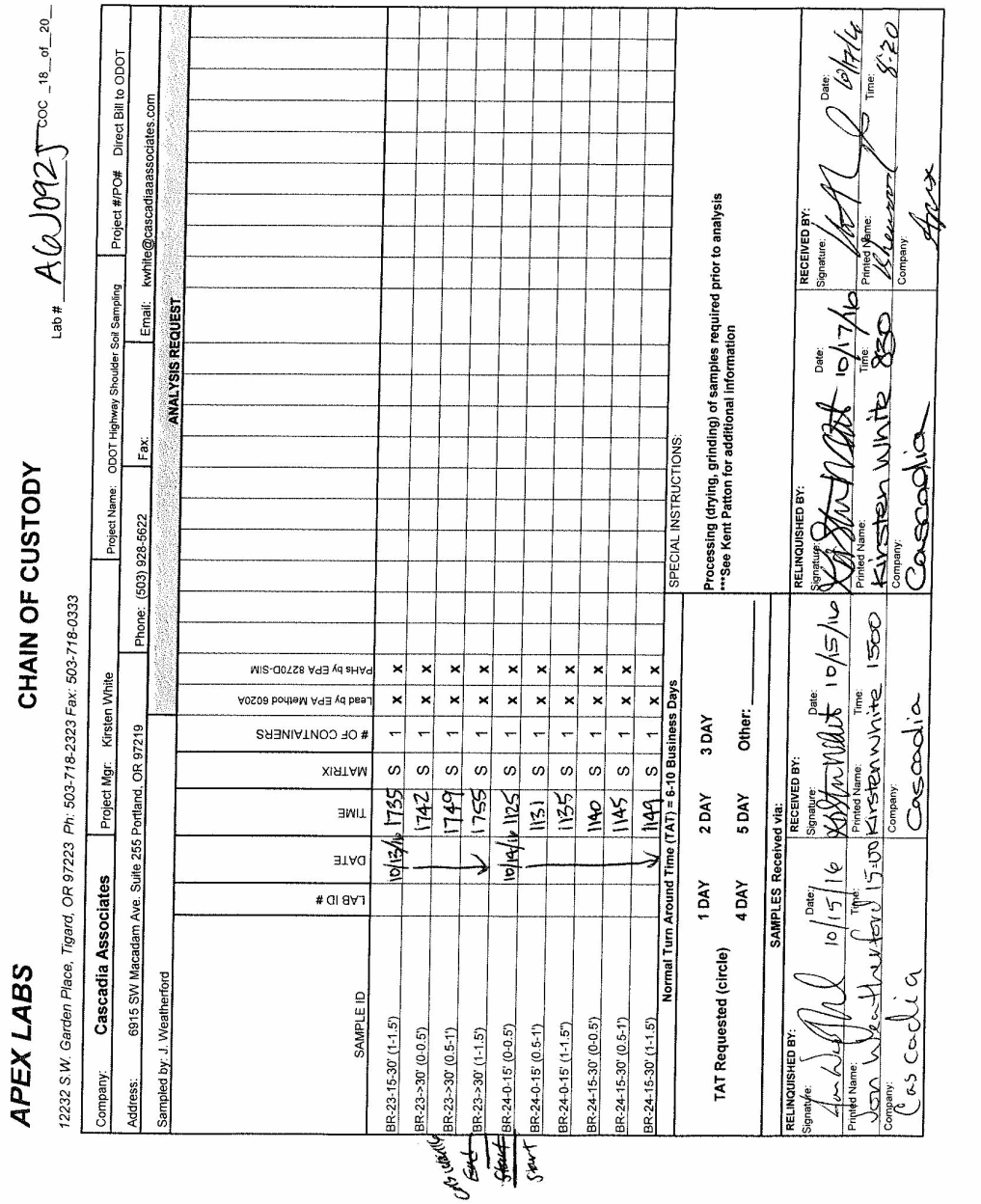
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS

CHAIN OF CUSTODY

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # AQJ092J COC _18_ of _20_

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-23-15-30' (1-1.5')		10/13/16	1735	S	1	x	x
BR-23->30' (0-0.5')			1742	S	1	x	x
BR-23->30' (0.5-1')			1749	S	1	x	x
BR-23->30' (1-1.5')			1755	S	1	x	x
BR-24-0-15' (0-0.5')		10/14/16	1125	S	1	x	x
BR-24-0-15' (0.5-1')			1131	S	1	x	x
BR-24-0-15' (1-1.5')			1135	S	1	x	x
BR-24-15-30' (0-0.5')			1140	S	1	x	x
BR-24-15-30' (0.5-1')			1145	S	1	x	x
BR-24-15-30' (1-1.5')			1149	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name:	Printed Name:	Printed Name:	Printed Name:
Company:	Company:	Company:	Company:
Date: 10/15/16	Date: 10/15/16	Date: 10/17/16	Date: 10/17/16
Time: 1530	Time: 1500	Time: 830	Time: 8:20

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

APEX LABS COOLER RECEIPT FORM AGJ0925

Client: Cascadia Associates Element WO#: A6 ~~J0893~~ CMB 10/20/16

Project/Project #: ODOT Highway Shoulder Soil Sampling

Delivery info:

Date/Time Received: 10/7/16 @ 8:30 By: JMS

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: JMS : 10/7/16 @ 8:48

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	5.6	5.4	4.9	2.3			
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:	good						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CMB : 10/20/16 @ 1550 1420 CMB 10/20/16

All Samples Intact? Yes X No___ Comments:

CMB 10/20/16

Bottle Labels/COCs agree? Yes ~~No~~ X Comments: BR23 -> 30'(0-0.5) reads BR23 >30(0-.5) on cont. BR23 -> 30'(0.5-1) reads BR23>30(.5-1)

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes___ No___ NA -

Comments:

Additional Information: on cont.

Labeled by: CMB Witness: JMS Cooler Inspected by: CMB See Project Contact Form: Y

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa A Domenighini

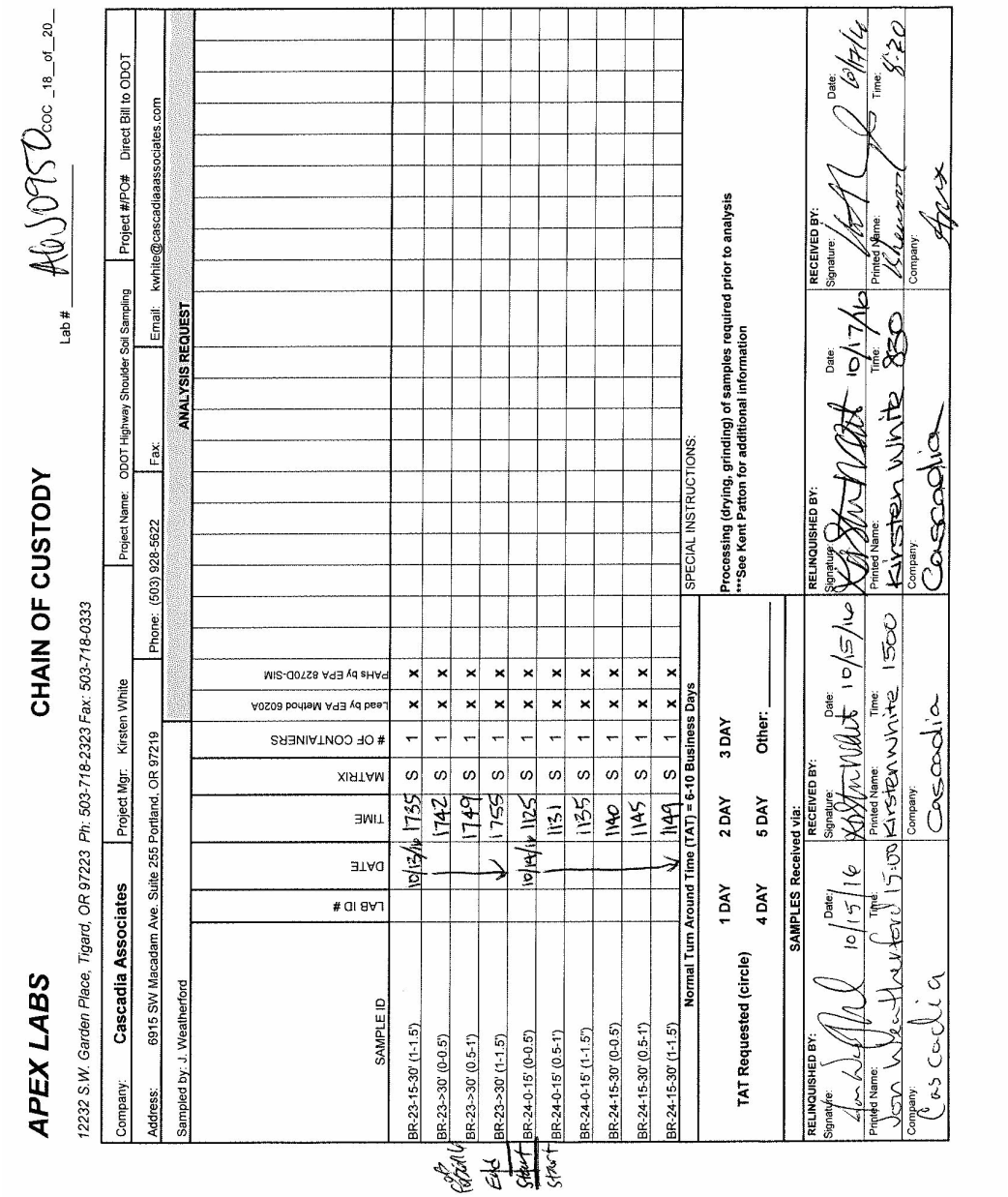
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY** — Lab # A0J0950 COC _18_ of _20_

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-23-15-30' (1-1.5')		10/13/16	1735	S	1	x	x
BR-23->30' (0-0.5')			1742	S	1	x	x
BR-23->30' (0.5-1')			1749	S	1	x	x
BR-23->30' (1-1.5')			1755	S	1	x	x
BR-24-0-15' (0-0.5')		10/14/16	1125	S	1	x	x
BR-24-0-15' (0.5-1')			1131	S	1	x	x
BR-24-0-15' (1-1.5")			1135	S	1	x	x
BR-24-15-30' (0-0.5')			1140	S	1	x	x
BR-24-15-30' (0.5-1')			1145	S	1	x	x
BR-24-15-30' (1-1.5')			1149	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name:	Printed Name:	Printed Name:	Printed Name:
Time:	Time:	Time:	Time:
Company:	Company:	Company:	Company:
Date: 10/15/16	Date: 10/15/16	Date: 10/17/16	Date: 10/17/16
Time: 1700	Time: 1500	Time: 830	Time: 8:20
Company: Cascadia	Company: Cascadia	Company: Cascadia	Company: Apex

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

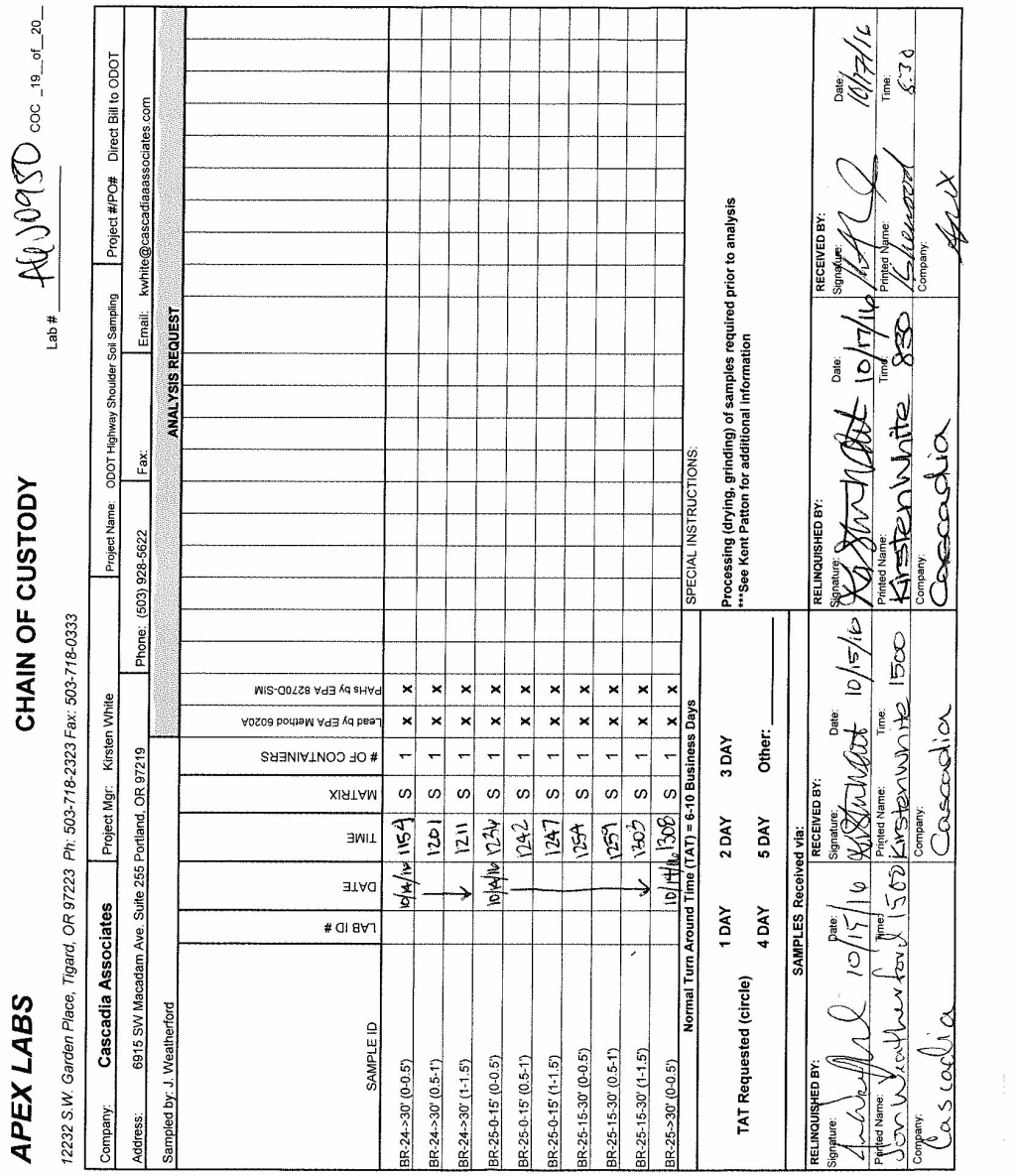
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY** — COC _19_ of _20_ — Lab # AQ0950

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-24->30' (0-0.5)		10/14/16	1154	S	1	X	X
BR-24->30' (0.5-1')			1201	S	1	X	X
BR-24->30' (1-1.5')			1211	S	1	X	X
BR-25-0-15' (0-0.5)		10/14/16	1234	S	1	X	X
BR-25-0-15' (0.5-1')			1242	S	1	X	X
BR-25-0-15' (1-1.5)			1247	S	1	X	X
BR-25-15-30' (0-0.5)			1254	S	1	X	X
BR-25-15-30' (0.5-1')			1259	S	1	X	X
BR-25-15-30' (1-1.5')			1303	S	1	X	X
BR-25->30' (0-0.5)		10/14/16	1308	S	1	X	X

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/15/16 Printed Name: Jon Weatherford Time: 1500 Company: Cascadia

RECEIVED BY: Signature: Date: 10/15/16 Printed Name: Time: Company:

RELINQUISHED BY: Signature: Date: 10/17/16 Printed Name: Kirsten White Time: 830 Company: Cascadia

RECEIVED BY: Signature: Date: 10/17/16 Printed Name: Time: 8:30 Company:

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

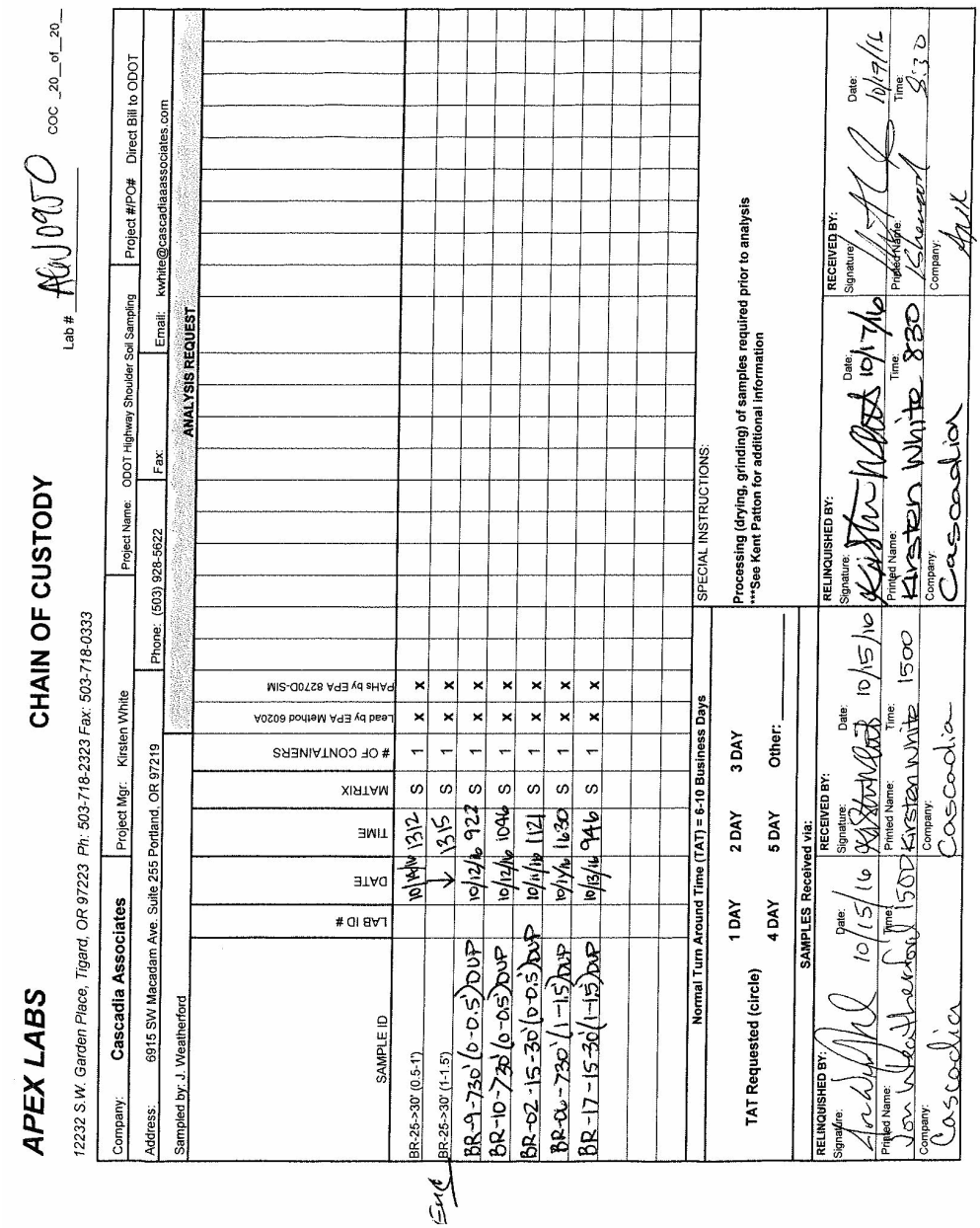
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46



APEX LABS — **CHAIN OF CUSTODY**

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # AWJ0950 COC _20__of__20__

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BR-25->30' (0.5-1')		10/14/16	1312	S	1	x	x
BR-25->30' (1-1.5')		↓	1315	S	1	x	x
BR-9-730'(0-0.5')DUP		10/12/16	922	S	1	x	x
BR-10-730'(0-0.5')DUP		10/12/16	1040	S	1	x	x
BR-02-15-30'(0-0.5')DUP		10/11/16	1124	S	1	x	x
BR-09-730'(1-1.5')DUP		10/7/16	1630	S	1	x	x
BR-17-15-30'(1-1.5')DUP		10/13/16	946	S	1	x	x

Sue

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/15/16 Printed Name: Company: Cascadia

RECEIVED BY: Signature: Date: 10/15/16 Time: 1500 Printed Name: Kirsten White Company: Cascadia

RELINQUISHED BY: Signature: Date: 10/17/16 Time: 830 Printed Name: Kirsten White Company: Cascadia

RECEIVED BY: Signature: Date: 10/17/16 Time: 2:30 Printed Name: Company: Apex

Apex Laboratories

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	03/21/17 09:46

APEX LABS COOLER RECEIPT FORM J0950

Client: Cascadia Associates Element WO#: A6 ~~J0893~~ CAB 10/26/16

Project/Project #: ODOT Highway Shoulder Soil Sampling

Delivery info:

Date/Time Received: 10/17/16 @ 8:30 By: [illegible]

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: [illegible] : 10/17/16 @ 8:48

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	5.6	5.9	4.9	2.3			
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:	good						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CAB : 10/26/16 @ ~~1850~~ 1420 CAB 10/26/16

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes X No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes___ No___ NA ✓

Comments:

Additional Information:

Labeled by: CAB Witness: [illegible] Cooler Inspected by: CAB See Project Contact Form: Y

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
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Tuesday, January 17, 2017

Kirsten K. White
Cascadia Associates
6915 SW Macadam, Suite 255
Portland, OR 97219

RE: ODOT Clean Fill Project -- RSM / ODOT Clean Fill Project

Enclosed are the results of analyses for work order A6J0986, which was received by the laboratory on 10/22/2016 at 10:35:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: ldomenighini@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Lisa Domenighini, Client Services Manager

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Apex Laboratories, LLC
12232 SW Garden Place Tigard, Oregon 97223 503.718.2323

January 17, 2017

Shawn Rapp
Oregon Department of Transportation
999 NW Frontage Rd. Suite 250
Troutdale, OR 97060

RE: Laboratory Case Narrative Work Order A6J0986,A6J0990,A6J1004, A6J1008, A6J1010, A6J1011, A6J1012, A6J1013

Sample Storage:
Soil samples for this work order were frozen upon receipt at the laboratory. Samples were removed from frozen storage and brought to room temperature prior to processing. Samples were returned to frozen storage immediately following processing, in order to maximize hold times. Freezer conditions of storage are consistent with the guidelines provided in the Oregon DEQ approved Sediment Evaluation Framework (SEF) for the Pacific Northwest, July 2016. The accepted holding times for frozen samples in the SEF is two years for Lead (Pb) and one year for PAHs from date sample is collected. These hold times have been applied to all samples reported.

Representative Sample Methodology:
In order to reduce fundamental sampling error all samples were processed following Apex Labs Representative Sampling Methodology (RSM) SOP G-105. Sample handling per this SOP is consistent with the national ITRC ISM and professionally recognized MIS guidance documents.

The RSM protocols used included air drying soils and cool grinding of the entire sample to form a well-mixed sample of approximate 50 micron diameter particles. The air drying and cool grinding can lead to depletion of volatile and some semi-volatile compounds. Results for low molecular weight PAHs should be considered Estimate Values with a potential low bias.

The specific compounds that may be affected are the aromatics with two and three structural rings are: Anthracene, Acenaphthene, Acenaphthylene, Fluorene, Naphthalene, and Phenathrene.

Target carcinogenic PAHs are not adversely impacted by RSM preparation and the reported samples are not qualified.

If you have any questions concerning this report, please feel free to contact me
By email at: kpatton@apex-labs.com, or by phone at 503-718-2323.

Kent D. Patton
Director of Technical Services
Apex Laboratories, LLC

Apex Labs

AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DC-01-15-30' (0-0.5')_Prepared	A6J0986-21	Soil	10/18/16 09:12	10/22/16 10:35
DC-01-15-30' (0.5-1')_Prepared	A6J0986-22	Soil	10/18/16 09:18	10/22/16 10:35
DC-01-15-30' (1-1.5')_Prepared	A6J0986-23	Soil	10/18/16 09:27	10/22/16 10:35
DC-01->30' (0-0.5')_Prepared	A6J0986-24	Soil	10/18/16 09:34	10/22/16 10:35
DC-01->30' (0.5-1')_Prepared	A6J0986-25	Soil	10/18/16 09:38	10/22/16 10:35
DC-01->30' (1-1.5')_Prepared	A6J0986-26	Soil	10/18/16 09:43	10/22/16 10:35
DC-02-15-30' (0-0.5')_Prepared	A6J0986-27	Soil	10/18/16 10:29	10/22/16 10:35
DC-02-15-30' (0-0.5') DUP_Prepared	A6J0986-28	Soil	10/18/16 10:29	10/22/16 10:35
DC-02-15-30' (0.5-1')_Prepared	A6J0986-29	Soil	10/18/16 10:37	10/22/16 10:35
DC-02-15-30' (1-1.5')_Prepared	A6J0986-30	Soil	10/18/16 10:44	10/22/16 10:35
DC-02->30' (0-0.5')_Prepared	A6J0986-31	Soil	10/18/16 10:48	10/22/16 10:35
DC-02->30' (0.5-1')_Prepared	A6J0986-32	Soil	10/18/16 10:56	10/22/16 10:35
DC-02->30' (1-1.5')_Prepared	A6J0986-33	Soil	10/18/16 11:03	10/22/16 10:35
DC-03-15-30' (0-0.5')_Prepared	A6J0986-34	Soil	10/18/16 11:24	10/22/16 10:35
DC-03-15-30' (0.5-1')_Prepared	A6J0986-35	Soil	10/18/16 11:35	10/22/16 10:35
DC-03-15-30' 1-1.5')_Prepared	A6J0986-36	Soil	10/18/16 11:35	10/22/16 10:35
DC-03->30' (0-0.5')_Prepared	A6J0986-37	Soil	10/18/16 11:48	10/22/16 10:35
DC-03->30' (0.5-1')_Prepared	A6J0986-38	Soil	10/18/16 11:57	10/22/16 10:35
DC-03->30' (1-1.5')_Prepared	A6J0986-39	Soil	10/18/16 12:04	10/22/16 10:35
DC-04-15-30' (0-0.5')_Prepared	A6J0986-40	Soil	10/18/16 12:38	10/22/16 10:35
Grind Blank	A6J0986-41	Solid	10/18/16 00:00	10/22/16 10:35
DC-04-15-30' (0.5-1')_Prepared	A6J0990-21	Soil	10/18/16 12:45	10/22/16 10:35
DC-04-15-30' (1-1.5')_Prepared	A6J0990-22	Soil	10/18/16 12:51	10/22/16 10:35
DC-04->30' (0-0.5')_Prepared	A6J0990-23	Soil	10/18/16 12:56	10/22/16 10:35
DC-04->30' (0.5-1')_Prepared	A6J0990-24	Soil	10/18/16 13:03	10/22/16 10:35
DC-04->30' (1-1.5')_Prepared	A6J0990-25	Soil	10/18/16 13:09	10/22/16 10:35
DC-05-15-30' (0-0.5')_Prepared	A6J0990-26	Soil	10/18/16 13:58	10/22/16 10:35
DC-05-15-30' (0.5-1')_Prepared	A6J0990-27	Soil	10/18/16 14:07	10/22/16 10:35
DC-05-15-30' (1-1.5')_Prepared	A6J0990-28	Soil	10/18/16 14:20	10/22/16 10:35
DC-05-15-30' (1-1.5') DUP_Prepared	A6J0990-29	Soil	10/18/16 14:20	10/22/16 10:35
DC-05->30' (0-0.5')_Prepared	A6J0990-30	Soil	10/18/16 14:29	10/22/16 10:35
DC-05->30' (0.5-1')_Prepared	A6J0990-31	Soil	10/18/16 14:36	10/22/16 10:35
DC-05->30' (1-1.5')_Prepared	A6J0990-32	Soil	10/18/16 14:42	10/22/16 10:35
DC-06-15-30' (0-0.5')_Prepared	A6J0990-33	Soil	10/18/16 15:09	10/22/16 10:35
DC-06-15-30' (0.5-1')_Prepared	A6J0990-34	Soil	10/18/16 15:17	10/22/16 10:35

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DC-06-15-30' (1-1.5')_Prepared	A6J0990-35	Soil	10/18/16 15:24	10/22/16 10:35
DC-06->30' (0-0.5')_Prepared	A6J0990-36	Soil	10/18/16 15:29	10/22/16 10:35
DC-06->30' (0.5-1')_Prepared	A6J0990-37	Soil	10/18/16 15:37	10/22/16 10:35
DC-06->30' (1-1.5')_Prepared	A6J0990-38	Soil	10/18/16 15:43	10/22/16 10:35
DC-07-15-30' (0-0.5')_Prepared	A6J0990-39	Soil	10/18/16 16:02	10/22/16 10:35
DC-07-15-30' (0.5-1')_Prepared	A6J0990-40	Soil	10/18/16 16:08	10/22/16 10:35
Grind Blank	A6J0990-41	Solid	10/18/16 00:00	10/22/16 10:35
DC-07-15-30' (1-1.5')_Prepared	A6J1004-21	Soil	10/18/16 16:13	10/22/16 10:35
DC-07->30' (0-0.5')_Prepared	A6J1004-22	Soil	10/18/16 16:20	10/22/16 10:35
DC-07->30' (0.5-1')_Prepared	A6J1004-23	Soil	10/18/16 16:25	10/22/16 10:35
DC-07->30' (1-1.5')_Prepared	A6J1004-24	Soil	10/18/16 16:32	10/22/16 10:35
DC-08-15-30' (0-0.5')_Prepared	A6J1004-25	Soil	10/18/16 16:54	10/22/16 10:35
DC-08-15-30' (0.5-1')_Prepared	A6J1004-26	Soil	10/18/16 17:02	10/22/16 10:35
DC-08-15-30' (1-1.5')_Prepared	A6J1004-27	Soil	10/18/16 17:09	10/22/16 10:35
DC-08->30' (0-0.5')_Prepared	A6J1004-28	Soil	10/18/16 17:15	10/22/16 10:35
DC-08->30' (0.5-1')_Prepared	A6J1004-29	Soil	10/18/16 17:23	10/22/16 10:35
DC-08->30' (0.5-1') DUP_Prepared	A6J1004-30	Soil	10/18/16 17:23	10/22/16 10:35
DC-08->30' (1-1.5')_Prepared	A6J1004-31	Soil	10/18/16 17:32	10/22/16 10:35
DC-09-15-30' (0-0.5')_Prepared	A6J1004-32	Soil	10/19/16 09:31	10/22/16 10:35
DC-09-15-30' (0.5-1')_Prepared	A6J1004-33	Soil	10/19/16 09:41	10/22/16 10:35
DC-09-15-30' (1-1.5')_Prepared	A6J1004-34	Soil	10/19/16 09:50	10/22/16 10:35
DC-09->30' (0-0.5')_Prepared	A6J1004-35	Soil	10/18/16 09:54	10/22/16 10:35
DC-09->30' (0.5-1')_Prepared	A6J1004-36	Soil	10/19/16 10:02	10/22/16 10:35
DC-09->30' (1-1.5')_Prepared	A6J1004-37	Soil	10/19/16 10:03	10/22/16 10:35
DC-10-15-30' (0-0.5')_Prepared	A6J1004-38	Soil	10/19/16 10:51	10/22/16 10:35
DC-10-15-30' (0.5-1')_Prepared	A6J1004-39	Soil	10/19/16 11:03	10/22/16 10:35
DC-10-15-30' (1-1.5')_Prepared	A6J1004-40	Soil	10/19/16 11:07	10/22/16 10:35
Grind Blank	A6J1004-41	Solid	10/19/16 11:07	10/22/16 10:35
DC-10->30' (0-0.5')_Prepared	A6J1008-21	Soil	10/19/16 11:12	10/22/16 10:35
DC-10->30' (0.5-1')_Prepared	A6J1008-22	Soil	10/19/16 11:19	10/22/16 10:35
DC-10->30' (1-1.5')_Prepared	A6J1008-23	Soil	10/19/16 11:24	10/22/16 10:35
DC-11-15-30' (0-0.5')_Prepared	A6J1008-24	Soil	10/19/16 12:14	10/22/16 10:35
DC-11-15-30' (0.5-1')_Prepared	A6J1008-25	Soil	10/19/16 12:26	10/22/16 10:35
DC-11-15-30' (1-1.5')_Prepared	A6J1008-26	Soil	10/19/16 12:31	10/22/16 10:35
DC-11->30' (0-0.5')_Prepared	A6J1008-27	Soil	10/19/16 12:36	10/22/16 10:35

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DC-11->30' (0.5-1')_Prepared	A6J1008-28	Soil	10/19/16 12:40	10/22/16 10:35
DC-11->30' (1-1.5')_Prepared	A6J1008-29	Soil	10/19/16 12:45	10/22/16 10:35
DC-12-15-30' (0-0.5')_Prepared	A6J1008-30	Soil	10/19/16 13:19	10/22/16 10:35
DC-12-15-30' (0.5-1')_Prepared	A6J1008-31	Soil	10/19/16 13:28	10/22/16 10:35
DC-12-15-30' (1-1.5')_Prepared	A6J1008-32	Soil	10/19/16 13:40	10/22/16 10:35
DC-12->30' (0-0.5')_Prepared	A6J1008-33	Soil	10/19/16 13:51	10/22/16 10:35
DC-12->30' (0.5-1')_Prepared	A6J1008-34	Soil	10/19/16 13:56	10/22/16 10:35
DC-12->30' (1-1.5')_Prepared	A6J1008-35	Soil	10/19/16 14:09	10/22/16 10:35
DC-13-15-30' (0-0.5')_Prepared	A6J1008-36	Soil	10/19/16 14:24	10/22/16 10:35
DC-13-15-30' (0.5-1')_Prepared	A6J1008-37	Soil	10/19/16 14:29	10/22/16 10:35
DC-13-15-30' (1-1.5')_Prepared	A6J1008-38	Soil	10/19/16 14:36	10/22/16 10:35
DC-13->30' (0-0.5')_Prepared	A6J1008-39	Soil	10/19/16 14:42	10/22/16 10:35
DC-13->30' (0.5-1')_Prepared	A6J1008-40	Soil	10/19/16 14:50	10/22/16 10:35
Grind Blank	A6J1008-41	Solid	10/19/16 00:00	10/22/16 10:35
DC-13->30' (1-1.5')_Prepared	A6J1010-21	Soil	10/19/16 14:59	10/22/16 10:35
DC-14-15-30' (0-0.5')_Prepared	A6J1010-22	Soil	10/19/16 15:46	10/22/16 10:35
DC-14-15-30' (0.5-1')_Prepared	A6J1010-23	Soil	10/19/16 15:50	10/22/16 10:35
DC-14-15-30' (1-1.5')_Prepared	A6J1010-24	Soil	10/19/16 15:55	10/22/16 10:35
DC-14->30' (0-0.5')_Prepared	A6J1010-25	Soil	10/19/16 15:59	10/22/16 10:35
DC-14->30' (0.5-1')_Prepared	A6J1010-26	Soil	10/19/16 16:05	10/22/16 10:35
DC-14->30' (1-1.5')_Prepared	A6J1010-27	Soil	10/19/16 16:11	10/22/16 10:35
DC-15-15-30' (0-0.5')_Prepared	A6J1010-28	Soil	10/19/16 16:40	10/22/16 10:35
DC-15-15-30' (0.5-1')_Prepared	A6J1010-29	Soil	10/19/16 16:46	10/22/16 10:35
DC-15-15-30' (1-1.5')_Prepared	A6J1010-30	Soil	10/19/16 16:50	10/22/16 10:35
DC-15->30' (0-0.5')_Prepared	A6J1010-31	Soil	10/19/16 16:55	10/22/16 10:35
DC-15->30' (0.5-1')_Prepared	A6J1010-32	Soil	10/19/16 17:01	10/22/16 10:35
DC-15->30' (1-1.5')_Prepared	A6J1010-33	Soil	10/19/16 17:07	10/22/16 10:35
DC-15->30' (1-1.5') DUP_Prepared	A6J1010-34	Soil	10/19/16 17:07	10/22/16 10:35
DC-16-15-30' (0-0.5')_Prepared	A6J1010-35	Soil	10/20/16 08:52	10/22/16 10:35
DC-16-15-30' (0.5-1')_Prepared	A6J1010-36	Soil	10/20/16 09:01	10/22/16 10:35
DC-16-15-30' (1-1.5')_Prepared	A6J1010-37	Soil	10/20/16 09:06	10/22/16 10:35
DC-16->30' (0-0.5')_Prepared	A6J1010-38	Soil	10/20/16 09:14	10/22/16 10:35
DC-16->30' (0.5-1')_Prepared	A6J1010-39	Soil	10/20/16 09:20	10/22/16 10:35
DC-16->30' (1-1.5')_Prepared	A6J1010-40	Soil	10/20/16 09:25	10/22/16 10:35
Grind Blank	A6J1010-41	Solid	10/19/16 00:00	10/22/16 10:35

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

Apex Labs

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DC-17-15-30' (0-0.5')_Prepared	A6J1011-21	Soil	10/20/16 09:51	10/22/16 10:35
DC-17-15-30' (0.5-1')_Prepared	A6J1011-22	Soil	10/20/16 10:02	10/22/16 10:35
DC-17-15-30' (1-1.5')_Prepared	A6J1011-23	Soil	10/20/16 10:09	10/22/16 10:35
DC-17->30' (0-0.5')_Prepared	A6J1011-24	Soil	10/20/16 10:17	10/22/16 10:35
DC-17->30' (0.5-1')_Prepared	A6J1011-25	Soil	10/20/16 10:24	10/22/16 10:35
DC-17->30' (1-1.5')_Prepared	A6J1011-26	Soil	10/20/16 10:30	10/22/16 10:35
DC-18-15-30' (0-0.5')_Prepared	A6J1011-27	Soil	10/20/16 10:48	10/22/16 10:35
DC-18-15-30' (0.5-1')_Prepared	A6J1011-28	Soil	10/20/16 10:54	10/22/16 10:35
DC-18-15-30' (1-1.5')_Prepared	A6J1011-29	Soil	10/20/16 11:02	10/22/16 10:35
DC-18->30' (0-0.5')_Prepared	A6J1011-30	Soil	10/20/16 11:08	10/22/16 10:35
DC-18->30' (0.5-1')_Prepared	A6J1011-31	Soil	10/20/16 11:15	10/22/16 10:35
DC-18->30' (1-1.5')_Prepared	A6J1011-32	Soil	10/20/16 11:23	10/22/16 10:35
DC-19-15-30' (0-0.5')_Prepared	A6J1011-33	Soil	10/20/16 11:38	10/22/16 10:35
DC-19-15-30' (0.5-1')_Prepared	A6J1011-34	Soil	10/20/16 11:45	10/22/16 10:35
DC-19-15-30' (1-1.5')_Prepared	A6J1011-35	Soil	10/20/16 11:53	10/22/16 10:35
DC-19->30' (0-0.5')_Prepared	A6J1011-36	Soil	10/20/16 11:59	10/22/16 10:35
DC-19->30' (0.5-1')_Prepared	A6J1011-37	Soil	10/20/16 12:06	10/22/16 10:35
DC-19->30' (1-1.5')_Prepared	A6J1011-38	Soil	10/20/16 12:12	10/22/16 10:35
DC-20-15-30' (0-0.5')_Prepared	A6J1011-39	Soil	10/21/16 08:58	10/22/16 10:35
DC-20-15-30' (0.5-1')_Prepared	A6J1011-40	Soil	10/21/16 09:09	10/22/16 10:35
Grind Blank	A6J1011-41	Solid	10/20/16 00:00	10/22/16 10:35
DC-20-15-30' (1-1.5')_Prepared	A6J1012-21	Soil	10/21/16 09:20	10/22/16 10:35
DC-20->30' (0-0.5')_Prepared	A6J1012-22	Soil	10/21/16 09:29	10/22/16 10:35
DC-20->30' (0.5-1')_Prepared	A6J1012-23	Soil	10/21/16 09:42	10/22/16 10:35
DC-20->30' (0.5-1') DUP_Prepared	A6J1012-24	Soil	10/21/16 09:42	10/22/16 10:35
DC-20->30' (1-1.5')_Prepared	A6J1012-25	Soil	10/21/16 09:50	10/22/16 10:35
DC-21-15-30' (0-0.5')_Prepared	A6J1012-26	Soil	10/21/16 10:17	10/22/16 10:35
DC-21-15-30' (0.5-1')_Prepared	A6J1012-27	Soil	10/21/16 10:31	10/22/16 10:35
DC-21-15-30' (1-1.5')_Prepared	A6J1012-28	Soil	10/21/16 10:42	10/22/16 10:35
DC-21->30' (0-0.5')_Prepared	A6J1012-29	Soil	10/21/16 10:52	10/22/16 10:35
DC-21->30' (0.5-1')_Prepared	A6J1012-30	Soil	10/21/16 11:05	10/22/16 10:35
DC-21->30' (1-1.5')_Prepared	A6J1012-31	Soil	10/21/16 11:16	10/22/16 10:35
BM-01-15-30' (0-0.5')_Prepared	A6J1012-32	Soil	10/20/16 12:57	10/22/16 10:35
BM-01-15-30' (0.5-1')_Prepared	A6J1012-33	Soil	10/20/16 13:06	10/22/16 10:35
BM-01-15-30' (1-1.5')_Prepared	A6J1012-34	Soil	10/20/16 13:12	10/22/16 10:35

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BM-01->30' (0-0.5')_Prepared	A6J1012-35	Soil	10/20/16 13:20	10/22/16 10:35
BM-01->30' (0.5-1')_Prepared	A6J1012-36	Soil	10/20/16 13:27	10/22/16 10:35
BM-01->30' (1-1.5')_Prepared	A6J1012-37	Soil	10/20/16 13:39	10/22/16 10:35
BM-02-15-30' (0-0.5')_Prepared	A6J1012-38	Soil	10/20/16 13:58	10/22/16 10:35
BM-02-15-30' (0.5-1')_Prepared	A6J1012-39	Soil	10/20/16 14:12	10/22/16 10:35
BM-02-15-30' (1-1.5')_Prepared	A6J1012-40	Soil	10/20/16 14:23	10/22/16 10:35
Grind Blank	A6J1012-41	Solid	10/20/16 00:00	10/22/16 10:35
BM-02->30' (0-0.5')_Prepared	A6J1013-10	Soil	10/20/16 14:33	10/22/16 10:35
BM-02->30' (0.5-1')_Prepared	A6J1013-11	Soil	10/20/16 14:44	10/22/16 10:35
BM-02->30' (1-1.5')_Prepared	A6J1013-12	Soil	10/20/16 14:52	10/22/16 10:35
BM-03-15-30' (0-0.5')_Prepared	A6J1013-13	Soil	10/20/16 15:11	10/22/16 10:35
BM-03-15-30' (0.5-1')_Prepared	A6J1013-14	Soil	10/20/16 15:24	10/22/16 10:35
BM-03-15-30' (1-1.5')_Prepared	A6J1013-15	Soil	10/20/16 15:50	10/22/16 10:35
BM-03->30' (0-0.5')_Prepared	A6J1013-16	Soil	10/20/16 15:32	10/22/16 10:35
BM-03->30' (0.5-1')_Prepared	A6J1013-17	Soil	10/20/16 15:43	10/22/16 10:35
BM-03->30' (1-1.5')_Prepared	A6J1013-18	Soil	10/20/16 16:03	10/22/16 10:35
Grind Blank	A6J1013-19	Solid	10/20/16 00:00	10/22/16 10:35

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AMENDED REPORT

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL CASE NARRATIVE

Work Order: A6J0986

Amended Report Revision 1:

Change to Sample Identification and Missing Sample Results:

This report supersedes all previous reports.

Due to laboratory login error, the sample ID was incorrect for sample A6J0986-38. Sample was originally reported as; DC-03->30' (0.5-1')_As_Received . That sample ID has been changed, and is now reported as DC-03->30 (0.5-1')_Prepared.

The original report did not include final results for 8270D SIMPAH for sample DC-03-15-30' (0.5-1')_Prepared, Apex # A6J0986-35.

Lisa Domenighini
Client Services Manager
1/10/17

ANALYTICAL CASE NARRATIVE

Work Order: A6J0990

ANALYTICAL CASE NARRATIVE

Work Order: A6J1004

ANALYTICAL CASE NARRATIVE

Work Order: A6J1008

ANALYTICAL CASE NARRATIVE

Work Order: A6J1010

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
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ANALYTICAL CASE NARRATIVE

Work Order: A6J1011

ANALYTICAL CASE NARRATIVE

Work Order: A6J1012

ANALYTICAL CASE NARRATIVE

Work Order: A6J1013

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-01-15-30' (0-0.5')_Prepared (A6J0986-21)			**Matrix: Soil**		**Batch: 6110449**			**H-08**
Acenaphthene	**12.8**	9.60	19.2	ug/kg dry	5	11/19/16 03:55	EPA 8270D (SIM)	J
Acenaphthylene	ND	9.60	19.2	"	"	"	"	
Anthracene	ND	9.60	19.2	"	"	"	"	
Benz(a)anthracene	**12.3**	9.60	19.2	"	"	"	"	J
Benzo(a)pyrene	**10.8**	9.60	19.2	"	"	"	"	J
Benzo(b)fluoranthene	**21.4**	9.60	19.2	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	9.60	19.2	"	"	"	"	
Benzo(g,h,i)perylene	**18.7**	9.60	19.2	"	"	"	"	J
Chrysene	**26.6**	9.60	19.2	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	9.60	19.2	"	"	"	"	
Dibenzofuran	**15.9**	9.60	19.2	"	"	"	"	J
Fluoranthene	**23.2**	9.60	19.2	"	"	"	"	
Fluorene	ND	19.2	19.2	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**12.3**	9.60	19.2	"	"	"	"	J
1-Methylnaphthalene	ND	19.2	38.4	"	"	"	"	
2-Methylnaphthalene	ND	19.2	38.4	"	"	"	"	
Naphthalene	ND	19.2	38.4	"	"	"	"	
Phenanthrene	**15.8**	9.60	19.2	"	"	"	"	J
Pyrene	**20.9**	9.60	19.2	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 58 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*72 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-01-15-30' (0.5-1')_Prepared (A6J0986-22RE1)			**Matrix: Soil**		**Batch: 6110816**			**H-08**
Acenaphthene	ND	2.06	4.11	ug/kg dry	1	11/23/16 12:26	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.11	"	"	"	"	
Anthracene	ND	2.06	4.11	"	"	"	"	
Benz(a)anthracene	**3.71**	2.06	4.11	"	"	"	"	J
Benzo(a)pyrene	**3.47**	2.06	4.11	"	"	"	"	J
Benzo(b)fluoranthene	**12.8**	2.06	4.11	"	"	"	"	M-02
Benzo(k)fluoranthene	**2.87**	2.06	4.11	"	"	"	"	J
Benzo(g,h,i)perylene	**9.32**	2.06	4.11	"	"	"	"	
Chrysene	**11.7**	2.06	4.11	"	"	"	"	M-02
Dibenz(a,h)anthracene	**2.26**	2.06	4.11	"	"	"	"	J
Dibenzofuran	ND	2.06	4.11	"	"	"	"	
Fluoranthene	**5.98**	2.06	4.11	"	"	"	"	
Fluorene	ND	2.06	4.11	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**5.81**	2.06	4.11	"	"	"	"	
1-Methylnaphthalene	ND	4.11	8.23	"	"	"	"	
2-Methylnaphthalene	ND	4.11	8.23	"	"	"	"	
Naphthalene	ND	4.11	8.23	"	"	"	"	
Phenanthrene	**2.76**	2.06	4.11	"	"	"	"	J
Pyrene	**5.86**	2.06	4.11	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*97 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-01-15-30' (1-1.5')_Prepared (A6J0986-23)			**Matrix: Soil**		**Batch: 6110449**			**H-08**
Acenaphthene	ND	2.08	4.15	ug/kg dry	1	11/18/16 22:17	EPA 8270D (SIM)	
Acenaphthylene	ND	2.08	4.15	"	"	"	"	
Anthracene	ND	2.08	4.15	"	"	"	"	
Benz(a)anthracene	ND	5.19	5.19	"	"	"	"	R-02
Benzo(a)pyrene	ND	2.08	4.15	"	"	"	"	
Benzo(b)fluoranthene	**2.42**	2.08	4.15	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.08	4.15	"	"	"	"	
Benzo(g,h,i)perylene	**2.91**	2.08	4.15	"	"	"	"	J
Chrysene	ND	5.19	5.19	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	2.08	4.15	"	"	"	"	
Dibenzofuran	ND	2.08	4.15	"	"	"	"	
Fluoranthene	ND	2.08	4.15	"	"	"	"	
Fluorene	ND	2.08	4.15	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.08	4.15	"	"	"	"	
1-Methylnaphthalene	ND	4.15	8.31	"	"	"	"	
2-Methylnaphthalene	ND	4.15	8.31	"	"	"	"	
Naphthalene	ND	4.15	8.31	"	"	"	"	
Phenanthrene	ND	2.08	4.15	"	"	"	"	
Pyrene	ND	2.08	4.15	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 51 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*66 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-01->30' (0-0.5')_Prepared (A6J0986-24)			**Matrix: Soil**		**Batch: 6110449**			**H-08**
Acenaphthene	ND	1.97	3.93	ug/kg dry	1	11/18/16 22:43	EPA 8270D (SIM)	
Acenaphthylene	ND	1.97	3.93	"	"	"	"	
Anthracene	ND	1.97	3.93	"	"	"	"	
Benz(a)anthracene	ND	3.93	3.93	"	"	"	"	
Benzo(a)pyrene	ND	1.97	3.93	"	"	"	"	
Benzo(b)fluoranthene	ND	1.97	3.93	"	"	"	"	
Benzo(k)fluoranthene	ND	1.97	3.93	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.97	3.93	"	"	"	"	
Chrysene	ND	3.93	3.93	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.97	3.93	"	"	"	"	
Dibenzofuran	ND	1.97	3.93	"	"	"	"	
Fluoranthene	ND	1.97	3.93	"	"	"	"	
Fluorene	ND	1.97	3.93	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.97	3.93	"	"	"	"	
1-Methylnaphthalene	ND	3.93	7.87	"	"	"	"	
2-Methylnaphthalene	ND	3.93	7.87	"	"	"	"	
Naphthalene	ND	3.93	7.87	"	"	"	"	
Phenanthrene	ND	1.97	3.93	"	"	"	"	
Pyrene	ND	1.97	3.93	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 48 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*58 %*	*Limits: 54-127 %*	"	"	"	

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-01->30' (0.5-1')_Prepared (A6J0986-25)			**Matrix: Soil**		**Batch: 6110449**			**H-08**
Acenaphthene	ND	2.06	4.11	ug/kg dry	1	11/18/16 23:09	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.11	"	"	"	"	
Anthracene	ND	2.06	4.11	"	"	"	"	
Benz(a)anthracene	ND	2.06	4.11	"	"	"	"	
Benzo(a)pyrene	ND	2.06	4.11	"	"	"	"	
Benzo(b)fluoranthene	ND	2.06	4.11	"	"	"	"	
Benzo(k)fluoranthene	ND	2.06	4.11	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.06	4.11	"	"	"	"	
Chrysene	ND	2.06	4.11	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.06	4.11	"	"	"	"	
Dibenzofuran	ND	2.06	4.11	"	"	"	"	
Fluoranthene	ND	2.06	4.11	"	"	"	"	
Fluorene	ND	2.06	4.11	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.06	4.11	"	"	"	"	
1-Methylnaphthalene	ND	4.11	8.22	"	"	"	"	
2-Methylnaphthalene	ND	4.11	8.22	"	"	"	"	
Naphthalene	ND	4.11	8.22	"	"	"	"	
Phenanthrene	ND	2.06	4.11	"	"	"	"	
Pyrene	ND	2.06	4.11	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 50 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*62 %*	*Limits: 54-127 %*	"	"	"	

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ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-01->30' (1-1.5')_Prepared (A6J0986-26)			**Matrix: Soil**		**Batch: 6110449**			**H-08**
Acenaphthene	ND	2.02	4.04	ug/kg dry	1	11/18/16 23:35	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.04	"	"	"	"	
Anthracene	ND	2.02	4.04	"	"	"	"	
Benz(a)anthracene	ND	2.02	4.04	"	"	"	"	
Benzo(a)pyrene	ND	2.02	4.04	"	"	"	"	
Benzo(b)fluoranthene	ND	2.02	4.04	"	"	"	"	
Benzo(k)fluoranthene	ND	2.02	4.04	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.02	4.04	"	"	"	"	
Chrysene	ND	2.02	4.04	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.02	4.04	"	"	"	"	
Dibenzofuran	ND	2.02	4.04	"	"	"	"	
Fluoranthene	ND	2.02	4.04	"	"	"	"	
Fluorene	ND	2.02	4.04	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.04	"	"	"	"	
1-Methylnaphthalene	ND	4.04	8.09	"	"	"	"	
2-Methylnaphthalene	ND	4.04	8.09	"	"	"	"	
Naphthalene	ND	4.04	8.09	"	"	"	"	
Phenanthrene	ND	2.02	4.04	"	"	"	"	
Pyrene	ND	2.02	4.04	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 49 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*61 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-02-15-30' (0-0.5')_Prepared (A6J0986-27)			**Matrix: Soil**		**Batch: 6110449**			**H-08**
Acenaphthene	ND	2.04	4.09	ug/kg dry	1	11/19/16 00:01	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.09	"	"	"	"	
Anthracene	ND	2.04	4.09	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.09	"	"	"	"	
Benzo(a)pyrene	**2.29**	2.04	4.09	"	"	"	"	J
Benzo(b)fluoranthene	**5.21**	2.04	4.09	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	2.04	4.09	"	"	"	"	
Benzo(g,h,i)perylene	**4.81**	2.04	4.09	"	"	"	"	
Chrysene	**5.89**	2.04	4.09	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.04	4.09	"	"	"	"	
Dibenzofuran	ND	2.04	4.09	"	"	"	"	
Fluoranthene	**3.39**	2.04	4.09	"	"	"	"	J
Fluorene	ND	2.04	4.09	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.45**	2.04	4.09	"	"	"	"	J
1-Methylnaphthalene	ND	4.09	8.18	"	"	"	"	
2-Methylnaphthalene	ND	4.09	8.18	"	"	"	"	
Naphthalene	**5.56**	4.09	8.18	"	"	"	"	J
Phenanthrene	**3.40**	2.04	4.09	"	"	"	"	J
Pyrene	**3.81**	2.04	4.09	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 53 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*65 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-02-15-30' (0-0.5') DUP_Prepared (A6J0986-28)			**Matrix: Soil**		**Batch: 6110449**			**H-08**
Acenaphthene	ND	2.02	4.03	ug/kg dry	1	11/19/16 00:27	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.03	"	"	"	"	
Anthracene	ND	2.02	4.03	"	"	"	"	
Benz(a)anthracene	ND	2.02	4.03	"	"	"	"	
Benzo(a)pyrene	**2.94**	2.02	4.03	"	"	"	"	J
Benzo(b)fluoranthene	**4.67**	2.02	4.03	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	2.02	4.03	"	"	"	"	
Benzo(g,h,i)perylene	**4.67**	2.02	4.03	"	"	"	"	
Chrysene	**7.93**	2.02	4.03	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.02	4.03	"	"	"	"	
Dibenzofuran	ND	2.02	4.03	"	"	"	"	
Fluoranthene	**2.65**	2.02	4.03	"	"	"	"	J
Fluorene	ND	2.02	4.03	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.03	"	"	"	"	
1-Methylnaphthalene	ND	4.03	8.06	"	"	"	"	
2-Methylnaphthalene	ND	4.03	8.06	"	"	"	"	
Naphthalene	**4.77**	4.03	8.06	"	"	"	"	J
Phenanthrene	**3.05**	2.02	4.03	"	"	"	"	J
Pyrene	**3.82**	2.02	4.03	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 44 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*55 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-02-15-30' (0.5-1')_Prepared (A6J0986-29)			**Matrix: Soil**		**Batch: 6110449**			**H-08**
Acenaphthene	ND	2.08	4.16	ug/kg dry	1	11/19/16 00:53	EPA 8270D (SIM)	
Acenaphthylene	ND	2.08	4.16	"	"	"	"	
Anthracene	ND	2.08	4.16	"	"	"	"	
Benz(a)anthracene	**3.51**	2.08	4.16	"	"	"	"	J
Benzo(a)pyrene	**4.43**	2.08	4.16	"	"	"	"	
Benzo(b)fluoranthene	**10.8**	2.08	4.16	"	"	"	"	M-02
Benzo(k)fluoranthene	**3.24**	2.08	4.16	"	"	"	"	J
Benzo(g,h,i)perylene	**6.91**	2.08	4.16	"	"	"	"	
Chrysene	**11.9**	2.08	4.16	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.08	4.16	"	"	"	"	
Dibenzofuran	**2.44**	2.08	4.16	"	"	"	"	J
Fluoranthene	**12.3**	2.08	4.16	"	"	"	"	
Fluorene	ND	2.08	4.16	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**4.85**	2.08	4.16	"	"	"	"	
1-Methylnaphthalene	ND	4.16	8.33	"	"	"	"	
2-Methylnaphthalene	**6.22**	4.16	8.33	"	"	"	"	J
Naphthalene	**14.4**	4.16	8.33	"	"	"	"	
Phenanthrene	**9.64**	2.08	4.16	"	"	"	"	
Pyrene	**10.6**	2.08	4.16	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 58 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*71 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-02-15-30' (1-1.5')_Prepared (A6J0986-30)			**Matrix: Soil**		**Batch: 6110449**			**H-08**
Acenaphthene	ND	1.99	3.98	ug/kg dry	1	11/19/16 01:19	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.98	"	"	"	"	
Anthracene	ND	1.99	3.98	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.98	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.98	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.98	"	"	"	"	
Chrysene	ND	1.99	3.98	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.98	"	"	"	"	
Dibenzofuran	ND	1.99	3.98	"	"	"	"	
Fluoranthene	ND	1.99	3.98	"	"	"	"	
Fluorene	ND	1.99	3.98	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.98	"	"	"	"	
1-Methylnaphthalene	ND	3.98	7.97	"	"	"	"	
2-Methylnaphthalene	ND	3.98	7.97	"	"	"	"	
Naphthalene	ND	3.98	7.97	"	"	"	"	
Phenanthrene	**2.01**	1.99	3.98	"	"	"	"	J
Pyrene	ND	1.99	3.98	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 44 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*58 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-02->30' (0-0.5')_Prepared (A6J0986-31)			**Matrix: Soil**		**Batch: 6110449**			**H-08**
Acenaphthene	ND	2.08	4.17	ug/kg dry	1	11/19/16 01:45	EPA 8270D (SIM)	
Acenaphthylene	ND	2.08	4.17	"	"	"	"	
Anthracene	ND	2.08	4.17	"	"	"	"	
Benz(a)anthracene	ND	5.21	5.21	"	"	"	"	R-02
Benzo(a)pyrene	ND	2.08	4.17	"	"	"	"	
Benzo(b)fluoranthene	**2.50**	2.08	4.17	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.08	4.17	"	"	"	"	
Benzo(g,h,i)perylene	**2.55**	2.08	4.17	"	"	"	"	J
Chrysene	ND	5.21	5.21	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	2.08	4.17	"	"	"	"	
Dibenzofuran	ND	2.08	4.17	"	"	"	"	
Fluoranthene	**3.19**	2.08	4.17	"	"	"	"	J
Fluorene	ND	2.08	4.17	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.08	4.17	"	"	"	"	
1-Methylnaphthalene	ND	4.17	8.33	"	"	"	"	
2-Methylnaphthalene	ND	4.17	8.33	"	"	"	"	
Naphthalene	**6.30**	4.17	8.33	"	"	"	"	J
Phenanthrene	**3.61**	2.08	4.17	"	"	"	"	J
Pyrene	**2.94**	2.08	4.17	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 60 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*70 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-02->30' (0.5-1')_Prepared (A6J0986-32RE1)			**Matrix: Soil**		**Batch: 6110816**			**H-08**
Acenaphthene	ND	2.12	4.24	ug/kg dry	1	11/23/16 12:52	EPA 8270D (SIM)	
Acenaphthylene	ND	2.12	4.24	"	"	"	"	
Anthracene	ND	2.12	4.24	"	"	"	"	
Benz(a)anthracene	ND	2.12	4.24	"	"	"	"	
Benzo(a)pyrene	ND	2.12	4.24	"	"	"	"	
Benzo(b)fluoranthene	ND	2.12	4.24	"	"	"	"	
Benzo(k)fluoranthene	ND	2.12	4.24	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.12	4.24	"	"	"	"	
Chrysene	ND	2.12	4.24	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.12	4.24	"	"	"	"	
Dibenzofuran	ND	2.12	4.24	"	"	"	"	
Fluoranthene	ND	2.12	4.24	"	"	"	"	
Fluorene	ND	2.12	4.24	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.12	4.24	"	"	"	"	
1-Methylnaphthalene	ND	4.24	8.47	"	"	"	"	
2-Methylnaphthalene	ND	4.24	8.47	"	"	"	"	
Naphthalene	ND	4.24	8.47	"	"	"	"	
Phenanthrene	ND	2.12	4.24	"	"	"	"	
Pyrene	ND	2.12	4.24	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*95 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-02->30' (1-1.5')_Prepared (A6J0986-33RE1)			**Matrix: Soil**		**Batch: 6110816**			**H-08**
Acenaphthene	ND	2.13	4.25	ug/kg dry	1	11/23/16 13:19	EPA 8270D (SIM)	
Acenaphthylene	ND	2.13	4.25	"	"	"	"	
Anthracene	ND	2.13	4.25	"	"	"	"	
Benz(a)anthracene	ND	2.13	4.25	"	"	"	"	
Benzo(a)pyrene	ND	2.13	4.25	"	"	"	"	
Benzo(b)fluoranthene	ND	2.13	4.25	"	"	"	"	
Benzo(k)fluoranthene	ND	2.13	4.25	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.13	4.25	"	"	"	"	
Chrysene	ND	2.13	4.25	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.13	4.25	"	"	"	"	
Dibenzofuran	ND	2.13	4.25	"	"	"	"	
Fluoranthene	ND	2.13	4.25	"	"	"	"	
Fluorene	ND	2.13	4.25	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.13	4.25	"	"	"	"	
1-Methylnaphthalene	ND	4.25	8.50	"	"	"	"	
2-Methylnaphthalene	ND	4.25	8.50	"	"	"	"	
Naphthalene	ND	4.25	8.50	"	"	"	"	
Phenanthrene	ND	2.13	4.25	"	"	"	"	
Pyrene	ND	2.13	4.25	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 83 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*98 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-03-15-30' (0-0.5')_Prepared (A6J0986-34RE1)			**Matrix: Soil**		**Batch: 6110816**			**H-08**
Acenaphthene	ND	2.12	4.24	ug/kg dry	1	11/23/16 13:45	EPA 8270D (SIM)	
Acenaphthylene	ND	2.12	4.24	"	"	"	"	
Anthracene	ND	2.12	4.24	"	"	"	"	
Benz(a)anthracene	ND	7.32	7.32	"	"	"	"	R-02
Benzo(a)pyrene	ND	2.12	4.24	"	"	"	"	
Benzo(b)fluoranthene	**3.39**	2.12	4.24	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.12	4.24	"	"	"	"	
Benzo(g,h,i)perylene	**5.69**	2.12	4.24	"	"	"	"	
Chrysene	ND	7.32	7.32	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	2.12	4.24	"	"	"	"	
Dibenzofuran	ND	2.12	4.24	"	"	"	"	
Fluoranthene	**2.86**	2.12	4.24	"	"	"	"	J
Fluorene	ND	2.12	4.24	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.12	4.24	"	"	"	"	
1-Methylnaphthalene	ND	4.24	8.49	"	"	"	"	
2-Methylnaphthalene	ND	4.24	8.49	"	"	"	"	
Naphthalene	ND	4.24	8.49	"	"	"	"	
Phenanthrene	**3.45**	2.12	4.24	"	"	"	"	J
Pyrene	**3.41**	2.12	4.24	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*94 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-03-15-30' (0.5-1')_Prepared (A6J0986-35RE1)			**Matrix: Soil**		**Batch: 7010394**			**H-08**
Acenaphthene	ND	2.05	4.11	ug/kg dry	1	01/12/17 16:11	EPA 8270D (SIM)	
Acenaphthylene	ND	2.05	4.11	"	"	"	"	
Anthracene	ND	2.05	4.11	"	"	"	"	
Benz(a)anthracene	ND	5.13	5.13	"	"	"	"	R-02
Benzo(a)pyrene	ND	2.05	4.11	"	"	"	"	
Benzo(b)fluoranthene	**2.21**	2.05	4.11	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.05	4.11	"	"	"	"	
Benzo(g,h,i)perylene	**6.06**	2.05	4.11	"	"	"	"	
Chrysene	ND	6.16	6.16	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	2.05	4.11	"	"	"	"	
Dibenzofuran	ND	2.05	4.11	"	"	"	"	
Fluoranthene	ND	2.05	4.11	"	"	"	"	
Fluorene	ND	2.05	4.11	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.45**	2.05	4.11	"	"	"	"	J
1-Methylnaphthalene	ND	4.11	8.22	"	"	"	"	
2-Methylnaphthalene	ND	4.11	8.22	"	"	"	"	
Naphthalene	ND	4.11	8.22	"	"	"	"	
Phenanthrene	ND	2.05	4.11	"	"	"	"	
Pyrene	**2.10**	2.05	4.11	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*85 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-03-15-30' 1-1.5')_Prepared (A6J0986-36RE1)			**Matrix: Soil**		**Batch: 6110816**			**H-08**
Acenaphthene	ND	2.11	4.22	ug/kg dry	1	11/23/16 14:11	EPA 8270D (SIM)	
Acenaphthylene	ND	2.11	4.22	"	"	"	"	
Anthracene	ND	2.11	4.22	"	"	"	"	
Benz(a)anthracene	ND	2.11	4.22	"	"	"	"	
Benzo(a)pyrene	ND	2.11	4.22	"	"	"	"	
Benzo(b)fluoranthene	ND	2.11	4.22	"	"	"	"	
Benzo(k)fluoranthene	ND	2.11	4.22	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.11	4.22	"	"	"	"	
Chrysene	ND	2.11	4.22	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.11	4.22	"	"	"	"	
Dibenzofuran	ND	2.11	4.22	"	"	"	"	
Fluoranthene	**2.15**	2.11	4.22	"	"	"	"	J
Fluorene	ND	2.11	4.22	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.11	4.22	"	"	"	"	
1-Methylnaphthalene	ND	4.22	8.43	"	"	"	"	
2-Methylnaphthalene	ND	4.22	8.43	"	"	"	"	
Naphthalene	ND	4.22	8.43	"	"	"	"	
Phenanthrene	**2.94**	2.11	4.22	"	"	"	"	J
Pyrene	**2.30**	2.11	4.22	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 80 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*92 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-03->30' (0-0.5')_Prepared (A6J0986-37)			**Matrix: Soil**		**Batch: 6110449**			**H-08**
Acenaphthene	ND	2.02	4.05	ug/kg dry	1	11/21/16 14:28	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.05	"	"	"	"	
Anthracene	ND	2.02	4.05	"	"	"	"	
Benz(a)anthracene	ND	7.09	7.09	"	"	"	"	R-02
Benzo(a)pyrene	ND	2.02	4.05	"	"	"	"	
Benzo(b)fluoranthene	**3.61**	2.02	4.05	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.02	4.05	"	"	"	"	
Benzo(g,h,i)perylene	**3.91**	2.02	4.05	"	"	"	"	J
Chrysene	ND	7.69	7.69	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	2.02	4.05	"	"	"	"	
Dibenzofuran	ND	2.02	4.05	"	"	"	"	
Fluoranthene	**3.33**	2.02	4.05	"	"	"	"	J
Fluorene	ND	2.02	4.05	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.05	"	"	"	"	
1-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
2-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
Naphthalene	**4.84**	4.05	8.10	"	"	"	"	J
Phenanthrene	**3.32**	2.02	4.05	"	"	"	"	J
Pyrene	**4.12**	2.02	4.05	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 55 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*58 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-03->30' (0.5-1')_Prepared (A6J0986-38)			**Matrix: Soil**		**Batch: 6110449**			**H-08**
Acenaphthene	ND	1.99	3.97	ug/kg dry	1	11/19/16 02:11	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.97	"	"	"	"	
Anthracene	ND	1.99	3.97	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.97	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.97	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.97	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.97	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.97	"	"	"	"	
Chrysene	ND	1.99	3.97	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.97	"	"	"	"	
Dibenzofuran	ND	1.99	3.97	"	"	"	"	
Fluoranthene	ND	1.99	3.97	"	"	"	"	
Fluorene	ND	1.99	3.97	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.97	"	"	"	"	
1-Methylnaphthalene	ND	3.97	7.95	"	"	"	"	
2-Methylnaphthalene	ND	3.97	7.95	"	"	"	"	
Naphthalene	ND	3.97	7.95	"	"	"	"	
Phenanthrene	ND	1.99	3.97	"	"	"	"	
Pyrene	ND	1.99	3.97	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 52 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*67 %*	*Limits: 54-127 %*	"	"	"	

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-03->30' (1-1.5')_Prepared (A6J0986-39)			**Matrix: Soil**		**Batch: 6110449**			**H-08**
Acenaphthene	ND	1.93	3.87	ug/kg dry	1	11/21/16 14:54	EPA 8270D (SIM)	
Acenaphthylene	ND	1.93	3.87	"	"	"	"	
Anthracene	ND	1.93	3.87	"	"	"	"	
Benz(a)anthracene	ND	3.87	3.87	"	"	"	"	
Benzo(a)pyrene	ND	1.93	3.87	"	"	"	"	
Benzo(b)fluoranthene	ND	1.93	3.87	"	"	"	"	
Benzo(k)fluoranthene	ND	1.93	3.87	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.93	3.87	"	"	"	"	
Chrysene	ND	3.87	3.87	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.93	3.87	"	"	"	"	
Dibenzofuran	ND	1.93	3.87	"	"	"	"	
Fluoranthene	ND	1.93	3.87	"	"	"	"	
Fluorene	ND	1.93	3.87	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.93	3.87	"	"	"	"	
1-Methylnaphthalene	ND	3.87	7.74	"	"	"	"	
2-Methylnaphthalene	ND	3.87	7.74	"	"	"	"	
Naphthalene	ND	3.87	7.74	"	"	"	"	
Phenanthrene	ND	1.93	3.87	"	"	"	"	
Pyrene	ND	1.93	3.87	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 62 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*70 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-04-15-30' (0-0.5')_Prepared (A6J0986-40)			**Matrix: Soil**		**Batch: 6110449**			**H-08**
Acenaphthene	ND	2.01	4.02	ug/kg dry	1	11/21/16 15:20	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.02	"	"	"	"	
Anthracene	ND	2.01	4.02	"	"	"	"	
Benz(a)anthracene	ND	4.02	4.02	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.02	"	"	"	"	
Benzo(b)fluoranthene	ND	2.01	4.02	"	"	"	"	
Benzo(k)fluoranthene	ND	2.01	4.02	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.02	"	"	"	"	
Chrysene	ND	5.02	5.02	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	2.01	4.02	"	"	"	"	
Dibenzofuran	ND	2.01	4.02	"	"	"	"	
Fluoranthene	ND	2.01	4.02	"	"	"	"	
Fluorene	ND	2.01	4.02	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.02	"	"	"	"	
1-Methylnaphthalene	ND	4.02	8.04	"	"	"	"	
2-Methylnaphthalene	ND	4.02	8.04	"	"	"	"	
Naphthalene	ND	4.02	8.04	"	"	"	"	
Phenanthrene	ND	2.01	4.02	"	"	"	"	
Pyrene	ND	2.01	4.02	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 59 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*72 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6J0986-41RE1)			**Matrix: Solid**		**Batch: 6110449**			**A-01, H-08**
Acenaphthene	ND	1.96	3.93	ug/kg wet	1	12/06/16 17:31	EPA 8270D (SIM)	
Acenaphthylene	ND	1.96	3.93	"	"	"	"	
Anthracene	ND	1.96	3.93	"	"	"	"	
Benz(a)anthracene	ND	1.96	3.93	"	"	"	"	
Benzo(a)pyrene	ND	1.96	3.93	"	"	"	"	
Benzo(b)fluoranthene	ND	1.96	3.93	"	"	"	"	
Benzo(k)fluoranthene	ND	1.96	3.93	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.96	3.93	"	"	"	"	
Chrysene	ND	1.96	3.93	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.96	3.93	"	"	"	"	
Dibenzofuran	ND	1.96	3.93	"	"	"	"	
Fluoranthene	ND	1.96	3.93	"	"	"	"	
Fluorene	ND	1.96	3.93	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.96	3.93	"	"	"	"	
1-Methylnaphthalene	ND	3.93	7.85	"	"	"	"	
2-Methylnaphthalene	ND	3.93	7.85	"	"	"	"	
Naphthalene	ND	3.93	7.85	"	"	"	"	
Phenanthrene	ND	1.96	3.93	"	"	"	"	
Pyrene	ND	1.96	3.93	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 53 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*59 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-04-15-30' (0.5-1')_Prepared (A6J0990-21)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	1.97	3.95	ug/kg dry	1	11/21/16 17:56	EPA 8270D (SIM)	
Acenaphthylene	ND	1.97	3.95	"	"	"	"	
Anthracene	ND	1.97	3.95	"	"	"	"	
Benz(a)anthracene	ND	1.97	3.95	"	"	"	"	
Benzo(a)pyrene	ND	1.97	3.95	"	"	"	"	
Benzo(b)fluoranthene	ND	1.97	3.95	"	"	"	"	
Benzo(k)fluoranthene	ND	1.97	3.95	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.97	3.95	"	"	"	"	
Chrysene	ND	1.97	3.95	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.97	3.95	"	"	"	"	
Dibenzofuran	ND	1.97	3.95	"	"	"	"	
Fluoranthene	ND	1.97	3.95	"	"	"	"	
Fluorene	ND	1.97	3.95	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.97	3.95	"	"	"	"	
1-Methylnaphthalene	ND	3.95	7.90	"	"	"	"	
2-Methylnaphthalene	ND	3.95	7.90	"	"	"	"	
Naphthalene	ND	3.95	7.90	"	"	"	"	
Phenanthrene	ND	1.97	3.95	"	"	"	"	
Pyrene	ND	1.97	3.95	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 89 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*97 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-04-15-30' (1-1.5')_Prepared (A6J0990-22)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	1.98	3.96	ug/kg dry	1	11/21/16 18:22	EPA 8270D (SIM)	
Acenaphthylene	ND	1.98	3.96	"	"	"	"	
Anthracene	ND	1.98	3.96	"	"	"	"	
Benz(a)anthracene	ND	1.98	3.96	"	"	"	"	
Benzo(a)pyrene	ND	1.98	3.96	"	"	"	"	
Benzo(b)fluoranthene	ND	1.98	3.96	"	"	"	"	
Benzo(k)fluoranthene	ND	1.98	3.96	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.98	3.96	"	"	"	"	
Chrysene	ND	1.98	3.96	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.98	3.96	"	"	"	"	
Dibenzofuran	ND	1.98	3.96	"	"	"	"	
Fluoranthene	ND	1.98	3.96	"	"	"	"	
Fluorene	ND	1.98	3.96	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.98	3.96	"	"	"	"	
1-Methylnaphthalene	ND	3.96	7.93	"	"	"	"	
2-Methylnaphthalene	ND	3.96	7.93	"	"	"	"	
Naphthalene	ND	3.96	7.93	"	"	"	"	
Phenanthrene	ND	1.98	3.96	"	"	"	"	
Pyrene	ND	1.98	3.96	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 90 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*96 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-04->30' (0-0.5')_Prepared (A6J0990-23)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	2.01	4.01	ug/kg dry	1	11/21/16 18:48	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.01	"	"	"	"	
Anthracene	ND	2.01	4.01	"	"	"	"	
Benz(a)anthracene	ND	2.01	4.01	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.01	"	"	"	"	
Benzo(b)fluoranthene	ND	2.01	4.01	"	"	"	"	
Benzo(k)fluoranthene	ND	2.01	4.01	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.01	"	"	"	"	
Chrysene	ND	2.01	4.01	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.01	4.01	"	"	"	"	
Dibenzofuran	ND	2.01	4.01	"	"	"	"	
Fluoranthene	**2.03**	2.01	4.01	"	"	"	"	J
Fluorene	ND	2.01	4.01	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.01	"	"	"	"	
1-Methylnaphthalene	ND	4.01	8.02	"	"	"	"	
2-Methylnaphthalene	ND	4.01	8.02	"	"	"	"	
Naphthalene	**4.66**	4.01	8.02	"	"	"	"	J
Phenanthrene	**2.27**	2.01	4.01	"	"	"	"	J
Pyrene	ND	2.01	4.01	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 80 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*88 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-04->30' (0.5-1')_Prepared (A6J0990-24)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	2.02	4.05	ug/kg dry	1	11/21/16 19:14	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.05	"	"	"	"	
Anthracene	ND	2.02	4.05	"	"	"	"	
Benz(a)anthracene	ND	2.02	4.05	"	"	"	"	
Benzo(a)pyrene	ND	2.02	4.05	"	"	"	"	
Benzo(b)fluoranthene	ND	2.02	4.05	"	"	"	"	
Benzo(k)fluoranthene	ND	2.02	4.05	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.02	4.05	"	"	"	"	
Chrysene	ND	2.02	4.05	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.02	4.05	"	"	"	"	
Dibenzofuran	ND	2.02	4.05	"	"	"	"	
Fluoranthene	ND	2.02	4.05	"	"	"	"	
Fluorene	ND	2.02	4.05	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.05	"	"	"	"	
1-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
2-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
Naphthalene	ND	4.05	8.10	"	"	"	"	
Phenanthrene	ND	2.02	4.05	"	"	"	"	
Pyrene	ND	2.02	4.05	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 83 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*95 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-04->30' (1-1.5')_Prepared (A6J0990-25)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	1.98	3.97	ug/kg dry	1	11/21/16 19:40	EPA 8270D (SIM)	
Acenaphthylene	ND	1.98	3.97	"	"	"	"	
Anthracene	ND	1.98	3.97	"	"	"	"	
Benz(a)anthracene	ND	1.98	3.97	"	"	"	"	
Benzo(a)pyrene	ND	1.98	3.97	"	"	"	"	
Benzo(b)fluoranthene	ND	1.98	3.97	"	"	"	"	
Benzo(k)fluoranthene	ND	1.98	3.97	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.98	3.97	"	"	"	"	
Chrysene	ND	1.98	3.97	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.98	3.97	"	"	"	"	
Dibenzofuran	ND	1.98	3.97	"	"	"	"	
Fluoranthene	ND	1.98	3.97	"	"	"	"	
Fluorene	ND	1.98	3.97	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.98	3.97	"	"	"	"	
1-Methylnaphthalene	ND	3.97	7.93	"	"	"	"	
2-Methylnaphthalene	ND	3.97	7.93	"	"	"	"	
Naphthalene	ND	3.97	7.93	"	"	"	"	
Phenanthrene	ND	1.98	3.97	"	"	"	"	
Pyrene	ND	1.98	3.97	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 85 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*99 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-05-15-30' (0-0.5')_Prepared (A6J0990-26)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	1.98	3.97	ug/kg dry	1	11/21/16 20:06	EPA 8270D (SIM)	
Acenaphthylene	ND	1.98	3.97	"	"	"	"	
Anthracene	ND	1.98	3.97	"	"	"	"	
Benz(a)anthracene	ND	6.85	6.85	"	"	"	"	R-02
Benzo(a)pyrene	ND	1.98	3.97	"	"	"	"	
Benzo(b)fluoranthene	**3.89**	1.98	3.97	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.98	3.97	"	"	"	"	
Benzo(g,h,i)perylene	**9.70**	1.98	3.97	"	"	"	"	
Chrysene	ND	6.75	6.75	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	1.98	3.97	"	"	"	"	
Dibenzofuran	ND	1.98	3.97	"	"	"	"	
Fluoranthene	ND	1.98	3.97	"	"	"	"	
Fluorene	ND	1.98	3.97	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**4.89**	1.98	3.97	"	"	"	"	
1-Methylnaphthalene	ND	3.97	7.94	"	"	"	"	
2-Methylnaphthalene	ND	3.97	7.94	"	"	"	"	
Naphthalene	ND	3.97	7.94	"	"	"	"	
Phenanthrene	**2.38**	1.98	3.97	"	"	"	"	J
Pyrene	**2.88**	1.98	3.97	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 81 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*95 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-05-15-30' (0.5-1')_Prepared (A6J0990-27)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	1.97	3.95	ug/kg dry	1	11/21/16 20:32	EPA 8270D (SIM)	
Acenaphthylene	ND	1.97	3.95	"	"	"	"	
Anthracene	ND	1.97	3.95	"	"	"	"	
Benz(a)anthracene	ND	3.95	3.95	"	"	"	"	
Benzo(a)pyrene	ND	1.97	3.95	"	"	"	"	
Benzo(b)fluoranthene	**2.32**	1.97	3.95	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.97	3.95	"	"	"	"	
Benzo(g,h,i)perylene	**3.34**	1.97	3.95	"	"	"	"	J
Chrysene	ND	3.95	3.95	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.97	3.95	"	"	"	"	
Dibenzofuran	ND	1.97	3.95	"	"	"	"	
Fluoranthene	ND	1.97	3.95	"	"	"	"	
Fluorene	ND	1.97	3.95	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.97	3.95	"	"	"	"	
1-Methylnaphthalene	ND	3.95	7.89	"	"	"	"	
2-Methylnaphthalene	ND	3.95	7.89	"	"	"	"	
Naphthalene	ND	3.95	7.89	"	"	"	"	
Phenanthrene	ND	1.97	3.95	"	"	"	"	
Pyrene	ND	1.97	3.95	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 79 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*96 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-05-15-30' (1-1.5')_Prepared (A6J0990-28)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	1.96	3.91	ug/kg dry	1	11/21/16 20:58	EPA 8270D (SIM)	
Acenaphthylene	ND	1.96	3.91	"	"	"	"	
Anthracene	ND	1.96	3.91	"	"	"	"	
Benz(a)anthracene	**3.07**	1.96	3.91	"	"	"	"	J
Benzo(a)pyrene	ND	1.96	3.91	"	"	"	"	
Benzo(b)fluoranthene	ND	3.91	3.91	"	"	"	"	
Benzo(k)fluoranthene	ND	1.96	3.91	"	"	"	"	
Benzo(g,h,i)perylene	**3.30**	1.96	3.91	"	"	"	"	J
Chrysene	ND	3.91	3.91	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.96	3.91	"	"	"	"	
Dibenzofuran	ND	1.96	3.91	"	"	"	"	
Fluoranthene	ND	1.96	3.91	"	"	"	"	
Fluorene	ND	1.96	3.91	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.96	3.91	"	"	"	"	
1-Methylnaphthalene	ND	3.91	7.83	"	"	"	"	
2-Methylnaphthalene	ND	3.91	7.83	"	"	"	"	
Naphthalene	ND	3.91	7.83	"	"	"	"	
Phenanthrene	ND	1.96	3.91	"	"	"	"	
Pyrene	ND	1.96	3.91	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*88 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-05-15-30' (1-1.5') DUP_Prepared (A6J0990-29)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	9.71	19.4	ug/kg dry	2	11/21/16 21:24	EPA 8270D (SIM)	
Acenaphthylene	ND	9.71	19.4	"	"	"	"	
Anthracene	ND	9.71	19.4	"	"	"	"	
Benz(a)anthracene	ND	9.71	19.4	"	"	"	"	
Benzo(a)pyrene	**14.8**	9.71	19.4	"	"	"	"	J
Benzo(b)fluoranthene	**22.6**	9.71	19.4	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	9.71	19.4	"	"	"	"	
Benzo(g,h,i)perylene	**37.0**	9.71	19.4	"	"	"	"	
Chrysene	ND	29.1	29.1	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	9.71	19.4	"	"	"	"	
Dibenzofuran	ND	9.71	19.4	"	"	"	"	
Fluoranthene	ND	9.71	19.4	"	"	"	"	
Fluorene	ND	9.71	19.4	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**26.0**	9.71	19.4	"	"	"	"	
1-Methylnaphthalene	ND	19.4	38.9	"	"	"	"	
2-Methylnaphthalene	ND	19.4	38.9	"	"	"	"	
Naphthalene	ND	19.4	38.9	"	"	"	"	
Phenanthrene	ND	9.71	19.4	"	"	"	"	
Pyrene	**18.1**	9.71	19.4	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 100 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*112 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-05->30' (0-0.5')_Prepared (A6J0990-30)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	2.00	3.99	ug/kg dry	1	11/22/16 09:56	EPA 8270D (SIM)	
Acenaphthylene	ND	2.00	3.99	"	"	"	"	
Anthracene	ND	2.00	3.99	"	"	"	"	
Benz(a)anthracene	ND	5.29	5.29	"	"	"	"	R-02
Benzo(a)pyrene	ND	2.00	3.99	"	"	"	"	
Benzo(b)fluoranthene	**2.84**	2.00	3.99	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.00	3.99	"	"	"	"	
Benzo(g,h,i)perylene	**3.74**	2.00	3.99	"	"	"	"	J
Chrysene	ND	5.39	5.39	"	"	"	"	R-02
Dibenz(a,h)anthracene	**2.30**	2.00	3.99	"	"	"	"	J
Dibenzofuran	ND	2.00	3.99	"	"	"	"	
Fluoranthene	ND	2.00	3.99	"	"	"	"	
Fluorene	ND	2.00	3.99	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.00	3.99	"	"	"	"	
1-Methylnaphthalene	ND	3.99	7.98	"	"	"	"	
2-Methylnaphthalene	ND	3.99	7.98	"	"	"	"	
Naphthalene	ND	3.99	7.98	"	"	"	"	
Phenanthrene	ND	2.00	3.99	"	"	"	"	
Pyrene	**2.57**	2.00	3.99	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 79 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*97 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-05->30' (0.5-1')_Prepared (A6J0990-31)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	1.94	3.88	ug/kg dry	1	11/22/16 10:22	EPA 8270D (SIM)	
Acenaphthylene	ND	1.94	3.88	"	"	"	"	
Anthracene	ND	1.94	3.88	"	"	"	"	
Benz(a)anthracene	ND	3.88	3.88	"	"	"	"	
Benzo(a)pyrene	ND	1.94	3.88	"	"	"	"	
Benzo(b)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(k)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.94	3.88	"	"	"	"	
Chrysene	ND	3.88	3.88	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.94	3.88	"	"	"	"	
Dibenzofuran	ND	1.94	3.88	"	"	"	"	
Fluoranthene	ND	1.94	3.88	"	"	"	"	
Fluorene	ND	1.94	3.88	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.94	3.88	"	"	"	"	
1-Methylnaphthalene	ND	3.88	7.75	"	"	"	"	
2-Methylnaphthalene	ND	3.88	7.75	"	"	"	"	
Naphthalene	ND	3.88	7.75	"	"	"	"	
Phenanthrene	ND	1.94	3.88	"	"	"	"	
Pyrene	ND	1.94	3.88	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 89 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*97 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-05->30' (1-1.5')_Prepared (A6J0990-32)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	1.99	3.99	ug/kg dry	1	11/21/16 21:50	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.99	"	"	"	"	
Anthracene	ND	1.99	3.99	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.99	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.99	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.99	"	"	"	"	
Chrysene	ND	1.99	3.99	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.99	"	"	"	"	
Dibenzofuran	ND	1.99	3.99	"	"	"	"	
Fluoranthene	ND	1.99	3.99	"	"	"	"	
Fluorene	ND	1.99	3.99	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.99	"	"	"	"	
1-Methylnaphthalene	ND	3.99	7.97	"	"	"	"	
2-Methylnaphthalene	ND	3.99	7.97	"	"	"	"	
Naphthalene	ND	3.99	7.97	"	"	"	"	
Phenanthrene	ND	1.99	3.99	"	"	"	"	
Pyrene	ND	1.99	3.99	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 85 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*91 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-06-15-30' (0-0.5')_Prepared (A6J0990-33)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	2.02	4.05	ug/kg dry	1	11/22/16 10:48	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.05	"	"	"	"	
Anthracene	ND	2.02	4.05	"	"	"	"	
Benz(a)anthracene	ND	4.76	4.76	"	"	"	"	R-02
Benzo(a)pyrene	**2.41**	2.02	4.05	"	"	"	"	J
Benzo(b)fluoranthene	**2.76**	2.02	4.05	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.02	4.05	"	"	"	"	
Benzo(g,h,i)perylene	**2.94**	2.02	4.05	"	"	"	"	J
Chrysene	ND	4.55	4.55	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	2.02	4.05	"	"	"	"	
Dibenzofuran	ND	2.02	4.05	"	"	"	"	
Fluoranthene	**2.46**	2.02	4.05	"	"	"	"	J
Fluorene	ND	2.02	4.05	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.05	"	"	"	"	
1-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
2-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
Naphthalene	**6.41**	4.05	8.10	"	"	"	"	J
Phenanthrene	**2.37**	2.02	4.05	"	"	"	"	J
Pyrene	**3.01**	2.02	4.05	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 86 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*92 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-06-15-30' (0.5-1')_Prepared (A6J0990-34)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	2.01	4.02	ug/kg dry	1	11/22/16 11:14	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.02	"	"	"	"	
Anthracene	ND	2.01	4.02	"	"	"	"	
Benz(a)anthracene	ND	2.01	4.02	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.02	"	"	"	"	
Benzo(b)fluoranthene	ND	2.01	4.02	"	"	"	"	
Benzo(k)fluoranthene	ND	2.01	4.02	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.02	"	"	"	"	
Chrysene	ND	2.01	4.02	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.01	4.02	"	"	"	"	
Dibenzofuran	ND	2.01	4.02	"	"	"	"	
Fluoranthene	ND	2.01	4.02	"	"	"	"	
Fluorene	ND	2.01	4.02	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.02	"	"	"	"	
1-Methylnaphthalene	ND	4.02	8.05	"	"	"	"	
2-Methylnaphthalene	ND	4.02	8.05	"	"	"	"	
Naphthalene	ND	4.02	8.05	"	"	"	"	
Phenanthrene	ND	2.01	4.02	"	"	"	"	
Pyrene	ND	2.01	4.02	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 85 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*93 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-06-15-30' (1-1.5')_Prepared (A6J0990-35)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	2.02	4.04	ug/kg dry	1	11/22/16 11:40	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.04	"	"	"	"	
Anthracene	ND	2.02	4.04	"	"	"	"	
Benz(a)anthracene	ND	2.02	4.04	"	"	"	"	
Benzo(a)pyrene	ND	2.02	4.04	"	"	"	"	
Benzo(b)fluoranthene	ND	2.02	4.04	"	"	"	"	
Benzo(k)fluoranthene	ND	2.02	4.04	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.02	4.04	"	"	"	"	
Chrysene	ND	2.02	4.04	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.02	4.04	"	"	"	"	
Dibenzofuran	ND	2.02	4.04	"	"	"	"	
Fluoranthene	ND	2.02	4.04	"	"	"	"	
Fluorene	ND	2.02	4.04	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.04	"	"	"	"	
1-Methylnaphthalene	ND	4.04	8.08	"	"	"	"	
2-Methylnaphthalene	ND	4.04	8.08	"	"	"	"	
Naphthalene	ND	4.04	8.08	"	"	"	"	
Phenanthrene	ND	2.02	4.04	"	"	"	"	
Pyrene	ND	2.02	4.04	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 83 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*93 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-06->30' (0-0.5')_Prepared (A6J0990-36)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	1.97	3.93	ug/kg dry	1	11/22/16 12:06	EPA 8270D (SIM)	
Acenaphthylene	ND	1.97	3.93	"	"	"	"	
Anthracene	ND	1.97	3.93	"	"	"	"	
Benz(a)anthracene	ND	1.97	3.93	"	"	"	"	
Benzo(a)pyrene	ND	1.97	3.93	"	"	"	"	
Benzo(b)fluoranthene	ND	1.97	3.93	"	"	"	"	
Benzo(k)fluoranthene	ND	1.97	3.93	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.97	3.93	"	"	"	"	
Chrysene	ND	1.97	3.93	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.97	3.93	"	"	"	"	
Dibenzofuran	ND	1.97	3.93	"	"	"	"	
Fluoranthene	ND	1.97	3.93	"	"	"	"	
Fluorene	ND	1.97	3.93	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.97	3.93	"	"	"	"	
1-Methylnaphthalene	ND	3.93	7.86	"	"	"	"	
2-Methylnaphthalene	ND	3.93	7.86	"	"	"	"	
Naphthalene	ND	3.93	7.86	"	"	"	"	
Phenanthrene	ND	1.97	3.93	"	"	"	"	
Pyrene	ND	1.97	3.93	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-06->30' (0.5-1')_Prepared (A6J0990-37)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	2.03	4.05	ug/kg dry	1	11/22/16 12:32	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.05	"	"	"	"	
Anthracene	ND	2.03	4.05	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.05	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.05	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.05	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.05	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.05	"	"	"	"	
Chrysene	ND	2.03	4.05	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.05	"	"	"	"	
Dibenzofuran	ND	2.03	4.05	"	"	"	"	
Fluoranthene	ND	2.03	4.05	"	"	"	"	
Fluorene	ND	2.03	4.05	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.05	"	"	"	"	
1-Methylnaphthalene	ND	4.05	8.11	"	"	"	"	
2-Methylnaphthalene	ND	4.05	8.11	"	"	"	"	
Naphthalene	ND	4.05	8.11	"	"	"	"	
Phenanthrene	ND	2.03	4.05	"	"	"	"	
Pyrene	ND	2.03	4.05	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 83 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*85 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-06->30' (1-1.5')_Prepared (A6J0990-38)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	2.06	4.11	ug/kg dry	1	11/22/16 12:58	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.11	"	"	"	"	
Anthracene	ND	2.06	4.11	"	"	"	"	
Benz(a)anthracene	ND	2.06	4.11	"	"	"	"	
Benzo(a)pyrene	ND	2.06	4.11	"	"	"	"	
Benzo(b)fluoranthene	ND	2.06	4.11	"	"	"	"	
Benzo(k)fluoranthene	ND	2.06	4.11	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.06	4.11	"	"	"	"	
Chrysene	ND	2.06	4.11	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.06	4.11	"	"	"	"	
Dibenzofuran	ND	2.06	4.11	"	"	"	"	
Fluoranthene	ND	2.06	4.11	"	"	"	"	
Fluorene	ND	2.06	4.11	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.06	4.11	"	"	"	"	
1-Methylnaphthalene	ND	4.11	8.22	"	"	"	"	
2-Methylnaphthalene	ND	4.11	8.22	"	"	"	"	
Naphthalene	ND	4.11	8.22	"	"	"	"	
Phenanthrene	ND	2.06	4.11	"	"	"	"	
Pyrene	ND	2.06	4.11	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*99 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-07-15-30' (0-0.5')_Prepared (A6J0990-39)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	1.99	3.98	ug/kg dry	1	11/22/16 13:24	EPA 8270D (SIM)	
Acenaphthylene	**10.9**	1.99	3.98	"	"	"	"	
Anthracene	**5.83**	1.99	3.98	"	"	"	"	
Benz(a)anthracene	**16.2**	1.99	3.98	"	"	"	"	M-02
Benzo(a)pyrene	**48.5**	1.99	3.98	"	"	"	"	
Benzo(b)fluoranthene	**63.5**	1.99	3.98	"	"	"	"	M-02
Benzo(k)fluoranthene	**18.5**	1.99	3.98	"	"	"	"	M-02
Benzo(g,h,i)perylene	**59.7**	1.99	3.98	"	"	"	"	
Chrysene	**47.4**	1.99	3.98	"	"	"	"	M-02
Dibenz(a,h)anthracene	**4.77**	1.99	3.98	"	"	"	"	
Dibenzofuran	ND	1.99	3.98	"	"	"	"	
Fluoranthene	**83.7**	1.99	3.98	"	"	"	"	
Fluorene	ND	1.99	3.98	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**48.4**	1.99	3.98	"	"	"	"	
1-Methylnaphthalene	ND	3.98	7.96	"	"	"	"	
2-Methylnaphthalene	ND	3.98	7.96	"	"	"	"	
Naphthalene	**5.82**	3.98	7.96	"	"	"	"	J
Phenanthrene	**28.8**	1.99	3.98	"	"	"	"	
Pyrene	**116**	1.99	3.98	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 72 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*88 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-07-15-30' (0.5-1')_Prepared (A6J0990-40)			**Matrix: Soil**		**Batch: 6110476**			**H-08**
Acenaphthene	ND	1.96	3.91	ug/kg dry	1	11/22/16 13:50	EPA 8270D (SIM)	
Acenaphthylene	ND	1.96	3.91	"	"	"	"	
Anthracene	ND	1.96	3.91	"	"	"	"	
Benz(a)anthracene	**1.97**	1.96	3.91	"	"	"	"	J
Benzo(a)pyrene	**3.49**	1.96	3.91	"	"	"	"	J
Benzo(b)fluoranthene	**4.02**	1.96	3.91	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	1.96	3.91	"	"	"	"	
Benzo(g,h,i)perylene	**4.38**	1.96	3.91	"	"	"	"	
Chrysene	**2.72**	1.96	3.91	"	"	"	"	J
Dibenz(a,h)anthracene	ND	1.96	3.91	"	"	"	"	
Dibenzofuran	ND	1.96	3.91	"	"	"	"	
Fluoranthene	**5.27**	1.96	3.91	"	"	"	"	
Fluorene	ND	1.96	3.91	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**3.65**	1.96	3.91	"	"	"	"	J
1-Methylnaphthalene	ND	3.91	7.82	"	"	"	"	
2-Methylnaphthalene	ND	3.91	7.82	"	"	"	"	
Naphthalene	ND	3.91	7.82	"	"	"	"	
Phenanthrene	**2.58**	1.96	3.91	"	"	"	"	J
Pyrene	**7.21**	1.96	3.91	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*88 %*	*Limits: 54-127 %*	"	"	"	

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6J0990-41RE1)			**Matrix: Solid**		**Batch: 6110476**			**A-01, H-08**
Acenaphthene	ND	1.94	3.88	ug/kg wet	1	12/07/16 14:17	EPA 8270D (SIM)	
Acenaphthylene	ND	1.94	3.88	"	"	"	"	
Anthracene	ND	1.94	3.88	"	"	"	"	
Benz(a)anthracene	ND	1.94	3.88	"	"	"	"	
Benzo(a)pyrene	ND	1.94	3.88	"	"	"	"	
Benzo(b)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(k)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.94	3.88	"	"	"	"	
Chrysene	ND	1.94	3.88	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.94	3.88	"	"	"	"	
Dibenzofuran	ND	1.94	3.88	"	"	"	"	
Fluoranthene	ND	1.94	3.88	"	"	"	"	
Fluorene	ND	1.94	3.88	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.94	3.88	"	"	"	"	
1-Methylnaphthalene	ND	3.88	7.77	"	"	"	"	
2-Methylnaphthalene	ND	3.88	7.77	"	"	"	"	
Naphthalene	ND	3.88	7.77	"	"	"	"	
Phenanthrene	ND	1.94	3.88	"	"	"	"	
Pyrene	ND	1.94	3.88	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*82 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-07-15-30' (1-1.5')_Prepared (A6J1004-21RE1)			**Matrix: Soil**		**Batch: 6110864**			**H-08**
Acenaphthene	ND	1.92	3.85	ug/kg dry	1	11/29/16 12:59	EPA 8270D (SIM)	
Acenaphthylene	ND	1.92	3.85	"	"	"	"	
Anthracene	ND	1.92	3.85	"	"	"	"	
Benz(a)anthracene	ND	1.92	3.85	"	"	"	"	
Benzo(a)pyrene	ND	1.92	3.85	"	"	"	"	
Benzo(b)fluoranthene	ND	1.92	3.85	"	"	"	"	
Benzo(k)fluoranthene	ND	1.92	3.85	"	"	"	"	
Benzo(g,h,i)perylene	**2.31**	1.92	3.85	"	"	"	"	J
Chrysene	ND	1.92	3.85	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.92	3.85	"	"	"	"	
Dibenzofuran	ND	1.92	3.85	"	"	"	"	
Fluoranthene	ND	1.92	3.85	"	"	"	"	
Fluorene	ND	1.92	3.85	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.62**	1.92	3.85	"	"	"	"	J
1-Methylnaphthalene	ND	3.85	7.69	"	"	"	"	
2-Methylnaphthalene	ND	3.85	7.69	"	"	"	"	
Naphthalene	ND	3.85	7.69	"	"	"	"	
Phenanthrene	ND	1.92	3.85	"	"	"	"	
Pyrene	ND	1.92	3.85	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 88 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*97 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-07->30' (0-0.5')_Prepared (A6J1004-22)			**Matrix: Soil**		**Batch: 6110565**			**H-08**
Acenaphthene	ND	2.00	4.01	ug/kg dry	1	11/23/16 01:24	EPA 8270D (SIM)	
Acenaphthylene	**6.27**	2.00	4.01	"	"	"	"	
Anthracene	**3.27**	2.00	4.01	"	"	"	"	J
Benz(a)anthracene	**9.91**	2.00	4.01	"	"	"	"	M-02
Benzo(a)pyrene	**27.4**	2.00	4.01	"	"	"	"	
Benzo(b)fluoranthene	**34.5**	2.00	4.01	"	"	"	"	M-02
Benzo(k)fluoranthene	**12.6**	2.00	4.01	"	"	"	"	M-02
Benzo(g,h,i)perylene	**34.9**	2.00	4.01	"	"	"	"	
Chrysene	**24.5**	2.00	4.01	"	"	"	"	M-02
Dibenz(a,h)anthracene	**2.65**	2.00	4.01	"	"	"	"	J
Dibenzofuran	ND	2.00	4.01	"	"	"	"	
Fluoranthene	**45.0**	2.00	4.01	"	"	"	"	
Fluorene	ND	2.00	4.01	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**28.5**	2.00	4.01	"	"	"	"	
1-Methylnaphthalene	ND	4.01	8.02	"	"	"	"	
2-Methylnaphthalene	ND	4.01	8.02	"	"	"	"	
Naphthalene	ND	4.01	8.02	"	"	"	"	
Phenanthrene	**13.4**	2.00	4.01	"	"	"	"	
Pyrene	**64.1**	2.00	4.01	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 59 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*58 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-07->30' (0.5-1')_Prepared (A6J1004-23)			**Matrix: Soil**		**Batch: 6110565**			**H-08**
Acenaphthene	ND	1.98	3.97	ug/kg dry	1	11/23/16 14:37	EPA 8270D (SIM)	
Acenaphthylene	**3.99**	1.98	3.97	"	"	"	"	
Anthracene	ND	1.98	3.97	"	"	"	"	
Benz(a)anthracene	**9.56**	1.98	3.97	"	"	"	"	M-02
Benzo(a)pyrene	**27.4**	1.98	3.97	"	"	"	"	
Benzo(b)fluoranthene	**35.9**	1.98	3.97	"	"	"	"	M-02
Benzo(k)fluoranthene	**10.7**	1.98	3.97	"	"	"	"	M-02
Benzo(g,h,i)perylene	**33.0**	1.98	3.97	"	"	"	"	
Chrysene	**23.6**	1.98	3.97	"	"	"	"	M-02
Dibenz(a,h)anthracene	**2.87**	1.98	3.97	"	"	"	"	J
Dibenzofuran	ND	1.98	3.97	"	"	"	"	
Fluoranthene	**43.2**	1.98	3.97	"	"	"	"	
Fluorene	ND	1.98	3.97	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**28.2**	1.98	3.97	"	"	"	"	
1-Methylnaphthalene	ND	3.97	7.94	"	"	"	"	
2-Methylnaphthalene	ND	3.97	7.94	"	"	"	"	
Naphthalene	ND	3.97	7.94	"	"	"	"	
Phenanthrene	**14.8**	1.98	3.97	"	"	"	"	
Pyrene	**59.2**	1.98	3.97	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 63 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*74 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-07->30' (1-1.5')_Prepared (A6J1004-24)			**Matrix: Soil**		**Batch: 6110565**			**H-08**
Acenaphthene	ND	1.89	3.79	ug/kg dry	1	11/23/16 15:03	EPA 8270D (SIM)	
Acenaphthylene	ND	1.89	3.79	"	"	"	"	
Anthracene	ND	1.89	3.79	"	"	"	"	
Benz(a)anthracene	ND	1.89	3.79	"	"	"	"	
Benzo(a)pyrene	ND	1.89	3.79	"	"	"	"	
Benzo(b)fluoranthene	ND	1.89	3.79	"	"	"	"	
Benzo(k)fluoranthene	ND	1.89	3.79	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.89	3.79	"	"	"	"	
Chrysene	ND	1.89	3.79	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.89	3.79	"	"	"	"	
Dibenzofuran	ND	1.89	3.79	"	"	"	"	
Fluoranthene	ND	1.89	3.79	"	"	"	"	
Fluorene	ND	1.89	3.79	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.89	3.79	"	"	"	"	
1-Methylnaphthalene	ND	3.79	7.57	"	"	"	"	
2-Methylnaphthalene	ND	3.79	7.57	"	"	"	"	
Naphthalene	ND	3.79	7.57	"	"	"	"	
Phenanthrene	ND	1.89	3.79	"	"	"	"	
Pyrene	ND	1.89	3.79	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 63 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*74 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-08-15-30' (0-0.5')_Prepared (A6J1004-25)			**Matrix: Soil**		**Batch: 6110701**			**H-08**
Acenaphthene	ND	1.94	3.88	ug/kg dry	1	11/26/16 13:33	EPA 8270D (SIM)	
Acenaphthylene	**5.11**	1.94	3.88	"	"	"	"	
Anthracene	ND	1.94	3.88	"	"	"	"	
Benz(a)anthracene	**5.83**	1.94	3.88	"	"	"	"	M-02
Benzo(a)pyrene	**20.3**	1.94	3.88	"	"	"	"	
Benzo(b)fluoranthene	**20.1**	1.94	3.88	"	"	"	"	M-02
Benzo(k)fluoranthene	**5.90**	1.94	3.88	"	"	"	"	M-02
Benzo(g,h,i)perylene	**33.7**	1.94	3.88	"	"	"	"	
Chrysene	**9.15**	1.94	3.88	"	"	"	"	M-02
Dibenz(a,h)anthracene	**3.12**	1.94	3.88	"	"	"	"	J
Dibenzofuran	ND	1.94	3.88	"	"	"	"	
Fluoranthene	**4.98**	1.94	3.88	"	"	"	"	
Fluorene	ND	1.94	3.88	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**21.4**	1.94	3.88	"	"	"	"	
1-Methylnaphthalene	ND	3.88	7.75	"	"	"	"	
2-Methylnaphthalene	ND	3.88	7.75	"	"	"	"	
Naphthalene	ND	3.88	7.75	"	"	"	"	
Phenanthrene	ND	1.94	3.88	"	"	"	"	
Pyrene	**9.81**	1.94	3.88	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*91 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-08-15-30' (0.5-1')_Prepared (A6J1004-26)			**Matrix: Soil**		**Batch: 6110565**			**H-08**
Acenaphthene	ND	1.95	3.90	ug/kg dry	1	11/23/16 15:28	EPA 8270D (SIM)	
Acenaphthylene	**7.95**	1.95	3.90	"	"	"	"	
Anthracene	**2.19**	1.95	3.90	"	"	"	"	J
Benz(a)anthracene	**16.6**	1.95	3.90	"	"	"	"	M-02
Benzo(a)pyrene	**47.1**	1.95	3.90	"	"	"	"	
Benzo(b)fluoranthene	**50.2**	1.95	3.90	"	"	"	"	M-02
Benzo(k)fluoranthene	**16.3**	1.95	3.90	"	"	"	"	M-02
Benzo(g,h,i)perylene	**59.2**	1.95	3.90	"	"	"	"	
Chrysene	**27.8**	1.95	3.90	"	"	"	"	M-02
Dibenz(a,h)anthracene	**7.49**	1.95	3.90	"	"	"	"	
Dibenzofuran	ND	1.95	3.90	"	"	"	"	
Fluoranthene	**12.4**	1.95	3.90	"	"	"	"	
Fluorene	ND	1.95	3.90	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**45.4**	1.95	3.90	"	"	"	"	
1-Methylnaphthalene	ND	3.90	7.79	"	"	"	"	
2-Methylnaphthalene	ND	3.90	7.79	"	"	"	"	
Naphthalene	ND	3.90	7.79	"	"	"	"	
Phenanthrene	ND	1.95	3.90	"	"	"	"	
Pyrene	**26.2**	1.95	3.90	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*104 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-08-15-30' (1-1.5')_Prepared (A6J1004-27)			**Matrix: Soil**		**Batch: 6110565**			**H-08**
Acenaphthene	ND	1.88	3.77	ug/kg dry	1	11/23/16 15:55	EPA 8270D (SIM)	
Acenaphthylene	**2.83**	1.88	3.77	"	"	"	"	J
Anthracene	ND	1.88	3.77	"	"	"	"	
Benz(a)anthracene	**4.81**	1.88	3.77	"	"	"	"	M-02
Benzo(a)pyrene	**11.2**	1.88	3.77	"	"	"	"	
Benzo(b)fluoranthene	**12.9**	1.88	3.77	"	"	"	"	M-02
Benzo(k)fluoranthene	**4.45**	1.88	3.77	"	"	"	"	M-02
Benzo(g,h,i)perylene	**19.9**	1.88	3.77	"	"	"	"	
Chrysene	**8.00**	1.88	3.77	"	"	"	"	M-02
Dibenz(a,h)anthracene	**1.94**	1.88	3.77	"	"	"	"	J
Dibenzofuran	ND	1.88	3.77	"	"	"	"	
Fluoranthene	**5.79**	1.88	3.77	"	"	"	"	
Fluorene	ND	1.88	3.77	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**12.2**	1.88	3.77	"	"	"	"	
1-Methylnaphthalene	ND	3.77	7.53	"	"	"	"	
2-Methylnaphthalene	ND	3.77	7.53	"	"	"	"	
Naphthalene	ND	3.77	7.53	"	"	"	"	
Phenanthrene	ND	1.88	3.77	"	"	"	"	
Pyrene	**10.3**	1.88	3.77	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*107 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-08->30' (0-0.5')_Prepared (A6J1004-28)			**Matrix: Soil**		**Batch: 6110565**			**H-08**
Acenaphthene	ND	1.98	3.96	ug/kg dry	1	11/23/16 16:20	EPA 8270D (SIM)	
Acenaphthylene	**2.98**	1.98	3.96	"	"	"	"	J
Anthracene	ND	1.98	3.96	"	"	"	"	
Benz(a)anthracene	**3.40**	1.98	3.96	"	"	"	"	J
Benzo(a)pyrene	**10.4**	1.98	3.96	"	"	"	"	
Benzo(b)fluoranthene	**11.6**	1.98	3.96	"	"	"	"	M-02
Benzo(k)fluoranthene	**3.02**	1.98	3.96	"	"	"	"	J
Benzo(g,h,i)perylene	**19.3**	1.98	3.96	"	"	"	"	
Chrysene	**5.46**	1.98	3.96	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.98	3.96	"	"	"	"	
Dibenzofuran	ND	1.98	3.96	"	"	"	"	
Fluoranthene	**3.80**	1.98	3.96	"	"	"	"	J
Fluorene	ND	1.98	3.96	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**12.5**	1.98	3.96	"	"	"	"	
1-Methylnaphthalene	ND	3.96	7.92	"	"	"	"	
2-Methylnaphthalene	ND	3.96	7.92	"	"	"	"	
Naphthalene	ND	3.96	7.92	"	"	"	"	
Phenanthrene	ND	1.98	3.96	"	"	"	"	
Pyrene	**6.28**	1.98	3.96	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 58 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*73 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-08->30' (0.5-1')_Prepared (A6J1004-29)			**Matrix: Soil**		**Batch: 6110565**			**H-08**
Acenaphthene	ND	9.62	19.2	ug/kg dry	2	11/23/16 16:46	EPA 8270D (SIM)	
Acenaphthylene	ND	9.62	19.2	"	"	"	"	
Anthracene	ND	9.62	19.2	"	"	"	"	
Benz(a)anthracene	ND	9.62	19.2	"	"	"	"	
Benzo(a)pyrene	**20.6**	9.62	19.2	"	"	"	"	
Benzo(b)fluoranthene	**22.7**	9.62	19.2	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	9.62	19.2	"	"	"	"	
Benzo(g,h,i)perylene	**40.8**	9.62	19.2	"	"	"	"	
Chrysene	**18.9**	9.62	19.2	"	"	"	"	J
Dibenz(a,h)anthracene	ND	9.62	19.2	"	"	"	"	
Dibenzofuran	ND	9.62	19.2	"	"	"	"	
Fluoranthene	ND	9.62	19.2	"	"	"	"	
Fluorene	ND	9.62	19.2	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**22.5**	9.62	19.2	"	"	"	"	
1-Methylnaphthalene	ND	19.2	38.5	"	"	"	"	
2-Methylnaphthalene	ND	19.2	38.5	"	"	"	"	
Naphthalene	ND	19.2	38.5	"	"	"	"	
Phenanthrene	ND	9.62	19.2	"	"	"	"	
Pyrene	**12.2**	9.62	19.2	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*106 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-08->30' (0.5-1') DUP_Prepared (A6J1004-30)			**Matrix: Soil**		**Batch: 6110565**			**H-08**
Acenaphthene	ND	3.91	7.83	ug/kg dry	2	11/23/16 17:12	EPA 8270D (SIM)	
Acenaphthylene	**11.3**	3.91	7.83	"	"	"	"	
Anthracene	**4.27**	3.91	7.83	"	"	"	"	J
Benz(a)anthracene	**13.7**	3.91	7.83	"	"	"	"	M-02
Benzo(a)pyrene	**50.2**	3.91	7.83	"	"	"	"	
Benzo(b)fluoranthene	**47.8**	3.91	7.83	"	"	"	"	M-02
Benzo(k)fluoranthene	**13.7**	3.91	7.83	"	"	"	"	M-02
Benzo(g,h,i)perylene	**70.9**	3.91	7.83	"	"	"	"	
Chrysene	**22.9**	3.91	7.83	"	"	"	"	M-02
Dibenz(a,h)anthracene	**6.61**	3.91	7.83	"	"	"	"	J
Dibenzofuran	ND	3.91	7.83	"	"	"	"	
Fluoranthene	**25.8**	3.91	7.83	"	"	"	"	
Fluorene	ND	3.91	7.83	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**51.5**	3.91	7.83	"	"	"	"	
1-Methylnaphthalene	ND	7.83	15.7	"	"	"	"	
2-Methylnaphthalene	ND	7.83	15.7	"	"	"	"	
Naphthalene	ND	7.83	15.7	"	"	"	"	
Phenanthrene	**12.4**	3.91	7.83	"	"	"	"	
Pyrene	**40.1**	3.91	7.83	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*95 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-08->30' (1-1.5')_Prepared (A6J1004-31)			**Matrix: Soil**		**Batch: 6110565**			**H-08**
Acenaphthene	ND	3.84	7.68	ug/kg dry	2	11/23/16 17:38	EPA 8270D (SIM)	
Acenaphthylene	**4.26**	3.84	7.68	"	"	"	"	J
Anthracene	ND	3.84	7.68	"	"	"	"	
Benz(a)anthracene	**5.00**	3.84	7.68	"	"	"	"	J
Benzo(a)pyrene	**15.0**	3.84	7.68	"	"	"	"	
Benzo(b)fluoranthene	**14.8**	3.84	7.68	"	"	"	"	M-02
Benzo(k)fluoranthene	**5.50**	3.84	7.68	"	"	"	"	J
Benzo(g,h,i)perylene	**24.7**	3.84	7.68	"	"	"	"	
Chrysene	**9.50**	3.84	7.68	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	3.84	7.68	"	"	"	"	
Dibenzofuran	ND	3.84	7.68	"	"	"	"	
Fluoranthene	**5.15**	3.84	7.68	"	"	"	"	J
Fluorene	ND	3.84	7.68	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**16.0**	3.84	7.68	"	"	"	"	
1-Methylnaphthalene	ND	7.68	15.4	"	"	"	"	
2-Methylnaphthalene	ND	7.68	15.4	"	"	"	"	
Naphthalene	ND	7.68	15.4	"	"	"	"	
Phenanthrene	ND	3.84	7.68	"	"	"	"	
Pyrene	**9.46**	3.84	7.68	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*101 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-09-15-30' (0-0.5')_Prepared (A6J1004-32)			**Matrix: Soil**		**Batch: 6110565**			**H-08**
Acenaphthene	ND	2.03	4.07	ug/kg dry	1	11/23/16 18:04	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.07	"	"	"	"	
Anthracene	ND	2.03	4.07	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.07	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.07	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.07	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.07	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.07	"	"	"	"	
Chrysene	ND	2.03	4.07	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.07	"	"	"	"	
Dibenzofuran	ND	2.03	4.07	"	"	"	"	
Fluoranthene	ND	2.03	4.07	"	"	"	"	
Fluorene	ND	2.03	4.07	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.07	"	"	"	"	
1-Methylnaphthalene	ND	4.07	8.13	"	"	"	"	
2-Methylnaphthalene	ND	4.07	8.13	"	"	"	"	
Naphthalene	ND	4.07	8.13	"	"	"	"	
Phenanthrene	ND	2.03	4.07	"	"	"	"	
Pyrene	ND	2.03	4.07	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*84 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-09-15-30' (0.5-1')_Prepared (A6J1004-33)			**Matrix: Soil**		**Batch: 6110565**			**H-08**
Acenaphthene	ND	2.04	4.08	ug/kg dry	1	11/23/16 18:30	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.08	"	"	"	"	
Anthracene	ND	2.04	4.08	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.08	"	"	"	"	
Benzo(a)pyrene	ND	2.04	4.08	"	"	"	"	
Benzo(b)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(k)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.04	4.08	"	"	"	"	
Chrysene	ND	2.04	4.08	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.04	4.08	"	"	"	"	
Dibenzofuran	ND	2.04	4.08	"	"	"	"	
Fluoranthene	ND	2.04	4.08	"	"	"	"	
Fluorene	ND	2.04	4.08	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.08	"	"	"	"	
1-Methylnaphthalene	ND	4.08	8.15	"	"	"	"	
2-Methylnaphthalene	ND	4.08	8.15	"	"	"	"	
Naphthalene	ND	4.08	8.15	"	"	"	"	
Phenanthrene	ND	2.04	4.08	"	"	"	"	
Pyrene	ND	2.04	4.08	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*86 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-09-15-30' (1-1.5')_Prepared (A6J1004-34)			**Matrix: Soil**		**Batch: 6110565**			**H-08**
Acenaphthene	ND	1.99	3.98	ug/kg dry	1	11/23/16 18:56	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.98	"	"	"	"	
Anthracene	ND	1.99	3.98	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.98	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.98	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.98	"	"	"	"	
Chrysene	ND	1.99	3.98	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.98	"	"	"	"	
Dibenzofuran	ND	1.99	3.98	"	"	"	"	
Fluoranthene	ND	1.99	3.98	"	"	"	"	
Fluorene	ND	1.99	3.98	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.98	"	"	"	"	
1-Methylnaphthalene	ND	3.98	7.97	"	"	"	"	
2-Methylnaphthalene	ND	3.98	7.97	"	"	"	"	
Naphthalene	ND	3.98	7.97	"	"	"	"	
Phenanthrene	ND	1.99	3.98	"	"	"	"	
Pyrene	ND	1.99	3.98	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 80 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*105 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-09->30' (0-0.5')_Prepared (A6J1004-35)			**Matrix: Soil**		**Batch: 6110565**			**H-08**
Acenaphthene	ND	2.05	4.10	ug/kg dry	1	11/23/16 19:22	EPA 8270D (SIM)	
Acenaphthylene	ND	2.05	4.10	"	"	"	"	
Anthracene	ND	2.05	4.10	"	"	"	"	
Benz(a)anthracene	ND	2.05	4.10	"	"	"	"	
Benzo(a)pyrene	ND	2.05	4.10	"	"	"	"	
Benzo(b)fluoranthene	ND	2.05	4.10	"	"	"	"	
Benzo(k)fluoranthene	ND	2.05	4.10	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.05	4.10	"	"	"	"	
Chrysene	ND	2.05	4.10	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.05	4.10	"	"	"	"	
Dibenzofuran	ND	2.05	4.10	"	"	"	"	
Fluoranthene	ND	2.05	4.10	"	"	"	"	
Fluorene	ND	2.05	4.10	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.05	4.10	"	"	"	"	
1-Methylnaphthalene	ND	4.10	8.19	"	"	"	"	
2-Methylnaphthalene	ND	4.10	8.19	"	"	"	"	
Naphthalene	ND	4.10	8.19	"	"	"	"	
Phenanthrene	ND	2.05	4.10	"	"	"	"	
Pyrene	ND	2.05	4.10	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*98 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-09->30' (0.5-1')_Prepared (A6J1004-36)			**Matrix: Soil**		**Batch: 6110565**			**H-08**
Acenaphthene	ND	1.91	3.81	ug/kg dry	1	11/23/16 19:48	EPA 8270D (SIM)	
Acenaphthylene	ND	1.91	3.81	"	"	"	"	
Anthracene	ND	1.91	3.81	"	"	"	"	
Benz(a)anthracene	ND	1.91	3.81	"	"	"	"	
Benzo(a)pyrene	ND	1.91	3.81	"	"	"	"	
Benzo(b)fluoranthene	ND	1.91	3.81	"	"	"	"	
Benzo(k)fluoranthene	ND	1.91	3.81	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.91	3.81	"	"	"	"	
Chrysene	ND	1.91	3.81	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.91	3.81	"	"	"	"	
Dibenzofuran	ND	1.91	3.81	"	"	"	"	
Fluoranthene	ND	1.91	3.81	"	"	"	"	
Fluorene	ND	1.91	3.81	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.91	3.81	"	"	"	"	
1-Methylnaphthalene	ND	3.81	7.62	"	"	"	"	
2-Methylnaphthalene	ND	3.81	7.62	"	"	"	"	
Naphthalene	ND	3.81	7.62	"	"	"	"	
Phenanthrene	ND	1.91	3.81	"	"	"	"	
Pyrene	ND	1.91	3.81	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 79 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*98 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-09->30' (1-1.5')_Prepared (A6J1004-37)			**Matrix: Soil**		**Batch: 6110565**			**H-08**
Acenaphthene	ND	1.97	3.94	ug/kg dry	1	11/23/16 20:14	EPA 8270D (SIM)	
Acenaphthylene	ND	1.97	3.94	"	"	"	"	
Anthracene	ND	1.97	3.94	"	"	"	"	
Benz(a)anthracene	ND	1.97	3.94	"	"	"	"	
Benzo(a)pyrene	ND	1.97	3.94	"	"	"	"	
Benzo(b)fluoranthene	ND	1.97	3.94	"	"	"	"	
Benzo(k)fluoranthene	ND	1.97	3.94	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.97	3.94	"	"	"	"	
Chrysene	ND	1.97	3.94	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.97	3.94	"	"	"	"	
Dibenzofuran	ND	1.97	3.94	"	"	"	"	
Fluoranthene	ND	1.97	3.94	"	"	"	"	
Fluorene	ND	1.97	3.94	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.97	3.94	"	"	"	"	
1-Methylnaphthalene	ND	3.94	7.88	"	"	"	"	
2-Methylnaphthalene	ND	3.94	7.88	"	"	"	"	
Naphthalene	ND	3.94	7.88	"	"	"	"	
Phenanthrene	ND	1.97	3.94	"	"	"	"	
Pyrene	ND	1.97	3.94	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*100 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-10-15-30' (0-0.5')_Prepared (A6J1004-38)			**Matrix: Soil**		**Batch: 6110565**			**H-08**
Acenaphthene	ND	2.01	4.01	ug/kg dry	1	11/26/16 13:59	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.01	"	"	"	"	
Anthracene	ND	2.01	4.01	"	"	"	"	
Benz(a)anthracene	ND	2.01	4.01	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.01	"	"	"	"	
Benzo(b)fluoranthene	ND	2.01	4.01	"	"	"	"	
Benzo(k)fluoranthene	ND	2.01	4.01	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.01	"	"	"	"	
Chrysene	ND	2.01	4.01	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.01	4.01	"	"	"	"	
Dibenzofuran	ND	2.01	4.01	"	"	"	"	
Fluoranthene	ND	2.01	4.01	"	"	"	"	
Fluorene	ND	2.01	4.01	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.01	"	"	"	"	
1-Methylnaphthalene	ND	4.01	8.03	"	"	"	"	
2-Methylnaphthalene	ND	4.01	8.03	"	"	"	"	
Naphthalene	ND	4.01	8.03	"	"	"	"	
Phenanthrene	ND	2.01	4.01	"	"	"	"	
Pyrene	ND	2.01	4.01	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*96 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-10-15-30' (0.5-1')_Prepared (A6J1004-39)			**Matrix: Soil**		**Batch: 6110565**			**H-08**
Acenaphthene	ND	1.96	3.91	ug/kg dry	1	11/26/16 14:25	EPA 8270D (SIM)	
Acenaphthylene	ND	1.96	3.91	"	"	"	"	
Anthracene	ND	1.96	3.91	"	"	"	"	
Benz(a)anthracene	ND	1.96	3.91	"	"	"	"	
Benzo(a)pyrene	ND	1.96	3.91	"	"	"	"	
Benzo(b)fluoranthene	ND	1.96	3.91	"	"	"	"	
Benzo(k)fluoranthene	ND	1.96	3.91	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.96	3.91	"	"	"	"	
Chrysene	ND	1.96	3.91	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.96	3.91	"	"	"	"	
Dibenzofuran	ND	1.96	3.91	"	"	"	"	
Fluoranthene	ND	1.96	3.91	"	"	"	"	
Fluorene	ND	1.96	3.91	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.96	3.91	"	"	"	"	
1-Methylnaphthalene	ND	3.91	7.83	"	"	"	"	
2-Methylnaphthalene	ND	3.91	7.83	"	"	"	"	
Naphthalene	ND	3.91	7.83	"	"	"	"	
Phenanthrene	ND	1.96	3.91	"	"	"	"	
Pyrene	ND	1.96	3.91	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 89 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*103 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-10-15-30' (1-1.5')_Prepared (A6J1004-40)			**Matrix: Soil**		**Batch: 6110565**			**H-08**
Acenaphthene	ND	1.89	3.79	ug/kg dry	1	11/26/16 14:52	EPA 8270D (SIM)	
Acenaphthylene	ND	1.89	3.79	"	"	"	"	
Anthracene	ND	1.89	3.79	"	"	"	"	
Benz(a)anthracene	ND	1.89	3.79	"	"	"	"	
Benzo(a)pyrene	ND	1.89	3.79	"	"	"	"	
Benzo(b)fluoranthene	ND	1.89	3.79	"	"	"	"	
Benzo(k)fluoranthene	ND	1.89	3.79	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.89	3.79	"	"	"	"	
Chrysene	ND	1.89	3.79	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.89	3.79	"	"	"	"	
Dibenzofuran	ND	1.89	3.79	"	"	"	"	
Fluoranthene	ND	1.89	3.79	"	"	"	"	
Fluorene	ND	1.89	3.79	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.89	3.79	"	"	"	"	
1-Methylnaphthalene	ND	3.79	7.58	"	"	"	"	
2-Methylnaphthalene	ND	3.79	7.58	"	"	"	"	
Naphthalene	ND	3.79	7.58	"	"	"	"	
Phenanthrene	ND	1.89	3.79	"	"	"	"	
Pyrene	ND	1.89	3.79	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 79 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*93 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6J1004-41RE1)			**Matrix: Solid**		**Batch: 6110565**			**A-01, H-08**
Acenaphthene	ND	1.94	3.89	ug/kg wet	1	12/07/16 14:43	EPA 8270D (SIM)	
Acenaphthylene	ND	1.94	3.89	"	"	"	"	
Anthracene	ND	1.94	3.89	"	"	"	"	
Benz(a)anthracene	ND	1.94	3.89	"	"	"	"	
Benzo(a)pyrene	ND	1.94	3.89	"	"	"	"	
Benzo(b)fluoranthene	ND	1.94	3.89	"	"	"	"	
Benzo(k)fluoranthene	ND	1.94	3.89	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.94	3.89	"	"	"	"	
Chrysene	ND	1.94	3.89	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.94	3.89	"	"	"	"	
Dibenzofuran	ND	1.94	3.89	"	"	"	"	
Fluoranthene	ND	1.94	3.89	"	"	"	"	
Fluorene	ND	1.94	3.89	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.94	3.89	"	"	"	"	
1-Methylnaphthalene	ND	3.89	7.77	"	"	"	"	
2-Methylnaphthalene	ND	3.89	7.77	"	"	"	"	
Naphthalene	ND	3.89	7.77	"	"	"	"	
Phenanthrene	ND	1.94	3.89	"	"	"	"	
Pyrene	ND	1.94	3.89	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 56 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-10->30' (0-0.5')_Prepared (A6J1008-21)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	ND	1.85	3.70	ug/kg dry	1	11/29/16 18:37	EPA 8270D (SIM)	
Acenaphthylene	ND	1.85	3.70	"	"	"	"	
Anthracene	ND	1.85	3.70	"	"	"	"	
Benz(a)anthracene	ND	1.85	3.70	"	"	"	"	
Benzo(a)pyrene	ND	1.85	3.70	"	"	"	"	
Benzo(b)fluoranthene	ND	1.85	3.70	"	"	"	"	
Benzo(k)fluoranthene	ND	1.85	3.70	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.85	3.70	"	"	"	"	
Chrysene	ND	1.85	3.70	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.85	3.70	"	"	"	"	
Dibenzofuran	ND	1.85	3.70	"	"	"	"	
Fluoranthene	ND	1.85	3.70	"	"	"	"	
Fluorene	ND	1.85	3.70	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.85	3.70	"	"	"	"	
1-Methylnaphthalene	ND	3.70	7.39	"	"	"	"	
2-Methylnaphthalene	ND	3.70	7.39	"	"	"	"	
Naphthalene	ND	3.70	7.39	"	"	"	"	
Phenanthrene	ND	1.85	3.70	"	"	"	"	
Pyrene	ND	1.85	3.70	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*80 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-10->30' (0.5-1')_Prepared (A6J1008-22)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	ND	1.96	3.92	ug/kg dry	1	11/29/16 19:03	EPA 8270D (SIM)	
Acenaphthylene	ND	1.96	3.92	"	"	"	"	
Anthracene	ND	1.96	3.92	"	"	"	"	
Benz(a)anthracene	ND	1.96	3.92	"	"	"	"	
Benzo(a)pyrene	ND	1.96	3.92	"	"	"	"	
Benzo(b)fluoranthene	ND	1.96	3.92	"	"	"	"	
Benzo(k)fluoranthene	ND	1.96	3.92	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.96	3.92	"	"	"	"	
Chrysene	ND	1.96	3.92	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.96	3.92	"	"	"	"	
Dibenzofuran	ND	1.96	3.92	"	"	"	"	
Fluoranthene	ND	1.96	3.92	"	"	"	"	
Fluorene	ND	1.96	3.92	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.96	3.92	"	"	"	"	
1-Methylnaphthalene	ND	3.92	7.84	"	"	"	"	
2-Methylnaphthalene	ND	3.92	7.84	"	"	"	"	
Naphthalene	ND	3.92	7.84	"	"	"	"	
Phenanthrene	ND	1.96	3.92	"	"	"	"	
Pyrene	ND	1.96	3.92	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*85 %*	*Limits: 54-127 %*	"	"	"	

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-10->30' (1-1.5')_Prepared (A6J1008-23)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	ND	1.78	3.56	ug/kg dry	1	11/29/16 19:29	EPA 8270D (SIM)	
Acenaphthylene	ND	1.78	3.56	"	"	"	"	
Anthracene	ND	1.78	3.56	"	"	"	"	
Benz(a)anthracene	ND	1.78	3.56	"	"	"	"	
Benzo(a)pyrene	ND	1.78	3.56	"	"	"	"	
Benzo(b)fluoranthene	ND	1.78	3.56	"	"	"	"	
Benzo(k)fluoranthene	ND	1.78	3.56	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.78	3.56	"	"	"	"	
Chrysene	ND	1.78	3.56	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.78	3.56	"	"	"	"	
Dibenzofuran	ND	1.78	3.56	"	"	"	"	
Fluoranthene	ND	1.78	3.56	"	"	"	"	
Fluorene	ND	1.78	3.56	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.78	3.56	"	"	"	"	
1-Methylnaphthalene	ND	3.56	7.11	"	"	"	"	
2-Methylnaphthalene	ND	3.56	7.11	"	"	"	"	
Naphthalene	ND	3.56	7.11	"	"	"	"	
Phenanthrene	ND	1.78	3.56	"	"	"	"	
Pyrene	ND	1.78	3.56	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*83 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-11-15-30' (0-0.5')_Prepared (A6J1008-24)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	ND	1.86	3.73	ug/kg dry	1	11/29/16 19:55	EPA 8270D (SIM)	
Acenaphthylene	ND	1.86	3.73	"	"	"	"	
Anthracene	ND	1.86	3.73	"	"	"	"	
Benz(a)anthracene	**10.1**	1.86	3.73	"	"	"	"	M-02
Benzo(a)pyrene	**14.2**	1.86	3.73	"	"	"	"	
Benzo(b)fluoranthene	**28.1**	1.86	3.73	"	"	"	"	M-02
Benzo(k)fluoranthene	**8.13**	1.86	3.73	"	"	"	"	M-02
Benzo(g,h,i)perylene	**18.3**	1.86	3.73	"	"	"	"	
Chrysene	**18.8**	1.86	3.73	"	"	"	"	M-02
Dibenz(a,h)anthracene	**3.10**	1.86	3.73	"	"	"	"	J
Dibenzofuran	ND	1.86	3.73	"	"	"	"	
Fluoranthene	**19.0**	1.86	3.73	"	"	"	"	
Fluorene	ND	1.86	3.73	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**14.2**	1.86	3.73	"	"	"	"	
1-Methylnaphthalene	ND	3.73	7.45	"	"	"	"	
2-Methylnaphthalene	ND	3.73	7.45	"	"	"	"	
Naphthalene	ND	3.73	7.45	"	"	"	"	
Phenanthrene	**6.50**	1.86	3.73	"	"	"	"	
Pyrene	**18.3**	1.86	3.73	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*108 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-11-15-30' (0.5-1')_Prepared (A6J1008-25)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	ND	1.77	3.54	ug/kg dry	1	11/30/16 13:27	EPA 8270D (SIM)	
Acenaphthylene	ND	1.77	3.54	"	"	"	"	
Anthracene	ND	1.77	3.54	"	"	"	"	
Benz(a)anthracene	**2.53**	1.77	3.54	"	"	"	"	J
Benzo(a)pyrene	**3.06**	1.77	3.54	"	"	"	"	J
Benzo(b)fluoranthene	**6.74**	1.77	3.54	"	"	"	"	M-02
Benzo(k)fluoranthene	**1.98**	1.77	3.54	"	"	"	"	J
Benzo(g,h,i)perylene	**5.14**	1.77	3.54	"	"	"	"	
Chrysene	**4.81**	1.77	3.54	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.77	3.54	"	"	"	"	
Dibenzofuran	ND	1.77	3.54	"	"	"	"	
Fluoranthene	**4.84**	1.77	3.54	"	"	"	"	
Fluorene	ND	1.77	3.54	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**3.78**	1.77	3.54	"	"	"	"	
1-Methylnaphthalene	ND	3.54	7.07	"	"	"	"	
2-Methylnaphthalene	ND	3.54	7.07	"	"	"	"	
Naphthalene	ND	3.54	7.07	"	"	"	"	
Phenanthrene	ND	1.77	3.54	"	"	"	"	
Pyrene	**4.60**	1.77	3.54	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*71 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-11-15-30' (1-1.5')_Prepared (A6J1008-26)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	ND	1.80	3.60	ug/kg dry	1	11/30/16 13:54	EPA 8270D (SIM)	
Acenaphthylene	ND	1.80	3.60	"	"	"	"	
Anthracene	ND	1.80	3.60	"	"	"	"	
Benz(a)anthracene	ND	1.80	3.60	"	"	"	"	
Benzo(a)pyrene	ND	1.80	3.60	"	"	"	"	
Benzo(b)fluoranthene	ND	1.80	3.60	"	"	"	"	
Benzo(k)fluoranthene	ND	1.80	3.60	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.80	3.60	"	"	"	"	
Chrysene	ND	1.80	3.60	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.80	3.60	"	"	"	"	
Dibenzofuran	ND	1.80	3.60	"	"	"	"	
Fluoranthene	ND	1.80	3.60	"	"	"	"	
Fluorene	ND	1.80	3.60	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.80	3.60	"	"	"	"	
1-Methylnaphthalene	ND	3.60	7.20	"	"	"	"	
2-Methylnaphthalene	ND	3.60	7.20	"	"	"	"	
Naphthalene	ND	3.60	7.20	"	"	"	"	
Phenanthrene	ND	1.80	3.60	"	"	"	"	
Pyrene	ND	1.80	3.60	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 88 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*78 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-11->30' (0-0.5')_Prepared (A6J1008-27)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	ND	1.75	3.51	ug/kg dry	1	11/30/16 14:19	EPA 8270D (SIM)	
Acenaphthylene	ND	1.75	3.51	"	"	"	"	
Anthracene	ND	1.75	3.51	"	"	"	"	
Benz(a)anthracene	**5.42**	1.75	3.51	"	"	"	"	M-02
Benzo(a)pyrene	**6.66**	1.75	3.51	"	"	"	"	
Benzo(b)fluoranthene	**12.5**	1.75	3.51	"	"	"	"	M-02
Benzo(k)fluoranthene	**3.67**	1.75	3.51	"	"	"	"	M-02
Benzo(g,h,i)perylene	**6.68**	1.75	3.51	"	"	"	"	
Chrysene	**10.0**	1.75	3.51	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.75	3.51	"	"	"	"	
Dibenzofuran	ND	1.75	3.51	"	"	"	"	
Fluoranthene	**10.6**	1.75	3.51	"	"	"	"	
Fluorene	ND	1.75	3.51	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**5.97**	1.75	3.51	"	"	"	"	
1-Methylnaphthalene	ND	3.51	7.02	"	"	"	"	
2-Methylnaphthalene	ND	3.51	7.02	"	"	"	"	
Naphthalene	ND	3.51	7.02	"	"	"	"	
Phenanthrene	**4.83**	1.75	3.51	"	"	"	"	
Pyrene	**9.33**	1.75	3.51	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 85 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-11->30' (0.5-1')_Prepared (A6J1008-28)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	ND	1.78	3.56	ug/kg dry	1	11/30/16 14:45	EPA 8270D (SIM)	
Acenaphthylene	ND	1.78	3.56	"	"	"	"	
Anthracene	ND	1.78	3.56	"	"	"	"	
Benz(a)anthracene	**4.40**	1.78	3.56	"	"	"	"	M-02
Benzo(a)pyrene	**5.60**	1.78	3.56	"	"	"	"	
Benzo(b)fluoranthene	**10.0**	1.78	3.56	"	"	"	"	M-02
Benzo(k)fluoranthene	**3.13**	1.78	3.56	"	"	"	"	J
Benzo(g,h,i)perylene	**5.70**	1.78	3.56	"	"	"	"	
Chrysene	**7.74**	1.78	3.56	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.78	3.56	"	"	"	"	
Dibenzofuran	ND	1.78	3.56	"	"	"	"	
Fluoranthene	**8.78**	1.78	3.56	"	"	"	"	
Fluorene	ND	1.78	3.56	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**4.98**	1.78	3.56	"	"	"	"	
1-Methylnaphthalene	ND	3.56	7.12	"	"	"	"	
2-Methylnaphthalene	ND	3.56	7.12	"	"	"	"	
Naphthalene	ND	3.56	7.12	"	"	"	"	
Phenanthrene	**3.95**	1.78	3.56	"	"	"	"	
Pyrene	**7.80**	1.78	3.56	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 83 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*78 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-11->30' (1-1.5')_Prepared (A6J1008-29)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	ND	1.79	3.58	ug/kg dry	1	11/30/16 15:11	EPA 8270D (SIM)	
Acenaphthylene	ND	1.79	3.58	"	"	"	"	
Anthracene	ND	1.79	3.58	"	"	"	"	
Benz(a)anthracene	**3.09**	1.79	3.58	"	"	"	"	J
Benzo(a)pyrene	**3.93**	1.79	3.58	"	"	"	"	
Benzo(b)fluoranthene	**6.91**	1.79	3.58	"	"	"	"	M-02
Benzo(k)fluoranthene	**2.02**	1.79	3.58	"	"	"	"	J
Benzo(g,h,i)perylene	**6.02**	1.79	3.58	"	"	"	"	
Chrysene	**5.94**	1.79	3.58	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.79	3.58	"	"	"	"	
Dibenzofuran	ND	1.79	3.58	"	"	"	"	
Fluoranthene	**5.86**	1.79	3.58	"	"	"	"	
Fluorene	ND	1.79	3.58	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**3.96**	1.79	3.58	"	"	"	"	
1-Methylnaphthalene	ND	3.58	7.15	"	"	"	"	
2-Methylnaphthalene	ND	3.58	7.15	"	"	"	"	
Naphthalene	ND	3.58	7.15	"	"	"	"	
Phenanthrene	**2.62**	1.79	3.58	"	"	"	"	J
Pyrene	**5.90**	1.79	3.58	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*62 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-12-15-30' (0-0.5')_Prepared (A6J1008-30)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	ND	1.80	3.61	ug/kg dry	1	11/30/16 15:37	EPA 8270D (SIM)	
Acenaphthylene	ND	1.80	3.61	"	"	"	"	
Anthracene	ND	1.80	3.61	"	"	"	"	
Benz(a)anthracene	**7.60**	1.80	3.61	"	"	"	"	M-02
Benzo(a)pyrene	**10.9**	1.80	3.61	"	"	"	"	
Benzo(b)fluoranthene	**20.4**	1.80	3.61	"	"	"	"	M-02
Benzo(k)fluoranthene	**6.00**	1.80	3.61	"	"	"	"	M-02
Benzo(g,h,i)perylene	**11.6**	1.80	3.61	"	"	"	"	
Chrysene	**13.9**	1.80	3.61	"	"	"	"	M-02
Dibenz(a,h)anthracene	**2.29**	1.80	3.61	"	"	"	"	J
Dibenzofuran	ND	1.80	3.61	"	"	"	"	
Fluoranthene	**15.1**	1.80	3.61	"	"	"	"	
Fluorene	ND	1.80	3.61	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**10.2**	1.80	3.61	"	"	"	"	
1-Methylnaphthalene	ND	3.61	7.21	"	"	"	"	
2-Methylnaphthalene	ND	3.61	7.21	"	"	"	"	
Naphthalene	ND	3.61	7.21	"	"	"	"	
Phenanthrene	**4.70**	1.80	3.61	"	"	"	"	
Pyrene	**14.7**	1.80	3.61	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-12-15-30' (0.5-1')_Prepared (A6J1008-31)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	ND	1.91	3.81	ug/kg dry	1	11/30/16 16:03	EPA 8270D (SIM)	
Acenaphthylene	ND	1.91	3.81	"	"	"	"	
Anthracene	ND	1.91	3.81	"	"	"	"	
Benz(a)anthracene	**5.73**	1.91	3.81	"	"	"	"	M-02
Benzo(a)pyrene	**7.53**	1.91	3.81	"	"	"	"	
Benzo(b)fluoranthene	**13.8**	1.91	3.81	"	"	"	"	M-02
Benzo(k)fluoranthene	**4.05**	1.91	3.81	"	"	"	"	M-02
Benzo(g,h,i)perylene	**7.65**	1.91	3.81	"	"	"	"	
Chrysene	**9.86**	1.91	3.81	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.91	3.81	"	"	"	"	
Dibenzofuran	ND	1.91	3.81	"	"	"	"	
Fluoranthene	**10.0**	1.91	3.81	"	"	"	"	
Fluorene	ND	1.91	3.81	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**6.58**	1.91	3.81	"	"	"	"	
1-Methylnaphthalene	ND	3.81	7.62	"	"	"	"	
2-Methylnaphthalene	ND	3.81	7.62	"	"	"	"	
Naphthalene	ND	3.81	7.62	"	"	"	"	
Phenanthrene	**2.86**	1.91	3.81	"	"	"	"	J
Pyrene	**9.91**	1.91	3.81	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*67 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-12-15-30' (1-1.5')_Prepared (A6J1008-32)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	ND	1.89	3.79	ug/kg dry	1	11/29/16 20:21	EPA 8270D (SIM)	
Acenaphthylene	ND	1.89	3.79	"	"	"	"	
Anthracene	ND	1.89	3.79	"	"	"	"	
Benz(a)anthracene	**2.88**	1.89	3.79	"	"	"	"	J
Benzo(a)pyrene	**3.05**	1.89	3.79	"	"	"	"	J
Benzo(b)fluoranthene	**5.26**	1.89	3.79	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	1.89	3.79	"	"	"	"	
Benzo(g,h,i)perylene	**3.54**	1.89	3.79	"	"	"	"	J
Chrysene	**3.20**	1.89	3.79	"	"	"	"	J
Dibenz(a,h)anthracene	ND	1.89	3.79	"	"	"	"	
Dibenzofuran	ND	1.89	3.79	"	"	"	"	
Fluoranthene	**3.91**	1.89	3.79	"	"	"	"	
Fluorene	ND	1.89	3.79	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**3.16**	1.89	3.79	"	"	"	"	J
1-Methylnaphthalene	ND	3.79	7.58	"	"	"	"	
2-Methylnaphthalene	ND	3.79	7.58	"	"	"	"	
Naphthalene	ND	3.79	7.58	"	"	"	"	
Phenanthrene	ND	1.89	3.79	"	"	"	"	
Pyrene	**3.82**	1.89	3.79	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*92 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-12->30' (0-0.5')_Prepared (A6J1008-33)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	ND	1.90	3.79	ug/kg dry	1	11/30/16 16:29	EPA 8270D (SIM)	
Acenaphthylene	ND	1.90	3.79	"	"	"	"	
Anthracene	ND	1.90	3.79	"	"	"	"	
Benz(a)anthracene	**3.18**	1.90	3.79	"	"	"	"	J
Benzo(a)pyrene	**3.93**	1.90	3.79	"	"	"	"	
Benzo(b)fluoranthene	**7.48**	1.90	3.79	"	"	"	"	M-02
Benzo(k)fluoranthene	**2.13**	1.90	3.79	"	"	"	"	J
Benzo(g,h,i)perylene	**3.93**	1.90	3.79	"	"	"	"	
Chrysene	**5.47**	1.90	3.79	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.90	3.79	"	"	"	"	
Dibenzofuran	ND	1.90	3.79	"	"	"	"	
Fluoranthene	**6.35**	1.90	3.79	"	"	"	"	
Fluorene	ND	1.90	3.79	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**3.74**	1.90	3.79	"	"	"	"	J
1-Methylnaphthalene	ND	3.79	7.59	"	"	"	"	
2-Methylnaphthalene	ND	3.79	7.59	"	"	"	"	
Naphthalene	ND	3.79	7.59	"	"	"	"	
Phenanthrene	**2.65**	1.90	3.79	"	"	"	"	J
Pyrene	**6.22**	1.90	3.79	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 80 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*73 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-12->30' (0.5-1')_Prepared (A6J1008-34)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	ND	1.83	3.67	ug/kg dry	1	11/30/16 16:55	EPA 8270D (SIM)	
Acenaphthylene	ND	1.83	3.67	"	"	"	"	
Anthracene	ND	1.83	3.67	"	"	"	"	
Benz(a)anthracene	**3.48**	1.83	3.67	"	"	"	"	J
Benzo(a)pyrene	**4.05**	1.83	3.67	"	"	"	"	
Benzo(b)fluoranthene	**7.98**	1.83	3.67	"	"	"	"	M-02
Benzo(k)fluoranthene	**2.46**	1.83	3.67	"	"	"	"	J
Benzo(g,h,i)perylene	**4.19**	1.83	3.67	"	"	"	"	
Chrysene	**5.75**	1.83	3.67	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.83	3.67	"	"	"	"	
Dibenzofuran	ND	1.83	3.67	"	"	"	"	
Fluoranthene	**5.81**	1.83	3.67	"	"	"	"	
Fluorene	ND	1.83	3.67	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**4.50**	1.83	3.67	"	"	"	"	
1-Methylnaphthalene	ND	3.67	7.33	"	"	"	"	
2-Methylnaphthalene	ND	3.67	7.33	"	"	"	"	
Naphthalene	ND	3.67	7.33	"	"	"	"	
Phenanthrene	ND	1.83	3.67	"	"	"	"	
Pyrene	**5.50**	1.83	3.67	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*72 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-12->30' (1-1.5')_Prepared (A6J1008-35)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	ND	1.81	3.61	ug/kg dry	1	11/30/16 17:21	EPA 8270D (SIM)	
Acenaphthylene	ND	1.81	3.61	"	"	"	"	
Anthracene	ND	1.81	3.61	"	"	"	"	
Benz(a)anthracene	**4.97**	1.81	3.61	"	"	"	"	M-02
Benzo(a)pyrene	**7.14**	1.81	3.61	"	"	"	"	
Benzo(b)fluoranthene	**11.7**	1.81	3.61	"	"	"	"	M-02
Benzo(k)fluoranthene	**3.79**	1.81	3.61	"	"	"	"	M-02
Benzo(g,h,i)perylene	**6.43**	1.81	3.61	"	"	"	"	
Chrysene	**7.02**	1.81	3.61	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.81	3.61	"	"	"	"	
Dibenzofuran	ND	1.81	3.61	"	"	"	"	
Fluoranthene	**6.40**	1.81	3.61	"	"	"	"	
Fluorene	ND	1.81	3.61	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**6.97**	1.81	3.61	"	"	"	"	
1-Methylnaphthalene	ND	3.61	7.22	"	"	"	"	
2-Methylnaphthalene	ND	3.61	7.22	"	"	"	"	
Naphthalene	ND	3.61	7.22	"	"	"	"	
Phenanthrene	ND	1.81	3.61	"	"	"	"	
Pyrene	**6.37**	1.81	3.61	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 79 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*71 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-13-15-30' (0-0.5')_Prepared (A6J1008-36)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	**2.93**	1.86	3.73	ug/kg dry	1	11/30/16 17:47	EPA 8270D (SIM)	J
Acenaphthylene	ND	1.86	3.73	"	"	"	"	
Anthracene	**4.76**	1.86	3.73	"	"	"	"	
Benz(a)anthracene	**37.4**	1.86	3.73	"	"	"	"	M-02
Benzo(a)pyrene	**59.5**	1.86	3.73	"	"	"	"	
Benzo(b)fluoranthene	**101**	1.86	3.73	"	"	"	"	M-02
Benzo(k)fluoranthene	**28.4**	1.86	3.73	"	"	"	"	M-02
Benzo(g,h,i)perylene	**47.0**	1.86	3.73	"	"	"	"	
Chrysene	**61.4**	1.86	3.73	"	"	"	"	M-02
Dibenz(a,h)anthracene	**11.9**	1.86	3.73	"	"	"	"	
Dibenzofuran	ND	1.86	3.73	"	"	"	"	
Fluoranthene	**73.9**	1.86	3.73	"	"	"	"	
Fluorene	ND	1.86	3.73	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**47.5**	1.86	3.73	"	"	"	"	
1-Methylnaphthalene	ND	3.73	7.46	"	"	"	"	
2-Methylnaphthalene	ND	3.73	7.46	"	"	"	"	
Naphthalene	ND	3.73	7.46	"	"	"	"	
Phenanthrene	**23.3**	1.86	3.73	"	"	"	"	
Pyrene	**71.2**	1.86	3.73	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*68 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-13-15-30' (0.5-1')_Prepared (A6J1008-37)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	ND	1.89	3.79	ug/kg dry	1	11/30/16 18:13	EPA 8270D (SIM)	
Acenaphthylene	ND	1.89	3.79	"	"	"	"	
Anthracene	ND	1.89	3.79	"	"	"	"	
Benz(a)anthracene	**12.5**	1.89	3.79	"	"	"	"	M-02
Benzo(a)pyrene	**20.5**	1.89	3.79	"	"	"	"	
Benzo(b)fluoranthene	**30.3**	1.89	3.79	"	"	"	"	M-02
Benzo(k)fluoranthene	**9.39**	1.89	3.79	"	"	"	"	M-02
Benzo(g,h,i)perylene	**16.0**	1.89	3.79	"	"	"	"	
Chrysene	**17.5**	1.89	3.79	"	"	"	"	M-02
Dibenz(a,h)anthracene	**3.98**	1.89	3.79	"	"	"	"	
Dibenzofuran	ND	1.89	3.79	"	"	"	"	
Fluoranthene	**18.9**	1.89	3.79	"	"	"	"	
Fluorene	ND	1.89	3.79	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**17.3**	1.89	3.79	"	"	"	"	
1-Methylnaphthalene	ND	3.79	7.57	"	"	"	"	
2-Methylnaphthalene	ND	3.79	7.57	"	"	"	"	
Naphthalene	ND	3.79	7.57	"	"	"	"	
Phenanthrene	**5.53**	1.89	3.79	"	"	"	"	
Pyrene	**17.8**	1.89	3.79	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 81 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-13-15-30' (1-1.5')_Prepared (A6J1008-38)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	ND	1.89	3.79	ug/kg dry	1	11/30/16 18:39	EPA 8270D (SIM)	
Acenaphthylene	ND	1.89	3.79	"	"	"	"	
Anthracene	ND	1.89	3.79	"	"	"	"	
Benz(a)anthracene	**5.51**	1.89	3.79	"	"	"	"	M-02
Benzo(a)pyrene	**7.15**	1.89	3.79	"	"	"	"	
Benzo(b)fluoranthene	**13.1**	1.89	3.79	"	"	"	"	M-02
Benzo(k)fluoranthene	**3.94**	1.89	3.79	"	"	"	"	M-02
Benzo(g,h,i)perylene	**6.32**	1.89	3.79	"	"	"	"	
Chrysene	**9.15**	1.89	3.79	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.89	3.79	"	"	"	"	
Dibenzofuran	ND	1.89	3.79	"	"	"	"	
Fluoranthene	**9.70**	1.89	3.79	"	"	"	"	
Fluorene	ND	1.89	3.79	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**6.59**	1.89	3.79	"	"	"	"	
1-Methylnaphthalene	ND	3.79	7.58	"	"	"	"	
2-Methylnaphthalene	ND	3.79	7.58	"	"	"	"	
Naphthalene	ND	3.79	7.58	"	"	"	"	
Phenanthrene	**3.27**	1.89	3.79	"	"	"	"	J
Pyrene	**9.56**	1.89	3.79	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*70 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-13->30' (0-0.5')_Prepared (A6J1008-39)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	ND	1.91	3.81	ug/kg dry	1	11/30/16 19:05	EPA 8270D (SIM)	
Acenaphthylene	ND	1.91	3.81	"	"	"	"	
Anthracene	ND	1.91	3.81	"	"	"	"	
Benz(a)anthracene	**16.4**	1.91	3.81	"	"	"	"	M-02
Benzo(a)pyrene	**25.7**	1.91	3.81	"	"	"	"	
Benzo(b)fluoranthene	**41.2**	1.91	3.81	"	"	"	"	M-02
Benzo(k)fluoranthene	**14.7**	1.91	3.81	"	"	"	"	M-02
Benzo(g,h,i)perylene	**21.1**	1.91	3.81	"	"	"	"	
Chrysene	**25.4**	1.91	3.81	"	"	"	"	M-02
Dibenz(a,h)anthracene	**5.25**	1.91	3.81	"	"	"	"	
Dibenzofuran	ND	1.91	3.81	"	"	"	"	
Fluoranthene	**27.9**	1.91	3.81	"	"	"	"	
Fluorene	ND	1.91	3.81	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**23.2**	1.91	3.81	"	"	"	"	
1-Methylnaphthalene	ND	3.81	7.63	"	"	"	"	
2-Methylnaphthalene	ND	3.81	7.63	"	"	"	"	
Naphthalene	ND	3.81	7.63	"	"	"	"	
Phenanthrene	**6.19**	1.91	3.81	"	"	"	"	
Pyrene	**27.6**	1.91	3.81	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-13->30' (0.5-1')_Prepared (A6J1008-40)			**Matrix: Soil**		**Batch: 6110578**			**H-08**
Acenaphthene	ND	1.89	3.79	ug/kg dry	1	11/30/16 19:32	EPA 8270D (SIM)	
Acenaphthylene	ND	1.89	3.79	"	"	"	"	
Anthracene	ND	1.89	3.79	"	"	"	"	
Benz(a)anthracene	**7.44**	1.89	3.79	"	"	"	"	M-02
Benzo(a)pyrene	**11.6**	1.89	3.79	"	"	"	"	
Benzo(b)fluoranthene	**18.9**	1.89	3.79	"	"	"	"	M-02
Benzo(k)fluoranthene	**5.95**	1.89	3.79	"	"	"	"	M-02
Benzo(g,h,i)perylene	**9.21**	1.89	3.79	"	"	"	"	
Chrysene	**11.4**	1.89	3.79	"	"	"	"	M-02
Dibenz(a,h)anthracene	**2.25**	1.89	3.79	"	"	"	"	J
Dibenzofuran	ND	1.89	3.79	"	"	"	"	
Fluoranthene	**13.0**	1.89	3.79	"	"	"	"	
Fluorene	ND	1.89	3.79	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**10.2**	1.89	3.79	"	"	"	"	
1-Methylnaphthalene	ND	3.79	7.57	"	"	"	"	
2-Methylnaphthalene	ND	3.79	7.57	"	"	"	"	
Naphthalene	ND	3.79	7.57	"	"	"	"	
Phenanthrene	**3.47**	1.89	3.79	"	"	"	"	J
Pyrene	**12.8**	1.89	3.79	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*67 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6J1008-41RE1)			**Matrix: Solid**		**Batch: 6110578**			**A-01, H-08**
Acenaphthene	ND	1.93	3.86	ug/kg wet	1	12/07/16 15:09	EPA 8270D (SIM)	
Acenaphthylene	ND	1.93	3.86	"	"	"	"	
Anthracene	ND	1.93	3.86	"	"	"	"	
Benz(a)anthracene	ND	1.93	3.86	"	"	"	"	
Benzo(a)pyrene	ND	1.93	3.86	"	"	"	"	
Benzo(b)fluoranthene	ND	1.93	3.86	"	"	"	"	
Benzo(k)fluoranthene	ND	1.93	3.86	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.93	3.86	"	"	"	"	
Chrysene	ND	1.93	3.86	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.93	3.86	"	"	"	"	
Dibenzofuran	ND	1.93	3.86	"	"	"	"	
Fluoranthene	ND	1.93	3.86	"	"	"	"	
Fluorene	ND	1.93	3.86	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.93	3.86	"	"	"	"	
1-Methylnaphthalene	ND	3.86	7.73	"	"	"	"	
2-Methylnaphthalene	ND	3.86	7.73	"	"	"	"	
Naphthalene	ND	3.86	7.73	"	"	"	"	
Phenanthrene	ND	1.93	3.86	"	"	"	"	
Pyrene	ND	1.93	3.86	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 52 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*60 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-13->30' (1-1.5')_Prepared (A6J1010-21)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.03	4.06	ug/kg dry	1	12/01/16 12:36	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.06	"	"	"	"	
Anthracene	ND	2.03	4.06	"	"	"	"	
Benz(a)anthracene	**7.95**	2.03	4.06	"	"	"	"	M-02
Benzo(a)pyrene	**11.2**	2.03	4.06	"	"	"	"	
Benzo(b)fluoranthene	**17.5**	2.03	4.06	"	"	"	"	M-02
Benzo(k)fluoranthene	**5.75**	2.03	4.06	"	"	"	"	M-02
Benzo(g,h,i)perylene	**9.15**	2.03	4.06	"	"	"	"	Q-42
Chrysene	**11.1**	2.03	4.06	"	"	"	"	M-02
Dibenz(a,h)anthracene	**2.51**	2.03	4.06	"	"	"	"	J
Dibenzofuran	ND	2.03	4.06	"	"	"	"	
Fluoranthene	**14.3**	2.03	4.06	"	"	"	"	
Fluorene	ND	2.03	4.06	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**9.66**	2.03	4.06	"	"	"	"	
1-Methylnaphthalene	ND	4.06	8.12	"	"	"	"	
2-Methylnaphthalene	ND	4.06	8.12	"	"	"	"	
Naphthalene	ND	4.06	8.12	"	"	"	"	
Phenanthrene	**5.31**	2.03	4.06	"	"	"	"	
Pyrene	**13.0**	2.03	4.06	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 80 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*75 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-14-15-30' (0-0.5')_Prepared (A6J1010-22)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.04	4.07	ug/kg dry	1	12/01/16 13:02	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.07	"	"	"	"	
Anthracene	ND	2.04	4.07	"	"	"	"	
Benz(a)anthracene	**6.01**	2.04	4.07	"	"	"	"	M-02
Benzo(a)pyrene	**9.65**	2.04	4.07	"	"	"	"	
Benzo(b)fluoranthene	**15.9**	2.04	4.07	"	"	"	"	M-02
Benzo(k)fluoranthene	**5.02**	2.04	4.07	"	"	"	"	M-02
Benzo(g,h,i)perylene	**8.75**	2.04	4.07	"	"	"	"	
Chrysene	**10.5**	2.04	4.07	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.04	4.07	"	"	"	"	
Dibenzofuran	ND	2.04	4.07	"	"	"	"	
Fluoranthene	**12.2**	2.04	4.07	"	"	"	"	
Fluorene	ND	2.04	4.07	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**8.51**	2.04	4.07	"	"	"	"	
1-Methylnaphthalene	ND	4.07	8.14	"	"	"	"	
2-Methylnaphthalene	ND	4.07	8.14	"	"	"	"	
Naphthalene	ND	4.07	8.14	"	"	"	"	
Phenanthrene	**4.77**	2.04	4.07	"	"	"	"	
Pyrene	**11.4**	2.04	4.07	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*69 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-14-15-30' (0.5-1')_Prepared (A6J1010-23)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.05	4.10	ug/kg dry	1	12/01/16 13:28	EPA 8270D (SIM)	
Acenaphthylene	ND	2.05	4.10	"	"	"	"	
Anthracene	ND	2.05	4.10	"	"	"	"	
Benz(a)anthracene	ND	2.05	4.10	"	"	"	"	
Benzo(a)pyrene	ND	2.05	4.10	"	"	"	"	
Benzo(b)fluoranthene	ND	2.05	4.10	"	"	"	"	
Benzo(k)fluoranthene	ND	2.05	4.10	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.05	4.10	"	"	"	"	
Chrysene	ND	2.05	4.10	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.05	4.10	"	"	"	"	
Dibenzofuran	ND	2.05	4.10	"	"	"	"	
Fluoranthene	ND	2.05	4.10	"	"	"	"	
Fluorene	ND	2.05	4.10	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.05	4.10	"	"	"	"	
1-Methylnaphthalene	ND	4.10	8.20	"	"	"	"	
2-Methylnaphthalene	ND	4.10	8.20	"	"	"	"	
Naphthalene	ND	4.10	8.20	"	"	"	"	
Phenanthrene	ND	2.05	4.10	"	"	"	"	
Pyrene	ND	2.05	4.10	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*63 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-14-15-30' (1-1.5')_Prepared (A6J1010-24)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.07	4.13	ug/kg dry	1	12/01/16 13:54	EPA 8270D (SIM)	
Acenaphthylene	ND	2.07	4.13	"	"	"	"	
Anthracene	ND	2.07	4.13	"	"	"	"	
Benz(a)anthracene	ND	2.07	4.13	"	"	"	"	
Benzo(a)pyrene	ND	2.07	4.13	"	"	"	"	
Benzo(b)fluoranthene	ND	2.07	4.13	"	"	"	"	
Benzo(k)fluoranthene	ND	2.07	4.13	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.07	4.13	"	"	"	"	
Chrysene	ND	2.07	4.13	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.07	4.13	"	"	"	"	
Dibenzofuran	ND	2.07	4.13	"	"	"	"	
Fluoranthene	ND	2.07	4.13	"	"	"	"	
Fluorene	ND	2.07	4.13	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.07	4.13	"	"	"	"	
1-Methylnaphthalene	ND	4.13	8.26	"	"	"	"	
2-Methylnaphthalene	ND	4.13	8.26	"	"	"	"	
Naphthalene	ND	4.13	8.26	"	"	"	"	
Phenanthrene	ND	2.07	4.13	"	"	"	"	
Pyrene	ND	2.07	4.13	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*70 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-14->30' (0-0.5')_Prepared (A6J1010-25)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.05	4.10	ug/kg dry	1	12/01/16 14:20	EPA 8270D (SIM)	
Acenaphthylene	ND	2.05	4.10	"	"	"	"	
Anthracene	ND	2.05	4.10	"	"	"	"	
Benz(a)anthracene	**3.19**	2.05	4.10	"	"	"	"	J
Benzo(a)pyrene	**4.21**	2.05	4.10	"	"	"	"	
Benzo(b)fluoranthene	**6.98**	2.05	4.10	"	"	"	"	M-02
Benzo(k)fluoranthene	**2.18**	2.05	4.10	"	"	"	"	J
Benzo(g,h,i)perylene	**3.82**	2.05	4.10	"	"	"	"	J
Chrysene	**4.52**	2.05	4.10	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.05	4.10	"	"	"	"	
Dibenzofuran	ND	2.05	4.10	"	"	"	"	
Fluoranthene	**5.02**	2.05	4.10	"	"	"	"	
Fluorene	ND	2.05	4.10	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**3.95**	2.05	4.10	"	"	"	"	J
1-Methylnaphthalene	ND	4.10	8.21	"	"	"	"	
2-Methylnaphthalene	ND	4.10	8.21	"	"	"	"	
Naphthalene	ND	4.10	8.21	"	"	"	"	
Phenanthrene	**2.05**	2.05	4.10	"	"	"	"	J
Pyrene	**4.88**	2.05	4.10	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*68 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-14->30' (0.5-1')_Prepared (A6J1010-26)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.07	4.14	ug/kg dry	1	12/01/16 14:46	EPA 8270D (SIM)	
Acenaphthylene	ND	2.07	4.14	"	"	"	"	
Anthracene	ND	2.07	4.14	"	"	"	"	
Benz(a)anthracene	ND	2.07	4.14	"	"	"	"	
Benzo(a)pyrene	ND	2.07	4.14	"	"	"	"	
Benzo(b)fluoranthene	ND	2.07	4.14	"	"	"	"	
Benzo(k)fluoranthene	ND	2.07	4.14	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.07	4.14	"	"	"	"	
Chrysene	ND	2.07	4.14	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.07	4.14	"	"	"	"	
Dibenzofuran	ND	2.07	4.14	"	"	"	"	
Fluoranthene	ND	2.07	4.14	"	"	"	"	
Fluorene	ND	2.07	4.14	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.07	4.14	"	"	"	"	
1-Methylnaphthalene	ND	4.14	8.28	"	"	"	"	
2-Methylnaphthalene	ND	4.14	8.28	"	"	"	"	
Naphthalene	ND	4.14	8.28	"	"	"	"	
Phenanthrene	ND	2.07	4.14	"	"	"	"	
Pyrene	ND	2.07	4.14	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*73 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-14->30' (1-1.5')_Prepared (A6J1010-27)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.06	4.13	ug/kg dry	1	12/01/16 15:12	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.13	"	"	"	"	
Anthracene	ND	2.06	4.13	"	"	"	"	
Benz(a)anthracene	ND	2.06	4.13	"	"	"	"	
Benzo(a)pyrene	ND	2.06	4.13	"	"	"	"	
Benzo(b)fluoranthene	ND	2.06	4.13	"	"	"	"	
Benzo(k)fluoranthene	ND	2.06	4.13	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.06	4.13	"	"	"	"	
Chrysene	ND	2.06	4.13	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.06	4.13	"	"	"	"	
Dibenzofuran	ND	2.06	4.13	"	"	"	"	
Fluoranthene	ND	2.06	4.13	"	"	"	"	
Fluorene	ND	2.06	4.13	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.06	4.13	"	"	"	"	
1-Methylnaphthalene	ND	4.13	8.26	"	"	"	"	
2-Methylnaphthalene	ND	4.13	8.26	"	"	"	"	
Naphthalene	ND	4.13	8.26	"	"	"	"	
Phenanthrene	ND	2.06	4.13	"	"	"	"	
Pyrene	ND	2.06	4.13	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 79 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*74 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-15-15-30' (0-0.5')_Prepared (A6J1010-28)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.04	4.08	ug/kg dry	1	12/01/16 15:37	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.08	"	"	"	"	
Anthracene	ND	2.04	4.08	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.08	"	"	"	"	
Benzo(a)pyrene	ND	2.04	4.08	"	"	"	"	
Benzo(b)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(k)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.04	4.08	"	"	"	"	
Chrysene	ND	2.04	4.08	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.04	4.08	"	"	"	"	
Dibenzofuran	ND	2.04	4.08	"	"	"	"	
Fluoranthene	ND	2.04	4.08	"	"	"	"	
Fluorene	ND	2.04	4.08	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.08	"	"	"	"	
1-Methylnaphthalene	ND	4.08	8.16	"	"	"	"	
2-Methylnaphthalene	ND	4.08	8.16	"	"	"	"	
Naphthalene	ND	4.08	8.16	"	"	"	"	
Phenanthrene	ND	2.04	4.08	"	"	"	"	
Pyrene	ND	2.04	4.08	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*65 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-15-15-30' (0.5-1')_Prepared (A6J1010-29)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.07	4.13	ug/kg dry	1	12/01/16 16:04	EPA 8270D (SIM)	
Acenaphthylene	ND	2.07	4.13	"	"	"	"	
Anthracene	ND	2.07	4.13	"	"	"	"	
Benz(a)anthracene	ND	2.07	4.13	"	"	"	"	
Benzo(a)pyrene	ND	2.07	4.13	"	"	"	"	
Benzo(b)fluoranthene	ND	2.07	4.13	"	"	"	"	
Benzo(k)fluoranthene	ND	2.07	4.13	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.07	4.13	"	"	"	"	
Chrysene	ND	2.07	4.13	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.07	4.13	"	"	"	"	
Dibenzofuran	ND	2.07	4.13	"	"	"	"	
Fluoranthene	ND	2.07	4.13	"	"	"	"	
Fluorene	ND	2.07	4.13	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.07	4.13	"	"	"	"	
1-Methylnaphthalene	ND	4.13	8.27	"	"	"	"	
2-Methylnaphthalene	ND	4.13	8.27	"	"	"	"	
Naphthalene	ND	4.13	8.27	"	"	"	"	
Phenanthrene	ND	2.07	4.13	"	"	"	"	
Pyrene	ND	2.07	4.13	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 55 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*64 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-15-15-30' (1-1.5')_Prepared (A6J1010-30)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.07	4.14	ug/kg dry	1	12/01/16 16:30	EPA 8270D (SIM)	
Acenaphthylene	ND	2.07	4.14	"	"	"	"	
Anthracene	ND	2.07	4.14	"	"	"	"	
Benz(a)anthracene	ND	2.07	4.14	"	"	"	"	
Benzo(a)pyrene	ND	2.07	4.14	"	"	"	"	
Benzo(b)fluoranthene	ND	2.07	4.14	"	"	"	"	
Benzo(k)fluoranthene	ND	2.07	4.14	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.07	4.14	"	"	"	"	
Chrysene	ND	2.07	4.14	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.07	4.14	"	"	"	"	
Dibenzofuran	ND	2.07	4.14	"	"	"	"	
Fluoranthene	ND	2.07	4.14	"	"	"	"	
Fluorene	ND	2.07	4.14	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.07	4.14	"	"	"	"	
1-Methylnaphthalene	ND	4.14	8.27	"	"	"	"	
2-Methylnaphthalene	ND	4.14	8.27	"	"	"	"	
Naphthalene	ND	4.14	8.27	"	"	"	"	
Phenanthrene	ND	2.07	4.14	"	"	"	"	
Pyrene	ND	2.07	4.14	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*63 %*	*Limits: 54-127 %*	"	"	"	

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-15->30' (0-0.5')_Prepared (A6J1010-31)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.05	4.10	ug/kg dry	1	12/01/16 16:56	EPA 8270D (SIM)	
Acenaphthylene	ND	2.05	4.10	"	"	"	"	
Anthracene	ND	2.05	4.10	"	"	"	"	
Benz(a)anthracene	ND	2.05	4.10	"	"	"	"	
Benzo(a)pyrene	ND	2.05	4.10	"	"	"	"	
Benzo(b)fluoranthene	ND	2.05	4.10	"	"	"	"	
Benzo(k)fluoranthene	ND	2.05	4.10	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.05	4.10	"	"	"	"	
Chrysene	ND	2.05	4.10	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.05	4.10	"	"	"	"	
Dibenzofuran	ND	2.05	4.10	"	"	"	"	
Fluoranthene	ND	2.05	4.10	"	"	"	"	
Fluorene	ND	2.05	4.10	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.05	4.10	"	"	"	"	
1-Methylnaphthalene	ND	4.10	8.19	"	"	"	"	
2-Methylnaphthalene	ND	4.10	8.19	"	"	"	"	
Naphthalene	ND	4.10	8.19	"	"	"	"	
Phenanthrene	ND	2.05	4.10	"	"	"	"	
Pyrene	ND	2.05	4.10	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 72 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*68 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-15->30' (0.5-1')_Prepared (A6J1010-32)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.07	4.13	ug/kg dry	1	12/01/16 17:22	EPA 8270D (SIM)	
Acenaphthylene	ND	2.07	4.13	"	"	"	"	
Anthracene	ND	2.07	4.13	"	"	"	"	
Benz(a)anthracene	ND	2.07	4.13	"	"	"	"	
Benzo(a)pyrene	ND	2.07	4.13	"	"	"	"	
Benzo(b)fluoranthene	ND	2.07	4.13	"	"	"	"	
Benzo(k)fluoranthene	ND	2.07	4.13	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.07	4.13	"	"	"	"	
Chrysene	ND	2.07	4.13	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.07	4.13	"	"	"	"	
Dibenzofuran	ND	2.07	4.13	"	"	"	"	
Fluoranthene	ND	2.07	4.13	"	"	"	"	
Fluorene	ND	2.07	4.13	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.07	4.13	"	"	"	"	
1-Methylnaphthalene	ND	4.13	8.26	"	"	"	"	
2-Methylnaphthalene	ND	4.13	8.26	"	"	"	"	
Naphthalene	ND	4.13	8.26	"	"	"	"	
Phenanthrene	ND	2.07	4.13	"	"	"	"	
Pyrene	ND	2.07	4.13	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*72 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-15->30' (1-1.5')_Prepared (A6J1010-33)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.09	4.17	ug/kg dry	1	12/01/16 17:48	EPA 8270D (SIM)	
Acenaphthylene	ND	2.09	4.17	"	"	"	"	
Anthracene	ND	2.09	4.17	"	"	"	"	
Benz(a)anthracene	ND	2.09	4.17	"	"	"	"	
Benzo(a)pyrene	ND	2.09	4.17	"	"	"	"	
Benzo(b)fluoranthene	ND	2.09	4.17	"	"	"	"	
Benzo(k)fluoranthene	ND	2.09	4.17	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.09	4.17	"	"	"	"	
Chrysene	ND	2.09	4.17	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.09	4.17	"	"	"	"	
Dibenzofuran	ND	2.09	4.17	"	"	"	"	
Fluoranthene	ND	2.09	4.17	"	"	"	"	
Fluorene	ND	2.09	4.17	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.09	4.17	"	"	"	"	
1-Methylnaphthalene	ND	4.17	8.34	"	"	"	"	
2-Methylnaphthalene	ND	4.17	8.34	"	"	"	"	
Naphthalene	ND	4.17	8.34	"	"	"	"	
Phenanthrene	ND	2.09	4.17	"	"	"	"	
Pyrene	ND	2.09	4.17	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*63 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-15->30' (1-1.5') DUP_Prepared (A6J1010-34)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.08	4.16	ug/kg dry	1	12/01/16 18:13	EPA 8270D (SIM)	
Acenaphthylene	ND	2.08	4.16	"	"	"	"	
Anthracene	ND	2.08	4.16	"	"	"	"	
Benz(a)anthracene	ND	2.08	4.16	"	"	"	"	
Benzo(a)pyrene	ND	2.08	4.16	"	"	"	"	
Benzo(b)fluoranthene	ND	2.08	4.16	"	"	"	"	
Benzo(k)fluoranthene	ND	2.08	4.16	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.08	4.16	"	"	"	"	
Chrysene	ND	2.08	4.16	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.08	4.16	"	"	"	"	
Dibenzofuran	ND	2.08	4.16	"	"	"	"	
Fluoranthene	ND	2.08	4.16	"	"	"	"	
Fluorene	ND	2.08	4.16	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.08	4.16	"	"	"	"	
1-Methylnaphthalene	ND	4.16	8.33	"	"	"	"	
2-Methylnaphthalene	ND	4.16	8.33	"	"	"	"	
Naphthalene	ND	4.16	8.33	"	"	"	"	
Phenanthrene	ND	2.08	4.16	"	"	"	"	
Pyrene	ND	2.08	4.16	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*67 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-16-15-30' (0-0.5')_Prepared (A6J1010-35)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.00	4.01	ug/kg dry	1	12/03/16 11:08	EPA 8270D (SIM)	
Acenaphthylene	ND	2.00	4.01	"	"	"	"	
Anthracene	ND	2.00	4.01	"	"	"	"	
Benz(a)anthracene	**2.60**	2.00	4.01	"	"	"	"	J
Benzo(a)pyrene	**2.73**	2.00	4.01	"	"	"	"	J
Benzo(b)fluoranthene	**6.04**	2.00	4.01	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	2.00	4.01	"	"	"	"	
Benzo(g,h,i)perylene	**6.02**	2.00	4.01	"	"	"	"	
Chrysene	**5.06**	2.00	4.01	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.00	4.01	"	"	"	"	
Dibenzofuran	ND	2.00	4.01	"	"	"	"	
Fluoranthene	**4.19**	2.00	4.01	"	"	"	"	
Fluorene	ND	2.00	4.01	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**3.03**	2.00	4.01	"	"	"	"	J
1-Methylnaphthalene	ND	4.01	8.02	"	"	"	"	
2-Methylnaphthalene	ND	4.01	8.02	"	"	"	"	
Naphthalene	ND	4.01	8.02	"	"	"	"	
Phenanthrene	**2.04**	2.00	4.01	"	"	"	"	J
Pyrene	**4.55**	2.00	4.01	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 83 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*87 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-16-15-30' (0.5-1')_Prepared (A6J1010-36)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.01	4.02	ug/kg dry	1	12/03/16 11:34	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.02	"	"	"	"	
Anthracene	ND	2.01	4.02	"	"	"	"	
Benz(a)anthracene	ND	2.01	4.02	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.02	"	"	"	"	
Benzo(b)fluoranthene	ND	2.01	4.02	"	"	"	"	
Benzo(k)fluoranthene	ND	2.01	4.02	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.02	"	"	"	"	
Chrysene	ND	2.01	4.02	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.01	4.02	"	"	"	"	
Dibenzofuran	ND	2.01	4.02	"	"	"	"	
Fluoranthene	ND	2.01	4.02	"	"	"	"	
Fluorene	ND	2.01	4.02	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.02	"	"	"	"	
1-Methylnaphthalene	ND	4.02	8.03	"	"	"	"	
2-Methylnaphthalene	ND	4.02	8.03	"	"	"	"	
Naphthalene	ND	4.02	8.03	"	"	"	"	
Phenanthrene	ND	2.01	4.02	"	"	"	"	
Pyrene	ND	2.01	4.02	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 83 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*85 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-16-15-30' (1-1.5')_Prepared (A6J1010-37)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.02	4.04	ug/kg dry	1	12/03/16 12:00	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.04	"	"	"	"	
Anthracene	ND	2.02	4.04	"	"	"	"	
Benz(a)anthracene	ND	2.02	4.04	"	"	"	"	
Benzo(a)pyrene	ND	2.02	4.04	"	"	"	"	
Benzo(b)fluoranthene	ND	2.02	4.04	"	"	"	"	
Benzo(k)fluoranthene	ND	2.02	4.04	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.02	4.04	"	"	"	"	
Chrysene	ND	2.02	4.04	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.02	4.04	"	"	"	"	
Dibenzofuran	ND	2.02	4.04	"	"	"	"	
Fluoranthene	ND	2.02	4.04	"	"	"	"	
Fluorene	ND	2.02	4.04	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.04	"	"	"	"	
1-Methylnaphthalene	ND	4.04	8.08	"	"	"	"	
2-Methylnaphthalene	ND	4.04	8.08	"	"	"	"	
Naphthalene	ND	4.04	8.08	"	"	"	"	
Phenanthrene	ND	2.02	4.04	"	"	"	"	
Pyrene	ND	2.02	4.04	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 84 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*94 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-16->30' (0-0.5')_Prepared (A6J1010-38)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.00	4.01	ug/kg dry	1	12/03/16 12:26	EPA 8270D (SIM)	
Acenaphthylene	ND	2.00	4.01	"	"	"	"	
Anthracene	ND	2.00	4.01	"	"	"	"	
Benz(a)anthracene	**2.22**	2.00	4.01	"	"	"	"	J
Benzo(a)pyrene	**2.15**	2.00	4.01	"	"	"	"	J
Benzo(b)fluoranthene	**4.13**	2.00	4.01	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	2.00	4.01	"	"	"	"	
Benzo(g,h,i)perylene	**3.01**	2.00	4.01	"	"	"	"	J
Chrysene	**2.47**	2.00	4.01	"	"	"	"	J
Dibenz(a,h)anthracene	ND	2.00	4.01	"	"	"	"	
Dibenzofuran	ND	2.00	4.01	"	"	"	"	
Fluoranthene	**3.06**	2.00	4.01	"	"	"	"	J
Fluorene	ND	2.00	4.01	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.34**	2.00	4.01	"	"	"	"	J
1-Methylnaphthalene	ND	4.01	8.02	"	"	"	"	
2-Methylnaphthalene	ND	4.01	8.02	"	"	"	"	
Naphthalene	ND	4.01	8.02	"	"	"	"	
Phenanthrene	ND	2.00	4.01	"	"	"	"	
Pyrene	**3.27**	2.00	4.01	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 81 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*84 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-16->30' (0.5-1')_Prepared (A6J1010-39)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.01	4.03	ug/kg dry	1	12/03/16 12:52	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.03	"	"	"	"	
Anthracene	ND	2.01	4.03	"	"	"	"	
Benz(a)anthracene	ND	2.01	4.03	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.03	"	"	"	"	
Benzo(b)fluoranthene	ND	2.01	4.03	"	"	"	"	
Benzo(k)fluoranthene	ND	2.01	4.03	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.03	"	"	"	"	
Chrysene	ND	2.01	4.03	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.01	4.03	"	"	"	"	
Dibenzofuran	ND	2.01	4.03	"	"	"	"	
Fluoranthene	ND	2.01	4.03	"	"	"	"	
Fluorene	ND	2.01	4.03	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.03	"	"	"	"	
1-Methylnaphthalene	ND	4.03	8.06	"	"	"	"	
2-Methylnaphthalene	ND	4.03	8.06	"	"	"	"	
Naphthalene	ND	4.03	8.06	"	"	"	"	
Phenanthrene	ND	2.01	4.03	"	"	"	"	
Pyrene	ND	2.01	4.03	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-16->30' (1-1.5')_Prepared (A6J1010-40)			**Matrix: Soil**		**Batch: 6110717**			**H-08**
Acenaphthene	ND	2.01	4.03	ug/kg dry	1	12/03/16 13:18	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.03	"	"	"	"	
Anthracene	ND	2.01	4.03	"	"	"	"	
Benz(a)anthracene	ND	2.01	4.03	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.03	"	"	"	"	
Benzo(b)fluoranthene	ND	2.01	4.03	"	"	"	"	
Benzo(k)fluoranthene	ND	2.01	4.03	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.03	"	"	"	"	
Chrysene	ND	2.01	4.03	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.01	4.03	"	"	"	"	
Dibenzofuran	ND	2.01	4.03	"	"	"	"	
Fluoranthene	ND	2.01	4.03	"	"	"	"	
Fluorene	ND	2.01	4.03	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.03	"	"	"	"	
1-Methylnaphthalene	ND	4.03	8.05	"	"	"	"	
2-Methylnaphthalene	ND	4.03	8.05	"	"	"	"	
Naphthalene	ND	4.03	8.05	"	"	"	"	
Phenanthrene	ND	2.01	4.03	"	"	"	"	
Pyrene	ND	2.01	4.03	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 79 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*77 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6J1010-41RE1)			**Matrix: Solid**		**Batch: 6110717**			**A-01, H-08**
Acenaphthene	ND	1.99	3.98	ug/kg wet	1	12/07/16 15:35	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.98	"	"	"	"	
Anthracene	ND	1.99	3.98	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.98	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.98	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.98	"	"	"	"	
Chrysene	ND	1.99	3.98	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.98	"	"	"	"	
Dibenzofuran	ND	1.99	3.98	"	"	"	"	
Fluoranthene	ND	1.99	3.98	"	"	"	"	
Fluorene	ND	1.99	3.98	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.98	"	"	"	"	
1-Methylnaphthalene	ND	3.98	7.97	"	"	"	"	
2-Methylnaphthalene	ND	3.98	7.97	"	"	"	"	
Naphthalene	ND	3.98	7.97	"	"	"	"	
Phenanthrene	ND	1.99	3.98	"	"	"	"	
Pyrene	ND	1.99	3.98	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*75 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-17-15-30' (0-0.5')_Prepared (A6J1011-21)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	1.88	3.77	ug/kg dry	1	12/03/16 14:36	EPA 8270D (SIM)	
Acenaphthylene	ND	1.88	3.77	"	"	"	"	
Anthracene	ND	1.88	3.77	"	"	"	"	
Benz(a)anthracene	**1.91**	1.88	3.77	"	"	"	"	J
Benzo(a)pyrene	**2.64**	1.88	3.77	"	"	"	"	J
Benzo(b)fluoranthene	**4.63**	1.88	3.77	"	"	"	"	M-02
Benzo(k)fluoranthene	**2.03**	1.88	3.77	"	"	"	"	J
Benzo(g,h,i)perylene	**4.51**	1.88	3.77	"	"	"	"	
Chrysene	**3.22**	1.88	3.77	"	"	"	"	J
Dibenz(a,h)anthracene	ND	1.88	3.77	"	"	"	"	
Dibenzofuran	ND	1.88	3.77	"	"	"	"	
Fluoranthene	**3.49**	1.88	3.77	"	"	"	"	J
Fluorene	ND	1.88	3.77	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**3.62**	1.88	3.77	"	"	"	"	J
1-Methylnaphthalene	ND	3.77	7.54	"	"	"	"	
2-Methylnaphthalene	ND	3.77	7.54	"	"	"	"	
Naphthalene	ND	3.77	7.54	"	"	"	"	
Phenanthrene	ND	1.88	3.77	"	"	"	"	
Pyrene	**3.33**	1.88	3.77	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*84 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-17-15-30' (0.5-1')_Prepared (A6J1011-22)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	1.95	3.90	ug/kg dry	1	12/03/16 15:02	EPA 8270D (SIM)	
Acenaphthylene	ND	1.95	3.90	"	"	"	"	
Anthracene	ND	1.95	3.90	"	"	"	"	
Benz(a)anthracene	ND	1.95	3.90	"	"	"	"	
Benzo(a)pyrene	ND	1.95	3.90	"	"	"	"	
Benzo(b)fluoranthene	ND	1.95	3.90	"	"	"	"	
Benzo(k)fluoranthene	ND	1.95	3.90	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.95	3.90	"	"	"	"	
Chrysene	ND	1.95	3.90	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.95	3.90	"	"	"	"	
Dibenzofuran	ND	1.95	3.90	"	"	"	"	
Fluoranthene	ND	1.95	3.90	"	"	"	"	
Fluorene	ND	1.95	3.90	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.95	3.90	"	"	"	"	
1-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
2-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
Naphthalene	ND	3.90	7.80	"	"	"	"	
Phenanthrene	ND	1.95	3.90	"	"	"	"	
Pyrene	ND	1.95	3.90	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*89 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-17-15-30' (1-1.5')_Prepared (A6J1011-23)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	1.90	3.80	ug/kg dry	1	12/03/16 15:28	EPA 8270D (SIM)	
Acenaphthylene	ND	1.90	3.80	"	"	"	"	
Anthracene	ND	1.90	3.80	"	"	"	"	
Benz(a)anthracene	ND	1.90	3.80	"	"	"	"	
Benzo(a)pyrene	ND	1.90	3.80	"	"	"	"	
Benzo(b)fluoranthene	ND	1.90	3.80	"	"	"	"	
Benzo(k)fluoranthene	ND	1.90	3.80	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.90	3.80	"	"	"	"	
Chrysene	ND	1.90	3.80	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.90	3.80	"	"	"	"	
Dibenzofuran	ND	1.90	3.80	"	"	"	"	
Fluoranthene	ND	1.90	3.80	"	"	"	"	
Fluorene	ND	1.90	3.80	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.90	3.80	"	"	"	"	
1-Methylnaphthalene	ND	3.80	7.60	"	"	"	"	
2-Methylnaphthalene	ND	3.80	7.60	"	"	"	"	
Naphthalene	ND	3.80	7.60	"	"	"	"	
Phenanthrene	ND	1.90	3.80	"	"	"	"	
Pyrene	ND	1.90	3.80	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*84 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-17->30' (0-0.5')_Prepared (A6J1011-24)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	1.89	3.78	ug/kg dry	1	12/03/16 15:54	EPA 8270D (SIM)	
Acenaphthylene	ND	1.89	3.78	"	"	"	"	
Anthracene	ND	1.89	3.78	"	"	"	"	
Benz(a)anthracene	ND	1.89	3.78	"	"	"	"	
Benzo(a)pyrene	ND	1.89	3.78	"	"	"	"	
Benzo(b)fluoranthene	**2.73**	1.89	3.78	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.89	3.78	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.89	3.78	"	"	"	"	
Chrysene	**2.49**	1.89	3.78	"	"	"	"	J
Dibenz(a,h)anthracene	ND	1.89	3.78	"	"	"	"	
Dibenzofuran	ND	1.89	3.78	"	"	"	"	
Fluoranthene	ND	1.89	3.78	"	"	"	"	
Fluorene	ND	1.89	3.78	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.89	3.78	"	"	"	"	
1-Methylnaphthalene	ND	3.78	7.55	"	"	"	"	
2-Methylnaphthalene	ND	3.78	7.55	"	"	"	"	
Naphthalene	ND	3.78	7.55	"	"	"	"	
Phenanthrene	ND	1.89	3.78	"	"	"	"	
Pyrene	ND	1.89	3.78	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*83 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-17->30' (0.5-1')_Prepared (A6J1011-25)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	1.89	3.78	ug/kg dry	1	12/03/16 16:20	EPA 8270D (SIM)	
Acenaphthylene	ND	1.89	3.78	"	"	"	"	
Anthracene	ND	1.89	3.78	"	"	"	"	
Benz(a)anthracene	ND	1.89	3.78	"	"	"	"	
Benzo(a)pyrene	ND	1.89	3.78	"	"	"	"	
Benzo(b)fluoranthene	ND	1.89	3.78	"	"	"	"	
Benzo(k)fluoranthene	ND	1.89	3.78	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.89	3.78	"	"	"	"	
Chrysene	ND	1.89	3.78	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.89	3.78	"	"	"	"	
Dibenzofuran	ND	1.89	3.78	"	"	"	"	
Fluoranthene	ND	1.89	3.78	"	"	"	"	
Fluorene	ND	1.89	3.78	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.89	3.78	"	"	"	"	
1-Methylnaphthalene	ND	3.78	7.56	"	"	"	"	
2-Methylnaphthalene	ND	3.78	7.56	"	"	"	"	
Naphthalene	ND	3.78	7.56	"	"	"	"	
Phenanthrene	ND	1.89	3.78	"	"	"	"	
Pyrene	ND	1.89	3.78	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*82 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-17->30' (1-1.5')_Prepared (A6J1011-26)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	1.86	3.71	ug/kg dry	1	12/03/16 16:46	EPA 8270D (SIM)	
Acenaphthylene	ND	1.86	3.71	"	"	"	"	
Anthracene	ND	1.86	3.71	"	"	"	"	
Benz(a)anthracene	ND	1.86	3.71	"	"	"	"	
Benzo(a)pyrene	ND	1.86	3.71	"	"	"	"	
Benzo(b)fluoranthene	**2.54**	1.86	3.71	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.86	3.71	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.86	3.71	"	"	"	"	
Chrysene	ND	1.86	3.71	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.86	3.71	"	"	"	"	
Dibenzofuran	ND	1.86	3.71	"	"	"	"	
Fluoranthene	ND	1.86	3.71	"	"	"	"	
Fluorene	ND	1.86	3.71	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.86	3.71	"	"	"	"	
1-Methylnaphthalene	ND	3.71	7.42	"	"	"	"	
2-Methylnaphthalene	ND	3.71	7.42	"	"	"	"	
Naphthalene	ND	3.71	7.42	"	"	"	"	
Phenanthrene	ND	1.86	3.71	"	"	"	"	
Pyrene	ND	1.86	3.71	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-18-15-30' (0-0.5')_Prepared (A6J1011-27)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	1.89	3.78	ug/kg dry	1	12/03/16 17:12	EPA 8270D (SIM)	
Acenaphthylene	ND	1.89	3.78	"	"	"	"	
Anthracene	ND	1.89	3.78	"	"	"	"	
Benz(a)anthracene	ND	1.89	3.78	"	"	"	"	
Benzo(a)pyrene	ND	1.89	3.78	"	"	"	"	
Benzo(b)fluoranthene	**2.85**	1.89	3.78	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.89	3.78	"	"	"	"	
Benzo(g,h,i)perylene	**2.50**	1.89	3.78	"	"	"	"	J
Chrysene	**1.89**	1.89	3.78	"	"	"	"	J
Dibenz(a,h)anthracene	ND	1.89	3.78	"	"	"	"	
Dibenzofuran	ND	1.89	3.78	"	"	"	"	
Fluoranthene	ND	1.89	3.78	"	"	"	"	
Fluorene	ND	1.89	3.78	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.89	3.78	"	"	"	"	
1-Methylnaphthalene	ND	3.78	7.56	"	"	"	"	
2-Methylnaphthalene	ND	3.78	7.56	"	"	"	"	
Naphthalene	ND	3.78	7.56	"	"	"	"	
Phenanthrene	ND	1.89	3.78	"	"	"	"	
Pyrene	**1.93**	1.89	3.78	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-18-15-30' (0.5-1')_Prepared (A6J1011-28)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	1.94	3.88	ug/kg dry	1	12/03/16 17:38	EPA 8270D (SIM)	
Acenaphthylene	ND	1.94	3.88	"	"	"	"	
Anthracene	ND	1.94	3.88	"	"	"	"	
Benz(a)anthracene	ND	1.94	3.88	"	"	"	"	
Benzo(a)pyrene	ND	1.94	3.88	"	"	"	"	
Benzo(b)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(k)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.94	3.88	"	"	"	"	
Chrysene	ND	1.94	3.88	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.94	3.88	"	"	"	"	
Dibenzofuran	ND	1.94	3.88	"	"	"	"	
Fluoranthene	ND	1.94	3.88	"	"	"	"	
Fluorene	ND	1.94	3.88	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.94	3.88	"	"	"	"	
1-Methylnaphthalene	ND	3.88	7.76	"	"	"	"	
2-Methylnaphthalene	ND	3.88	7.76	"	"	"	"	
Naphthalene	ND	3.88	7.76	"	"	"	"	
Phenanthrene	ND	1.94	3.88	"	"	"	"	
Pyrene	ND	1.94	3.88	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 80 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*79 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-18-15-30' (1-1.5')_Prepared (A6J1011-29)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	1.99	3.97	ug/kg dry	1	12/03/16 18:04	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.97	"	"	"	"	
Anthracene	ND	1.99	3.97	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.97	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.97	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.97	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.97	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.97	"	"	"	"	
Chrysene	ND	1.99	3.97	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.97	"	"	"	"	
Dibenzofuran	ND	1.99	3.97	"	"	"	"	
Fluoranthene	ND	1.99	3.97	"	"	"	"	
Fluorene	ND	1.99	3.97	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.97	"	"	"	"	
1-Methylnaphthalene	ND	3.97	7.95	"	"	"	"	
2-Methylnaphthalene	ND	3.97	7.95	"	"	"	"	
Naphthalene	ND	3.97	7.95	"	"	"	"	
Phenanthrene	ND	1.99	3.97	"	"	"	"	
Pyrene	ND	1.99	3.97	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-18->30' (0-0.5')_Prepared (A6J1011-30)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	2.01	4.03	ug/kg dry	1	12/03/16 18:30	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.03	"	"	"	"	
Anthracene	ND	2.01	4.03	"	"	"	"	
Benz(a)anthracene	ND	2.01	4.03	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.03	"	"	"	"	
Benzo(b)fluoranthene	ND	2.01	4.03	"	"	"	"	
Benzo(k)fluoranthene	ND	2.01	4.03	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.03	"	"	"	"	
Chrysene	ND	2.01	4.03	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.01	4.03	"	"	"	"	
Dibenzofuran	ND	2.01	4.03	"	"	"	"	
Fluoranthene	ND	2.01	4.03	"	"	"	"	
Fluorene	ND	2.01	4.03	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.03	"	"	"	"	
1-Methylnaphthalene	ND	4.03	8.06	"	"	"	"	
2-Methylnaphthalene	ND	4.03	8.06	"	"	"	"	
Naphthalene	ND	4.03	8.06	"	"	"	"	
Phenanthrene	ND	2.01	4.03	"	"	"	"	
Pyrene	ND	2.01	4.03	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*70 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-18->30' (0.5-1')_Prepared (A6J1011-31)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	1.92	3.83	ug/kg dry	1	12/03/16 18:56	EPA 8270D (SIM)	
Acenaphthylene	ND	1.92	3.83	"	"	"	"	
Anthracene	ND	1.92	3.83	"	"	"	"	
Benz(a)anthracene	ND	1.92	3.83	"	"	"	"	
Benzo(a)pyrene	ND	1.92	3.83	"	"	"	"	
Benzo(b)fluoranthene	ND	1.92	3.83	"	"	"	"	
Benzo(k)fluoranthene	ND	1.92	3.83	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.92	3.83	"	"	"	"	
Chrysene	ND	1.92	3.83	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.92	3.83	"	"	"	"	
Dibenzofuran	ND	1.92	3.83	"	"	"	"	
Fluoranthene	ND	1.92	3.83	"	"	"	"	
Fluorene	ND	1.92	3.83	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.92	3.83	"	"	"	"	
1-Methylnaphthalene	ND	3.83	7.66	"	"	"	"	
2-Methylnaphthalene	ND	3.83	7.66	"	"	"	"	
Naphthalene	ND	3.83	7.66	"	"	"	"	
Phenanthrene	ND	1.92	3.83	"	"	"	"	
Pyrene	ND	1.92	3.83	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*73 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-18->30' (1-1.5')_Prepared (A6J1011-32)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	1.99	3.99	ug/kg dry	1	12/03/16 19:23	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.99	"	"	"	"	
Anthracene	ND	1.99	3.99	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.99	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.99	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.99	"	"	"	"	
Chrysene	ND	1.99	3.99	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.99	"	"	"	"	
Dibenzofuran	ND	1.99	3.99	"	"	"	"	
Fluoranthene	ND	1.99	3.99	"	"	"	"	
Fluorene	ND	1.99	3.99	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.99	"	"	"	"	
1-Methylnaphthalene	ND	3.99	7.97	"	"	"	"	
2-Methylnaphthalene	ND	3.99	7.97	"	"	"	"	
Naphthalene	ND	3.99	7.97	"	"	"	"	
Phenanthrene	ND	1.99	3.99	"	"	"	"	
Pyrene	ND	1.99	3.99	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*73 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-19-15-30' (0-0.5')_Prepared (A6J1011-33)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	1.95	3.91	ug/kg dry	1	12/03/16 19:49	EPA 8270D (SIM)	
Acenaphthylene	ND	1.95	3.91	"	"	"	"	
Anthracene	ND	1.95	3.91	"	"	"	"	
Benz(a)anthracene	ND	1.95	3.91	"	"	"	"	
Benzo(a)pyrene	ND	1.95	3.91	"	"	"	"	
Benzo(b)fluoranthene	ND	1.95	3.91	"	"	"	"	
Benzo(k)fluoranthene	ND	1.95	3.91	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.95	3.91	"	"	"	"	
Chrysene	ND	1.95	3.91	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.95	3.91	"	"	"	"	
Dibenzofuran	ND	1.95	3.91	"	"	"	"	
Fluoranthene	ND	1.95	3.91	"	"	"	"	
Fluorene	ND	1.95	3.91	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.95	3.91	"	"	"	"	
1-Methylnaphthalene	ND	3.91	7.81	"	"	"	"	
2-Methylnaphthalene	ND	3.91	7.81	"	"	"	"	
Naphthalene	ND	3.91	7.81	"	"	"	"	
Phenanthrene	ND	1.95	3.91	"	"	"	"	
Pyrene	ND	1.95	3.91	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*75 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-19-15-30' (0.5-1')_Prepared (A6J1011-34)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	1.99	3.98	ug/kg dry	1	12/03/16 20:15	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.98	"	"	"	"	
Anthracene	ND	1.99	3.98	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.98	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.98	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.98	"	"	"	"	
Chrysene	ND	1.99	3.98	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.98	"	"	"	"	
Dibenzofuran	ND	1.99	3.98	"	"	"	"	
Fluoranthene	ND	1.99	3.98	"	"	"	"	
Fluorene	ND	1.99	3.98	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.98	"	"	"	"	
1-Methylnaphthalene	ND	3.98	7.95	"	"	"	"	
2-Methylnaphthalene	ND	3.98	7.95	"	"	"	"	
Naphthalene	ND	3.98	7.95	"	"	"	"	
Phenanthrene	ND	1.99	3.98	"	"	"	"	
Pyrene	ND	1.99	3.98	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*73 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-19-15-30' (1-1.5')_Prepared (A6J1011-35)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	1.96	3.92	ug/kg dry	1	12/03/16 20:41	EPA 8270D (SIM)	
Acenaphthylene	ND	1.96	3.92	"	"	"	"	
Anthracene	ND	1.96	3.92	"	"	"	"	
Benz(a)anthracene	ND	1.96	3.92	"	"	"	"	
Benzo(a)pyrene	ND	1.96	3.92	"	"	"	"	
Benzo(b)fluoranthene	ND	1.96	3.92	"	"	"	"	
Benzo(k)fluoranthene	ND	1.96	3.92	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.96	3.92	"	"	"	"	
Chrysene	ND	1.96	3.92	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.96	3.92	"	"	"	"	
Dibenzofuran	ND	1.96	3.92	"	"	"	"	
Fluoranthene	ND	1.96	3.92	"	"	"	"	
Fluorene	ND	1.96	3.92	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.96	3.92	"	"	"	"	
1-Methylnaphthalene	ND	3.92	7.84	"	"	"	"	
2-Methylnaphthalene	ND	3.92	7.84	"	"	"	"	
Naphthalene	ND	3.92	7.84	"	"	"	"	
Phenanthrene	ND	1.96	3.92	"	"	"	"	
Pyrene	ND	1.96	3.92	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 60 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*57 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-19->30' (0-0.5')_Prepared (A6J1011-36)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	1.99	3.98	ug/kg dry	1	12/03/16 21:07	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.98	"	"	"	"	
Anthracene	ND	1.99	3.98	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.98	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.98	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.98	"	"	"	"	
Chrysene	ND	1.99	3.98	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.98	"	"	"	"	
Dibenzofuran	ND	1.99	3.98	"	"	"	"	
Fluoranthene	ND	1.99	3.98	"	"	"	"	
Fluorene	ND	1.99	3.98	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.98	"	"	"	"	
1-Methylnaphthalene	ND	3.98	7.95	"	"	"	"	
2-Methylnaphthalene	ND	3.98	7.95	"	"	"	"	
Naphthalene	ND	3.98	7.95	"	"	"	"	
Phenanthrene	ND	1.99	3.98	"	"	"	"	
Pyrene	ND	1.99	3.98	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*67 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-19->30' (0.5-1')_Prepared (A6J1011-37)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	2.01	4.03	ug/kg dry	1	12/04/16 10:55	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.03	"	"	"	"	
Anthracene	ND	2.01	4.03	"	"	"	"	
Benz(a)anthracene	ND	2.01	4.03	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.03	"	"	"	"	
Benzo(b)fluoranthene	ND	2.01	4.03	"	"	"	"	
Benzo(k)fluoranthene	ND	2.01	4.03	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.03	"	"	"	"	
Chrysene	ND	2.01	4.03	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.01	4.03	"	"	"	"	
Dibenzofuran	ND	2.01	4.03	"	"	"	"	
Fluoranthene	ND	2.01	4.03	"	"	"	"	
Fluorene	ND	2.01	4.03	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.03	"	"	"	"	
1-Methylnaphthalene	ND	4.03	8.05	"	"	"	"	
2-Methylnaphthalene	ND	4.03	8.05	"	"	"	"	
Naphthalene	ND	4.03	8.05	"	"	"	"	
Phenanthrene	ND	2.01	4.03	"	"	"	"	
Pyrene	ND	2.01	4.03	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*66 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-19->30' (1-1.5')_Prepared (A6J1011-38)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	1.92	3.83	ug/kg dry	1	12/04/16 11:21	EPA 8270D (SIM)	
Acenaphthylene	ND	1.92	3.83	"	"	"	"	
Anthracene	ND	1.92	3.83	"	"	"	"	
Benz(a)anthracene	ND	1.92	3.83	"	"	"	"	
Benzo(a)pyrene	ND	1.92	3.83	"	"	"	"	
Benzo(b)fluoranthene	ND	1.92	3.83	"	"	"	"	
Benzo(k)fluoranthene	ND	1.92	3.83	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.92	3.83	"	"	"	"	
Chrysene	ND	1.92	3.83	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.92	3.83	"	"	"	"	
Dibenzofuran	ND	1.92	3.83	"	"	"	"	
Fluoranthene	ND	1.92	3.83	"	"	"	"	
Fluorene	ND	1.92	3.83	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.92	3.83	"	"	"	"	
1-Methylnaphthalene	ND	3.83	7.67	"	"	"	"	
2-Methylnaphthalene	ND	3.83	7.67	"	"	"	"	
Naphthalene	ND	3.83	7.67	"	"	"	"	
Phenanthrene	ND	1.92	3.83	"	"	"	"	
Pyrene	ND	1.92	3.83	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*67 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-20-15-30' (0-0.5')_Prepared (A6J1011-39)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	1.92	3.84	ug/kg dry	1	12/04/16 11:47	EPA 8270D (SIM)	
Acenaphthylene	ND	1.92	3.84	"	"	"	"	
Anthracene	ND	1.92	3.84	"	"	"	"	
Benz(a)anthracene	**23.2**	1.92	3.84	"	"	"	"	M-02
Benzo(a)pyrene	**36.0**	1.92	3.84	"	"	"	"	
Benzo(b)fluoranthene	**80.3**	1.92	3.84	"	"	"	"	M-02
Benzo(k)fluoranthene	**22.7**	1.92	3.84	"	"	"	"	M-02
Benzo(g,h,i)perylene	**38.3**	1.92	3.84	"	"	"	"	
Chrysene	**49.7**	1.92	3.84	"	"	"	"	M-02
Dibenz(a,h)anthracene	**7.86**	1.92	3.84	"	"	"	"	
Dibenzofuran	ND	1.92	3.84	"	"	"	"	
Fluoranthene	**45.7**	1.92	3.84	"	"	"	"	
Fluorene	ND	1.92	3.84	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**33.1**	1.92	3.84	"	"	"	"	
1-Methylnaphthalene	ND	3.84	7.69	"	"	"	"	
2-Methylnaphthalene	ND	3.84	7.69	"	"	"	"	
Naphthalene	ND	3.84	7.69	"	"	"	"	
Phenanthrene	**11.3**	1.92	3.84	"	"	"	"	
Pyrene	**46.9**	1.92	3.84	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*89 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-20-15-30' (0.5-1')_Prepared (A6J1011-40)			**Matrix: Soil**		**Batch: 6110745**			**H-08**
Acenaphthene	ND	1.93	3.86	ug/kg dry	1	12/04/16 12:13	EPA 8270D (SIM)	
Acenaphthylene	ND	1.93	3.86	"	"	"	"	
Anthracene	ND	1.93	3.86	"	"	"	"	
Benz(a)anthracene	**2.45**	1.93	3.86	"	"	"	"	J
Benzo(a)pyrene	**2.48**	1.93	3.86	"	"	"	"	J
Benzo(b)fluoranthene	**5.52**	1.93	3.86	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	1.93	3.86	"	"	"	"	
Benzo(g,h,i)perylene	**2.69**	1.93	3.86	"	"	"	"	J
Chrysene	**3.27**	1.93	3.86	"	"	"	"	J
Dibenz(a,h)anthracene	ND	1.93	3.86	"	"	"	"	
Dibenzofuran	ND	1.93	3.86	"	"	"	"	
Fluoranthene	**3.95**	1.93	3.86	"	"	"	"	
Fluorene	ND	1.93	3.86	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.58**	1.93	3.86	"	"	"	"	J
1-Methylnaphthalene	ND	3.86	7.72	"	"	"	"	
2-Methylnaphthalene	ND	3.86	7.72	"	"	"	"	
Naphthalene	ND	3.86	7.72	"	"	"	"	
Phenanthrene	ND	1.93	3.86	"	"	"	"	
Pyrene	**4.09**	1.93	3.86	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*73 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6J1011-41RE1)			**Matrix: Solid**		**Batch: 6110745**			**A-01, H-08**
Acenaphthene	ND	1.95	3.90	ug/kg wet	1	12/07/16 16:01	EPA 8270D (SIM)	
Acenaphthylene	ND	1.95	3.90	"	"	"	"	
Anthracene	ND	1.95	3.90	"	"	"	"	
Benz(a)anthracene	ND	1.95	3.90	"	"	"	"	
Benzo(a)pyrene	ND	1.95	3.90	"	"	"	"	
Benzo(b)fluoranthene	ND	1.95	3.90	"	"	"	"	
Benzo(k)fluoranthene	ND	1.95	3.90	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.95	3.90	"	"	"	"	
Chrysene	ND	1.95	3.90	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.95	3.90	"	"	"	"	
Dibenzofuran	ND	1.95	3.90	"	"	"	"	
Fluoranthene	ND	1.95	3.90	"	"	"	"	
Fluorene	ND	1.95	3.90	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.95	3.90	"	"	"	"	
1-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
2-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
Naphthalene	ND	3.90	7.80	"	"	"	"	
Phenanthrene	ND	1.95	3.90	"	"	"	"	
Pyrene	ND	1.95	3.90	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*72 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-20-15-30' (1-1.5')_Prepared (A6J1012-21)			**Matrix: Soil**		**Batch: 6110865**			**H-08**
Acenaphthene	ND	1.97	3.94	ug/kg dry	1	12/04/16 13:31	EPA 8270D (SIM)	
Acenaphthylene	ND	1.97	3.94	"	"	"	"	
Anthracene	ND	1.97	3.94	"	"	"	"	
Benz(a)anthracene	**3.41**	1.97	3.94	"	"	"	"	J
Benzo(a)pyrene	**3.90**	1.97	3.94	"	"	"	"	J
Benzo(b)fluoranthene	**8.73**	1.97	3.94	"	"	"	"	M-02
Benzo(k)fluoranthene	**2.57**	1.97	3.94	"	"	"	"	J
Benzo(g,h,i)perylene	**4.45**	1.97	3.94	"	"	"	"	
Chrysene	**4.95**	1.97	3.94	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.97	3.94	"	"	"	"	
Dibenzofuran	ND	1.97	3.94	"	"	"	"	
Fluoranthene	**5.60**	1.97	3.94	"	"	"	"	
Fluorene	ND	1.97	3.94	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**4.50**	1.97	3.94	"	"	"	"	
1-Methylnaphthalene	ND	3.94	7.88	"	"	"	"	
2-Methylnaphthalene	ND	3.94	7.88	"	"	"	"	
Naphthalene	ND	3.94	7.88	"	"	"	"	
Phenanthrene	ND	1.97	3.94	"	"	"	"	
Pyrene	**5.15**	1.97	3.94	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 60 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*87 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-20->30' (0-0.5')_Prepared (A6J1012-22)			**Matrix: Soil**		**Batch: 6110865**			**H-08**
Acenaphthene	ND	1.95	3.90	ug/kg dry	1	12/04/16 13:57	EPA 8270D (SIM)	
Acenaphthylene	ND	1.95	3.90	"	"	"	"	
Anthracene	ND	1.95	3.90	"	"	"	"	
Benz(a)anthracene	**14.8**	1.95	3.90	"	"	"	"	M-02
Benzo(a)pyrene	**23.2**	1.95	3.90	"	"	"	"	
Benzo(b)fluoranthene	**43.5**	1.95	3.90	"	"	"	"	M-02
Benzo(k)fluoranthene	**14.4**	1.95	3.90	"	"	"	"	M-02
Benzo(g,h,i)perylene	**23.7**	1.95	3.90	"	"	"	"	
Chrysene	**24.2**	1.95	3.90	"	"	"	"	M-02
Dibenz(a,h)anthracene	**5.17**	1.95	3.90	"	"	"	"	
Dibenzofuran	ND	1.95	3.90	"	"	"	"	
Fluoranthene	**22.4**	1.95	3.90	"	"	"	"	
Fluorene	ND	1.95	3.90	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**22.4**	1.95	3.90	"	"	"	"	
1-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
2-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
Naphthalene	ND	3.90	7.80	"	"	"	"	
Phenanthrene	**5.38**	1.95	3.90	"	"	"	"	
Pyrene	**23.2**	1.95	3.90	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*71 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-20->30' (0.5-1')_Prepared (A6J1012-23)			**Matrix: Soil**		**Batch: 6110865**			**H-08**
Acenaphthene	ND	1.90	3.81	ug/kg dry	1	12/04/16 14:23	EPA 8270D (SIM)	
Acenaphthylene	ND	1.90	3.81	"	"	"	"	
Anthracene	ND	1.90	3.81	"	"	"	"	
Benz(a)anthracene	**5.73**	1.90	3.81	"	"	"	"	M-02
Benzo(a)pyrene	**6.80**	1.90	3.81	"	"	"	"	
Benzo(b)fluoranthene	**12.1**	1.90	3.81	"	"	"	"	M-02
Benzo(k)fluoranthene	**4.49**	1.90	3.81	"	"	"	"	M-02
Benzo(g,h,i)perylene	**6.33**	1.90	3.81	"	"	"	"	
Chrysene	**8.08**	1.90	3.81	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.90	3.81	"	"	"	"	
Dibenzofuran	ND	1.90	3.81	"	"	"	"	
Fluoranthene	**9.85**	1.90	3.81	"	"	"	"	
Fluorene	ND	1.90	3.81	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**6.25**	1.90	3.81	"	"	"	"	
1-Methylnaphthalene	ND	3.81	7.61	"	"	"	"	
2-Methylnaphthalene	ND	3.81	7.61	"	"	"	"	
Naphthalene	ND	3.81	7.61	"	"	"	"	
Phenanthrene	**3.14**	1.90	3.81	"	"	"	"	J
Pyrene	**9.99**	1.90	3.81	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*83 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-20->30' (0.5-1') DUP_Prepared (A6J1012-24)			**Matrix: Soil**		**Batch: 6110865**			**H-08**
Acenaphthene	ND	1.98	3.97	ug/kg dry	1	12/04/16 14:50	EPA 8270D (SIM)	
Acenaphthylene	ND	1.98	3.97	"	"	"	"	
Anthracene	ND	1.98	3.97	"	"	"	"	
Benz(a)anthracene	**3.70**	1.98	3.97	"	"	"	"	J
Benzo(a)pyrene	**4.56**	1.98	3.97	"	"	"	"	
Benzo(b)fluoranthene	**9.03**	1.98	3.97	"	"	"	"	M-02
Benzo(k)fluoranthene	**2.73**	1.98	3.97	"	"	"	"	J
Benzo(g,h,i)perylene	**4.71**	1.98	3.97	"	"	"	"	
Chrysene	**5.48**	1.98	3.97	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.98	3.97	"	"	"	"	
Dibenzofuran	ND	1.98	3.97	"	"	"	"	
Fluoranthene	**7.00**	1.98	3.97	"	"	"	"	
Fluorene	ND	1.98	3.97	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**4.42**	1.98	3.97	"	"	"	"	
1-Methylnaphthalene	ND	3.97	7.94	"	"	"	"	
2-Methylnaphthalene	ND	3.97	7.94	"	"	"	"	
Naphthalene	ND	3.97	7.94	"	"	"	"	
Phenanthrene	**2.06**	1.98	3.97	"	"	"	"	J
Pyrene	**6.66**	1.98	3.97	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*84 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-20->30' (1-1.5')_Prepared (A6J1012-25)			**Matrix: Soil**		**Batch: 6110865**			**H-08**
Acenaphthene	ND	1.91	3.83	ug/kg dry	1	12/04/16 15:16	EPA 8270D (SIM)	
Acenaphthylene	ND	1.91	3.83	"	"	"	"	
Anthracene	ND	1.91	3.83	"	"	"	"	
Benz(a)anthracene	ND	1.91	3.83	"	"	"	"	
Benzo(a)pyrene	ND	1.91	3.83	"	"	"	"	
Benzo(b)fluoranthene	**1.96**	1.91	3.83	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.91	3.83	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.91	3.83	"	"	"	"	
Chrysene	ND	1.91	3.83	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.91	3.83	"	"	"	"	
Dibenzofuran	ND	1.91	3.83	"	"	"	"	
Fluoranthene	ND	1.91	3.83	"	"	"	"	
Fluorene	ND	1.91	3.83	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.91	3.83	"	"	"	"	
1-Methylnaphthalene	ND	3.83	7.65	"	"	"	"	
2-Methylnaphthalene	ND	3.83	7.65	"	"	"	"	
Naphthalene	ND	3.83	7.65	"	"	"	"	
Phenanthrene	ND	1.91	3.83	"	"	"	"	
Pyrene	ND	1.91	3.83	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*90 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-21-15-30' (0-0.5')_Prepared (A6J1012-26)			**Matrix: Soil**		**Batch: 6110865**			**H-08**
Acenaphthene	ND	9.87	19.7	ug/kg dry	2	12/04/16 15:42	EPA 8270D (SIM)	
Acenaphthylene	ND	9.87	19.7	"	"	"	"	
Anthracene	ND	9.87	19.7	"	"	"	"	
Benz(a)anthracene	**19.2**	9.87	19.7	"	"	"	"	J
Benzo(a)pyrene	**20.8**	9.87	19.7	"	"	"	"	
Benzo(b)fluoranthene	**40.2**	9.87	19.7	"	"	"	"	M-02
Benzo(k)fluoranthene	**12.6**	9.87	19.7	"	"	"	"	J
Benzo(g,h,i)perylene	**25.8**	9.87	19.7	"	"	"	"	
Chrysene	**28.3**	9.87	19.7	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	9.87	19.7	"	"	"	"	
Dibenzofuran	ND	9.87	19.7	"	"	"	"	
Fluoranthene	**34.3**	9.87	19.7	"	"	"	"	
Fluorene	ND	9.87	19.7	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**20.9**	9.87	19.7	"	"	"	"	
1-Methylnaphthalene	ND	19.7	39.5	"	"	"	"	
2-Methylnaphthalene	ND	19.7	39.5	"	"	"	"	
Naphthalene	ND	19.7	39.5	"	"	"	"	
Phenanthrene	**12.3**	9.87	19.7	"	"	"	"	J
Pyrene	**33.6**	9.87	19.7	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 107 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*111 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-21-15-30' (0.5-1')_Prepared (A6J1012-27)			**Matrix: Soil**		**Batch: 6110865**			**H-08**
Acenaphthene	ND	2.03	4.07	ug/kg dry	1	12/04/16 16:08	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.07	"	"	"	"	
Anthracene	ND	2.03	4.07	"	"	"	"	
Benz(a)anthracene	**3.98**	2.03	4.07	"	"	"	"	J
Benzo(a)pyrene	**4.90**	2.03	4.07	"	"	"	"	
Benzo(b)fluoranthene	**9.01**	2.03	4.07	"	"	"	"	M-02
Benzo(k)fluoranthene	**2.87**	2.03	4.07	"	"	"	"	J
Benzo(g,h,i)perylene	**5.86**	2.03	4.07	"	"	"	"	
Chrysene	**6.64**	2.03	4.07	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.03	4.07	"	"	"	"	
Dibenzofuran	ND	2.03	4.07	"	"	"	"	
Fluoranthene	**8.39**	2.03	4.07	"	"	"	"	
Fluorene	ND	2.03	4.07	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**4.82**	2.03	4.07	"	"	"	"	
1-Methylnaphthalene	ND	4.07	8.13	"	"	"	"	
2-Methylnaphthalene	ND	4.07	8.13	"	"	"	"	
Naphthalene	ND	4.07	8.13	"	"	"	"	
Phenanthrene	**5.68**	2.03	4.07	"	"	"	"	
Pyrene	**7.95**	2.03	4.07	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 90 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*90 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-21-15-30' (1-1.5')_Prepared (A6J1012-28)			**Matrix: Soil**		**Batch: 6110865**			**H-08**
Acenaphthene	ND	1.96	3.91	ug/kg dry	1	12/04/16 16:34	EPA 8270D (SIM)	
Acenaphthylene	ND	1.96	3.91	"	"	"	"	
Anthracene	ND	1.96	3.91	"	"	"	"	
Benz(a)anthracene	**4.10**	1.96	3.91	"	"	"	"	M-02
Benzo(a)pyrene	**4.54**	1.96	3.91	"	"	"	"	
Benzo(b)fluoranthene	**7.12**	1.96	3.91	"	"	"	"	M-02
Benzo(k)fluoranthene	**2.24**	1.96	3.91	"	"	"	"	J
Benzo(g,h,i)perylene	**4.20**	1.96	3.91	"	"	"	"	
Chrysene	**5.22**	1.96	3.91	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.96	3.91	"	"	"	"	
Dibenzofuran	ND	1.96	3.91	"	"	"	"	
Fluoranthene	**8.10**	1.96	3.91	"	"	"	"	
Fluorene	ND	1.96	3.91	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**3.93**	1.96	3.91	"	"	"	"	
1-Methylnaphthalene	ND	3.91	7.82	"	"	"	"	
2-Methylnaphthalene	ND	3.91	7.82	"	"	"	"	
Naphthalene	ND	3.91	7.82	"	"	"	"	
Phenanthrene	**4.84**	1.96	3.91	"	"	"	"	
Pyrene	**8.05**	1.96	3.91	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 79 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*87 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-21->30' (0-0.5')_Prepared (A6J1012-29)			**Matrix: Soil**		**Batch: 6110865**			**H-08**
Acenaphthene	ND	1.95	3.90	ug/kg dry	1	12/04/16 17:00	EPA 8270D (SIM)	
Acenaphthylene	ND	1.95	3.90	"	"	"	"	
Anthracene	ND	1.95	3.90	"	"	"	"	
Benz(a)anthracene	**5.80**	1.95	3.90	"	"	"	"	M-02
Benzo(a)pyrene	**7.37**	1.95	3.90	"	"	"	"	
Benzo(b)fluoranthene	**16.2**	1.95	3.90	"	"	"	"	M-02
Benzo(k)fluoranthene	**4.28**	1.95	3.90	"	"	"	"	M-02
Benzo(g,h,i)perylene	**8.69**	1.95	3.90	"	"	"	"	
Chrysene	**9.92**	1.95	3.90	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.95	3.90	"	"	"	"	
Dibenzofuran	ND	1.95	3.90	"	"	"	"	
Fluoranthene	**12.4**	1.95	3.90	"	"	"	"	
Fluorene	ND	1.95	3.90	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**7.77**	1.95	3.90	"	"	"	"	
1-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
2-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
Naphthalene	ND	3.90	7.80	"	"	"	"	
Phenanthrene	**5.69**	1.95	3.90	"	"	"	"	
Pyrene	**11.3**	1.95	3.90	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-21->30' (0.5-1')_Prepared (A6J1012-30)			**Matrix: Soil**		**Batch: 6110865**			**H-08**
Acenaphthene	ND	2.00	4.00	ug/kg dry	1	12/04/16 17:26	EPA 8270D (SIM)	
Acenaphthylene	ND	2.00	4.00	"	"	"	"	
Anthracene	ND	2.00	4.00	"	"	"	"	
Benz(a)anthracene	**2.75**	2.00	4.00	"	"	"	"	J
Benzo(a)pyrene	**2.55**	2.00	4.00	"	"	"	"	J
Benzo(b)fluoranthene	**6.08**	2.00	4.00	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	2.00	4.00	"	"	"	"	
Benzo(g,h,i)perylene	**2.96**	2.00	4.00	"	"	"	"	J
Chrysene	**4.11**	2.00	4.00	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.00	4.00	"	"	"	"	
Dibenzofuran	ND	2.00	4.00	"	"	"	"	
Fluoranthene	**4.58**	2.00	4.00	"	"	"	"	
Fluorene	ND	2.00	4.00	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.98**	2.00	4.00	"	"	"	"	J
1-Methylnaphthalene	ND	4.00	8.00	"	"	"	"	
2-Methylnaphthalene	ND	4.00	8.00	"	"	"	"	
Naphthalene	ND	4.00	8.00	"	"	"	"	
Phenanthrene	**2.01**	2.00	4.00	"	"	"	"	J
Pyrene	**4.56**	2.00	4.00	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 92 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*97 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-21->30' (1-1.5')_Prepared (A6J1012-31)			**Matrix: Soil**		**Batch: 6110865**			**H-08**
Acenaphthene	ND	2.01	4.03	ug/kg dry	1	12/04/16 17:52	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.03	"	"	"	"	
Anthracene	ND	2.01	4.03	"	"	"	"	
Benz(a)anthracene	ND	2.01	4.03	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.03	"	"	"	"	
Benzo(b)fluoranthene	**2.12**	2.01	4.03	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.01	4.03	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.03	"	"	"	"	
Chrysene	ND	2.01	4.03	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.01	4.03	"	"	"	"	
Dibenzofuran	ND	2.01	4.03	"	"	"	"	
Fluoranthene	ND	2.01	4.03	"	"	"	"	
Fluorene	ND	2.01	4.03	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.03	"	"	"	"	
1-Methylnaphthalene	ND	4.03	8.06	"	"	"	"	
2-Methylnaphthalene	ND	4.03	8.06	"	"	"	"	
Naphthalene	ND	4.03	8.06	"	"	"	"	
Phenanthrene	ND	2.01	4.03	"	"	"	"	
Pyrene	ND	2.01	4.03	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 87 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*89 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-01-15-30' (0-0.5')_Prepared (A6J1012-32)			**Matrix: Soil**		**Batch: 6110865**			**H-08, R-04**
Acenaphthene	ND	14.8	29.7	ug/kg dry	3	12/04/16 18:18	EPA 8270D (SIM)	
Acenaphthylene	ND	14.8	29.7	"	"	"	"	
Anthracene	ND	14.8	29.7	"	"	"	"	
Benz(a)anthracene	ND	14.8	29.7	"	"	"	"	
Benzo(a)pyrene	ND	14.8	29.7	"	"	"	"	
Benzo(b)fluoranthene	**20.2**	14.8	29.7	"	"	"	"	J
Benzo(k)fluoranthene	ND	14.8	29.7	"	"	"	"	
Benzo(g,h,i)perylene	**16.9**	14.8	29.7	"	"	"	"	J
Chrysene	**16.6**	14.8	29.7	"	"	"	"	J
Dibenz(a,h)anthracene	ND	14.8	29.7	"	"	"	"	
Dibenzofuran	ND	14.8	29.7	"	"	"	"	
Fluoranthene	ND	14.8	29.7	"	"	"	"	
Fluorene	ND	14.8	29.7	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	14.8	29.7	"	"	"	"	
1-Methylnaphthalene	ND	29.7	59.4	"	"	"	"	
2-Methylnaphthalene	ND	29.7	59.4	"	"	"	"	
Naphthalene	ND	29.7	59.4	"	"	"	"	
Phenanthrene	ND	14.8	29.7	"	"	"	"	
Pyrene	**15.2**	14.8	29.7	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 80 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*82 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-01-15-30' (0.5-1')_Prepared (A6J1012-33)			**Matrix: Soil**		**Batch: 6110865**			**H-08**
Acenaphthene	ND	4.98	9.97	ug/kg dry	1	12/04/16 18:44	EPA 8270D (SIM)	
Acenaphthylene	ND	4.98	9.97	"	"	"	"	
Anthracene	ND	4.98	9.97	"	"	"	"	
Benz(a)anthracene	ND	4.98	9.97	"	"	"	"	
Benzo(a)pyrene	ND	4.98	9.97	"	"	"	"	
Benzo(b)fluoranthene	ND	4.98	9.97	"	"	"	"	
Benzo(k)fluoranthene	ND	4.98	9.97	"	"	"	"	
Benzo(g,h,i)perylene	ND	4.98	9.97	"	"	"	"	
Chrysene	ND	4.98	9.97	"	"	"	"	
Dibenz(a,h)anthracene	ND	4.98	9.97	"	"	"	"	
Dibenzofuran	ND	4.98	9.97	"	"	"	"	
Fluoranthene	ND	4.98	9.97	"	"	"	"	
Fluorene	ND	4.98	9.97	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	4.98	9.97	"	"	"	"	
1-Methylnaphthalene	ND	9.97	19.9	"	"	"	"	
2-Methylnaphthalene	ND	9.97	19.9	"	"	"	"	
Naphthalene	ND	9.97	19.9	"	"	"	"	
Phenanthrene	ND	4.98	9.97	"	"	"	"	
Pyrene	ND	4.98	9.97	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 57 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*58 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-01-15-30' (1-1.5')_Prepared (A6J1012-34)			**Matrix: Soil**		**Batch: 6110865**			**H-08**
Acenaphthene	ND	2.08	4.15	ug/kg dry	1	12/04/16 19:10	EPA 8270D (SIM)	
Acenaphthylene	ND	2.08	4.15	"	"	"	"	
Anthracene	ND	2.08	4.15	"	"	"	"	
Benz(a)anthracene	ND	2.08	4.15	"	"	"	"	
Benzo(a)pyrene	ND	2.08	4.15	"	"	"	"	
Benzo(b)fluoranthene	**3.13**	2.08	4.15	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.08	4.15	"	"	"	"	
Benzo(g,h,i)perylene	**2.95**	2.08	4.15	"	"	"	"	J
Chrysene	ND	2.08	4.15	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.08	4.15	"	"	"	"	
Dibenzofuran	ND	2.08	4.15	"	"	"	"	
Fluoranthene	**2.15**	2.08	4.15	"	"	"	"	J
Fluorene	ND	2.08	4.15	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**3.19**	2.08	4.15	"	"	"	"	J
1-Methylnaphthalene	ND	4.15	8.30	"	"	"	"	
2-Methylnaphthalene	ND	4.15	8.30	"	"	"	"	
Naphthalene	ND	4.15	8.30	"	"	"	"	
Phenanthrene	**3.43**	2.08	4.15	"	"	"	"	J
Pyrene	**2.47**	2.08	4.15	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*90 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-01->30' (0-0.5')_Prepared (A6J1012-35)			**Matrix: Soil**		**Batch: 6110865**			**H-08**
Acenaphthene	ND	5.22	10.4	ug/kg dry	1	12/04/16 19:36	EPA 8270D (SIM)	
Acenaphthylene	ND	5.22	10.4	"	"	"	"	
Anthracene	ND	5.22	10.4	"	"	"	"	
Benz(a)anthracene	ND	5.22	10.4	"	"	"	"	
Benzo(a)pyrene	ND	5.22	10.4	"	"	"	"	
Benzo(b)fluoranthene	ND	5.22	10.4	"	"	"	"	
Benzo(k)fluoranthene	ND	5.22	10.4	"	"	"	"	
Benzo(g,h,i)perylene	ND	5.22	10.4	"	"	"	"	
Chrysene	ND	5.22	10.4	"	"	"	"	
Dibenz(a,h)anthracene	ND	5.22	10.4	"	"	"	"	
Dibenzofuran	ND	5.22	10.4	"	"	"	"	
Fluoranthene	ND	5.22	10.4	"	"	"	"	
Fluorene	ND	5.22	10.4	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	5.22	10.4	"	"	"	"	
1-Methylnaphthalene	ND	10.4	20.9	"	"	"	"	
2-Methylnaphthalene	ND	10.4	20.9	"	"	"	"	
Naphthalene	ND	10.4	20.9	"	"	"	"	
Phenanthrene	ND	5.22	10.4	"	"	"	"	
Pyrene	ND	5.22	10.4	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 28 %*	*Limits: 44-115 %*	"	"	"	*S-06*
p-Terphenyl-d14 (Surr)			*28 %*	*Limits: 54-127 %*	"	"	"	*S-06*

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-01->30' (0.5-1')_Prepared (A6J1012-36)			**Matrix: Soil**		**Batch: 6110865**			**H-08**
Acenaphthene	ND	2.05	4.10	ug/kg dry	1	12/04/16 20:01	EPA 8270D (SIM)	
Acenaphthylene	ND	2.05	4.10	"	"	"	"	
Anthracene	ND	2.05	4.10	"	"	"	"	
Benz(a)anthracene	**3.67**	2.05	4.10	"	"	"	"	J
Benzo(a)pyrene	ND	2.05	4.10	"	"	"	"	
Benzo(b)fluoranthene	**3.00**	2.05	4.10	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.05	4.10	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.05	4.10	"	"	"	"	
Chrysene	**4.56**	2.05	4.10	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.05	4.10	"	"	"	"	
Dibenzofuran	**2.93**	2.05	4.10	"	"	"	"	J
Fluoranthene	**2.91**	2.05	4.10	"	"	"	"	J
Fluorene	ND	2.05	4.10	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.05	4.10	"	"	"	"	
1-Methylnaphthalene	ND	4.10	8.21	"	"	"	"	
2-Methylnaphthalene	ND	4.10	8.21	"	"	"	"	
Naphthalene	**5.14**	4.10	8.21	"	"	"	"	J
Phenanthrene	**6.01**	2.05	4.10	"	"	"	"	
Pyrene	**6.50**	2.05	4.10	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*93 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-01->30' (1-1.5')_Prepared (A6J1012-37)			**Matrix: Soil**		**Batch: 6110865**			**H-08**
Acenaphthene	ND	2.09	4.17	ug/kg dry	1	12/04/16 20:27	EPA 8270D (SIM)	
Acenaphthylene	ND	2.09	4.17	"	"	"	"	
Anthracene	ND	2.09	4.17	"	"	"	"	
Benz(a)anthracene	ND	2.09	4.17	"	"	"	"	
Benzo(a)pyrene	ND	2.09	4.17	"	"	"	"	
Benzo(b)fluoranthene	ND	2.09	4.17	"	"	"	"	
Benzo(k)fluoranthene	ND	2.09	4.17	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.09	4.17	"	"	"	"	
Chrysene	ND	2.09	4.17	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.09	4.17	"	"	"	"	
Dibenzofuran	ND	2.09	4.17	"	"	"	"	
Fluoranthene	ND	2.09	4.17	"	"	"	"	
Fluorene	ND	2.09	4.17	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.09	4.17	"	"	"	"	
1-Methylnaphthalene	ND	4.17	8.35	"	"	"	"	
2-Methylnaphthalene	ND	4.17	8.35	"	"	"	"	
Naphthalene	**4.45**	4.17	8.35	"	"	"	"	J
Phenanthrene	**2.63**	2.09	4.17	"	"	"	"	J
Pyrene	ND	2.09	4.17	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 95 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*97 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-02-15-30' (0-0.5')_Prepared (A6J1012-38)			**Matrix: Soil**		**Batch: 6110865**			**H-08**
Acenaphthene	ND	2.04	4.08	ug/kg dry	1	12/04/16 20:53	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.08	"	"	"	"	
Anthracene	ND	2.04	4.08	"	"	"	"	
Benz(a)anthracene	**2.13**	2.04	4.08	"	"	"	"	J
Benzo(a)pyrene	**4.69**	2.04	4.08	"	"	"	"	
Benzo(b)fluoranthene	**13.2**	2.04	4.08	"	"	"	"	M-02
Benzo(k)fluoranthene	**2.27**	2.04	4.08	"	"	"	"	J
Chrysene	**14.5**	2.04	4.08	"	"	"	"	M-02
Dibenzofuran	ND	2.04	4.08	"	"	"	"	
Fluoranthene	**3.26**	2.04	4.08	"	"	"	"	J
Fluorene	ND	2.04	4.08	"	"	"	"	
1-Methylnaphthalene	ND	4.08	8.15	"	"	"	"	
2-Methylnaphthalene	ND	4.08	8.15	"	"	"	"	
Naphthalene	ND	4.08	8.15	"	"	"	"	
Phenanthrene	**2.46**	2.04	4.08	"	"	"	"	J
Pyrene	**4.89**	2.04	4.08	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*91 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-02-15-30' (0-0.5')_Prepared (A6J1012-38RE1)			**Matrix: Soil**		**Batch: 6110865**			**H-08**
Benzo(g,h,i)perylene	ND	20.4	40.8	ug/kg dry	10	12/06/16 00:54	EPA 8270D (SIM)	
Dibenz(a,h)anthracene	ND	20.4	40.8	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	20.4	40.8	"	"	"	"	
BM-02-15-30' (0.5-1')_Prepared (A6J1012-39RE1)			**Matrix: Soil**		**Batch: 6120255**			**H-08**
Acenaphthene	ND	2.04	4.07	ug/kg dry	1	12/07/16 16:31	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.07	"	"	"	"	
Anthracene	ND	2.04	4.07	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.07	"	"	"	"	
Benzo(a)pyrene	**3.48**	2.04	4.07	"	"	"	"	J
Benzo(b)fluoranthene	**6.05**	2.04	4.07	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	2.04	4.07	"	"	"	"	
Benzo(g,h,i)perylene	**6.91**	2.04	4.07	"	"	"	"	
Chrysene	**8.49**	2.04	4.07	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.04	4.07	"	"	"	"	
Dibenzofuran	ND	2.04	4.07	"	"	"	"	
Fluoranthene	ND	2.04	4.07	"	"	"	"	
Fluorene	ND	2.04	4.07	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**3.39**	2.04	4.07	"	"	"	"	J
1-Methylnaphthalene	ND	4.07	8.15	"	"	"	"	
2-Methylnaphthalene	ND	4.07	8.15	"	"	"	"	
Naphthalene	ND	4.07	8.15	"	"	"	"	
Phenanthrene	ND	2.04	4.07	"	"	"	"	
Pyrene	**3.08**	2.04	4.07	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*67 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-02-15-30' (1-1.5')_Prepared (A6J1012-40)			**Matrix: Soil**		**Batch: 6110865**			**H-08**
Acenaphthene	ND	4.73	9.46	ug/kg dry	1	12/06/16 01:46	EPA 8270D (SIM)	
Acenaphthylene	ND	4.73	9.46	"	"	"	"	
Anthracene	ND	4.73	9.46	"	"	"	"	
Benz(a)anthracene	ND	9.46	9.46	"	"	"	"	
Benzo(a)pyrene	ND	4.73	9.46	"	"	"	"	
Benzo(b)fluoranthene	ND	4.73	9.46	"	"	"	"	
Benzo(k)fluoranthene	ND	4.73	9.46	"	"	"	"	
Benzo(g,h,i)perylene	ND	4.73	9.46	"	"	"	"	
Chrysene	ND	9.46	9.46	"	"	"	"	
Dibenz(a,h)anthracene	ND	4.73	9.46	"	"	"	"	
Dibenzofuran	ND	4.73	9.46	"	"	"	"	
Fluoranthene	ND	4.73	9.46	"	"	"	"	
Fluorene	ND	4.73	9.46	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	4.73	9.46	"	"	"	"	
1-Methylnaphthalene	ND	9.46	18.9	"	"	"	"	
2-Methylnaphthalene	ND	9.46	18.9	"	"	"	"	
Naphthalene	ND	9.46	18.9	"	"	"	"	
Phenanthrene	ND	4.73	9.46	"	"	"	"	
Pyrene	ND	4.73	9.46	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 81 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*80 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6J1012-41)			**Matrix: Solid**		**Batch: 6110865**			**A-01, H-08, T-03**
Acenaphthene	ND	1.97	3.94	ug/kg wet	1	12/04/16 21:19	EPA 8270D (SIM)	
Acenaphthylene	ND	1.97	3.94	"	"	"	"	
Anthracene	ND	1.97	3.94	"	"	"	"	
Benz(a)anthracene	ND	1.97	3.94	"	"	"	"	
Benzo(a)pyrene	ND	1.97	3.94	"	"	"	"	
Benzo(b)fluoranthene	ND	1.97	3.94	"	"	"	"	
Benzo(k)fluoranthene	ND	1.97	3.94	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.97	3.94	"	"	"	"	
Chrysene	ND	1.97	3.94	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.97	3.94	"	"	"	"	
Dibenzofuran	ND	1.97	3.94	"	"	"	"	
Fluoranthene	ND	1.97	3.94	"	"	"	"	
Fluorene	ND	1.97	3.94	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.97	3.94	"	"	"	"	
1-Methylnaphthalene	ND	3.94	7.87	"	"	"	"	
2-Methylnaphthalene	ND	3.94	7.87	"	"	"	"	
Naphthalene	ND	3.94	7.87	"	"	"	"	
Phenanthrene	ND	1.97	3.94	"	"	"	"	
Pyrene	ND	1.97	3.94	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 45 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*56 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-02->30' (0-0.5')_Prepared (A6J1013-10)			**Matrix: Soil**		**Batch: 6120103**			**H-08**
Acenaphthene	ND	1.99	3.98	ug/kg dry	1	12/05/16 16:43	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.98	"	"	"	"	
Anthracene	ND	1.99	3.98	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.98	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.98	"	"	"	"	
Benzo(b)fluoranthene	**3.33**	1.99	3.98	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(g,h,i)perylene	**3.67**	1.99	3.98	"	"	"	"	J
Chrysene	**4.05**	1.99	3.98	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.99	3.98	"	"	"	"	
Dibenzofuran	ND	1.99	3.98	"	"	"	"	
Fluoranthene	**2.87**	1.99	3.98	"	"	"	"	J
Fluorene	ND	1.99	3.98	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.62**	1.99	3.98	"	"	"	"	J
1-Methylnaphthalene	ND	3.98	7.95	"	"	"	"	
2-Methylnaphthalene	ND	3.98	7.95	"	"	"	"	
Naphthalene	ND	3.98	7.95	"	"	"	"	
Phenanthrene	**3.26**	1.99	3.98	"	"	"	"	J
Pyrene	**3.10**	1.99	3.98	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 59 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*64 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-02->30' (0.5-1')_Prepared (A6J1013-11)			**Matrix: Soil**		**Batch: 6120103**			**H-08**
Acenaphthene	ND	2.10	4.21	ug/kg dry	1	12/05/16 17:09	EPA 8270D (SIM)	
Acenaphthylene	ND	2.10	4.21	"	"	"	"	
Anthracene	ND	2.10	4.21	"	"	"	"	
Benz(a)anthracene	ND	2.10	4.21	"	"	"	"	
Benzo(a)pyrene	ND	2.10	4.21	"	"	"	"	
Benzo(b)fluoranthene	**3.27**	2.10	4.21	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.10	4.21	"	"	"	"	
Benzo(g,h,i)perylene	**2.62**	2.10	4.21	"	"	"	"	J
Chrysene	ND	2.10	4.21	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.10	4.21	"	"	"	"	
Dibenzofuran	ND	2.10	4.21	"	"	"	"	
Fluoranthene	ND	2.10	4.21	"	"	"	"	
Fluorene	ND	2.10	4.21	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.87**	2.10	4.21	"	"	"	"	J
1-Methylnaphthalene	ND	4.21	8.42	"	"	"	"	
2-Methylnaphthalene	ND	4.21	8.42	"	"	"	"	
Naphthalene	ND	4.21	8.42	"	"	"	"	
Phenanthrene	**2.31**	2.10	4.21	"	"	"	"	J
Pyrene	ND	2.10	4.21	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 52 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*61 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-02->30' (1-1.5')_Prepared (A6J1013-12)			**Matrix: Soil**		**Batch: 6120103**			**H-08**
Acenaphthene	ND	2.07	4.14	ug/kg dry	1	12/05/16 17:34	EPA 8270D (SIM)	
Acenaphthylene	ND	2.07	4.14	"	"	"	"	
Anthracene	ND	2.07	4.14	"	"	"	"	
Benz(a)anthracene	ND	2.07	4.14	"	"	"	"	
Benzo(a)pyrene	ND	2.07	4.14	"	"	"	"	
Benzo(b)fluoranthene	ND	2.07	4.14	"	"	"	"	
Benzo(k)fluoranthene	ND	2.07	4.14	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.07	4.14	"	"	"	"	
Chrysene	ND	2.07	4.14	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.07	4.14	"	"	"	"	
Dibenzofuran	**2.14**	2.07	4.14	"	"	"	"	J
Fluoranthene	ND	2.07	4.14	"	"	"	"	
Fluorene	ND	2.07	4.14	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.07	4.14	"	"	"	"	
1-Methylnaphthalene	ND	4.14	8.29	"	"	"	"	
2-Methylnaphthalene	ND	4.14	8.29	"	"	"	"	
Naphthalene	ND	4.14	8.29	"	"	"	"	
Phenanthrene	**3.15**	2.07	4.14	"	"	"	"	J
Pyrene	ND	2.07	4.14	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 50 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*56 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-03-15-30' (0-0.5')_Prepared (A6J1013-13)			**Matrix: Soil**		**Batch: 6120103**			**H-08**
Acenaphthene	ND	3.89	7.78	ug/kg dry	2	12/05/16 18:00	EPA 8270D (SIM)	
Acenaphthylene	ND	3.89	7.78	"	"	"	"	
Anthracene	ND	3.89	7.78	"	"	"	"	
Benz(a)anthracene	ND	11.7	11.7	"	"	"	"	R-02
Benzo(a)pyrene	ND	3.89	7.78	"	"	"	"	
Benzo(b)fluoranthene	**7.91**	3.89	7.78	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	3.89	7.78	"	"	"	"	
Benzo(g,h,i)perylene	**12.8**	3.89	7.78	"	"	"	"	
Chrysene	ND	11.7	11.7	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	3.89	7.78	"	"	"	"	
Dibenzofuran	ND	3.89	7.78	"	"	"	"	
Fluoranthene	ND	3.89	7.78	"	"	"	"	
Fluorene	ND	3.89	7.78	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**6.28**	3.89	7.78	"	"	"	"	J
1-Methylnaphthalene	ND	7.78	15.6	"	"	"	"	
2-Methylnaphthalene	ND	7.78	15.6	"	"	"	"	
Naphthalene	ND	7.78	15.6	"	"	"	"	
Phenanthrene	ND	3.89	7.78	"	"	"	"	
Pyrene	ND	3.89	7.78	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 63 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*72 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-03-15-30' (0.5-1')_Prepared (A6J1013-14)			**Matrix: Soil**		**Batch: 6120103**			**H-08**
Acenaphthene	ND	2.07	4.14	ug/kg dry	1	12/05/16 18:26	EPA 8270D (SIM)	
Acenaphthylene	ND	2.07	4.14	"	"	"	"	
Anthracene	ND	2.07	4.14	"	"	"	"	
Benz(a)anthracene	ND	4.14	4.14	"	"	"	"	
Benzo(a)pyrene	ND	2.07	4.14	"	"	"	"	
Benzo(b)fluoranthene	**2.08**	2.07	4.14	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.07	4.14	"	"	"	"	
Benzo(g,h,i)perylene	**2.70**	2.07	4.14	"	"	"	"	J
Chrysene	ND	4.14	4.14	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.07	4.14	"	"	"	"	
Dibenzofuran	ND	2.07	4.14	"	"	"	"	
Fluoranthene	ND	2.07	4.14	"	"	"	"	
Fluorene	ND	2.07	4.14	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.07	4.14	"	"	"	"	
1-Methylnaphthalene	ND	4.14	8.28	"	"	"	"	
2-Methylnaphthalene	ND	4.14	8.28	"	"	"	"	
Naphthalene	ND	4.14	8.28	"	"	"	"	
Phenanthrene	ND	2.07	4.14	"	"	"	"	
Pyrene	ND	2.07	4.14	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 63 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*61 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-03-15-30' (1-1.5')_Prepared (A6J1013-15)			**Matrix: Soil**		**Batch: 6120103**			**H-08**
Acenaphthene	ND	2.11	4.22	ug/kg dry	1	12/05/16 18:52	EPA 8270D (SIM)	
Acenaphthylene	ND	2.11	4.22	"	"	"	"	
Anthracene	ND	2.11	4.22	"	"	"	"	
Benz(a)anthracene	ND	4.22	4.22	"	"	"	"	
Benzo(a)pyrene	ND	2.11	4.22	"	"	"	"	
Benzo(b)fluoranthene	ND	2.11	4.22	"	"	"	"	
Benzo(k)fluoranthene	ND	2.11	4.22	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.11	4.22	"	"	"	"	
Chrysene	ND	4.22	4.22	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.11	4.22	"	"	"	"	
Dibenzofuran	ND	2.11	4.22	"	"	"	"	
Fluoranthene	ND	2.11	4.22	"	"	"	"	
Fluorene	ND	2.11	4.22	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.11	4.22	"	"	"	"	
1-Methylnaphthalene	ND	4.22	8.44	"	"	"	"	
2-Methylnaphthalene	ND	4.22	8.44	"	"	"	"	
Naphthalene	ND	4.22	8.44	"	"	"	"	
Phenanthrene	ND	2.11	4.22	"	"	"	"	
Pyrene	ND	2.11	4.22	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*61 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-03->30' (0-0.5')_Prepared (A6J1013-16)			**Matrix: Soil**		**Batch: 6120103**			**H-08**
Acenaphthene	ND	1.97	3.94	ug/kg dry	1	12/05/16 19:18	EPA 8270D (SIM)	
Acenaphthylene	ND	1.97	3.94	"	"	"	"	
Anthracene	ND	1.97	3.94	"	"	"	"	
Benz(a)anthracene	ND	6.10	6.10	"	"	"	"	R-02
Benzo(a)pyrene	ND	1.97	3.94	"	"	"	"	
Benzo(b)fluoranthene	**4.16**	1.97	3.94	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	1.97	3.94	"	"	"	"	
Benzo(g,h,i)perylene	**6.45**	1.97	3.94	"	"	"	"	
Chrysene	ND	6.89	6.89	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	1.97	3.94	"	"	"	"	
Dibenzofuran	ND	1.97	3.94	"	"	"	"	
Fluoranthene	ND	1.97	3.94	"	"	"	"	
Fluorene	ND	1.97	3.94	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.96**	1.97	3.94	"	"	"	"	J
1-Methylnaphthalene	ND	3.94	7.87	"	"	"	"	
2-Methylnaphthalene	ND	3.94	7.87	"	"	"	"	
Naphthalene	ND	3.94	7.87	"	"	"	"	
Phenanthrene	ND	1.97	3.94	"	"	"	"	
Pyrene	**3.20**	1.97	3.94	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*66 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-03->30' (0.5-1')_Prepared (A6J1013-17RE1)			**Matrix: Soil**		**Batch: 6120255**			**H-08**
Acenaphthene	ND	2.24	4.48	ug/kg dry	1	12/07/16 17:23	EPA 8270D (SIM)	
Acenaphthylene	ND	2.24	4.48	"	"	"	"	
Anthracene	ND	2.24	4.48	"	"	"	"	
Benz(a)anthracene	ND	4.48	4.48	"	"	"	"	
Benzo(a)pyrene	ND	2.24	4.48	"	"	"	"	
Benzo(b)fluoranthene	**2.38**	2.24	4.48	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.24	4.48	"	"	"	"	
Benzo(g,h,i)perylene	**3.46**	2.24	4.48	"	"	"	"	J
Chrysene	ND	4.48	4.48	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.24	4.48	"	"	"	"	
Dibenzofuran	ND	2.24	4.48	"	"	"	"	
Fluoranthene	ND	2.24	4.48	"	"	"	"	
Fluorene	ND	2.24	4.48	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.24	4.48	"	"	"	"	
1-Methylnaphthalene	ND	4.48	8.95	"	"	"	"	
2-Methylnaphthalene	ND	4.48	8.95	"	"	"	"	
Naphthalene	ND	4.48	8.95	"	"	"	"	
Phenanthrene	ND	2.24	4.48	"	"	"	"	
Pyrene	ND	2.24	4.48	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 60 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*66 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-03->30' (1-1.5')_Prepared (A6J1013-18)			**Matrix: Soil**		**Batch: 6120103**			**H-08**
Acenaphthene	ND	2.12	4.24	ug/kg dry	1	12/05/16 20:10	EPA 8270D (SIM)	
Acenaphthylene	ND	2.12	4.24	"	"	"	"	
Anthracene	ND	2.12	4.24	"	"	"	"	
Benz(a)anthracene	ND	4.24	4.24	"	"	"	"	
Benzo(a)pyrene	ND	2.12	4.24	"	"	"	"	
Benzo(b)fluoranthene	**2.14**	2.12	4.24	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.12	4.24	"	"	"	"	
Benzo(g,h,i)perylene	**2.79**	2.12	4.24	"	"	"	"	J
Chrysene	ND	5.29	5.29	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	2.12	4.24	"	"	"	"	
Dibenzofuran	ND	2.12	4.24	"	"	"	"	
Fluoranthene	ND	2.12	4.24	"	"	"	"	
Fluorene	ND	2.12	4.24	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.12	4.24	"	"	"	"	
1-Methylnaphthalene	ND	4.24	8.47	"	"	"	"	
2-Methylnaphthalene	ND	4.24	8.47	"	"	"	"	
Naphthalene	ND	4.24	8.47	"	"	"	"	
Phenanthrene	ND	2.12	4.24	"	"	"	"	
Pyrene	ND	2.12	4.24	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*63 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6J1013-19RE1)			**Matrix: Solid**		**Batch: 6120255**			**H-08**
Acenaphthene	ND	1.99	3.98	ug/kg wet	1	12/07/16 18:14	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.98	"	"	"	"	
Anthracene	ND	1.99	3.98	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.98	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.98	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.98	"	"	"	"	
Chrysene	ND	1.99	3.98	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.98	"	"	"	"	
Dibenzofuran	ND	1.99	3.98	"	"	"	"	
Fluoranthene	ND	1.99	3.98	"	"	"	"	
Fluorene	ND	1.99	3.98	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.98	"	"	"	"	
1-Methylnaphthalene	ND	3.98	7.96	"	"	"	"	
2-Methylnaphthalene	ND	3.98	7.96	"	"	"	"	
Naphthalene	ND	3.98	7.96	"	"	"	"	
Phenanthrene	ND	1.99	3.98	"	"	"	"	
Pyrene	ND	1.99	3.98	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 62 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*64 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-01-15-30' (0-0.5')_Prepared (A6J0986-21)			**Matrix: Soil**					
Batch: 6110732								
Lead	**85.4**	0.108	0.216	mg/kg dry	10	11/21/16 16:22	EPA 6020A	
DC-01-15-30' (0.5-1')_Prepared (A6J0986-22)			**Matrix: Soil**					
Batch: 6110732								
Lead	**23.8**	0.112	0.224	mg/kg dry	10	11/21/16 16:36	EPA 6020A	
DC-01-15-30' (1-1.5')_Prepared (A6J0986-23)			**Matrix: Soil**					
Batch: 6110732								
Lead	**14.0**	0.114	0.227	mg/kg dry	10	11/21/16 16:44	EPA 6020A	
DC-01->30' (0-0.5')_Prepared (A6J0986-24)			**Matrix: Soil**					
Batch: 6110732								
Lead	**16.0**	0.116	0.231	mg/kg dry	10	11/21/16 16:48	EPA 6020A	
DC-01->30' (0.5-1')_Prepared (A6J0986-25)			**Matrix: Soil**					
Batch: 6110732								
Lead	**7.90**	0.111	0.221	mg/kg dry	10	11/21/16 16:51	EPA 6020A	
DC-01->30' (1-1.5')_Prepared (A6J0986-26)			**Matrix: Soil**					
Batch: 6110732								
Lead	**7.22**	0.106	0.212	mg/kg dry	10	11/21/16 16:55	EPA 6020A	
DC-02-15-30' (0-0.5')_Prepared (A6J0986-27)			**Matrix: Soil**					
Batch: 6110732								
Lead	**30.7**	0.102	0.204	mg/kg dry	10	11/21/16 16:59	EPA 6020A	
DC-02-15-30' (0-0.5') DUP_Prepared (A6J0986-28)			**Matrix: Soil**					
Batch: 6110732								
Lead	**25.3**	0.102	0.205	mg/kg dry	10	11/21/16 17:03	EPA 6020A	
DC-02-15-30' (0.5-1')_Prepared (A6J0986-29)			**Matrix: Soil**					
Batch: 6110732								
Lead	**40.9**	0.111	0.222	mg/kg dry	10	11/21/16 17:07	EPA 6020A	
DC-02-15-30' (1-1.5')_Prepared (A6J0986-30)			**Matrix: Soil**					
Batch: 6110732								
Lead	**9.32**	0.108	0.216	mg/kg dry	10	11/21/16 17:10	EPA 6020A	
DC-02->30' (0-0.5')_Prepared (A6J0986-31)			**Matrix: Soil**					
Batch: 6110732								
Lead	**8.19**	0.109	0.218	mg/kg dry	10	11/21/16 17:36	EPA 6020A	
DC-02->30' (0.5-1')_Prepared (A6J0986-32)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-02->30' (0.5-1')_Prepared (A6J0986-32)			**Matrix: Soil**					
Batch: 6110732								
Lead	**6.03**	0.111	0.221	mg/kg dry	10	11/21/16 17:40	EPA 6020A	
DC-02->30' (1-1.5')_Prepared (A6J0986-33)			**Matrix: Soil**					
Batch: 6110732								
Lead	**6.26**	0.117	0.235	mg/kg dry	10	11/21/16 17:44	EPA 6020A	
DC-03-15-30' (0-0.5')_Prepared (A6J0986-34)			**Matrix: Soil**					
Batch: 6110732								
Lead	**30.2**	0.112	0.224	mg/kg dry	10	11/21/16 17:48	EPA 6020A	
DC-03-15-30' (0.5-1')_Prepared (A6J0986-35)			**Matrix: Soil**					
Batch: 6110732								
Lead	**27.2**	0.115	0.230	mg/kg dry	10	11/21/16 17:51	EPA 6020A	
DC-03-15-30' 1-1.5')_Prepared (A6J0986-36)			**Matrix: Soil**					
Batch: 6110738								
Lead	**15.4**	0.106	0.212	mg/kg dry	10	11/21/16 18:32	EPA 6020A	
DC-03->30' (0-0.5')_Prepared (A6J0986-37)			**Matrix: Soil**					
Batch: 6110732								
Lead	**40.1**	0.104	0.208	mg/kg dry	10	11/21/16 17:55	EPA 6020A	
DC-03->30' (0.5-1')_Prepared (A6J0986-38)			**Matrix: Soil**					
Batch: 6110738								
Lead	**6.36**	0.103	0.207	mg/kg dry	10	11/21/16 18:36	EPA 6020A	
DC-03->30' (1-1.5')_Prepared (A6J0986-39)			**Matrix: Soil**					
Batch: 6110738								
Lead	**12.1**	0.107	0.214	mg/kg dry	10	11/21/16 18:51	EPA 6020A	
DC-04-15-30' (0-0.5')_Prepared (A6J0986-40)			**Matrix: Soil**					
Batch: 6110738								
Lead	**23.2**	0.105	0.210	mg/kg dry	10	11/21/16 18:55	EPA 6020A	
Grind Blank (A6J0986-41)			**Matrix: Solid**					
Batch: 6110781								
Lead	ND	0.103	0.206	mg/kg	10	11/22/16 10:38	EPA 6020A	
DC-04-15-30' (0.5-1')_Prepared (A6J0990-21)			**Matrix: Soil**					
Batch: 6110738								
Lead	**8.78**	0.108	0.216	mg/kg dry	10	11/21/16 18:59	EPA 6020A	
DC-04-15-30' (1-1.5')_Prepared (A6J0990-22)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-04-15-30' (1-1.5')_Prepared (A6J0990-22)			**Matrix: Soil**					
Batch: 6110738								
Lead	**8.78**	0.115	0.230	mg/kg dry	10	11/21/16 19:14	EPA 6020A	
DC-04->30' (0-0.5')_Prepared (A6J0990-23)			**Matrix: Soil**					
Batch: 6110738								
Lead	**11.3**	0.112	0.224	mg/kg dry	10	11/21/16 19:17	EPA 6020A	
DC-04->30' (0.5-1')_Prepared (A6J0990-24)			**Matrix: Soil**					
Batch: 6110738								
Lead	**6.74**	0.101	0.202	mg/kg dry	10	11/21/16 19:21	EPA 6020A	
DC-04->30' (1-1.5')_Prepared (A6J0990-25)			**Matrix: Soil**					
Batch: 6110738								
Lead	**6.12**	0.106	0.211	mg/kg dry	10	11/21/16 19:25	EPA 6020A	
DC-05-15-30' (0-0.5')_Prepared (A6J0990-26)			**Matrix: Soil**					
Batch: 6110738								
Lead	**7.36**	0.108	0.216	mg/kg dry	10	11/21/16 19:29	EPA 6020A	
DC-05-15-30' (0.5-1')_Prepared (A6J0990-27)			**Matrix: Soil**					
Batch: 6110738								
Lead	**11.8**	0.104	0.208	mg/kg dry	10	11/21/16 19:32	EPA 6020A	
DC-05-15-30' (1-1.5')_Prepared (A6J0990-28)			**Matrix: Soil**					
Batch: 6110738								
Lead	**8.44**	0.113	0.227	mg/kg dry	10	11/21/16 19:36	EPA 6020A	
DC-05-15-30' (1-1.5') DUP_Prepared (A6J0990-29)			**Matrix: Soil**					
Batch: 6110738								
Lead	**8.21**	0.112	0.223	mg/kg dry	10	11/21/16 19:40	EPA 6020A	
DC-05->30' (0-0.5')_Prepared (A6J0990-30)			**Matrix: Soil**					
Batch: 6110738								
Lead	**15.6**	0.105	0.209	mg/kg dry	10	11/21/16 19:44	EPA 6020A	
DC-05->30' (0.5-1')_Prepared (A6J0990-31)			**Matrix: Soil**					
Batch: 6110738								
Lead	**7.35**	0.105	0.210	mg/kg dry	10	11/21/16 19:48	EPA 6020A	
DC-05->30' (1-1.5')_Prepared (A6J0990-32)			**Matrix: Soil**					
Batch: 6110738								
Lead	**5.99**	0.103	0.206	mg/kg dry	10	11/21/16 20:02	EPA 6020A	
DC-06-15-30' (0-0.5')_Prepared (A6J0990-33)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-06-15-30' (0-0.5')_Prepared (A6J0990-33)			**Matrix: Soil**					
Batch: 6110811								
Lead	**14.0**	0.104	0.207	mg/kg dry	10	11/22/16 20:46	EPA 6020A	
DC-06-15-30' (0.5-1')_Prepared (A6J0990-34)			**Matrix: Soil**					
Batch: 6110811								
Lead	**7.33**	0.107	0.215	mg/kg dry	10	11/22/16 20:49	EPA 6020A	
DC-06-15-30' (1-1.5')_Prepared (A6J0990-35)			**Matrix: Soil**					
Batch: 6110811								
Lead	**9.41**	0.106	0.213	mg/kg dry	10	11/22/16 20:53	EPA 6020A	
DC-06->30' (0-0.5')_Prepared (A6J0990-36)			**Matrix: Soil**					
Batch: 6110811								
Lead	**15.0**	0.103	0.205	mg/kg dry	10	11/22/16 20:56	EPA 6020A	
DC-06->30' (0.5-1')_Prepared (A6J0990-37)			**Matrix: Soil**					
Batch: 6110811								
Lead	**9.61**	0.113	0.225	mg/kg dry	10	11/22/16 21:14	EPA 6020A	
DC-06->30' (1-1.5')_Prepared (A6J0990-38)			**Matrix: Soil**					
Batch: 6110811								
Lead	**9.42**	0.108	0.216	mg/kg dry	10	11/22/16 21:17	EPA 6020A	
DC-07-15-30' (0-0.5')_Prepared (A6J0990-39)			**Matrix: Soil**					
Batch: 6110811								
Lead	**13.1**	0.104	0.208	mg/kg dry	10	11/22/16 21:20	EPA 6020A	
DC-07-15-30' (0.5-1')_Prepared (A6J0990-40)			**Matrix: Soil**					
Batch: 6110811								
Lead	**8.58**	0.103	0.207	mg/kg dry	10	11/22/16 21:23	EPA 6020A	
Grind Blank (A6J0990-41)			**Matrix: Solid**					
Batch: 6110781								
Lead	**0.116**	0.105	0.209	mg/kg	10	11/22/16 10:42	EPA 6020A	J
DC-07-15-30' (1-1.5')_Prepared (A6J1004-21)			**Matrix: Soil**					
Batch: 6120131								
Lead	**8.12**	0.110	0.220	mg/kg dry	10	12/01/16 20:02	EPA 6020A	
DC-07->30' (0-0.5')_Prepared (A6J1004-22)			**Matrix: Soil**					
Batch: 6120131								
Lead	**10.6**	0.107	0.215	mg/kg dry	10	12/01/16 20:05	EPA 6020A	
DC-07->30' (0.5-1')_Prepared (A6J1004-23)			**Matrix: Soil**					

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-07->30' (0.5-1')_Prepared (A6J1004-23)			**Matrix: Soil**					
Batch: 6120131								
Lead	**9.94**	0.111	0.223	mg/kg dry	10	12/01/16 20:08	EPA 6020A	
DC-07->30' (1-1.5')_Prepared (A6J1004-24)			**Matrix: Soil**					
Batch: 6120131								
Lead	**8.82**	0.102	0.203	mg/kg dry	10	12/01/16 20:11	EPA 6020A	
DC-08-15-30' (0-0.5')_Prepared (A6J1004-25)			**Matrix: Soil**					
Batch: 6120131								
Lead	**8.12**	0.110	0.219	mg/kg dry	10	12/01/16 20:14	EPA 6020A	
DC-08-15-30' (0.5-1')_Prepared (A6J1004-26)			**Matrix: Soil**					
Batch: 6120131								
Lead	**5.52**	0.104	0.209	mg/kg dry	10	12/01/16 20:17	EPA 6020A	
DC-08-15-30' (1-1.5')_Prepared (A6J1004-27)			**Matrix: Soil**					
Batch: 6120131								
Lead	**4.57**	0.0998	0.200	mg/kg dry	10	12/01/16 20:20	EPA 6020A	
DC-08->30' (0-0.5')_Prepared (A6J1004-28)			**Matrix: Soil**					
Batch: 6120131								
Lead	**6.16**	0.105	0.210	mg/kg dry	10	12/01/16 20:23	EPA 6020A	
DC-08->30' (0.5-1')_Prepared (A6J1004-29)			**Matrix: Soil**					
Batch: 6120131								
Lead	**5.91**	0.112	0.224	mg/kg dry	10	12/01/16 20:26	EPA 6020A	
DC-08->30' (0.5-1') DUP_Prepared (A6J1004-30)			**Matrix: Soil**					
Batch: 6120131								
Lead	**8.13**	0.109	0.218	mg/kg dry	10	12/01/16 20:38	EPA 6020A	
DC-08->30' (1-1.5')_Prepared (A6J1004-31)			**Matrix: Soil**					
Batch: 6120131								
Lead	**4.30**	0.101	0.202	mg/kg dry	10	12/01/16 20:41	EPA 6020A	
DC-09-15-30' (0-0.5')_Prepared (A6J1004-32)			**Matrix: Soil**					
Batch: 6120131								
Lead	**7.21**	0.103	0.206	mg/kg dry	10	12/01/16 20:53	EPA 6020A	
DC-09-15-30' (0.5-1')_Prepared (A6J1004-33)			**Matrix: Soil**					
Batch: 6120131								
Lead	**4.58**	0.109	0.218	mg/kg dry	10	12/01/16 20:56	EPA 6020A	
DC-09-15-30' (1-1.5')_Prepared (A6J1004-34)			**Matrix: Soil**					

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Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-09-15-30' (1-1.5')_Prepared (A6J1004-34)			**Matrix: Soil**					
Batch: 6120131								
Lead	**4.76**	0.111	0.223	mg/kg dry	10	12/01/16 20:59	EPA 6020A	
DC-09->30' (0-0.5')_Prepared (A6J1004-35)			**Matrix: Soil**					
Batch: 6120131								
Lead	**8.85**	0.110	0.220	mg/kg dry	10	12/01/16 21:02	EPA 6020A	
DC-09->30' (0.5-1')_Prepared (A6J1004-36)			**Matrix: Soil**					
Batch: 6120131								
Lead	**6.28**	0.112	0.224	mg/kg dry	10	12/01/16 21:05	EPA 6020A	
DC-09->30' (1-1.5')_Prepared (A6J1004-37)			**Matrix: Soil**					
Batch: 6120131								
Lead	**5.50**	0.108	0.216	mg/kg dry	10	12/01/16 21:17	EPA 6020A	
DC-10-15-30' (0-0.5')_Prepared (A6J1004-38)			**Matrix: Soil**					
Batch: 6120131								
Lead	**10.7**	0.112	0.224	mg/kg dry	10	12/01/16 21:20	EPA 6020A	
DC-10-15-30' (0.5-1')_Prepared (A6J1004-39)			**Matrix: Soil**					
Batch: 6120131								
Lead	**4.20**	0.103	0.206	mg/kg dry	10	12/01/16 21:23	EPA 6020A	
DC-10-15-30' (1-1.5')_Prepared (A6J1004-40)			**Matrix: Soil**					
Batch: 6120139								
Lead	**4.32**	0.112	0.224	mg/kg dry	10	12/01/16 21:38	EPA 6020A	
Grind Blank (A6J1004-41)			**Matrix: Solid**					
Batch: 6120537								
Lead	**0.142**	0.104	0.208	mg/kg	10	12/16/16 12:24	EPA 6020A	J
DC-10->30' (0-0.5')_Prepared (A6J1008-21)			**Matrix: Soil**					
Batch: 6120139								
Lead	**8.24**	0.113	0.226	mg/kg dry	10	12/01/16 21:41	EPA 6020A	
DC-10->30' (0.5-1')_Prepared (A6J1008-22)			**Matrix: Soil**					
Batch: 6120139								
Lead	**6.39**	0.112	0.225	mg/kg dry	10	12/01/16 21:44	EPA 6020A	
DC-10->30' (1-1.5')_Prepared (A6J1008-23)			**Matrix: Soil**					
Batch: 6120139								
Lead	**5.91**	0.109	0.217	mg/kg dry	10	12/01/16 21:47	EPA 6020A	
DC-11-15-30' (0-0.5')_Prepared (A6J1008-24)			**Matrix: Soil**					

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Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-11-15-30' (0-0.5')_Prepared (A6J1008-24)			**Matrix: Soil**					
Batch: 6120139								
Lead	**8.46**	0.108	0.216	mg/kg dry	10	12/01/16 21:59	EPA 6020A	
DC-11-15-30' (0.5-1')_Prepared (A6J1008-25)			**Matrix: Soil**					
Batch: 6120139								
Lead	**4.55**	0.110	0.220	mg/kg dry	10	12/01/16 22:02	EPA 6020A	
DC-11-15-30' (1-1.5')_Prepared (A6J1008-26)			**Matrix: Soil**					
Batch: 6120139								
Lead	**2.89**	0.108	0.216	mg/kg dry	10	12/01/16 22:05	EPA 6020A	
DC-11->30' (0-0.5')_Prepared (A6J1008-27)			**Matrix: Soil**					
Batch: 6120139								
Lead	**6.18**	0.111	0.221	mg/kg dry	10	12/01/16 22:08	EPA 6020A	
DC-11->30' (0.5-1')_Prepared (A6J1008-28)			**Matrix: Soil**					
Batch: 6120139								
Lead	**6.14**	0.108	0.216	mg/kg dry	10	12/01/16 22:11	EPA 6020A	
DC-11->30' (1-1.5')_Prepared (A6J1008-29)			**Matrix: Soil**					
Batch: 6120139								
Lead	**13.0**	0.105	0.210	mg/kg dry	10	12/01/16 22:14	EPA 6020A	
DC-12-15-30' (0-0.5')_Prepared (A6J1008-30)			**Matrix: Soil**					
Batch: 6120139								
Lead	**20.9**	0.102	0.203	mg/kg dry	10	12/01/16 22:17	EPA 6020A	
DC-12-15-30' (0.5-1')_Prepared (A6J1008-31)			**Matrix: Soil**					
Batch: 6120139								
Lead	**19.2**	0.104	0.209	mg/kg dry	10	12/01/16 22:20	EPA 6020A	
DC-12-15-30' (1-1.5')_Prepared (A6J1008-32)			**Matrix: Soil**					
Batch: 6120139								
Lead	**14.2**	0.110	0.219	mg/kg dry	10	12/01/16 22:23	EPA 6020A	
DC-12->30' (0-0.5')_Prepared (A6J1008-33)			**Matrix: Soil**					
Batch: 6120139								
Lead	**9.05**	0.109	0.219	mg/kg dry	10	12/01/16 22:44	EPA 6020A	
DC-12->30' (0.5-1')_Prepared (A6J1008-34)			**Matrix: Soil**					
Batch: 6120139								
Lead	**4.70**	0.105	0.209	mg/kg dry	10	12/01/16 22:47	EPA 6020A	
DC-12->30' (1-1.5')_Prepared (A6J1008-35)			**Matrix: Soil**					

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-12->30' (1-1.5')_Prepared (A6J1008-35)			**Matrix: Soil**					
Batch: 6120139								
Lead	**4.02**	0.108	0.215	mg/kg dry	10	12/01/16 22:50	EPA 6020A	
DC-13-15-30' (0-0.5')_Prepared (A6J1008-36)			**Matrix: Soil**					
Batch: 6120139								
Lead	**40.2**	0.113	0.225	mg/kg dry	10	12/01/16 22:53	EPA 6020A	
DC-13-15-30' (0.5-1')_Prepared (A6J1008-37)			**Matrix: Soil**					
Batch: 6120139								
Lead	**7.47**	0.110	0.220	mg/kg dry	10	12/01/16 22:56	EPA 6020A	
DC-13-15-30' (1-1.5')_Prepared (A6J1008-38)			**Matrix: Soil**					
Batch: 6120139								
Lead	**8.36**	0.112	0.224	mg/kg dry	10	12/01/16 22:59	EPA 6020A	
DC-13->30' (0-0.5')_Prepared (A6J1008-39)			**Matrix: Soil**					
Batch: 6120170								
Lead	**12.4**	0.108	0.215	mg/kg dry	10	12/02/16 20:19	EPA 6020A	
DC-13->30' (0.5-1')_Prepared (A6J1008-40)			**Matrix: Soil**					
Batch: 6120170								
Lead	**9.60**	0.112	0.224	mg/kg dry	10	12/02/16 20:22	EPA 6020A	
Grind Blank (A6J1008-41)			**Matrix: Solid**					
Batch: 6120537								
Lead	**0.154**	0.107	0.214	mg/kg	10	12/16/16 12:50	EPA 6020A	J
DC-13->30' (1-1.5')_Prepared (A6J1010-21)			**Matrix: Soil**					
Batch: 6120170								
Lead	**6.29**	0.112	0.224	mg/kg dry	10	12/02/16 20:25	EPA 6020A	
DC-14-15-30' (0-0.5')_Prepared (A6J1010-22)			**Matrix: Soil**					
Batch: 6120170								
Lead	**8.13**	0.113	0.225	mg/kg dry	10	12/02/16 20:37	EPA 6020A	
DC-14-15-30' (0.5-1')_Prepared (A6J1010-23)			**Matrix: Soil**					
Batch: 6120170								
Lead	**6.60**	0.109	0.219	mg/kg dry	10	12/02/16 20:40	EPA 6020A	
DC-14-15-30' (1-1.5')_Prepared (A6J1010-24)			**Matrix: Soil**					
Batch: 6120170								
Lead	**6.95**	0.110	0.219	mg/kg dry	10	12/02/16 20:43	EPA 6020A	
DC-14->30' (0-0.5')_Prepared (A6J1010-25)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-14->30' (0-0.5')_Prepared (A6J1010-25)			**Matrix: Soil**					
Batch: 6120170								
Lead	**7.27**	0.106	0.212	mg/kg dry	10	12/02/16 20:46	EPA 6020A	
DC-14->30' (0.5-1')_Prepared (A6J1010-26)			**Matrix: Soil**					
Batch: 6120170								
Lead	**6.56**	0.104	0.208	mg/kg dry	10	12/02/16 20:58	EPA 6020A	
DC-14->30' (1-1.5')_Prepared (A6J1010-27)			**Matrix: Soil**					
Batch: 6120170								
Lead	**6.71**	0.105	0.210	mg/kg dry	10	12/02/16 21:01	EPA 6020A	
DC-15-15-30' (0-0.5')_Prepared (A6J1010-28)			**Matrix: Soil**					
Batch: 6120170								
Lead	**10.2**	0.106	0.212	mg/kg dry	10	12/02/16 21:04	EPA 6020A	
DC-15-15-30' (0.5-1')_Prepared (A6J1010-29)			**Matrix: Soil**					
Batch: 6120170								
Lead	**12.5**	0.113	0.226	mg/kg dry	10	12/02/16 21:07	EPA 6020A	
DC-15-15-30' (1-1.5')_Prepared (A6J1010-30)			**Matrix: Soil**					
Batch: 6120170								
Lead	**11.3**	0.108	0.215	mg/kg dry	10	12/02/16 21:10	EPA 6020A	
DC-15->30' (0-0.5')_Prepared (A6J1010-31)			**Matrix: Soil**					
Batch: 6120170								
Lead	**10.3**	0.107	0.214	mg/kg dry	10	12/02/16 21:13	EPA 6020A	
DC-15->30' (0.5-1')_Prepared (A6J1010-32)			**Matrix: Soil**					
Batch: 6120170								
Lead	**11.6**	0.103	0.205	mg/kg dry	10	12/02/16 21:16	EPA 6020A	
DC-15->30' (1-1.5')_Prepared (A6J1010-33)			**Matrix: Soil**					
Batch: 6120170								
Lead	**12.3**	0.104	0.208	mg/kg dry	10	12/02/16 21:19	EPA 6020A	
DC-15->30' (1-1.5') DUP_Prepared (A6J1010-34)			**Matrix: Soil**					
Batch: 6120170								
Lead	**12.3**	0.111	0.222	mg/kg dry	10	12/02/16 21:22	EPA 6020A	
DC-16-15-30' (0-0.5')_Prepared (A6J1010-35)			**Matrix: Soil**					
Batch: 6120170								
Lead	**61.8**	0.104	0.207	mg/kg dry	10	12/02/16 21:25	EPA 6020A	
DC-16-15-30' (0.5-1')_Prepared (A6J1010-36)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-16-15-30' (0.5-1')_Prepared (A6J1010-36)			**Matrix: Soil**					
Batch: 6120170								
Lead	**4.24**	0.100	0.200	mg/kg dry	10	12/02/16 21:37	EPA 6020A	
DC-16-15-30' (1-1.5')_Prepared (A6J1010-37)			**Matrix: Soil**					
Batch: 6120170								
Lead	**4.40**	0.0999	0.200	mg/kg dry	10	12/02/16 21:40	EPA 6020A	
DC-16->30' (0-0.5')_Prepared (A6J1010-38)			**Matrix: Soil**					
Batch: 6120175								
Lead	**11.0**	0.107	0.214	mg/kg dry	10	12/02/16 16:58	EPA 6020A	
DC-16->30' (0.5-1')_Prepared (A6J1010-39)			**Matrix: Soil**					
Batch: 6120175								
Lead	**4.16**	0.106	0.212	mg/kg dry	10	12/02/16 17:02	EPA 6020A	
DC-16->30' (1-1.5')_Prepared (A6J1010-40)			**Matrix: Soil**					
Batch: 6120175								
Lead	**3.78**	0.106	0.212	mg/kg dry	10	12/02/16 17:05	EPA 6020A	
Grind Blank (A6J1010-41)			**Matrix: Solid**					
Batch: 6120537								
Lead	**0.143**	0.106	0.213	mg/kg	10	12/16/16 12:53	EPA 6020A	J
DC-17-15-30' (0-0.5')_Prepared (A6J1011-21)			**Matrix: Soil**					
Batch: 6120175								
Lead	**5.74**	0.103	0.206	mg/kg dry	10	12/02/16 17:09	EPA 6020A	
DC-17-15-30' (0.5-1')_Prepared (A6J1011-22)			**Matrix: Soil**					
Batch: 6120175								
Lead	**5.89**	0.0990	0.198	mg/kg dry	10	12/02/16 17:13	EPA 6020A	
DC-17-15-30' (1-1.5')_Prepared (A6J1011-23)			**Matrix: Soil**					
Batch: 6120175								
Lead	**4.91**	0.0985	0.197	mg/kg dry	10	12/02/16 17:28	EPA 6020A	
DC-17->30' (0-0.5')_Prepared (A6J1011-24)			**Matrix: Soil**					
Batch: 6120175								
Lead	**4.06**	0.111	0.223	mg/kg dry	10	12/02/16 17:32	EPA 6020A	
DC-17->30' (0.5-1')_Prepared (A6J1011-25)			**Matrix: Soil**					
Batch: 6120175								
Lead	**4.06**	0.106	0.212	mg/kg dry	10	12/02/16 18:09	EPA 6020A	
DC-17->30' (1-1.5')_Prepared (A6J1011-26)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-17->30' (1-1.5')_Prepared (A6J1011-26)			**Matrix: Soil**					
Batch: 6120175								
Lead	**5.93**	0.103	0.206	mg/kg dry	10	12/02/16 18:13	EPA 6020A	
DC-18-15-30' (0-0.5')_Prepared (A6J1011-27)			**Matrix: Soil**					
Batch: 6120175								
Lead	**6.94**	0.106	0.212	mg/kg dry	10	12/02/16 18:17	EPA 6020A	
DC-18-15-30' (0.5-1')_Prepared (A6J1011-28)			**Matrix: Soil**					
Batch: 6120175								
Lead	**4.91**	0.106	0.213	mg/kg dry	10	12/02/16 18:21	EPA 6020A	
DC-18-15-30' (1-1.5')_Prepared (A6J1011-29)			**Matrix: Soil**					
Batch: 6120175								
Lead	**4.60**	0.110	0.220	mg/kg dry	10	12/02/16 18:24	EPA 6020A	
DC-18->30' (0-0.5')_Prepared (A6J1011-30)			**Matrix: Soil**					
Batch: 6120175								
Lead	**7.64**	0.103	0.205	mg/kg dry	10	12/02/16 18:28	EPA 6020A	
DC-18->30' (0.5-1')_Prepared (A6J1011-31)			**Matrix: Soil**					
Batch: 6120175								
Lead	**4.93**	0.107	0.214	mg/kg dry	10	12/02/16 18:32	EPA 6020A	
DC-18->30' (1-1.5')_Prepared (A6J1011-32)			**Matrix: Soil**					
Batch: 6120175								
Lead	**4.28**	0.106	0.212	mg/kg dry	10	12/02/16 18:36	EPA 6020A	
DC-19-15-30' (0-0.5')_Prepared (A6J1011-33)			**Matrix: Soil**					
Batch: 6120175								
Lead	**9.33**	0.113	0.227	mg/kg dry	10	12/02/16 18:39	EPA 6020A	
DC-19-15-30' (0.5-1')_Prepared (A6J1011-34)			**Matrix: Soil**					
Batch: 6120175								
Lead	**6.90**	0.114	0.227	mg/kg dry	10	12/02/16 18:43	EPA 6020A	
DC-19-15-30' (1-1.5')_Prepared (A6J1011-35)			**Matrix: Soil**					
Batch: 6120175								
Lead	**5.90**	0.106	0.212	mg/kg dry	10	12/02/16 18:58	EPA 6020A	
DC-19->30' (0-0.5')_Prepared (A6J1011-36)			**Matrix: Soil**					
Batch: 6120175								
Lead	**9.27**	0.109	0.218	mg/kg dry	10	12/02/16 19:02	EPA 6020A	
DC-19->30' (0.5-1')_Prepared (A6J1011-37)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-19->30' (0.5-1')_Prepared (A6J1011-37)			**Matrix: Soil**					
Batch: 6120189								
Lead	**7.56**	0.107	0.214	mg/kg dry	10	12/05/16 11:59	EPA 6020A	
DC-19->30' (1-1.5')_Prepared (A6J1011-38)			**Matrix: Soil**					
Batch: 6120189								
Lead	**7.45**	0.111	0.222	mg/kg dry	10	12/05/16 12:03	EPA 6020A	
DC-20-15-30' (0-0.5')_Prepared (A6J1011-39)			**Matrix: Soil**					
Batch: 6120189								
Lead	**38.5**	0.0991	0.198	mg/kg dry	10	12/05/16 12:07	EPA 6020A	
DC-20-15-30' (0.5-1')_Prepared (A6J1011-40)			**Matrix: Soil**					
Batch: 6120189								
Lead	**9.15**	0.109	0.218	mg/kg dry	10	12/05/16 12:10	EPA 6020A	
Grind Blank (A6J1011-41)			**Matrix: Solid**					
Batch: 6120537								
Lead	**0.289**	0.104	0.208	mg/kg	10	12/16/16 12:57	EPA 6020A	
DC-20-15-30' (1-1.5')_Prepared (A6J1012-21)			**Matrix: Soil**					
Batch: 6120189								
Lead	**6.87**	0.110	0.221	mg/kg dry	10	12/05/16 12:14	EPA 6020A	
DC-20->30' (0-0.5')_Prepared (A6J1012-22)			**Matrix: Soil**					
Batch: 6120189								
Lead	**21.0**	0.105	0.211	mg/kg dry	10	12/05/16 12:18	EPA 6020A	
DC-20->30' (0.5-1')_Prepared (A6J1012-23)			**Matrix: Soil**					
Batch: 6120189								
Lead	**8.05**	0.112	0.223	mg/kg dry	10	12/05/16 12:21	EPA 6020A	
DC-20->30' (0.5-1') DUP_Prepared (A6J1012-24)			**Matrix: Soil**					
Batch: 6120189								
Lead	**7.96**	0.110	0.219	mg/kg dry	10	12/05/16 12:36	EPA 6020A	
DC-20->30' (1-1.5')_Prepared (A6J1012-25)			**Matrix: Soil**					
Batch: 6120189								
Lead	**3.11**	0.0993	0.199	mg/kg dry	10	12/05/16 12:40	EPA 6020A	
DC-21-15-30' (0-0.5')_Prepared (A6J1012-26)			**Matrix: Soil**					
Batch: 6120380								
Lead	**95.0**	0.113	0.226	mg/kg dry	10	12/12/16 15:39	EPA 6020A	
DC-21-15-30' (0.5-1')_Prepared (A6J1012-27)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-21-15-30' (0.5-1')_Prepared (A6J1012-27)			**Matrix: Soil**					
Batch: 6120189								
Lead	**24.7**	0.108	0.217	mg/kg dry	10	12/05/16 12:44	EPA 6020A	
DC-21-15-30' (1-1.5')_Prepared (A6J1012-28)			**Matrix: Soil**					
Batch: 6120380								
Lead	**16.9**	0.110	0.220	mg/kg dry	10	12/12/16 16:01	EPA 6020A	
DC-21->30' (0-0.5')_Prepared (A6J1012-29)			**Matrix: Soil**					
Batch: 6120380								
Lead	**24.1**	0.109	0.219	mg/kg dry	10	12/12/16 16:04	EPA 6020A	
DC-21->30' (0.5-1')_Prepared (A6J1012-30)			**Matrix: Soil**					
Batch: 6120380								
Lead	**11.0**	0.105	0.209	mg/kg dry	10	12/12/16 16:07	EPA 6020A	
DC-21->30' (1-1.5')_Prepared (A6J1012-31)			**Matrix: Soil**					
Batch: 6120380								
Lead	**6.36**	0.113	0.225	mg/kg dry	10	12/12/16 16:10	EPA 6020A	
BM-01-15-30' (0-0.5')_Prepared (A6J1012-32)			**Matrix: Soil**					
Batch: 6120380								
Lead	**27.7**	0.111	0.222	mg/kg dry	10	12/12/16 16:13	EPA 6020A	
BM-01-15-30' (0.5-1')_Prepared (A6J1012-33)			**Matrix: Soil**					
Batch: 6120380								
Lead	**14.1**	0.114	0.227	mg/kg dry	10	12/12/16 16:16	EPA 6020A	
BM-01-15-30' (1-1.5')_Prepared (A6J1012-34)			**Matrix: Soil**					
Batch: 6120380								
Lead	**7.14**	0.115	0.231	mg/kg dry	10	12/12/16 16:19	EPA 6020A	
BM-01->30' (0-0.5')_Prepared (A6J1012-35)			**Matrix: Soil**					
Batch: 6120380								
Lead	**9.10**	0.112	0.224	mg/kg dry	10	12/12/16 16:22	EPA 6020A	
BM-01->30' (0.5-1')_Prepared (A6J1012-36)			**Matrix: Soil**					
Batch: 6120380								
Lead	**6.92**	0.113	0.226	mg/kg dry	10	12/12/16 16:25	EPA 6020A	
BM-01->30' (1-1.5')_Prepared (A6J1012-37)			**Matrix: Soil**					
Batch: 6120380								
Lead	**5.96**	0.113	0.227	mg/kg dry	10	12/12/16 16:37	EPA 6020A	
BM-02-15-30' (0-0.5')_Prepared (A6J1012-38)			**Matrix: Soil**					

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ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-02-15-30' (0-0.5')_Prepared (A6J1012-38)			**Matrix: Soil**					
Batch: 6120380								
Lead	**11.9**	0.106	0.212	mg/kg dry	10	12/12/16 16:40	EPA 6020A	
BM-02-15-30' (0.5-1')_Prepared (A6J1012-39)			**Matrix: Soil**					
Batch: 6120380								
Lead	**16.5**	0.100	0.200	mg/kg dry	10	12/12/16 16:43	EPA 6020A	
BM-02-15-30' (1-1.5')_Prepared (A6J1012-40)			**Matrix: Soil**					
Batch: 6120380								
Lead	**9.70**	0.114	0.228	mg/kg dry	10	12/12/16 16:46	EPA 6020A	
Grind Blank (A6J1012-41)			**Matrix: Solid**					
Batch: 6120537								
Lead	**0.110**	0.107	0.213	mg/kg	10	12/16/16 13:01	EPA 6020A	J
BM-02->30' (0-0.5')_Prepared (A6J1013-10)			**Matrix: Soil**					
Batch: 6120189								
Lead	**12.3**	0.110	0.221	mg/kg dry	10	12/05/16 12:47	EPA 6020A	
BM-02->30' (0.5-1')_Prepared (A6J1013-11)			**Matrix: Soil**					
Batch: 6120189								
Lead	**6.72**	0.116	0.232	mg/kg dry	10	12/05/16 12:51	EPA 6020A	
BM-02->30' (1-1.5')_Prepared (A6J1013-12)			**Matrix: Soil**					
Batch: 6120189								
Lead	**7.24**	0.118	0.235	mg/kg dry	10	12/05/16 12:55	EPA 6020A	
BM-03-15-30' (0-0.5')_Prepared (A6J1013-13)			**Matrix: Soil**					
Batch: 6120189								
Lead	**7.51**	0.111	0.221	mg/kg dry	10	12/05/16 12:59	EPA 6020A	
BM-03-15-30' (0.5-1')_Prepared (A6J1013-14)			**Matrix: Soil**					
Batch: 6120189								
Lead	**6.68**	0.111	0.223	mg/kg dry	10	12/05/16 13:02	EPA 6020A	
BM-03-15-30' (1-1.5')_Prepared (A6J1013-15)			**Matrix: Soil**					
Batch: 6120189								
Lead	**6.76**	0.115	0.230	mg/kg dry	10	12/05/16 13:06	EPA 6020A	
BM-03->30' (0-0.5')_Prepared (A6J1013-16)			**Matrix: Soil**					
Batch: 6120189								
Lead	**7.56**	0.109	0.218	mg/kg dry	10	12/05/16 13:10	EPA 6020A	
BM-03->30' (0.5-1')_Prepared (A6J1013-17)			**Matrix: Soil**					

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-03->30' (0.5-1')_Prepared (A6J1013-17)			**Matrix: Soil**					
Batch: 6120189								
Lead	**7.82**	0.117	0.233	mg/kg dry	10	12/05/16 13:36	EPA 6020A	
BM-03->30' (1-1.5')_Prepared (A6J1013-18)			**Matrix: Soil**					
Batch: 6120189								
Lead	**9.27**	0.117	0.234	mg/kg dry	10	12/05/16 13:40	EPA 6020A	
Grind Blank (A6J1013-19)			**Matrix: Solid**					
Batch: 6120537								
Lead	ND	0.103	0.207	mg/kg	10	12/16/16 13:05	EPA 6020A	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-01-15-30' (0-0.5')_Prepared (A6J0986-21)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**97.5**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	
DC-01-15-30' (0.5-1')_Prepared (A6J0986-22)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**95.6**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	
DC-01-15-30' (1-1.5')_Prepared (A6J0986-23)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**93.8**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	
DC-01->30' (0-0.5')_Prepared (A6J0986-24)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**96.0**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	
DC-01->30' (0.5-1')_Prepared (A6J0986-25)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**96.3**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	
DC-01->30' (1-1.5')_Prepared (A6J0986-26)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**95.2**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	
DC-02-15-30' (0-0.5')_Prepared (A6J0986-27)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**96.5**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	
DC-02-15-30' (0-0.5') DUP_Prepared (A6J0986-28)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**96.6**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	
DC-02-15-30' (0.5-1')_Prepared (A6J0986-29)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**95.1**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	
DC-02-15-30' (1-1.5')_Prepared (A6J0986-30)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**94.6**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	
DC-02->30' (0-0.5')_Prepared (A6J0986-31)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**94.5**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	
DC-02->30' (0.5-1')_Prepared (A6J0986-32)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**94.3**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	
DC-02->30' (1-1.5')_Prepared (A6J0986-33)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**93.8**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	
DC-03-15-30' (0-0.5')_Prepared (A6J0986-34)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**93.8**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	
DC-03-15-30' (0.5-1')_Prepared (A6J0986-35)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**94.2**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	
DC-03-15-30' 1-1.5')_Prepared (A6J0986-36)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**94.2**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-03->30' (0-0.5')_Prepared (A6J0986-37)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**96.5**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	
DC-03->30' (0.5-1')_Prepared (A6J0986-38)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**97.7**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	
DC-03->30' (1-1.5')_Prepared (A6J0986-39)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**97.0**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	
DC-04-15-30' (0-0.5')_Prepared (A6J0986-40)			**Matrix: Soil**		**Batch: 6110441**			
% Solids	**96.6**	---	1.00	% by Weight	1	11/11/16 08:59	EPA 8000C	
DC-04-15-30' (0.5-1')_Prepared (A6J0990-21)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**96.2**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-04-15-30' (1-1.5')_Prepared (A6J0990-22)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**95.6**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-04->30' (0-0.5')_Prepared (A6J0990-23)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**96.1**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-04->30' (0.5-1')_Prepared (A6J0990-24)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**96.4**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-04->30' (1-1.5')_Prepared (A6J0990-25)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**96.3**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-05-15-30' (0-0.5')_Prepared (A6J0990-26)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**97.1**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-05-15-30' (0.5-1')_Prepared (A6J0990-27)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**97.0**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-05-15-30' (1-1.5')_Prepared (A6J0990-28)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**97.0**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-05-15-30' (1-1.5') DUP_Prepared (A6J0990-29)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**97.2**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-05->30' (0-0.5')_Prepared (A6J0990-30)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**96.9**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-05->30' (0.5-1')_Prepared (A6J0990-31)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**96.4**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-05->30' (1-1.5')_Prepared (A6J0990-32)			**Matrix: Soil**		**Batch: 6110484**			

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-05->30' (1-1.5')_Prepared (A6J0990-32)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**96.4**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-06-15-30' (0-0.5')_Prepared (A6J0990-33)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**96.2**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-06-15-30' (0.5-1')_Prepared (A6J0990-34)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**96.0**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-06-15-30' (1-1.5')_Prepared (A6J0990-35)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**94.9**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-06->30' (0-0.5')_Prepared (A6J0990-36)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**96.2**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-06->30' (0.5-1')_Prepared (A6J0990-37)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**95.7**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-06->30' (1-1.5')_Prepared (A6J0990-38)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**94.7**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-07-15-30' (0-0.5')_Prepared (A6J0990-39)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**97.0**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-07-15-30' (0.5-1')_Prepared (A6J0990-40)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**96.4**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-07-15-30' (1-1.5')_Prepared (A6J1004-21)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**96.4**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-07->30' (0-0.5')_Prepared (A6J1004-22)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**97.0**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-07->30' (0.5-1')_Prepared (A6J1004-23)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**96.8**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-07->30' (1-1.5')_Prepared (A6J1004-24)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**96.4**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-08-15-30' (0-0.5')_Prepared (A6J1004-25)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**97.1**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-08-15-30' (0.5-1')_Prepared (A6J1004-26)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**97.1**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-08-15-30' (1-1.5')_Prepared (A6J1004-27)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**97.3**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-08->30' (0-0.5')_Prepared (A6J1004-28)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**97.0**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-08->30' (0.5-1')_Prepared (A6J1004-29)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**97.0**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-08->30' (0.5-1') DUP_Prepared (A6J1004-30)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**97.0**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-08->30' (1-1.5')_Prepared (A6J1004-31)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**97.1**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-09-15-30' (0-0.5')_Prepared (A6J1004-32)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**96.7**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-09-15-30' (0.5-1')_Prepared (A6J1004-33)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**95.0**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-09-15-30' (1-1.5')_Prepared (A6J1004-34)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**95.2**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-09->30' (0-0.5')_Prepared (A6J1004-35)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**96.3**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-09->30' (0.5-1')_Prepared (A6J1004-36)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**95.8**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-09->30' (1-1.5')_Prepared (A6J1004-37)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**96.1**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-10-15-30' (0-0.5')_Prepared (A6J1004-38)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**96.3**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-10-15-30' (0.5-1')_Prepared (A6J1004-39)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**97.8**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-10-15-30' (1-1.5')_Prepared (A6J1004-40)			**Matrix: Soil**		**Batch: 6110484**			
% Solids	**97.9**	---	1.00	% by Weight	1	11/14/16 08:08	EPA 8000C	
DC-10->30' (0-0.5')_Prepared (A6J1008-21)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**95.9**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	
DC-10->30' (0.5-1')_Prepared (A6J1008-22)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**96.9**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	
DC-10->30' (1-1.5')_Prepared (A6J1008-23)			**Matrix: Soil**		**Batch: 6110537**			

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-10->30' (1-1.5')_Prepared (A6J1008-23)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**97.5**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	
DC-11-15-30' (0-0.5')_Prepared (A6J1008-24)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**98.9**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	
DC-11-15-30' (0.5-1')_Prepared (A6J1008-25)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**99.0**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	
DC-11-15-30' (1-1.5')_Prepared (A6J1008-26)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**99.1**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	
DC-11->30' (0-0.5')_Prepared (A6J1008-27)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**98.9**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	
DC-11->30' (0.5-1')_Prepared (A6J1008-28)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**98.9**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	
DC-11->30' (1-1.5')_Prepared (A6J1008-29)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**98.8**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	
DC-12-15-30' (0-0.5')_Prepared (A6J1008-30)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**98.2**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	
DC-12-15-30' (0.5-1')_Prepared (A6J1008-31)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**98.4**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	
DC-12-15-30' (1-1.5')_Prepared (A6J1008-32)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**98.8**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	
DC-12->30' (0-0.5')_Prepared (A6J1008-33)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**98.1**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	
DC-12->30' (0.5-1')_Prepared (A6J1008-34)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**98.2**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	
DC-12->30' (1-1.5')_Prepared (A6J1008-35)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**98.1**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	
DC-13-15-30' (0-0.5')_Prepared (A6J1008-36)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**97.6**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	
DC-13-15-30' (0.5-1')_Prepared (A6J1008-37)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**97.1**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	
DC-13-15-30' (1-1.5')_Prepared (A6J1008-38)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**97.7**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-13->30' (0-0.5')_Prepared (A6J1008-39)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**97.3**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	
DC-13->30' (0.5-1')_Prepared (A6J1008-40)			**Matrix: Soil**		**Batch: 6110537**			
% Solids	**97.0**	---	1.00	% by Weight	1	11/15/16 08:59	EPA 8000C	
DC-13->30' (1-1.5')_Prepared (A6J1010-21)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**97.3**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-14-15-30' (0-0.5')_Prepared (A6J1010-22)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**97.5**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-14-15-30' (0.5-1')_Prepared (A6J1010-23)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**96.7**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-14-15-30' (1-1.5')_Prepared (A6J1010-24)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**96.3**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-14->30' (0-0.5')_Prepared (A6J1010-25)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**97.2**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-14->30' (0.5-1')_Prepared (A6J1010-26)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**96.5**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-14->30' (1-1.5')_Prepared (A6J1010-27)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**96.5**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-15-15-30' (0-0.5')_Prepared (A6J1010-28)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**97.7**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-15-15-30' (0.5-1')_Prepared (A6J1010-29)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**95.9**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-15-15-30' (1-1.5')_Prepared (A6J1010-30)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**96.2**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-15->30' (0-0.5')_Prepared (A6J1010-31)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**97.3**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-15->30' (0.5-1')_Prepared (A6J1010-32)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**96.2**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-15->30' (1-1.5')_Prepared (A6J1010-33)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**95.6**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-15->30' (1-1.5') DUP_Prepared (A6J1010-34)			**Matrix: Soil**		**Batch: 6110575**			

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-15->30' (1-1.5') DUP_Prepared (A6J1010-34)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**95.5**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-16-15-30' (0-0.5')_Prepared (A6J1010-35)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**99.0**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-16-15-30' (0.5-1')_Prepared (A6J1010-36)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**98.7**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-16-15-30' (1-1.5')_Prepared (A6J1010-37)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**98.7**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-16->30' (0-0.5')_Prepared (A6J1010-38)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**99.2**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-16->30' (0.5-1')_Prepared (A6J1010-39)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**98.9**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-16->30' (1-1.5')_Prepared (A6J1010-40)			**Matrix: Soil**		**Batch: 6110575**			
% Solids	**98.8**	---	1.00	% by Weight	1	11/16/16 09:08	EPA 8000C	
DC-17-15-30' (0-0.5')_Prepared (A6J1011-21)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**98.8**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	
DC-17-15-30' (0.5-1')_Prepared (A6J1011-22)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**98.8**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	
DC-17-15-30' (1-1.5')_Prepared (A6J1011-23)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**99.0**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	
DC-17->30' (0-0.5')_Prepared (A6J1011-24)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**99.0**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	
DC-17->30' (0.5-1')_Prepared (A6J1011-25)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**99.0**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	
DC-17->30' (1-1.5')_Prepared (A6J1011-26)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**99.0**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	
DC-18-15-30' (0-0.5')_Prepared (A6J1011-27)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**98.2**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	
DC-18-15-30' (0.5-1')_Prepared (A6J1011-28)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**98.2**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	
DC-18-15-30' (1-1.5')_Prepared (A6J1011-29)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**98.1**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-18->30' (0-0.5')_Prepared (A6J1011-30)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**96.0**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	
DC-18->30' (0.5-1')_Prepared (A6J1011-31)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**98.3**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	
DC-18->30' (1-1.5')_Prepared (A6J1011-32)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**98.2**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	
DC-19-15-30' (0-0.5')_Prepared (A6J1011-33)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**97.2**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	
DC-19-15-30' (0.5-1')_Prepared (A6J1011-34)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**97.2**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	
DC-19-15-30' (1-1.5')_Prepared (A6J1011-35)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**96.5**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	
DC-19->30' (0-0.5')_Prepared (A6J1011-36)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**97.3**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	
DC-19->30' (0.5-1')_Prepared (A6J1011-37)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**97.1**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	
DC-19->30' (1-1.5')_Prepared (A6J1011-38)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**98.8**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	
DC-20-15-30' (0-0.5')_Prepared (A6J1011-39)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**97.0**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	
DC-20-15-30' (0.5-1')_Prepared (A6J1011-40)			**Matrix: Soil**		**Batch: 6110622**			
% Solids	**98.2**	---	1.00	% by Weight	1	11/17/16 08:46	EPA 8000C	
DC-20-15-30' (1-1.5')_Prepared (A6J1012-21)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**98.1**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	
DC-20->30' (0-0.5')_Prepared (A6J1012-22)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**98.6**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	
DC-20->30' (0.5-1')_Prepared (A6J1012-23)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**98.7**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	
DC-20->30' (0.5-1') DUP_Prepared (A6J1012-24)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**98.6**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	
DC-20->30' (1-1.5')_Prepared (A6J1012-25)			**Matrix: Soil**		**Batch: 6110669**			

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DC-20->30' (1-1.5')_Prepared (A6J1012-25)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**98.7**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	
DC-21-15-30' (0-0.5')_Prepared (A6J1012-26)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**98.0**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	
DC-21-15-30' (0.5-1')_Prepared (A6J1012-27)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**96.5**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	
DC-21-15-30' (1-1.5')_Prepared (A6J1012-28)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**97.2**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	
DC-21->30' (0-0.5')_Prepared (A6J1012-29)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**97.8**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	
DC-21->30' (0.5-1')_Prepared (A6J1012-30)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**96.0**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	
DC-21->30' (1-1.5')_Prepared (A6J1012-31)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**96.7**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	
BM-01-15-30' (0-0.5')_Prepared (A6J1012-32)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**97.9**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	
BM-01-15-30' (0.5-1')_Prepared (A6J1012-33)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**95.2**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	
BM-01-15-30' (1-1.5')_Prepared (A6J1012-34)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**94.6**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	
BM-01->30' (0-0.5')_Prepared (A6J1012-35)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**95.2**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	
BM-01->30' (0.5-1')_Prepared (A6J1012-36)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**94.9**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	
BM-01->30' (1-1.5')_Prepared (A6J1012-37)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**95.5**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	
BM-02-15-30' (0-0.5')_Prepared (A6J1012-38)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**95.9**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	
BM-02-15-30' (0.5-1')_Prepared (A6J1012-39)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**97.5**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	
BM-02-15-30' (1-1.5')_Prepared (A6J1012-40)			**Matrix: Soil**		**Batch: 6110669**			
% Solids	**97.4**	---	1.00	% by Weight	1	11/18/16 09:30	EPA 8000C	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-02->30' (0-0.5')_Prepared (A6J1013-10)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**95.8**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-02->30' (0.5-1')_Prepared (A6J1013-11)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**94.7**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-02->30' (1-1.5')_Prepared (A6J1013-12)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**91.6**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-03-15-30' (0-0.5')_Prepared (A6J1013-13)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**95.5**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-03-15-30' (0.5-1')_Prepared (A6J1013-14)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**94.1**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-03-15-30' (1-1.5')_Prepared (A6J1013-15)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**92.5**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-03->30' (0-0.5')_Prepared (A6J1013-16)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**94.4**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-03->30' (0.5-1')_Prepared (A6J1013-17)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**88.9**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-03->30' (1-1.5')_Prepared (A6J1013-18)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**92.1**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110449 - EPA 3546							**Soil**					
Blank (6110449-BLK1)					Prepared: 11/10/16 11:15 Analyzed: 11/18/16 20:59							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 79 %*	*Limits: 44-115 %*				*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*99 %*	*54-127 %*				*"*				
LCS (6110449-BS1)					Prepared: 11/10/16 11:15 Analyzed: 11/18/16 21:25							
EPA 8270D (SIM)												
Acenaphthene	759	2.00	4.00	ug/kg wet	1	800	---	95	40-122%	---	---	
Acenaphthylene	726	2.00	4.00	"	"	"	---	91	32-132%	---	---	
Anthracene	738	2.00	4.00	"	"	"	---	92	47-123%	---	---	
Benz(a)anthracene	717	2.00	4.00	"	"	"	---	90	49-126%	---	---	
Benzo(a)pyrene	802	2.00	4.00	"	"	"	---	100	45-129%	---	---	
Benzo(b)fluoranthene	834	2.00	4.00	"	"	"	---	104	45-132%	---	---	
Benzo(k)fluoranthene	828	2.00	4.00	"	"	"	---	104	47-132%	---	---	
Benzo(g,h,i)perylene	624	2.00	4.00	"	"	"	---	78	43-134%	---	---	
Chrysene	711	2.00	4.00	"	"	"	---	89	50-124%	---	---	
Dibenz(a,h)anthracene	763	2.00	4.00	"	"	"	---	95	45-134%	---	---	
Dibenzofuran	733	2.00	4.00	"	"	"	---	92	44-120%	---	---	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110449 - EPA 3546									Soil			
LCS (6110449-BS1)					Prepared: 11/10/16 11:15 Analyzed: 11/18/16 21:25							
EPA 8270D (SIM)												
Fluoranthene	746	2.00	4.00	ug/kg wet	"	"	---	93	50-127%	---	---	
Fluorene	733	2.00	4.00	"	"	"	---	92	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	688	2.00	4.00	"	"	"	---	86	45-133%	---	---	
1-Methylnaphthalene	671	4.00	8.00	"	"	"	---	84	40-120%	---	---	
2-Methylnaphthalene	670	4.00	8.00	"	"	"	---	84	38-122%	---	---	
Naphthalene	653	4.00	8.00	"	"	"	---	82	35-123%	---	---	
Phenanthrene	641	2.00	4.00	"	"	"	---	80	50-121%	---	---	
Pyrene	728	2.00	4.00	"	"	"	---	91	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*99 %*	*54-127 %*			*"*					
Duplicate (6110449-DUP1)					Prepared: 11/10/16 11:15 Analyzed: 11/19/16 02:37							H-08
QC Source Sample: DC-03->30' (0.5-1')_Prepared (A6J0986-38)												
EPA 8270D (SIM)												
Acenaphthene	ND	2.00	4.01	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	2.00	4.01	"	"	---	ND	---	---	---	30%	
Anthracene	ND	2.00	4.01	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	2.00	4.01	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	2.00	4.01	"	"	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	2.00	4.01	"	"	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	2.00	4.01	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	2.00	4.01	"	"	---	ND	---	---	---	30%	
Chrysene	ND	2.00	4.01	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	2.00	4.01	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	2.00	4.01	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	2.00	4.01	"	"	---	ND	---	---	---	30%	
Fluorene	ND	2.00	4.01	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	2.00	4.01	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	4.01	8.02	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	4.01	8.02	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	4.01	8.02	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	2.00	4.01	"	"	---	ND	---	---	---	30%	
Pyrene	ND	2.00	4.01	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 60 %*	*Limits: 44-115 %*			*Dilution: 1x*					

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110449 - EPA 3546							**Soil**					
Duplicate (6110449-DUP1)					Prepared: 11/10/16 11:15 Analyzed: 11/19/16 02:37							H-08
QC Source Sample: DC-03->30' (0.5-1')_Prepared (A6J0986-38)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 76 %*	*Limits: 54-127 %*			*Dilution: 1x*					
Matrix Spike (6110449-MS1)					Prepared: 11/10/16 11:15 Analyzed: 11/19/16 03:03							H-08
QC Source Sample: DC-03->30' (0.5-1')_Prepared (A6J0986-38)												
EPA 8270D (SIM)												
Acenaphthene	586	1.98	3.95	ug/kg dry	1	790	ND	74	40-122%	---	---	
Acenaphthylene	553	1.98	3.95	"	"	"	ND	70	32-132%	---	---	
Anthracene	564	1.98	3.95	"	"	"	ND	71	47-123%	---	---	
Benz(a)anthracene	549	1.98	3.95	"	"	"	ND	69	49-126%	---	---	
Benzo(a)pyrene	616	1.98	3.95	"	"	"	ND	78	45-129%	---	---	
Benzo(b)fluoranthene	631	1.98	3.95	"	"	"	ND	80	45-132%	---	---	
Benzo(k)fluoranthene	655	1.98	3.95	"	"	"	ND	83	47-132%	---	---	
Benzo(g,h,i)perylene	457	1.98	3.95	"	"	"	ND	58	43-134%	---	---	
Chrysene	555	1.98	3.95	"	"	"	ND	70	50-124%	---	---	
Dibenz(a,h)anthracene	579	1.98	3.95	"	"	"	ND	73	45-134%	---	---	
Dibenzofuran	560	1.98	3.95	"	"	"	ND	71	44-120%	---	---	
Fluoranthene	582	1.98	3.95	"	"	"	ND	74	50-127%	---	---	
Fluorene	565	1.98	3.95	"	"	"	ND	72	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	634	1.98	3.95	"	"	"	ND	80	45-133%	---	---	
1-Methylnaphthalene	530	3.95	7.90	"	"	"	ND	67	40-120%	---	---	
2-Methylnaphthalene	529	3.95	7.90	"	"	"	ND	67	38-122%	---	---	
Naphthalene	504	3.95	7.90	"	"	"	ND	64	35-123%	---	---	
Phenanthrene	501	1.98	3.95	"	"	"	ND	63	50-121%	---	---	
Pyrene	571	1.98	3.95	"	"	"	ND	72	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*74 %*	*54-127 %*			*"*					
Matrix Spike Dup (6110449-MSD1)					Prepared: 11/10/16 11:15 Analyzed: 11/19/16 03:29							H-08
QC Source Sample: DC-03->30' (0.5-1')_Prepared (A6J0986-38)												
EPA 8270D (SIM)												
Acenaphthene	482	2.00	4.00	ug/kg dry	1	799	ND	60	40-122%	19	30%	
Acenaphthylene	441	2.00	4.00	"	"	"	ND	55	32-132%	22	30%	
Anthracene	477	2.00	4.00	"	"	"	ND	60	47-123%	17	30%	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110449 - EPA 3546							**Soil**					
Matrix Spike Dup (6110449-MSD1)					Prepared: 11/10/16 11:15 Analyzed: 11/19/16 03:29							H-08
QC Source Sample: DC-03->30' (0.5-1')_Prepared (A6J0986-38)												
EPA 8270D (SIM)												
Benz(a)anthracene	452	2.00	4.00	ug/kg dry	"	"	ND	57	49-126%	19	30%	
Benzo(a)pyrene	505	2.00	4.00	"	"	"	ND	63	45-129%	20	30%	
Benzo(b)fluoranthene	524	2.00	4.00	"	"	"	ND	66	45-132%	19	30%	
Benzo(k)fluoranthene	540	2.00	4.00	"	"	"	ND	68	47-132%	19	30%	
Benzo(g,h,i)perylene	382	2.00	4.00	"	"	"	ND	48	43-134%	18	30%	
Chrysene	452	2.00	4.00	"	"	"	ND	56	50-124%	21	30%	
Dibenz(a,h)anthracene	481	2.00	4.00	"	"	"	ND	60	45-134%	18	30%	
Dibenzofuran	450	2.00	4.00	"	"	"	ND	56	44-120%	22	30%	
Fluoranthene	481	2.00	4.00	"	"	"	ND	60	50-127%	19	30%	
Fluorene	460	2.00	4.00	"	"	"	ND	58	43-125%	21	30%	
Indeno(1,2,3-cd)pyrene	525	2.00	4.00	"	"	"	ND	66	45-133%	19	30%	
1-Methylnaphthalene	439	4.00	7.99	"	"	"	ND	55	40-120%	19	30%	
2-Methylnaphthalene	429	4.00	7.99	"	"	"	ND	54	38-122%	21	30%	
Naphthalene	405	4.00	7.99	"	"	"	ND	51	35-123%	22	30%	
Phenanthrene	414	2.00	4.00	"	"	"	ND	52	50-121%	19	30%	
Pyrene	477	2.00	4.00	"	"	"	ND	60	47-127%	18	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 51 %*		*Limits: 44-115 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*60 %*		*54-127 %*			*"*				

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110476 - EPA 3546									Soil			
Blank (6110476-BLK1)					Prepared: 11/11/16 07:02 Analyzed: 11/21/16 17:04							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 88 %*	*Limits: 44-115 %*				*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*101 %*	*54-127 %*				*"*				
LCS (6110476-BS1)					Prepared: 11/11/16 07:02 Analyzed: 11/21/16 17:30							
EPA 8270D (SIM)												
Acenaphthene	761	2.00	4.00	ug/kg wet	1	800	---	95	40-122%	---	---	
Acenaphthylene	750	2.00	4.00	"	"	"	---	94	32-132%	---	---	
Anthracene	747	2.00	4.00	"	"	"	---	93	47-123%	---	---	
Benz(a)anthracene	740	2.00	4.00	"	"	"	---	92	49-126%	---	---	
Benzo(a)pyrene	827	2.00	4.00	"	"	"	---	103	45-129%	---	---	
Benzo(b)fluoranthene	807	2.00	4.00	"	"	"	---	101	45-132%	---	---	
Benzo(k)fluoranthene	803	2.00	4.00	"	"	"	---	100	47-132%	---	---	
Benzo(g,h,i)perylene	687	2.00	4.00	"	"	"	---	86	43-134%	---	---	
Chrysene	721	2.00	4.00	"	"	"	---	90	50-124%	---	---	
Dibenz(a,h)anthracene	799	2.00	4.00	"	"	"	---	100	45-134%	---	---	
Dibenzofuran	719	2.00	4.00	"	"	"	---	90	44-120%	---	---	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110476 - EPA 3546									Soil			
LCS (6110476-BS1)					Prepared: 11/11/16 07:02 Analyzed: 11/21/16 17:30							
EPA 8270D (SIM)												
Fluoranthene	800	2.00	4.00	ug/kg wet	"	"	---	100	50-127%	---	---	
Fluorene	720	2.00	4.00	"	"	"	---	90	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	720	2.00	4.00	"	"	"	---	90	45-133%	---	---	
1-Methylnaphthalene	729	4.00	8.00	"	"	"	---	91	40-120%	---	---	
2-Methylnaphthalene	716	4.00	8.00	"	"	"	---	90	38-122%	---	---	
Naphthalene	672	4.00	8.00	"	"	"	---	84	35-123%	---	---	
Phenanthrene	678	2.00	4.00	"	"	"	---	85	50-121%	---	---	
Pyrene	800	2.00	4.00	"	"	"	---	100	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 88 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*92 %*	*54-127 %*			*"*					
Duplicate (6110476-DUP1)					Prepared: 11/11/16 07:02 Analyzed: 11/21/16 22:16							H-08
QC Source Sample: DC-05->30' (1-1.5')_Prepared (A6J0990-32)												
EPA 8270D (SIM)												
Acenaphthene	ND	2.03	4.06	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	2.03	4.06	"	"	---	ND	---	---	---	30%	
Anthracene	ND	2.03	4.06	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	2.03	4.06	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	2.03	4.06	"	"	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	2.03	4.06	"	"	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	2.03	4.06	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	2.03	4.06	"	"	---	ND	---	---	---	30%	
Chrysene	ND	2.03	4.06	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	2.03	4.06	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	2.03	4.06	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	2.03	4.06	"	"	---	ND	---	---	---	30%	
Fluorene	ND	2.03	4.06	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.06	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	4.06	8.12	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	4.06	8.12	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	4.06	8.12	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	2.03	4.06	"	"	---	ND	---	---	---	30%	
Pyrene	ND	2.03	4.06	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 92 %*	*Limits: 44-115 %*			*Dilution: 1x*					

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Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110476 - EPA 3546												**Soil**
Duplicate (6110476-DUP1)					Prepared: 11/11/16 07:02 Analyzed: 11/21/16 22:16							H-08
QC Source Sample: DC-05->30' (1-1.5')_Prepared (A6J0990-32)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 102 %*	*Limits: 54-127 %*			*Dilution: 1x*					
Matrix Spike (6110476-MS1)					Prepared: 11/11/16 07:02 Analyzed: 11/21/16 22:42							H-08, T-02
QC Source Sample: DC-05->30' (1-1.5')_Prepared (A6J0990-32)												
EPA 8270D (SIM)												
Acenaphthene	658	1.99	3.97	ug/kg dry	1	794	ND	83	40-122%	---	---	
Acenaphthylene	638	1.99	3.97	"	"	"	ND	80	32-132%	---	---	
Anthracene	706	1.99	3.97	"	"	"	ND	89	47-123%	---	---	
Benz(a)anthracene	718	1.99	3.97	"	"	"	ND	90	49-126%	---	---	
Benzo(a)pyrene	772	1.99	3.97	"	"	"	ND	97	45-129%	---	---	
Benzo(b)fluoranthene	806	1.99	3.97	"	"	"	ND	102	45-132%	---	---	
Benzo(k)fluoranthene	806	1.99	3.97	"	"	"	ND	101	47-132%	---	---	
Benzo(g,h,i)perylene	631	1.99	3.97	"	"	"	ND	79	43-134%	---	---	
Chrysene	711	1.99	3.97	"	"	"	ND	90	50-124%	---	---	
Dibenz(a,h)anthracene	741	1.99	3.97	"	"	"	ND	93	45-134%	---	---	
Dibenzofuran	638	1.99	3.97	"	"	"	ND	80	44-120%	---	---	
Fluoranthene	771	1.99	3.97	"	"	"	ND	97	50-127%	---	---	
Fluorene	652	1.99	3.97	"	"	"	ND	82	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	686	1.99	3.97	"	"	"	ND	86	45-133%	---	---	
1-Methylnaphthalene	609	3.97	7.94	"	"	"	ND	77	40-120%	---	---	
2-Methylnaphthalene	604	3.97	7.94	"	"	"	ND	76	38-122%	---	---	
Naphthalene	551	3.97	7.94	"	"	"	ND	69	35-123%	---	---	
Phenanthrene	642	1.99	3.97	"	"	"	ND	81	50-121%	---	---	
Pyrene	762	1.99	3.97	"	"	"	ND	96	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*92 %*	*54-127 %*			*"*					
Matrix Spike Dup (6110476-MSD1)					Prepared: 11/11/16 07:02 Analyzed: 11/21/16 23:08							H-08, T-02
QC Source Sample: DC-05->30' (1-1.5')_Prepared (A6J0990-32)												
EPA 8270D (SIM)												
Acenaphthene	776	1.96	3.92	ug/kg dry	1	784	ND	99	40-122%	16	30%	
Acenaphthylene	750	1.96	3.92	"	"	"	ND	96	32-132%	16	30%	
Anthracene	766	1.96	3.92	"	"	"	ND	98	47-123%	8	30%	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110476 - EPA 3546							**Soil**					
Matrix Spike Dup (6110476-MSD1)					Prepared: 11/11/16 07:02		Analyzed: 11/21/16 23:08					H-08, T-02
QC Source Sample: DC-05->30' (1-1.5')_Prepared (A6J0990-32)												
EPA 8270D (SIM)												
Benz(a)anthracene	765	1.96	3.92	ug/kg dry	"	"	ND	98	49-126%	6	30%	
Benzo(a)pyrene	842	1.96	3.92	"	"	"	ND	107	45-129%	9	30%	
Benzo(b)fluoranthene	835	1.96	3.92	"	"	"	ND	106	45-132%	3	30%	
Benzo(k)fluoranthene	886	1.96	3.92	"	"	"	ND	113	47-132%	9	30%	
Benzo(g,h,i)perylene	665	1.96	3.92	"	"	"	ND	85	43-134%	5	30%	
Chrysene	763	1.96	3.92	"	"	"	ND	97	50-124%	7	30%	
Dibenz(a,h)anthracene	792	1.96	3.92	"	"	"	ND	101	45-134%	7	30%	
Dibenzofuran	729	1.96	3.92	"	"	"	ND	93	44-120%	13	30%	
Fluoranthene	803	1.96	3.92	"	"	"	ND	102	50-127%	4	30%	
Fluorene	733	1.96	3.92	"	"	"	ND	93	43-125%	12	30%	
Indeno(1,2,3-cd)pyrene	723	1.96	3.92	"	"	"	ND	92	45-133%	5	30%	
1-Methylnaphthalene	710	3.92	7.84	"	"	"	ND	91	40-120%	15	30%	
2-Methylnaphthalene	709	3.92	7.84	"	"	"	ND	90	38-122%	16	30%	
Naphthalene	636	3.92	7.84	"	"	"	ND	81	35-123%	14	30%	
Phenanthrene	694	1.96	3.92	"	"	"	ND	88	50-121%	8	30%	
Pyrene	783	1.96	3.92	"	"	"	ND	100	47-127%	3	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 88 %*		*Limits: 44-115 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*100 %*		*54-127 %*			*"*				

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AMENDED REPORT

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Tigard, OR 97223
503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110565 - EPA 3546							**Soil**					
Blank (6110565-BLK1)					Prepared: 11/15/16 08:07 Analyzed: 11/23/16 00:06							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 91 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*91 %*	*54-127 %*			*"*					
LCS (6110565-BS1)					Prepared: 11/15/16 08:07 Analyzed: 11/23/16 00:33							
EPA 8270D (SIM)												
Acenaphthene	784	2.00	4.00	ug/kg wet	1	800	---	98	40-122%	---	---	
Acenaphthylene	759	2.00	4.00	"	"	"	---	95	32-132%	---	---	
Anthracene	770	2.00	4.00	"	"	"	---	96	47-123%	---	---	
Benz(a)anthracene	733	2.00	4.00	"	"	"	---	92	49-126%	---	---	
Benzo(a)pyrene	820	2.00	4.00	"	"	"	---	103	45-129%	---	---	
Benzo(b)fluoranthene	764	2.00	4.00	"	"	"	---	95	45-132%	---	---	
Benzo(k)fluoranthene	796	2.00	4.00	"	"	"	---	100	47-132%	---	---	
Benzo(g,h,i)perylene	697	2.00	4.00	"	"	"	---	87	43-134%	---	---	
Chrysene	732	2.00	4.00	"	"	"	---	92	50-124%	---	---	
Dibenz(a,h)anthracene	800	2.00	4.00	"	"	"	---	100	45-134%	---	---	
Dibenzofuran	734	2.00	4.00	"	"	"	---	92	44-120%	---	---	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110565 - EPA 3546									Soil			
LCS (6110565-BS1)					Prepared: 11/15/16 08:07 Analyzed: 11/23/16 00:33							
EPA 8270D (SIM)												
Fluoranthene	793	2.00	4.00	ug/kg wet	"	"	---	99	50-127%	---	---	
Fluorene	723	2.00	4.00	"	"	"	---	90	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	706	2.00	4.00	"	"	"	---	88	45-133%	---	---	
1-Methylnaphthalene	746	4.00	8.00	"	"	"	---	93	40-120%	---	---	
2-Methylnaphthalene	739	4.00	8.00	"	"	"	---	92	38-122%	---	---	
Naphthalene	689	4.00	8.00	"	"	"	---	86	35-123%	---	---	
Phenanthrene	690	2.00	4.00	"	"	"	---	86	50-121%	---	---	
Pyrene	784	2.00	4.00	"	"	"	---	98	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 94 %*		*Limits: 44-115 %*				*Dilution: 1x*			
p-Terphenyl-d14 (Surr)			*88 %*		*54-127 %*				*"*			
Duplicate (6110565-DUP2)					Prepared: 11/15/16 08:09 Analyzed: 12/07/16 19:43							H-08
QC Source Sample: DC-08->30' (1-1.5')_Prepared (A6J1004-31)												
EPA 8270D (SIM)												
Acenaphthene	ND	3.89	7.78	ug/kg dry	2	---	ND	---	---	---	30%	
Acenaphthylene	**4.68**	3.89	7.78	"	"	---	4.26	---	---	10	30%	J
Anthracene	ND	3.89	7.78	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	**5.43**	3.89	7.78	"	"	---	5.00	---	---	8	30%	J
Benzo(a)pyrene	**15.4**	3.89	7.78	"	"	---	15.0	---	---	3	30%	
Benzo(b)fluoranthene	**14.6**	3.89	7.78	"	"	---	14.8	---	---	2	30%	M-02
Benzo(k)fluoranthene	**5.90**	3.89	7.78	"	"	---	5.50	---	---	7	30%	J
Benzo(g,h,i)perylene	**28.3**	3.89	7.78	"	"	---	24.7	---	---	13	30%	
Chrysene	**7.55**	3.89	7.78	"	"	---	9.50	---	---	23	30%	J
Dibenz(a,h)anthracene	ND	3.89	7.78	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	3.89	7.78	"	"	---	ND	---	---	---	30%	
Fluoranthene	**4.55**	3.89	7.78	"	"	---	5.15	---	---	12	30%	J
Fluorene	ND	3.89	7.78	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	**15.3**	3.89	7.78	"	"	---	16.0	---	---	5	30%	
1-Methylnaphthalene	ND	7.78	15.6	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	7.78	15.6	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	7.78	15.6	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	3.89	7.78	"	"	---	ND	---	---	---	30%	
Pyrene	**7.80**	3.89	7.78	"	"	---	9.46	---	---	19	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 61 %*		*Limits: 44-115 %*				*Dilution: 2x*			

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110565 - EPA 3546							**Soil**					
Duplicate (6110565-DUP2)					Prepared: 11/15/16 08:09		Analyzed: 12/07/16 19:43					H-08
QC Source Sample: DC-08->30' (1-1.5')_Prepared (A6J1004-31)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 69 %*	*Limits: 54-127 %*			*Dilution: 2x*					
Matrix Spike (6110565-MS2)					Prepared: 11/15/16 08:09		Analyzed: 12/07/16 20:09					H-08
QC Source Sample: DC-08->30' (1-1.5')_Prepared (A6J1004-31)												
EPA 8270D (SIM)												
Acenaphthene	590	3.79	7.57	ug/kg dry	2	757	ND	78	40-122%	---	---	
Acenaphthylene	632	3.79	7.57	"	"	"	4.26	83	32-132%	---	---	
Anthracene	722	3.79	7.57	"	"	"	ND	95	47-123%	---	---	
Benz(a)anthracene	791	3.79	7.57	"	"	"	5.00	104	49-126%	---	---	
Benzo(a)pyrene	768	3.79	7.57	"	"	"	15.0	99	45-129%	---	---	
Benzo(b)fluoranthene	783	3.79	7.57	"	"	"	14.8	101	45-132%	---	---	
Benzo(k)fluoranthene	693	3.79	7.57	"	"	"	5.50	91	47-132%	---	---	
Benzo(g,h,i)perylene	759	3.79	7.57	"	"	"	24.7	97	43-134%	---	---	
Chrysene	641	3.79	7.57	"	"	"	9.50	83	50-124%	---	---	
Dibenz(a,h)anthracene	727	3.79	7.57	"	"	"	ND	96	45-134%	---	---	
Dibenzofuran	604	3.79	7.57	"	"	"	ND	80	44-120%	---	---	
Fluoranthene	689	3.79	7.57	"	"	"	5.15	90	50-127%	---	---	
Fluorene	633	3.79	7.57	"	"	"	ND	84	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	747	3.79	7.57	"	"	"	16.0	97	45-133%	---	---	
1-Methylnaphthalene	574	7.57	15.1	"	"	"	ND	76	40-120%	---	---	
2-Methylnaphthalene	607	7.57	15.1	"	"	"	ND	80	38-122%	---	---	
Naphthalene	550	7.57	15.1	"	"	"	ND	73	35-123%	---	---	
Phenanthrene	624	3.79	7.57	"	"	"	ND	82	50-121%	---	---	
Pyrene	660	3.79	7.57	"	"	"	9.46	86	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*			*Dilution: 2x*					
p-Terphenyl-d14 (Surr)			*81 %*	*54-127 %*			*"*					
Matrix Spike Dup (6110565-MSD2)					Prepared: 11/15/16 08:09		Analyzed: 12/07/16 20:35					H-08
QC Source Sample: DC-08->30' (1-1.5')_Prepared (A6J1004-31)												
EPA 8270D (SIM)												
Acenaphthene	495	3.87	7.75	ug/kg dry	2	775	ND	64	40-122%	17	30%	
Acenaphthylene	531	3.87	7.75	"	"	"	4.26	68	32-132%	17	30%	
Anthracene	641	3.87	7.75	"	"	"	ND	83	47-123%	12	30%	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110565 - EPA 3546							Soil					
Matrix Spike Dup (6110565-MSD2)					Prepared: 11/15/16 08:09 Analyzed: 12/07/16 20:35							H-08
QC Source Sample: DC-08->30' (1-1.5')_Prepared (A6J1004-31)												
EPA 8270D (SIM)												
Benz(a)anthracene	700	3.87	7.75	ug/kg dry	"	"	5.00	90	49-126%	12	30%	
Benzo(a)pyrene	692	3.87	7.75	"	"	"	15.0	87	45-129%	10	30%	
Benzo(b)fluoranthene	699	3.87	7.75	"	"	"	14.8	88	45-132%	11	30%	
Benzo(k)fluoranthene	638	3.87	7.75	"	"	"	5.50	82	47-132%	8	30%	
Benzo(g,h,i)perylene	688	3.87	7.75	"	"	"	24.7	86	43-134%	10	30%	
Chrysene	574	3.87	7.75	"	"	"	9.50	73	50-124%	11	30%	
Dibenz(a,h)anthracene	657	3.87	7.75	"	"	"	ND	85	45-134%	10	30%	
Dibenzofuran	525	3.87	7.75	"	"	"	ND	68	44-120%	14	30%	
Fluoranthene	614	3.87	7.75	"	"	"	5.15	79	50-127%	11	30%	
Fluorene	554	3.87	7.75	"	"	"	ND	71	43-125%	13	30%	
Indeno(1,2,3-cd)pyrene	679	3.87	7.75	"	"	"	16.0	86	45-133%	10	30%	
1-Methylnaphthalene	462	7.75	15.5	"	"	"	ND	60	40-120%	22	30%	
2-Methylnaphthalene	486	7.75	15.5	"	"	"	ND	63	38-122%	22	30%	
Naphthalene	429	7.75	15.5	"	"	"	ND	55	35-123%	25	30%	
Phenanthrene	556	3.87	7.75	"	"	"	ND	72	50-121%	12	30%	
Pyrene	591	3.87	7.75	"	"	"	9.46	75	47-127%	11	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 59 %*		*Limits: 44-115 %*				*Dilution: 2x*			
p-Terphenyl-d14 (Surr)			*67 %*		*54-127 %*				*"*			

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110578 - EPA 3546							Soil					
Blank (6110578-BLK1)					Prepared: 11/15/16 11:56 Analyzed: 11/29/16 17:45							
EPA 8270D (SIM)												
Acenaphthene	ND	1.67	3.33	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Anthracene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Chrysene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Fluorene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.33	6.67	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.33	6.67	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.33	6.67	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Pyrene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 91 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*103 %*	*54-127 %*			*"*					
LCS (6110578-BS1)					Prepared: 11/15/16 11:56 Analyzed: 11/29/16 18:11							
EPA 8270D (SIM)												
Acenaphthene	740	2.00	4.00	ug/kg wet	1	800	---	93	40-122%	---	---	
Acenaphthylene	721	2.00	4.00	"	"	"	---	90	32-132%	---	---	
Anthracene	770	2.00	4.00	"	"	"	---	96	47-123%	---	---	
Benz(a)anthracene	760	2.00	4.00	"	"	"	---	95	49-126%	---	---	
Benzo(a)pyrene	855	2.00	4.00	"	"	"	---	107	45-129%	---	---	
Benzo(b)fluoranthene	868	2.00	4.00	"	"	"	---	109	45-132%	---	---	
Benzo(k)fluoranthene	917	2.00	4.00	"	"	"	---	115	47-132%	---	---	
Benzo(g,h,i)perylene	768	2.00	4.00	"	"	"	---	96	43-134%	---	---	
Chrysene	761	2.00	4.00	"	"	"	---	95	50-124%	---	---	
Dibenz(a,h)anthracene	871	2.00	4.00	"	"	"	---	109	45-134%	---	---	
Dibenzofuran	745	2.00	4.00	"	"	"	---	93	44-120%	---	---	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110578 - EPA 3546									Soil			
LCS (6110578-BS1)					Prepared: 11/15/16 11:56 Analyzed: 11/29/16 18:11							
EPA 8270D (SIM)												
Fluoranthene	779	2.00	4.00	ug/kg wet	"	"	---	97	50-127%	---	---	
Fluorene	723	2.00	4.00	"	"	"	---	90	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	774	2.00	4.00	"	"	"	---	97	45-133%	---	---	
1-Methylnaphthalene	702	4.00	8.00	"	"	"	---	88	40-120%	---	---	
2-Methylnaphthalene	697	4.00	8.00	"	"	"	---	87	38-122%	---	---	
Naphthalene	672	4.00	8.00	"	"	"	---	84	35-123%	---	---	
Phenanthrene	696	2.00	4.00	"	"	"	---	87	50-121%	---	---	
Pyrene	777	2.00	4.00	"	"	"	---	97	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 89 %*		*Limits: 44-115 %*				*Dilution: 1x*			
p-Terphenyl-d14 (Surr)			*96 %*		*54-127 %*				*"*			
Duplicate (6110578-DUP2)					Prepared: 11/15/16 11:56 Analyzed: 12/07/16 18:25							H-08
QC Source Sample: DC-12-15-30' (1-1.5')_Prepared (A6J1008-32)												
EPA 8270D (SIM)												
Acenaphthene	ND	1.88	3.76	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	1.88	3.76	"	"	---	ND	---	---	---	30%	
Anthracene	ND	1.88	3.76	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	**3.65**	1.88	3.76	"	"	---	2.88	---	---	23	30%	J
Benzo(a)pyrene	**5.22**	1.88	3.76	"	"	---	3.05	---	---	53	30%	Q-05
Benzo(b)fluoranthene	**6.51**	1.88	3.76	"	"	---	5.26	---	---	21	30%	M-02
Benzo(k)fluoranthene	**3.05**	1.88	3.76	"	"	---	ND	---	---	---	30%	J
Benzo(g,h,i)perylene	**4.39**	1.88	3.76	"	"	---	3.54	---	---	22	30%	
Chrysene	**3.50**	1.88	3.76	"	"	---	3.20	---	---	9	30%	J
Dibenz(a,h)anthracene	ND	1.88	3.76	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	1.88	3.76	"	"	---	ND	---	---	---	30%	
Fluoranthene	**4.09**	1.88	3.76	"	"	---	3.91	---	---	4	30%	
Fluorene	ND	1.88	3.76	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	**3.63**	1.88	3.76	"	"	---	3.16	---	---	14	30%	J
1-Methylnaphthalene	ND	3.76	7.53	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	3.76	7.53	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	3.76	7.53	"	"	---	ND	---	---	---	30%	
Phenanthrene	**2.10**	1.88	3.76	"	"	---	ND	---	---	---	30%	J
Pyrene	**3.93**	1.88	3.76	"	"	---	3.82	---	---	3	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*		*Limits: 44-115 %*				*Dilution: 1x*			

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110578 - EPA 3546							Soil					
Duplicate (6110578-DUP2)					Prepared: 11/15/16 11:56 Analyzed: 12/07/16 18:25							H-08
QC Source Sample: DC-12-15-30' (1-1.5')_Prepared (A6J1008-32)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 76 %*	*Limits: 54-127 %*			*Dilution: 1x*					
Matrix Spike (6110578-MS2)					Prepared: 11/15/16 11:56 Analyzed: 12/07/16 18:51							H-08
QC Source Sample: DC-12-15-30' (1-1.5')_Prepared (A6J1008-32)												
EPA 8270D (SIM)												
Acenaphthene	540	1.81	3.63	ug/kg dry	1	725	ND	75	40-122%	---	---	
Acenaphthylene	559	1.81	3.63	"	"	"	ND	77	32-132%	---	---	
Anthracene	624	1.81	3.63	"	"	"	ND	86	47-123%	---	---	
Benz(a)anthracene	690	1.81	3.63	"	"	"	2.88	95	49-126%	---	---	
Benzo(a)pyrene	647	1.81	3.63	"	"	"	3.05	89	45-129%	---	---	
Benzo(b)fluoranthene	643	1.81	3.63	"	"	"	5.26	88	45-132%	---	---	
Benzo(k)fluoranthene	611	1.81	3.63	"	"	"	ND	84	47-132%	---	---	
Benzo(g,h,i)perylene	635	1.81	3.63	"	"	"	3.54	87	43-134%	---	---	
Chrysene	559	1.81	3.63	"	"	"	3.20	77	50-124%	---	---	
Dibenz(a,h)anthracene	636	1.81	3.63	"	"	"	ND	88	45-134%	---	---	
Dibenzofuran	541	1.81	3.63	"	"	"	ND	75	44-120%	---	---	
Fluoranthene	583	1.81	3.63	"	"	"	3.91	80	50-127%	---	---	
Fluorene	569	1.81	3.63	"	"	"	ND	78	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	645	1.81	3.63	"	"	"	3.16	89	45-133%	---	---	
1-Methylnaphthalene	515	3.63	7.25	"	"	"	ND	71	40-120%	---	---	
2-Methylnaphthalene	546	3.63	7.25	"	"	"	ND	75	38-122%	---	---	
Naphthalene	500	3.63	7.25	"	"	"	ND	69	35-123%	---	---	
Phenanthrene	559	1.81	3.63	"	"	"	ND	77	50-121%	---	---	
Pyrene	553	1.81	3.63	"	"	"	3.82	76	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*75 %*	*54-127 %*			*"*					
Matrix Spike Dup (6110578-MSD2)					Prepared: 11/15/16 11:56 Analyzed: 12/07/16 19:17							H-08
QC Source Sample: DC-12-15-30' (1-1.5')_Prepared (A6J1008-32)												
EPA 8270D (SIM)												
Acenaphthene	476	1.91	3.83	ug/kg dry	1	766	ND	62	40-122%	13	30%	
Acenaphthylene	502	1.91	3.83	"	"	"	ND	66	32-132%	11	30%	
Anthracene	558	1.91	3.83	"	"	"	ND	73	47-123%	11	30%	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110578 - EPA 3546							**Soil**					
Matrix Spike Dup (6110578-MSD2)					Prepared: 11/15/16 11:56 Analyzed: 12/07/16 19:17							H-08
QC Source Sample: DC-12-15-30' (1-1.5')_Prepared (A6J1008-32)												
EPA 8270D (SIM)												
Benz(a)anthracene	613	1.91	3.83	ug/kg dry	"	"	2.88	80	49-126%	12	30%	
Benzo(a)pyrene	572	1.91	3.83	"	"	"	3.05	74	45-129%	12	30%	
Benzo(b)fluoranthene	570	1.91	3.83	"	"	"	5.26	74	45-132%	12	30%	
Benzo(k)fluoranthene	526	1.91	3.83	"	"	"	ND	69	47-132%	15	30%	
Benzo(g,h,i)perylene	570	1.91	3.83	"	"	"	3.54	74	43-134%	11	30%	
Chrysene	501	1.91	3.83	"	"	"	3.20	65	50-124%	11	30%	
Dibenz(a,h)anthracene	559	1.91	3.83	"	"	"	ND	73	45-134%	13	30%	
Dibenzofuran	478	1.91	3.83	"	"	"	ND	62	44-120%	13	30%	
Fluoranthene	528	1.91	3.83	"	"	"	3.91	68	50-127%	10	30%	
Fluorene	503	1.91	3.83	"	"	"	ND	66	43-125%	12	30%	
Indeno(1,2,3-cd)pyrene	566	1.91	3.83	"	"	"	3.16	73	45-133%	13	30%	
1-Methylnaphthalene	458	3.83	7.66	"	"	"	ND	60	40-120%	12	30%	
2-Methylnaphthalene	487	3.83	7.66	"	"	"	ND	64	38-122%	11	30%	
Naphthalene	446	3.83	7.66	"	"	"	ND	58	35-123%	11	30%	
Phenanthrene	489	1.91	3.83	"	"	"	ND	64	50-121%	13	30%	
Pyrene	507	1.91	3.83	"	"	"	3.82	66	47-127%	9	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*		*Limits: 44-115 %*				*Dilution: 1x*			
p-Terphenyl-d14 (Surr)			*69 %*		*54-127 %*				*"*			

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AMENDED REPORT

12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110701 - EPA 3546							Soil					
Blank (6110701-BLK1)					Prepared: 11/18/16 06:40 Analyzed: 11/26/16 12:15							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 84 %*	*Limits: 44-115 %*				*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*106 %*	*54-127 %*				*"*				
LCS (6110701-BS1)					Prepared: 11/18/16 06:40 Analyzed: 11/26/16 12:41							
EPA 8270D (SIM)												
Acenaphthene	776	2.00	4.00	ug/kg wet	1	800	---	97	40-122%	---	---	
Acenaphthylene	762	2.00	4.00	"	"	"	---	95	32-132%	---	---	
Anthracene	735	2.00	4.00	"	"	"	---	92	47-123%	---	---	
Benz(a)anthracene	717	2.00	4.00	"	"	"	---	90	49-126%	---	---	
Benzo(a)pyrene	783	2.00	4.00	"	"	"	---	98	45-129%	---	---	
Benzo(b)fluoranthene	786	2.00	4.00	"	"	"	---	98	45-132%	---	---	
Benzo(k)fluoranthene	823	2.00	4.00	"	"	"	---	103	47-132%	---	---	
Benzo(g,h,i)perylene	650	2.00	4.00	"	"	"	---	81	43-134%	---	---	
Chrysene	711	2.00	4.00	"	"	"	---	89	50-124%	---	---	
Dibenz(a,h)anthracene	761	2.00	4.00	"	"	"	---	95	45-134%	---	---	
Dibenzofuran	733	2.00	4.00	"	"	"	---	92	44-120%	---	---	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110701 - EPA 3546							Soil					
LCS (6110701-BS1)					Prepared: 11/18/16 06:40		Analyzed: 11/26/16 12:41					
EPA 8270D (SIM)												
Fluoranthene	704	2.00	4.00	ug/kg wet	"	"	---	88	50-127%	---	---	
Fluorene	851	2.00	4.00	"	"	"	---	106	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	690	2.00	4.00	"	"	"	---	86	45-133%	---	---	
1-Methylnaphthalene	707	4.00	8.00	"	"	"	---	88	40-120%	---	---	
2-Methylnaphthalene	702	4.00	8.00	"	"	"	---	88	38-122%	---	---	
Naphthalene	653	4.00	8.00	"	"	"	---	82	35-123%	---	---	
Phenanthrene	659	2.00	4.00	"	"	"	---	82	50-121%	---	---	
Pyrene	675	2.00	4.00	"	"	"	---	84	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 87 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*103 %*	*54-127 %*			*"*					
LCS Dup (6110701-BSD1)					Prepared: 11/18/16 06:40		Analyzed: 11/26/16 13:07					Q-19
EPA 8270D (SIM)												
Acenaphthene	765	2.00	4.00	ug/kg wet	1	800	---	96	40-122%	1	30%	
Acenaphthylene	759	2.00	4.00	"	"	"	---	95	32-132%	0.4	30%	
Anthracene	763	2.00	4.00	"	"	"	---	95	47-123%	4	30%	
Benz(a)anthracene	741	2.00	4.00	"	"	"	---	93	49-126%	3	30%	
Benzo(a)pyrene	783	2.00	4.00	"	"	"	---	98	45-129%	0.07	30%	
Benzo(b)fluoranthene	776	2.00	4.00	"	"	"	---	97	45-132%	1	30%	
Benzo(k)fluoranthene	835	2.00	4.00	"	"	"	---	104	47-132%	1	30%	
Benzo(g,h,i)perylene	676	2.00	4.00	"	"	"	---	84	43-134%	4	30%	
Chrysene	709	2.00	4.00	"	"	"	---	89	50-124%	0.3	30%	
Dibenz(a,h)anthracene	790	2.00	4.00	"	"	"	---	99	45-134%	4	30%	
Dibenzofuran	733	2.00	4.00	"	"	"	---	92	44-120%	0.02	30%	
Fluoranthene	744	2.00	4.00	"	"	"	---	93	50-127%	5	30%	
Fluorene	845	2.00	4.00	"	"	"	---	106	43-125%	0.6	30%	
Indeno(1,2,3-cd)pyrene	698	2.00	4.00	"	"	"	---	87	45-133%	1	30%	
1-Methylnaphthalene	727	4.00	8.00	"	"	"	---	91	40-120%	3	30%	
2-Methylnaphthalene	728	4.00	8.00	"	"	"	---	91	38-122%	4	30%	
Naphthalene	671	4.00	8.00	"	"	"	---	84	35-123%	3	30%	
Phenanthrene	680	2.00	4.00	"	"	"	---	85	50-121%	3	30%	
Pyrene	735	2.00	4.00	"	"	"	---	92	47-127%	9	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 85 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*96 %*	*54-127 %*			*"*					

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110717 - EPA 3546							Soil					
Blank (6110717-BLK1)					Prepared: 11/18/16 10:16 Analyzed: 12/01/16 11:44							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 89 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*87 %*	*54-127 %*			*"*					
LCS (6110717-BS1)					Prepared: 11/18/16 10:16 Analyzed: 12/01/16 12:10							
EPA 8270D (SIM)												
Acenaphthene	761	2.00	4.00	ug/kg wet	1	800	---	95	40-122%	---	---	
Acenaphthylene	751	2.00	4.00	"	"	"	---	94	32-132%	---	---	
Anthracene	738	2.00	4.00	"	"	"	---	92	47-123%	---	---	
Benz(a)anthracene	755	2.00	4.00	"	"	"	---	94	49-126%	---	---	
Benzo(a)pyrene	853	2.00	4.00	"	"	"	---	107	45-129%	---	---	
Benzo(b)fluoranthene	814	2.00	4.00	"	"	"	---	102	45-132%	---	---	
Benzo(k)fluoranthene	837	2.00	4.00	"	"	"	---	105	47-132%	---	---	
Benzo(g,h,i)perylene	736	2.00	4.00	"	"	"	---	92	43-134%	---	---	
Chrysene	758	2.00	4.00	"	"	"	---	95	50-124%	---	---	
Dibenz(a,h)anthracene	848	2.00	4.00	"	"	"	---	106	45-134%	---	---	
Dibenzofuran	745	2.00	4.00	"	"	"	---	93	44-120%	---	---	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110717 - EPA 3546									Soil			
LCS (6110717-BS1)					Prepared: 11/18/16 10:16 Analyzed: 12/01/16 12:10							
EPA 8270D (SIM)												
Fluoranthene	794	2.00	4.00	ug/kg wet	"	"	---	99	50-127%	---	---	
Fluorene	734	2.00	4.00	"	"	"	---	92	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	767	2.00	4.00	"	"	"	---	96	45-133%	---	---	
1-Methylnaphthalene	751	4.00	8.00	"	"	"	---	94	40-120%	---	---	
2-Methylnaphthalene	735	4.00	8.00	"	"	"	---	92	38-122%	---	---	
Naphthalene	682	4.00	8.00	"	"	"	---	85	35-123%	---	---	
Phenanthrene	679	2.00	4.00	"	"	"	---	85	50-121%	---	---	
Pyrene	793	2.00	4.00	"	"	"	---	99	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 89 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*84 %*	*54-127 %*			*"*					
Duplicate (6110717-DUP2)					Prepared: 11/18/16 10:18 Analyzed: 12/07/16 21:01							H-08
QC Source Sample: DC-13->30' (1-1.5')_Prepared (A6J1010-21)												
EPA 8270D (SIM)												
Acenaphthene	ND	2.03	4.06	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	2.03	4.06	"	"	---	ND	---	---	---	30%	
Anthracene	ND	2.03	4.06	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	**7.68**	2.03	4.06	"	"	---	7.95	---	---	3	30%	M-02
Benzo(a)pyrene	**11.0**	2.03	4.06	"	"	---	11.2	---	---	2	30%	
Benzo(b)fluoranthene	**16.0**	2.03	4.06	"	"	---	17.5	---	---	9	30%	M-02
Benzo(k)fluoranthene	**6.72**	2.03	4.06	"	"	---	5.75	---	---	16	30%	M-02
Benzo(g,h,i)perylene	**8.46**	2.03	4.06	"	"	---	9.15	---	---	8	30%	
Chrysene	**8.46**	2.03	4.06	"	"	---	11.1	---	---	27	30%	M-02
Dibenz(a,h)anthracene	ND	2.03	4.06	"	"	---	2.51	---	---		30%	
Dibenzofuran	ND	2.03	4.06	"	"	---	ND	---	---	---	30%	
Fluoranthene	**11.0**	2.03	4.06	"	"	---	14.3	---	---	26	30%	
Fluorene	ND	2.03	4.06	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	**8.10**	2.03	4.06	"	"	---	9.66	---	---	18	30%	
1-Methylnaphthalene	ND	4.06	8.11	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	4.06	8.11	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	4.06	8.11	"	"	---	ND	---	---	---	30%	
Phenanthrene	**4.97**	2.03	4.06	"	"	---	5.31	---	---	7	30%	
Pyrene	**9.62**	2.03	4.06	"	"	---	13.0	---	---	30	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*	*Limits: 44-115 %*			*Dilution: 1x*					

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110717 - EPA 3546							**Soil**					
Duplicate (6110717-DUP2)					Prepared: 11/18/16 10:18 Analyzed: 12/07/16 21:01							H-08
QC Source Sample: DC-13->30' (1-1.5')_Prepared (A6J1010-21)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 71 %*	*Limits: 54-127 %*			*Dilution: 1x*					
Matrix Spike (6110717-MS2)					Prepared: 11/18/16 10:18 Analyzed: 12/07/16 21:26							H-08
QC Source Sample: DC-13->30' (1-1.5')_Prepared (A6J1010-21)												
EPA 8270D (SIM)												
Acenaphthene	573	2.04	4.08	ug/kg dry	1	816	ND	70	40-122%	---	---	
Acenaphthylene	589	2.04	4.08	"	"	"	ND	72	32-132%	---	---	
Anthracene	672	2.04	4.08	"	"	"	ND	82	47-123%	---	---	
Benz(a)anthracene	739	2.04	4.08	"	"	"	7.95	90	49-126%	---	---	
Benzo(a)pyrene	701	2.04	4.08	"	"	"	11.2	85	45-129%	---	---	
Benzo(b)fluoranthene	696	2.04	4.08	"	"	"	17.5	83	45-132%	---	---	
Benzo(k)fluoranthene	658	2.04	4.08	"	"	"	5.75	80	47-132%	---	---	
Benzo(g,h,i)perylene	668	2.04	4.08	"	"	"	9.15	81	43-134%	---	---	
Chrysene	602	2.04	4.08	"	"	"	11.1	72	50-124%	---	---	
Dibenz(a,h)anthracene	675	2.04	4.08	"	"	"	2.51	82	45-134%	---	---	
Dibenzofuran	580	2.04	4.08	"	"	"	ND	71	44-120%	---	---	
Fluoranthene	656	2.04	4.08	"	"	"	14.3	79	50-127%	---	---	
Fluorene	610	2.04	4.08	"	"	"	ND	75	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	687	2.04	4.08	"	"	"	9.66	83	45-133%	---	---	
1-Methylnaphthalene	546	4.08	8.16	"	"	"	ND	67	40-120%	---	---	
2-Methylnaphthalene	582	4.08	8.16	"	"	"	ND	71	38-122%	---	---	
Naphthalene	531	4.08	8.16	"	"	"	ND	65	35-123%	---	---	
Phenanthrene	593	2.04	4.08	"	"	"	5.31	72	50-121%	---	---	
Pyrene	618	2.04	4.08	"	"	"	13.0	74	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*69 %*	*54-127 %*			*"*					
Matrix Spike Dup (6110717-MSD2)					Prepared: 11/18/16 10:18 Analyzed: 12/07/16 21:52							H-08
QC Source Sample: DC-13->30' (1-1.5')_Prepared (A6J1010-21)												
EPA 8270D (SIM)												
Acenaphthene	576	2.04	4.08	ug/kg dry	1	816	ND	71	40-122%	0.5	30%	
Acenaphthylene	604	2.04	4.08	"	"	"	ND	74	32-132%	2	30%	
Anthracene	668	2.04	4.08	"	"	"	ND	82	47-123%	0.5	30%	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110717 - EPA 3546							Soil					
Matrix Spike Dup (6110717-MSD2)					Prepared: 11/18/16 10:18		Analyzed: 12/07/16 21:52					H-08
QC Source Sample: DC-13->30' (1-1.5')_Prepared (A6J1010-21)												
EPA 8270D (SIM)												
Benz(a)anthracene	737	2.04	4.08	ug/kg dry	"	"	7.95	89	49-126%	0.4	30%	
Benzo(a)pyrene	700	2.04	4.08	"	"	"	11.2	84	45-129%	0.1	30%	
Benzo(b)fluoranthene	689	2.04	4.08	"	"	"	17.5	82	45-132%	1	30%	
Benzo(k)fluoranthene	650	2.04	4.08	"	"	"	5.75	79	47-132%	1	30%	
Benzo(g,h,i)perylene	669	2.04	4.08	"	"	"	9.15	81	43-134%	0.08	30%	
Chrysene	598	2.04	4.08	"	"	"	11.1	72	50-124%	0.6	30%	
Dibenz(a,h)anthracene	686	2.04	4.08	"	"	"	2.51	84	45-134%	2	30%	
Dibenzofuran	580	2.04	4.08	"	"	"	ND	71	44-120%	0.01	30%	
Fluoranthene	637	2.04	4.08	"	"	"	14.3	76	50-127%	3	30%	
Fluorene	622	2.04	4.08	"	"	"	ND	76	43-125%	2	30%	
Indeno(1,2,3-cd)pyrene	693	2.04	4.08	"	"	"	9.66	84	45-133%	0.9	30%	
1-Methylnaphthalene	550	4.08	8.16	"	"	"	ND	67	40-120%	0.8	30%	
2-Methylnaphthalene	585	4.08	8.16	"	"	"	ND	72	38-122%	0.5	30%	
Naphthalene	530	4.08	8.16	"	"	"	ND	65	35-123%	0.2	30%	
Phenanthrene	589	2.04	4.08	"	"	"	5.31	72	50-121%	0.6	30%	
Pyrene	603	2.04	4.08	"	"	"	13.0	72	47-127%	3	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*		*Limits: 44-115 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*68 %*		*54-127 %*			*"*				

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110745 - EPA 3546							**Soil**					
Blank (6110745-BLK1)					Prepared: 11/21/16 07:26 Analyzed: 12/03/16 13:44							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 95 %*	*Limits: 44-115 %*				*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*102 %*	*54-127 %*				*"*				
LCS (6110745-BS1)					Prepared: 11/21/16 07:26 Analyzed: 12/03/16 14:10							
EPA 8270D (SIM)												
Acenaphthene	813	2.00	4.00	ug/kg wet	1	800	---	102	40-122%	---	---	
Acenaphthylene	789	2.00	4.00	"	"	"	---	99	32-132%	---	---	
Anthracene	783	2.00	4.00	"	"	"	---	98	47-123%	---	---	
Benz(a)anthracene	785	2.00	4.00	"	"	"	---	98	49-126%	---	---	
Benzo(a)pyrene	866	2.00	4.00	"	"	"	---	108	45-129%	---	---	
Benzo(b)fluoranthene	866	2.00	4.00	"	"	"	---	108	45-132%	---	---	
Benzo(k)fluoranthene	862	2.00	4.00	"	"	"	---	108	47-132%	---	---	
Benzo(g,h,i)perylene	776	2.00	4.00	"	"	"	---	97	43-134%	---	---	
Chrysene	780	2.00	4.00	"	"	"	---	97	50-124%	---	---	
Dibenz(a,h)anthracene	876	2.00	4.00	"	"	"	---	109	45-134%	---	---	
Dibenzofuran	794	2.00	4.00	"	"	"	---	99	44-120%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110745 - EPA 3546									Soil			
LCS (6110745-BS1)					Prepared: 11/21/16 07:26 Analyzed: 12/03/16 14:10							
EPA 8270D (SIM)												
Fluoranthene	818	2.00	4.00	ug/kg wet	"	"	---	102	50-127%	---	---	
Fluorene	781	2.00	4.00	"	"	"	---	98	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	802	2.00	4.00	"	"	"	---	100	45-133%	---	---	
1-Methylnaphthalene	773	4.00	8.00	"	"	"	---	97	40-120%	---	---	
2-Methylnaphthalene	767	4.00	8.00	"	"	"	---	96	38-122%	---	---	
Naphthalene	721	4.00	8.00	"	"	"	---	90	35-123%	---	---	
Phenanthrene	704	2.00	4.00	"	"	"	---	88	50-121%	---	---	
Pyrene	808	2.00	4.00	"	"	"	---	101	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 96 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*90 %*	*54-127 %*			*"*					
Duplicate (6110745-DUP2)					Prepared: 11/21/16 07:26 Analyzed: 12/07/16 22:18							H-08
QC Source Sample: DC-17-15-30' (0.5-1')_Prepared (A6J1011-22)												
EPA 8270D (SIM)												
Acenaphthene	ND	1.92	3.84	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	1.92	3.84	"	"	---	ND	---	---	---	30%	
Anthracene	ND	1.92	3.84	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	1.92	3.84	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	1.92	3.84	"	"	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	1.92	3.84	"	"	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	1.92	3.84	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	1.92	3.84	"	"	---	ND	---	---	---	30%	
Chrysene	ND	1.92	3.84	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	1.92	3.84	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	1.92	3.84	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	1.92	3.84	"	"	---	ND	---	---	---	30%	
Fluorene	ND	1.92	3.84	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	1.92	3.84	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	3.84	7.68	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	3.84	7.68	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	3.84	7.68	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	1.92	3.84	"	"	---	ND	---	---	---	30%	
Pyrene	ND	1.92	3.84	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 49 %*	*Limits: 44-115 %*			*Dilution: 1x*					

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110745 - EPA 3546							**Soil**					
Duplicate (6110745-DUP2)					Prepared: 11/21/16 07:26		Analyzed: 12/07/16 22:18					H-08
QC Source Sample: DC-17-15-30' (0.5-1')_Prepared (A6J1011-22)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 77 %*	*Limits: 54-127 %*			*Dilution: 1x*					
Matrix Spike (6110745-MS2)					Prepared: 11/21/16 07:26		Analyzed: 12/07/16 22:44					H-08
QC Source Sample: DC-17-15-30' (0.5-1')_Prepared (A6J1011-22)												
EPA 8270D (SIM)												
Acenaphthene	524	1.92	3.83	ug/kg dry	1	767	ND	68	40-122%	---	---	
Acenaphthylene	551	1.92	3.83	"	"	"	ND	72	32-132%	---	---	
Anthracene	656	1.92	3.83	"	"	"	ND	86	47-123%	---	---	
Benz(a)anthracene	754	1.92	3.83	"	"	"	ND	98	49-126%	---	---	
Benzo(a)pyrene	709	1.92	3.83	"	"	"	ND	92	45-129%	---	---	
Benzo(b)fluoranthene	687	1.92	3.83	"	"	"	ND	90	45-132%	---	---	
Benzo(k)fluoranthene	666	1.92	3.83	"	"	"	ND	87	47-132%	---	---	
Benzo(g,h,i)perylene	690	1.92	3.83	"	"	"	ND	90	43-134%	---	---	
Chrysene	604	1.92	3.83	"	"	"	ND	79	50-124%	---	---	
Dibenz(a,h)anthracene	700	1.92	3.83	"	"	"	ND	91	45-134%	---	---	
Dibenzofuran	532	1.92	3.83	"	"	"	ND	69	44-120%	---	---	
Fluoranthene	637	1.92	3.83	"	"	"	ND	83	50-127%	---	---	
Fluorene	565	1.92	3.83	"	"	"	ND	74	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	716	1.92	3.83	"	"	"	ND	93	45-133%	---	---	
1-Methylnaphthalene	495	3.83	7.67	"	"	"	ND	65	40-120%	---	---	
2-Methylnaphthalene	525	3.83	7.67	"	"	"	ND	68	38-122%	---	---	
Naphthalene	474	3.83	7.67	"	"	"	ND	62	35-123%	---	---	
Phenanthrene	572	1.92	3.83	"	"	"	ND	75	50-121%	---	---	
Pyrene	606	1.92	3.83	"	"	"	ND	79	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*73 %*	*54-127 %*			*"*					
Matrix Spike Dup (6110745-MSD2)					Prepared: 11/21/16 07:26		Analyzed: 12/07/16 23:10					H-08
QC Source Sample: DC-17-15-30' (0.5-1')_Prepared (A6J1011-22)												
EPA 8270D (SIM)												
Acenaphthene	504	1.91	3.83	ug/kg dry	1	765	ND	66	40-122%	4	30%	
Acenaphthylene	523	1.91	3.83	"	"	"	ND	68	32-132%	5	30%	
Anthracene	652	1.91	3.83	"	"	"	ND	85	47-123%	0.6	30%	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110745 - EPA 3546							**Soil**					
Matrix Spike Dup (6110745-MSD2)					Prepared: 11/21/16 07:26 Analyzed: 12/07/16 23:10							H-08
QC Source Sample: DC-17-15-30' (0.5-1')_Prepared (A6J1011-22)												
EPA 8270D (SIM)												
Benz(a)anthracene	744	1.91	3.83	ug/kg dry	"	"	ND	97	49-126%	1	30%	
Benzo(a)pyrene	696	1.91	3.83	"	"	"	ND	91	45-129%	2	30%	
Benzo(b)fluoranthene	684	1.91	3.83	"	"	"	ND	89	45-132%	0.4	30%	
Benzo(k)fluoranthene	660	1.91	3.83	"	"	"	ND	86	47-132%	0.9	30%	
Benzo(g,h,i)perylene	675	1.91	3.83	"	"	"	ND	88	43-134%	2	30%	
Chrysene	592	1.91	3.83	"	"	"	ND	77	50-124%	2	30%	
Dibenz(a,h)anthracene	700	1.91	3.83	"	"	"	ND	91	45-134%	0.03	30%	
Dibenzofuran	520	1.91	3.83	"	"	"	ND	68	44-120%	2	30%	
Fluoranthene	614	1.91	3.83	"	"	"	ND	80	50-127%	4	30%	
Fluorene	564	1.91	3.83	"	"	"	ND	74	43-125%	0.1	30%	
Indeno(1,2,3-cd)pyrene	706	1.91	3.83	"	"	"	ND	92	45-133%	1	30%	
1-Methylnaphthalene	464	3.83	7.65	"	"	"	ND	61	40-120%	7	30%	
2-Methylnaphthalene	492	3.83	7.65	"	"	"	ND	64	38-122%	6	30%	
Naphthalene	444	3.83	7.65	"	"	"	ND	58	35-123%	6	30%	
Phenanthrene	579	1.91	3.83	"	"	"	ND	76	50-121%	1	30%	
Pyrene	581	1.91	3.83	"	"	"	ND	76	47-127%	4	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 60 %*		*Limits: 44-115 %*				*Dilution: 1x*			
p-Terphenyl-d14 (Surr)			*73 %*		*54-127 %*				*"*			

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110816 - EPA 3546							Soil					
Blank (6110816-BLK1)					Prepared: 11/22/16 14:34 Analyzed: 11/23/16 11:08							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 87 %*	*Limits: 44-115 %*				*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*117 %*	*54-127 %*				*"*				
LCS (6110816-BS1)					Prepared: 11/22/16 14:34 Analyzed: 11/23/16 11:34							
EPA 8270D (SIM)												
Acenaphthene	785	2.00	4.00	ug/kg wet	1	800	---	98	40-122%	---	---	
Acenaphthylene	773	2.00	4.00	"	"	"	---	97	32-132%	---	---	
Anthracene	760	2.00	4.00	"	"	"	---	95	47-123%	---	---	
Benz(a)anthracene	763	2.00	4.00	"	"	"	---	95	49-126%	---	---	
Benzo(a)pyrene	842	2.00	4.00	"	"	"	---	105	45-129%	---	---	
Benzo(b)fluoranthene	813	2.00	4.00	"	"	"	---	102	45-132%	---	---	
Benzo(k)fluoranthene	889	2.00	4.00	"	"	"	---	111	47-132%	---	---	
Benzo(g,h,i)perylene	710	2.00	4.00	"	"	"	---	89	43-134%	---	---	
Chrysene	738	2.00	4.00	"	"	"	---	92	50-124%	---	---	
Dibenz(a,h)anthracene	821	2.00	4.00	"	"	"	---	103	45-134%	---	---	
Dibenzofuran	779	2.00	4.00	"	"	"	---	97	44-120%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110816 - EPA 3546							Soil					
LCS (6110816-BS1)					Prepared: 11/22/16 14:34 Analyzed: 11/23/16 11:34							
EPA 8270D (SIM)												
Fluoranthene	721	2.00	4.00	ug/kg wet	"	"	---	90	50-127%	---	---	
Fluorene	762	2.00	4.00	"	"	"	---	95	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	727	2.00	4.00	"	"	"	---	91	45-133%	---	---	
1-Methylnaphthalene	737	4.00	8.00	"	"	"	---	92	40-120%	---	---	
2-Methylnaphthalene	736	4.00	8.00	"	"	"	---	92	38-122%	---	---	
Naphthalene	670	4.00	8.00	"	"	"	---	84	35-123%	---	---	
Phenanthrene	682	2.00	4.00	"	"	"	---	85	50-121%	---	---	
Pyrene	699	2.00	4.00	"	"	"	---	87	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 89 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*105 %*	*54-127 %*			*"*					
LCS Dup (6110816-BSD1)					Prepared: 11/22/16 15:02 Analyzed: 11/23/16 12:00							Q-19
EPA 8270D (SIM)												
Acenaphthene	800	2.00	4.00	ug/kg wet	1	800	---	100	40-122%	2	30%	
Acenaphthylene	785	2.00	4.00	"	"	"	---	98	32-132%	2	30%	
Anthracene	781	2.00	4.00	"	"	"	---	98	47-123%	3	30%	
Benz(a)anthracene	756	2.00	4.00	"	"	"	---	95	49-126%	0.9	30%	
Benzo(a)pyrene	850	2.00	4.00	"	"	"	---	106	45-129%	0.9	30%	
Benzo(b)fluoranthene	815	2.00	4.00	"	"	"	---	102	45-132%	0.3	30%	
Benzo(k)fluoranthene	890	2.00	4.00	"	"	"	---	111	47-132%	0.09	30%	
Benzo(g,h,i)perylene	714	2.00	4.00	"	"	"	---	89	43-134%	0.6	30%	
Chrysene	753	2.00	4.00	"	"	"	---	94	50-124%	2	30%	
Dibenz(a,h)anthracene	830	2.00	4.00	"	"	"	---	104	45-134%	1	30%	
Dibenzofuran	758	2.00	4.00	"	"	"	---	95	44-120%	3	30%	
Fluoranthene	751	2.00	4.00	"	"	"	---	94	50-127%	4	30%	
Fluorene	750	2.00	4.00	"	"	"	---	94	43-125%	2	30%	
Indeno(1,2,3-cd)pyrene	727	2.00	4.00	"	"	"	---	91	45-133%	0.1	30%	
1-Methylnaphthalene	748	4.00	8.00	"	"	"	---	94	40-120%	2	30%	
2-Methylnaphthalene	742	4.00	8.00	"	"	"	---	93	38-122%	0.8	30%	
Naphthalene	679	4.00	8.00	"	"	"	---	85	35-123%	1	30%	
Phenanthrene	695	2.00	4.00	"	"	"	---	87	50-121%	2	30%	
Pyrene	742	2.00	4.00	"	"	"	---	93	47-127%	6	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 87 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*106 %*	*54-127 %*			*"*					

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110864 - EPA 3546							**Soil**					
Blank (6110864-BLK1)					Prepared: 11/28/16 09:15 Analyzed: 11/29/16 11:41							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 95 %*	*Limits: 44-115 %*				*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*103 %*	*54-127 %*				*"*				
LCS (6110864-BS1)					Prepared: 11/28/16 09:15 Analyzed: 11/29/16 12:07							
EPA 8270D (SIM)												
Acenaphthene	774	2.00	4.00	ug/kg wet	1	800	---	97	40-122%	---	---	
Acenaphthylene	762	2.00	4.00	"	"	"	---	95	32-132%	---	---	
Anthracene	804	2.00	4.00	"	"	"	---	101	47-123%	---	---	
Benz(a)anthracene	777	2.00	4.00	"	"	"	---	97	49-126%	---	---	
Benzo(a)pyrene	874	2.00	4.00	"	"	"	---	109	45-129%	---	---	
Benzo(b)fluoranthene	887	2.00	4.00	"	"	"	---	111	45-132%	---	---	
Benzo(k)fluoranthene	903	2.00	4.00	"	"	"	---	113	47-132%	---	---	
Benzo(g,h,i)perylene	833	2.00	4.00	"	"	"	---	104	43-134%	---	---	
Chrysene	781	2.00	4.00	"	"	"	---	98	50-124%	---	---	
Dibenz(a,h)anthracene	892	2.00	4.00	"	"	"	---	111	45-134%	---	---	
Dibenzofuran	785	2.00	4.00	"	"	"	---	98	44-120%	---	---	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110864 - EPA 3546							Soil					
LCS (6110864-BS1)					Prepared: 11/28/16 09:15 Analyzed: 11/29/16 12:07							
EPA 8270D (SIM)												
Fluoranthene	806	2.00	4.00	ug/kg wet	"	"	---	101	50-127%	---	---	
Fluorene	764	2.00	4.00	"	"	"	---	96	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	835	2.00	4.00	"	"	"	---	104	45-133%	---	---	
1-Methylnaphthalene	730	4.00	8.00	"	"	"	---	91	40-120%	---	---	
2-Methylnaphthalene	731	4.00	8.00	"	"	"	---	91	38-122%	---	---	
Naphthalene	703	4.00	8.00	"	"	"	---	88	35-123%	---	---	
Phenanthrene	727	2.00	4.00	"	"	"	---	91	50-121%	---	---	
Pyrene	801	2.00	4.00	"	"	"	---	100	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 90 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*92 %*	*54-127 %*			*"*					
LCS Dup (6110864-BSD1)					Prepared: 11/28/16 09:15 Analyzed: 11/29/16 12:33							Q-19
EPA 8270D (SIM)												
Acenaphthene	784	2.00	4.00	ug/kg wet	1	800	---	98	40-122%	1	30%	
Acenaphthylene	775	2.00	4.00	"	"	"	---	97	32-132%	2	30%	
Anthracene	819	2.00	4.00	"	"	"	---	102	47-123%	2	30%	
Benz(a)anthracene	770	2.00	4.00	"	"	"	---	96	49-126%	0.9	30%	
Benzo(a)pyrene	874	2.00	4.00	"	"	"	---	109	45-129%	0.04	30%	
Benzo(b)fluoranthene	887	2.00	4.00	"	"	"	---	111	45-132%	0.02	30%	
Benzo(k)fluoranthene	913	2.00	4.00	"	"	"	---	114	47-132%	1	30%	
Benzo(g,h,i)perylene	832	2.00	4.00	"	"	"	---	104	43-134%	0.1	30%	
Chrysene	774	2.00	4.00	"	"	"	---	97	50-124%	0.9	30%	
Dibenz(a,h)anthracene	891	2.00	4.00	"	"	"	---	111	45-134%	0.1	30%	
Dibenzofuran	796	2.00	4.00	"	"	"	---	99	44-120%	1	30%	
Fluoranthene	827	2.00	4.00	"	"	"	---	103	50-127%	3	30%	
Fluorene	774	2.00	4.00	"	"	"	---	97	43-125%	1	30%	
Indeno(1,2,3-cd)pyrene	831	2.00	4.00	"	"	"	---	104	45-133%	0.5	30%	
1-Methylnaphthalene	748	4.00	8.00	"	"	"	---	93	40-120%	2	30%	
2-Methylnaphthalene	748	4.00	8.00	"	"	"	---	94	38-122%	2	30%	
Naphthalene	713	4.00	8.00	"	"	"	---	89	35-123%	1	30%	
Phenanthrene	729	2.00	4.00	"	"	"	---	91	50-121%	0.3	30%	
Pyrene	814	2.00	4.00	"	"	"	---	102	47-127%	2	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 94 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*94 %*	*54-127 %*			*"*					

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110865 - EPA 3546							**Soil**					
Blank (6110865-BLK1)					Prepared: 11/28/16 09:18 Analyzed: 12/04/16 12:39							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 90 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*91 %*	*54-127 %*			*"*					
LCS (6110865-BS1)					Prepared: 11/28/16 09:18 Analyzed: 12/04/16 13:05							
EPA 8270D (SIM)												
Acenaphthene	768	2.00	4.00	ug/kg wet	1	800	---	96	40-122%	---	---	
Acenaphthylene	753	2.00	4.00	"	"	"	---	94	32-132%	---	---	
Anthracene	761	2.00	4.00	"	"	"	---	95	47-123%	---	---	
Benz(a)anthracene	766	2.00	4.00	"	"	"	---	96	49-126%	---	---	
Benzo(a)pyrene	847	2.00	4.00	"	"	"	---	106	45-129%	---	---	
Benzo(b)fluoranthene	860	2.00	4.00	"	"	"	---	107	45-132%	---	---	
Benzo(k)fluoranthene	851	2.00	4.00	"	"	"	---	106	47-132%	---	---	
Benzo(g,h,i)perylene	702	2.00	4.00	"	"	"	---	88	43-134%	---	---	
Chrysene	752	2.00	4.00	"	"	"	---	94	50-124%	---	---	
Dibenz(a,h)anthracene	850	2.00	4.00	"	"	"	---	106	45-134%	---	---	
Dibenzofuran	757	2.00	4.00	"	"	"	---	95	44-120%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110865 - EPA 3546									Soil			
LCS (6110865-BS1)						Prepared: 11/28/16 09:18	Analyzed: 12/04/16 13:05					
EPA 8270D (SIM)												
Fluoranthene	790	2.00	4.00	ug/kg wet	"	"	---	99	50-127%	---	---	
Fluorene	750	2.00	4.00	"	"	"	---	94	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	752	2.00	4.00	"	"	"	---	94	45-133%	---	---	
1-Methylnaphthalene	731	4.00	8.00	"	"	"	---	91	40-120%	---	---	
2-Methylnaphthalene	730	4.00	8.00	"	"	"	---	91	38-122%	---	---	
Naphthalene	655	4.00	8.00	"	"	"	---	82	35-123%	---	---	
Phenanthrene	679	2.00	4.00	"	"	"	---	85	50-121%	---	---	
Pyrene	789	2.00	4.00	"	"	"	---	99	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 95 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*100 %*	*54-127 %*			*"*					
Duplicate (6110865-DUP2)						Prepared: 11/28/16 09:18	Analyzed: 12/06/16 02:12					H-08
QC Source Sample: DC-21-15-30' (0-0.5')_Prepared (A6J1012-26)												
EPA 8270D (SIM)												
Acenaphthene	ND	14.9	29.8	ug/kg dry	3	---	ND	---	---	---	30%	
Acenaphthylene	ND	14.9	29.8	"	"	---	ND	---	---	---	30%	
Anthracene	ND	14.9	29.8	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	**19.6**	14.9	29.8	"	"	---	19.2	---	---	2	30%	J
Benzo(a)pyrene	**19.6**	14.9	29.8	"	"	---	20.8	---	---	6	30%	J
Benzo(b)fluoranthene	**37.1**	14.9	29.8	"	"	---	40.2	---	---	8	30%	M-02
Benzo(k)fluoranthene	ND	14.9	29.8	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	**25.7**	14.9	29.8	"	"	---	25.8	---	---	0.6	30%	J
Chrysene	**25.1**	14.9	29.8	"	"	---	28.3	---	---	12	30%	J
Dibenz(a,h)anthracene	ND	14.9	29.8	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	14.9	29.8	"	"	---	ND	---	---	---	30%	
Fluoranthene	**32.3**	14.9	29.8	"	"	---	34.3	---	---	6	30%	
Fluorene	ND	14.9	29.8	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	**19.4**	14.9	29.8	"	"	---	20.9	---	---	8	30%	J
1-Methylnaphthalene	ND	29.8	59.6	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	29.8	59.6	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	29.8	59.6	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	14.9	29.8	"	"	---	ND	---	---	---	30%	
Pyrene	**33.9**	14.9	29.8	"	"	---	33.6	---	---	0.9	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 86 %*	*Limits: 44-115 %*			*Dilution: 3x*					

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110865 - EPA 3546							**Soil**					
Duplicate (6110865-DUP2)					Prepared: 11/28/16 09:18		Analyzed: 12/06/16 02:12					H-08
QC Source Sample: DC-21-15-30' (0-0.5')_Prepared (A6J1012-26)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 88 %*	*Limits: 54-127 %*			*Dilution: 3x*					
Matrix Spike (6110865-MS3)					Prepared: 11/28/16 09:18		Analyzed: 12/08/16 00:27					H-08
QC Source Sample: DC-21-15-30' (0-0.5')_Prepared (A6J1012-26)												
EPA 8270D (SIM)												
Acenaphthene	660	14.9	29.8	ug/kg dry	3	795	ND	83	40-122%	---	---	
Acenaphthylene	701	14.9	29.8	"	"	"	ND	88	32-132%	---	---	
Anthracene	799	14.9	29.8	"	"	"	ND	101	47-123%	---	---	
Benz(a)anthracene	857	14.9	29.8	"	"	"	19.2	105	49-126%	---	---	
Benzo(a)pyrene	857	14.9	29.8	"	"	"	20.8	105	45-129%	---	---	
Benzo(b)fluoranthene	909	14.9	29.8	"	"	"	40.2	109	45-132%	---	---	
Benzo(k)fluoranthene	794	14.9	29.8	"	"	"	ND	100	47-132%	---	---	
Benzo(g,h,i)perylene	811	14.9	29.8	"	"	"	25.8	99	43-134%	---	---	
Chrysene	715	14.9	29.8	"	"	"	28.3	86	50-124%	---	---	
Dibenz(a,h)anthracene	751	14.9	29.8	"	"	"	ND	95	45-134%	---	---	
Dibenzofuran	701	14.9	29.8	"	"	"	ND	88	44-120%	---	---	
Fluoranthene	789	14.9	29.8	"	"	"	34.3	95	50-127%	---	---	
Fluorene	722	14.9	29.8	"	"	"	ND	91	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	792	14.9	29.8	"	"	"	20.9	97	45-133%	---	---	
1-Methylnaphthalene	654	29.8	59.6	"	"	"	ND	82	40-120%	---	---	
2-Methylnaphthalene	676	29.8	59.6	"	"	"	ND	85	38-122%	---	---	
Naphthalene	593	29.8	59.6	"	"	"	ND	75	35-123%	---	---	
Phenanthrene	708	14.9	29.8	"	"	"	ND	89	50-121%	---	---	
Pyrene	761	14.9	29.8	"	"	"	33.6	92	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 86 %*	*Limits: 44-115 %*			*Dilution: 3x*					
p-Terphenyl-d14 (Surr)			*87 %*	*54-127 %*			*"*					
Matrix Spike Dup (6110865-MSD3)					Prepared: 11/28/16 09:18		Analyzed: 12/08/16 00:53					H-08
QC Source Sample: DC-21-15-30' (0-0.5')_Prepared (A6J1012-26)												
EPA 8270D (SIM)												
Acenaphthene	730	14.8	29.6	ug/kg dry	3	791	ND	92	40-122%	10	30%	
Acenaphthylene	773	14.8	29.6	"	"	"	ND	98	32-132%	10	30%	
Anthracene	907	14.8	29.6	"	"	"	ND	115	47-123%	13	30%	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110865 - EPA 3546							**Soil**					
Matrix Spike Dup (6110865-MSD3)					Prepared: 11/28/16 09:18		Analyzed: 12/08/16 00:53					H-08
QC Source Sample: DC-21-15-30' (0-0.5')_Prepared (A6J1012-26)												
EPA 8270D (SIM)												
Benz(a)anthracene	976	14.8	29.6	ug/kg dry	"	"	19.2	121	49-126%	13	30%	
Benzo(a)pyrene	965	14.8	29.6	"	"	"	20.8	119	45-129%	12	30%	
Benzo(b)fluoranthene	1020	14.8	29.6	"	"	"	40.2	124	45-132%	12	30%	
Benzo(k)fluoranthene	905	14.8	29.6	"	"	"	ND	114	47-132%	13	30%	
Benzo(g,h,i)perylene	900	14.8	29.6	"	"	"	25.8	111	43-134%	10	30%	
Chrysene	817	14.8	29.6	"	"	"	28.3	100	50-124%	13	30%	
Dibenz(a,h)anthracene	869	14.8	29.6	"	"	"	ND	110	45-134%	15	30%	
Dibenzofuran	780	14.8	29.6	"	"	"	ND	99	44-120%	11	30%	
Fluoranthene	906	14.8	29.6	"	"	"	34.3	110	50-127%	14	30%	
Fluorene	814	14.8	29.6	"	"	"	ND	103	43-125%	12	30%	
Indeno(1,2,3-cd)pyrene	874	14.8	29.6	"	"	"	20.9	108	45-133%	10	30%	
1-Methylnaphthalene	705	29.6	59.3	"	"	"	ND	89	40-120%	7	30%	
2-Methylnaphthalene	730	29.6	59.3	"	"	"	ND	92	38-122%	8	30%	
Naphthalene	615	29.6	59.3	"	"	"	ND	78	35-123%	4	30%	
Phenanthrene	804	14.8	29.6	"	"	"	ND	102	50-121%	13	30%	
Pyrene	872	14.8	29.6	"	"	"	33.6	106	47-127%	14	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 98 %*		*Limits: 44-115 %*		*Dilution: 3x*					
p-Terphenyl-d14 (Surr)			*105 %*		*54-127 %*		*"*					

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120103 - EPA 3546							Soil					
Blank (6120103-BLK1)					Prepared: 12/01/16 07:25 Analyzed: 12/05/16 15:51							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 51 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*77 %*	*54-127 %*			*"*					
LCS (6120103-BS1)					Prepared: 12/01/16 07:25 Analyzed: 12/05/16 16:17							
EPA 8270D (SIM)												
Acenaphthene	664	2.00	4.00	ug/kg wet	1	800	---	83	40-122%	---	---	
Acenaphthylene	655	2.00	4.00	"	"	"	---	82	32-132%	---	---	
Anthracene	666	2.00	4.00	"	"	"	---	83	47-123%	---	---	
Benz(a)anthracene	677	2.00	4.00	"	"	"	---	85	49-126%	---	---	
Benzo(a)pyrene	744	2.00	4.00	"	"	"	---	93	45-129%	---	---	
Benzo(b)fluoranthene	717	2.00	4.00	"	"	"	---	90	45-132%	---	---	
Benzo(k)fluoranthene	722	2.00	4.00	"	"	"	---	90	47-132%	---	---	
Benzo(g,h,i)perylene	675	2.00	4.00	"	"	"	---	84	43-134%	---	---	
Chrysene	673	2.00	4.00	"	"	"	---	84	50-124%	---	---	
Dibenz(a,h)anthracene	748	2.00	4.00	"	"	"	---	94	45-134%	---	---	
Dibenzofuran	640	2.00	4.00	"	"	"	---	80	44-120%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120103 - EPA 3546									Soil			
LCS (6120103-BS1)					Prepared: 12/01/16 07:25 Analyzed: 12/05/16 16:17							
EPA 8270D (SIM)												
Fluoranthene	730	2.00	4.00	ug/kg wet	"	"	---	91	50-127%	---	---	
Fluorene	632	2.00	4.00	"	"	"	---	79	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	696	2.00	4.00	"	"	"	---	87	45-133%	---	---	
1-Methylnaphthalene	638	4.00	8.00	"	"	"	---	80	40-120%	---	---	
2-Methylnaphthalene	635	4.00	8.00	"	"	"	---	79	38-122%	---	---	
Naphthalene	596	4.00	8.00	"	"	"	---	74	35-123%	---	---	
Phenanthrene	613	2.00	4.00	"	"	"	---	77	50-121%	---	---	
Pyrene	726	2.00	4.00	"	"	"	---	91	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 80 %*		*Limits: 44-115 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*77 %*		*54-127 %*			*"*				
Duplicate (6120103-DUP2)					Prepared: 12/01/16 07:25 Analyzed: 12/08/16 10:37							H-08
QC Source Sample: BM-03->30' (0-0.5')_Prepared (A6J1013-16)												
EPA 8270D (SIM)												
Acenaphthene	ND	2.01	4.01	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	2.01	4.01	"	"	---	ND	---	---	---	30%	
Anthracene	ND	2.01	4.01	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	4.01	4.01	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	**3.23**	2.01	4.01	"	"	---	ND	---	---	---	30%	J
Benzo(b)fluoranthene	**6.18**	2.01	4.01	"	"	---	4.16	---	---	39	30%	M-02, Q-05
Benzo(k)fluoranthene	**2.34**	2.01	4.01	"	"	---	ND	---	---	---	30%	J
Benzo(g,h,i)perylene	**9.89**	2.01	4.01	"	"	---	6.45	---	---	42	30%	Q-05
Chrysene	ND	6.52	6.52	"	"	---	ND	---	---	---	30%	R-02
Dibenz(a,h)anthracene	ND	2.01	4.01	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	2.01	4.01	"	"	---	ND	---	---	---	30%	
Fluoranthene	**3.17**	2.01	4.01	"	"	---	ND	---	---	---	30%	J
Fluorene	ND	2.01	4.01	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	**4.15**	2.01	4.01	"	"	---	2.96	---	---	34	30%	Q-05
1-Methylnaphthalene	ND	4.01	8.03	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	4.01	8.03	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	4.01	8.03	"	"	---	ND	---	---	---	30%	
Phenanthrene	**2.30**	2.01	4.01	"	"	---	ND	---	---	---	30%	J
Pyrene	**4.42**	2.01	4.01	"	"	---	3.20	---	---	32	30%	Q-05
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*		*Limits: 44-115 %*			*Dilution: 1x*				

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120103 - EPA 3546							**Soil**					
Duplicate (6120103-DUP2)					Prepared: 12/01/16 07:25		Analyzed: 12/08/16 10:37					H-08
QC Source Sample: BM-03->30' (0-0.5')_Prepared (A6J1013-16)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 70 %*	*Limits: 54-127 %*			*Dilution: 1x*					
Matrix Spike (6120103-MS2)					Prepared: 12/01/16 07:25		Analyzed: 12/08/16 11:03					H-08
QC Source Sample: BM-03->30' (0-0.5')_Prepared (A6J1013-16)												
EPA 8270D (SIM)												
Acenaphthene	435	1.97	3.93	ug/kg dry	1	786	ND	55	40-122%	---	---	
Acenaphthylene	412	1.97	3.93	"	"	"	ND	52	32-132%	---	---	
Anthracene	641	1.97	3.93	"	"	"	ND	81	47-123%	---	---	
Benz(a)anthracene	732	1.97	3.93	"	"	"	ND	92	49-126%	---	---	
Benzo(a)pyrene	605	1.97	3.93	"	"	"	ND	77	45-129%	---	---	
Benzo(b)fluoranthene	680	1.97	3.93	"	"	"	4.16	86	45-132%	---	---	
Benzo(k)fluoranthene	630	1.97	3.93	"	"	"	ND	80	47-132%	---	---	
Benzo(g,h,i)perylene	631	1.97	3.93	"	"	"	6.45	79	43-134%	---	---	
Chrysene	598	1.97	3.93	"	"	"	ND	75	50-124%	---	---	
Dibenz(a,h)anthracene	684	1.97	3.93	"	"	"	ND	87	45-134%	---	---	
Dibenzofuran	464	1.97	3.93	"	"	"	ND	59	44-120%	---	---	
Fluoranthene	625	1.97	3.93	"	"	"	ND	80	50-127%	---	---	
Fluorene	519	1.97	3.93	"	"	"	ND	66	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	670	1.97	3.93	"	"	"	2.96	85	45-133%	---	---	
1-Methylnaphthalene	363	3.93	7.86	"	"	"	ND	46	40-120%	---	---	
2-Methylnaphthalene	380	3.93	7.86	"	"	"	ND	48	38-122%	---	---	
Naphthalene	324	3.93	7.86	"	"	"	ND	41	35-123%	---	---	
Phenanthrene	574	1.97	3.93	"	"	"	ND	73	50-121%	---	---	
Pyrene	593	1.97	3.93	"	"	"	3.20	75	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 46 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*72 %*	*54-127 %*			*"*					
Matrix Spike Dup (6120103-MSD2)					Prepared: 12/01/16 07:25		Analyzed: 12/08/16 11:29					H-08
QC Source Sample: BM-03->30' (0-0.5')_Prepared (A6J1013-16)												
EPA 8270D (SIM)												
Acenaphthene	585	2.04	4.08	ug/kg dry	1	816	ND	72	40-122%	29	30%	
Acenaphthylene	594	2.04	4.08	"	"	"	ND	73	32-132%	36	30%	Q-24
Anthracene	676	2.04	4.08	"	"	"	ND	83	47-123%	5	30%	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120103 - EPA 3546							**Soil**					
Matrix Spike Dup (6120103-MSD2)					Prepared: 12/01/16 07:25		Analyzed: 12/08/16 11:29					H-08
QC Source Sample: BM-03->30' (0-0.5')_Prepared (A6J1013-16)												
EPA 8270D (SIM)												
Benz(a)anthracene	742	2.04	4.08	ug/kg dry	"	"	ND	90	49-126%	1	30%	
Benzo(a)pyrene	624	2.04	4.08	"	"	"	ND	76	45-129%	3	30%	
Benzo(b)fluoranthene	688	2.04	4.08	"	"	"	4.16	84	45-132%	1	30%	
Benzo(k)fluoranthene	648	2.04	4.08	"	"	"	ND	79	47-132%	3	30%	
Benzo(g,h,i)perylene	619	2.04	4.08	"	"	"	6.45	75	43-134%	2	30%	
Chrysene	605	2.04	4.08	"	"	"	ND	73	50-124%	1	30%	
Dibenz(a,h)anthracene	684	2.04	4.08	"	"	"	ND	84	45-134%	0.03	30%	
Dibenzofuran	587	2.04	4.08	"	"	"	ND	72	44-120%	23	30%	
Fluoranthene	645	2.04	4.08	"	"	"	ND	79	50-127%	3	30%	
Fluorene	611	2.04	4.08	"	"	"	ND	75	43-125%	16	30%	
Indeno(1,2,3-cd)pyrene	666	2.04	4.08	"	"	"	2.96	81	45-133%	0.6	30%	
1-Methylnaphthalene	556	4.08	8.16	"	"	"	ND	68	40-120%	42	30%	Q-24
2-Methylnaphthalene	592	4.08	8.16	"	"	"	ND	73	38-122%	44	30%	Q-24
Naphthalene	539	4.08	8.16	"	"	"	ND	66	35-123%	50	30%	Q-24
Phenanthrene	599	2.04	4.08	"	"	"	ND	73	50-121%	4	30%	
Pyrene	613	2.04	4.08	"	"	"	3.20	75	47-127%	3	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*		*Limits: 44-115 %*				*Dilution: 1x*			
p-Terphenyl-d14 (Surr)			*72 %*		*54-127 %*				*"*			

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120255 - EPA 3546							**Soil**					
Blank (6120255-BLK1)					Prepared: 12/06/16 10:09 Analyzed: 12/07/16 15:39							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*				*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*70 %*	*54-127 %*				*"*				
LCS (6120255-BS1)					Prepared: 12/06/16 10:09 Analyzed: 12/07/16 16:05							
EPA 8270D (SIM)												
Acenaphthene	661	2.00	4.00	ug/kg wet	1	800	---	83	40-122%	---	---	
Acenaphthylene	648	2.00	4.00	"	"	"	---	81	32-132%	---	---	
Anthracene	639	2.00	4.00	"	"	"	---	80	47-123%	---	---	
Benz(a)anthracene	655	2.00	4.00	"	"	"	---	82	49-126%	---	---	
Benzo(a)pyrene	718	2.00	4.00	"	"	"	---	90	45-129%	---	---	
Benzo(b)fluoranthene	701	2.00	4.00	"	"	"	---	88	45-132%	---	---	
Benzo(k)fluoranthene	722	2.00	4.00	"	"	"	---	90	47-132%	---	---	
Benzo(g,h,i)perylene	582	2.00	4.00	"	"	"	---	73	43-134%	---	---	
Chrysene	634	2.00	4.00	"	"	"	---	79	50-124%	---	---	
Dibenz(a,h)anthracene	705	2.00	4.00	"	"	"	---	88	45-134%	---	---	
Dibenzofuran	639	2.00	4.00	"	"	"	---	80	44-120%	---	---	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120255 - EPA 3546									Soil			
LCS (6120255-BS1)					Prepared: 12/06/16 10:09 Analyzed: 12/07/16 16:05							
EPA 8270D (SIM)												
Fluoranthene	684	2.00	4.00	ug/kg wet	"	"	---	85	50-127%	---	---	
Fluorene	630	2.00	4.00	"	"	"	---	79	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	645	2.00	4.00	"	"	"	---	81	45-133%	---	---	
1-Methylnaphthalene	652	4.00	8.00	"	"	"	---	82	40-120%	---	---	
2-Methylnaphthalene	648	4.00	8.00	"	"	"	---	81	38-122%	---	---	
Naphthalene	581	4.00	8.00	"	"	"	---	73	35-123%	---	---	
Phenanthrene	573	2.00	4.00	"	"	"	---	72	50-121%	---	---	
Pyrene	674	2.00	4.00	"	"	"	---	84	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 72 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*72 %*	*54-127 %*			*"*					
Duplicate (6120255-DUP1)					Prepared: 12/06/16 10:09 Analyzed: 12/07/16 16:57							H-08
QC Source Sample: BM-02-15-30' (0.5-1')_Prepared (A6J1012-39RE1)												
EPA 8270D (SIM)												
Acenaphthene	ND	2.04	4.08	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Anthracene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	**2.81**	2.04	4.08	"	"	---	3.48	---	---	21	30%	J
Benzo(b)fluoranthene	**5.26**	2.04	4.08	"	"	---	6.05	---	---	14	30%	M-02
Benzo(k)fluoranthene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	**5.94**	2.04	4.08	"	"	---	6.91	---	---	15	30%	
Chrysene	**7.78**	2.04	4.08	"	"	---	8.49	---	---	9	30%	M-02
Dibenz(a,h)anthracene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Fluorene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	**2.55**	2.04	4.08	"	"	---	3.39	---	---	28	30%	J
1-Methylnaphthalene	ND	4.08	8.16	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	4.08	8.16	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	4.08	8.16	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Pyrene	**2.31**	2.04	4.08	"	"	---	3.08	---	---	28	30%	J
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 62 %*	*Limits: 44-115 %*			*Dilution: 1x*					

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120255 - EPA 3546							**Soil**					
Duplicate (6120255-DUP1)					Prepared: 12/06/16 10:09 Analyzed: 12/07/16 16:57							H-08
QC Source Sample: BM-02-15-30' (0.5-1')_Prepared (A6J1012-39RE1)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)				*Recovery: 65 %*	*Limits: 54-127 %*		*Dilution: 1x*					
Matrix Spike (6120255-MS1)					Prepared: 12/06/16 10:09 Analyzed: 12/07/16 17:49							H-08
QC Source Sample: BM-03->30' (0.5-1')_Prepared (A6J1013-17RE1)												
EPA 8270D (SIM)												
Acenaphthene	682	2.24	4.48	ug/kg dry	1	895	ND	76	40-122%	---	---	
Acenaphthylene	657	2.24	4.48	"	"	"	ND	73	32-132%	---	---	
Anthracene	650	2.24	4.48	"	"	"	ND	73	47-123%	---	---	
Benz(a)anthracene	657	2.24	4.48	"	"	"	ND	73	49-126%	---	---	
Benzo(a)pyrene	704	2.24	4.48	"	"	"	ND	79	45-129%	---	---	
Benzo(b)fluoranthene	731	2.24	4.48	"	"	"	2.38	81	45-132%	---	---	
Benzo(k)fluoranthene	740	2.24	4.48	"	"	"	ND	83	47-132%	---	---	
Benzo(g,h,i)perylene	506	2.24	4.48	"	"	"	3.46	56	43-134%	---	---	
Chrysene	647	2.24	4.48	"	"	"	ND	72	50-124%	---	---	
Dibenz(a,h)anthracene	694	2.24	4.48	"	"	"	ND	78	45-134%	---	---	
Dibenzofuran	660	2.24	4.48	"	"	"	ND	74	44-120%	---	---	
Fluoranthene	702	2.24	4.48	"	"	"	ND	78	50-127%	---	---	
Fluorene	656	2.24	4.48	"	"	"	ND	73	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	599	2.24	4.48	"	"	"	ND	67	45-133%	---	---	
1-Methylnaphthalene	646	4.48	8.95	"	"	"	ND	72	40-120%	---	---	
2-Methylnaphthalene	641	4.48	8.95	"	"	"	ND	72	38-122%	---	---	
Naphthalene	584	4.48	8.95	"	"	"	ND	65	35-123%	---	---	
Phenanthrene	584	2.24	4.48	"	"	"	ND	65	50-121%	---	---	
Pyrene	693	2.24	4.48	"	"	"	ND	77	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)				*Recovery: 66 %*	*Limits: 44-115 %*		*Dilution: 1x*					
p-Terphenyl-d14 (Surr)				*66 %*	*54-127 %*		*"*					

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7010394 - EPA 3546							Soil					
Blank (7010394-BLK1)					Prepared: 01/12/17 10:34 Analyzed: 01/12/17 15:19							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 89 %*	*Limits: 44-115 %*				*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*101 %*	*54-127 %*				*"*				
LCS (7010394-BS1)					Prepared: 01/12/17 10:34 Analyzed: 01/12/17 15:45							
EPA 8270D (SIM)												
Acenaphthene	757	2.00	4.00	ug/kg wet	1	800	---	95	40-122%	---	---	
Acenaphthylene	741	2.00	4.00	"	"	"	---	93	32-132%	---	---	
Anthracene	734	2.00	4.00	"	"	"	---	92	47-123%	---	---	
Benz(a)anthracene	727	2.00	4.00	"	"	"	---	91	49-126%	---	---	
Benzo(a)pyrene	742	2.00	4.00	"	"	"	---	93	45-129%	---	---	
Benzo(b)fluoranthene	735	2.00	4.00	"	"	"	---	92	45-132%	---	---	
Benzo(k)fluoranthene	726	2.00	4.00	"	"	"	---	91	47-132%	---	---	
Benzo(g,h,i)perylene	725	2.00	4.00	"	"	"	---	91	43-134%	---	---	
Chrysene	716	2.00	4.00	"	"	"	---	90	50-124%	---	---	
Dibenz(a,h)anthracene	770	2.00	4.00	"	"	"	---	96	45-134%	---	---	
Dibenzofuran	747	2.00	4.00	"	"	"	---	93	44-120%	---	---	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7010394 - EPA 3546							**Soil**					
LCS (7010394-BS1)					Prepared: 01/12/17 10:34 Analyzed: 01/12/17 15:45							
EPA 8270D (SIM)												
Fluoranthene	738	2.00	4.00	ug/kg wet	"	"	---	92	50-127%	---	---	
Fluorene	731	2.00	4.00	"	"	"	---	91	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	714	2.00	4.00	"	"	"	---	89	45-133%	---	---	
1-Methylnaphthalene	703	4.00	8.00	"	"	"	---	88	40-120%	---	---	
2-Methylnaphthalene	718	4.00	8.00	"	"	"	---	90	38-122%	---	---	
Naphthalene	715	4.00	8.00	"	"	"	---	89	35-123%	---	---	
Phenanthrene	710	2.00	4.00	"	"	"	---	89	50-121%	---	---	
Pyrene	733	2.00	4.00	"	"	"	---	92	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 84 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*91 %*	*54-127 %*			*"*					
Duplicate (7010394-DUP1)					Prepared: 01/12/17 10:35 Analyzed: 01/12/17 16:36							H-08
QC Source Sample: DC-03-15-30' (0.5-1')_Prepared (A6J0986-35RE1)												
EPA 8270D (SIM)												
Acenaphthene	ND	2.00	4.00	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	2.00	4.00	"	"	---	ND	---	---	---	30%	
Anthracene	ND	2.00	4.00	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	4.99	4.99	"	"	---	ND	---	---	---	30%	R-02
Benzo(a)pyrene	ND	2.00	4.00	"	"	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	2.00	4.00	"	"	---	2.21	---	---		30%	
Benzo(k)fluoranthene	ND	2.00	4.00	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	**5.02**	2.00	4.00	"	"	---	6.06	---	---	19	30%	
Chrysene	ND	4.99	4.99	"	"	---	ND	---	---	---	30%	R-02
Dibenz(a,h)anthracene	ND	2.00	4.00	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	2.00	4.00	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	2.00	4.00	"	"	---	ND	---	---	---	30%	
Fluorene	ND	2.00	4.00	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	2.00	4.00	"	"	---	2.45	---	---		30%	
1-Methylnaphthalene	ND	4.00	7.99	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	4.00	7.99	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	4.00	7.99	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	2.00	4.00	"	"	---	ND	---	---	---	30%	
Pyrene	ND	2.00	4.00	"	"	---	2.10	---	---		30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 57 %*	*Limits: 44-115 %*			*Dilution: 1x*					

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7010394 - EPA 3546									Soil			
Duplicate (7010394-DUP1)					Prepared: 01/12/17 10:35 Analyzed: 01/12/17 16:36							H-08
QC Source Sample: DC-03-15-30' (0.5-1')_Prepared (A6J0986-35RE1)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 64 %*	*Limits: 54-127 %*			*Dilution: 1x*					
Matrix Spike (7010394-MS1)					Prepared: 01/12/17 10:34 Analyzed: 01/12/17 17:02							H-08
QC Source Sample: DC-03-15-30' (0.5-1')_Prepared (A6J0986-35RE1)												
EPA 8270D (SIM)												
Acenaphthene	697	1.99	3.98	ug/kg dry	1	797	ND	87	40-122%	---	---	
Acenaphthylene	677	1.99	3.98	"	"	"	ND	85	32-132%	---	---	
Anthracene	667	1.99	3.98	"	"	"	ND	84	47-123%	---	---	
Benz(a)anthracene	662	1.99	3.98	"	"	"	ND	82	49-126%	---	---	
Benzo(a)pyrene	677	1.99	3.98	"	"	"	ND	85	45-129%	---	---	
Benzo(b)fluoranthene	677	1.99	3.98	"	"	"	2.21	85	45-132%	---	---	
Benzo(k)fluoranthene	674	1.99	3.98	"	"	"	ND	85	47-132%	---	---	
Benzo(g,h,i)perylene	588	1.99	3.98	"	"	"	6.06	73	43-134%	---	---	
Chrysene	664	1.99	3.98	"	"	"	ND	83	50-124%	---	---	
Dibenz(a,h)anthracene	669	1.99	3.98	"	"	"	ND	84	45-134%	---	---	
Dibenzofuran	685	1.99	3.98	"	"	"	ND	86	44-120%	---	---	
Fluoranthene	684	1.99	3.98	"	"	"	ND	86	50-127%	---	---	
Fluorene	683	1.99	3.98	"	"	"	ND	86	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	612	1.99	3.98	"	"	"	2.45	76	45-133%	---	---	
1-Methylnaphthalene	643	3.98	7.97	"	"	"	ND	81	40-120%	---	---	
2-Methylnaphthalene	652	3.98	7.97	"	"	"	ND	82	38-122%	---	---	
Naphthalene	643	3.98	7.97	"	"	"	ND	81	35-123%	---	---	
Phenanthrene	658	1.99	3.98	"	"	"	ND	83	50-121%	---	---	
Pyrene	679	1.99	3.98	"	"	"	2.10	85	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*92 %*	*54-127 %*			*"*					

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110732 - EPA 3051A							**Soil**					
Blank (6110732-BLK1)					Prepared: 11/18/16 13:33		Analyzed: 11/21/16 16:03					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6110732-BS1)					Prepared: 11/18/16 13:33		Analyzed: 11/21/16 16:07					
EPA 6020A												
Lead	50.7	0.100	0.200	mg/kg wet	10	50.0	---	101	80-120%	---	---	
Duplicate (6110732-DUP1)					Prepared: 11/18/16 13:33		Analyzed: 11/21/16 17:59					
QC Source Sample: DC-03->30' (0-0.5')_Prepared (A6J0986-37)												
EPA 6020A												
Lead	**37.0**	0.115	0.230	mg/kg dry	10	---	40.1	---	---	8	40%	
Duplicate (6110732-DUP2)					Prepared: 11/18/16 13:33		Analyzed: 11/21/16 18:03					
QC Source Sample: DC-03->30' (0-0.5')_Prepared (A6J0986-37)												
EPA 6020A												
Lead	**37.6**	0.106	0.212	mg/kg dry	10	---	40.1	---	---	6	40%	
Matrix Spike (6110732-MS1)					Prepared: 11/18/16 13:33		Analyzed: 11/21/16 18:06					
QC Source Sample: DC-03->30' (0-0.5')_Prepared (A6J0986-37)												
EPA 6020A												
Lead	96.4	0.111	0.223	mg/kg dry	10	55.8	40.1	101	75-125%	---	---	
Matrix Spike (6110732-MS2)					Prepared: 11/18/16 13:33		Analyzed: 11/21/16 16:40					
QC Source Sample: DC-01-15-30' (0.5-1')_Prepared (A6J0986-22)												
EPA 6020A												
Lead	79.8	0.110	0.219	mg/kg dry	10	54.8	23.8	102	75-125%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110738 - EPA 3051A							**Soil**					
Blank (6110738-BLK1)					Prepared: 11/18/16 16:06		Analyzed: 11/21/16 18:25					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6110738-BS1)					Prepared: 11/18/16 16:06		Analyzed: 11/21/16 18:29					
EPA 6020A												
Lead	51.0	0.100	0.200	mg/kg wet	10	50.0	---	102	80-120%	---	---	
Duplicate (6110738-DUP1)					Prepared: 11/18/16 16:06		Analyzed: 11/21/16 18:40					
QC Source Sample: DC-03->30' (0.5-1')_Prepared (A6J0986-38)												
EPA 6020A												
Lead	**7.20**	0.105	0.210	mg/kg dry	10	---	6.36	---	---	12	40%	
Duplicate (6110738-DUP2)					Prepared: 11/18/16 16:06		Analyzed: 11/21/16 18:44					
QC Source Sample: DC-03->30' (0.5-1')_Prepared (A6J0986-38)												
EPA 6020A												
Lead	**7.67**	0.101	0.203	mg/kg dry	10	---	6.36	---	---	19	40%	
Duplicate (6110738-DUP3)					Prepared: 11/18/16 16:06		Analyzed: 11/21/16 20:06					
QC Source Sample: DC-05->30' (1-1.5')_Prepared (A6J0990-32)												
EPA 6020A												
Lead	**6.39**	0.100	0.201	mg/kg dry	10	---	5.99	---	---	6	40%	
Duplicate (6110738-DUP4)					Prepared: 11/18/16 16:06		Analyzed: 11/21/16 20:10					
QC Source Sample: DC-05->30' (1-1.5')_Prepared (A6J0990-32)												
EPA 6020A												
Lead	**6.09**	0.101	0.203	mg/kg dry	10	---	5.99	---	---	2	40%	
Matrix Spike (6110738-MS1)					Prepared: 11/18/16 16:06		Analyzed: 11/21/16 18:48					
QC Source Sample: DC-03->30' (0.5-1')_Prepared (A6J0986-38)												
EPA 6020A												
Lead	56.9	0.102	0.204	mg/kg dry	10	51.0	6.36	99	75-125%	---	---	
Matrix Spike (6110738-MS2)					Prepared: 11/18/16 16:06		Analyzed: 11/21/16 20:14					
QC Source Sample: DC-05->30' (1-1.5')_Prepared (A6J0990-32)												
EPA 6020A												
Lead	58.4	0.106	0.211	mg/kg dry	10	52.8	5.99	99	75-125%	---	---	

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Lisa Domenighini, Client Services Manager

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110781 - EPA 3051A											**Solid**	
Blank (6110781-BLK1)					Prepared: 11/21/16 15:44 Analyzed: 11/22/16 10:27							
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg	10	---	---	---	---	---	---	
LCS (6110781-BS1)					Prepared: 11/21/16 15:44 Analyzed: 11/22/16 10:31							
EPA 6020A												
Lead	50.0	0.100	0.200	mg/kg	10	50.0	---	100	80-120%	---	---	

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110811 - EPA 3051A							**Soil**					
Blank (6110811-BLK1)					Prepared: 11/22/16 13:35 Analyzed: 11/22/16 20:40							
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6110811-BS1)					Prepared: 11/22/16 13:35 Analyzed: 11/22/16 20:43							
EPA 6020A												
Lead	58.1	0.100	0.200	mg/kg wet	10	50.0	---	116	80-120%	---	---	
Duplicate (6110811-DUP1)					Prepared: 11/22/16 13:35 Analyzed: 11/22/16 20:59							
QC Source Sample: DC-06->30' (0-0.5')_Prepared (A6J0990-36)												
EPA 6020A												
Lead	**16.0**	0.109	0.219	mg/kg dry	10	---	15.0	---	---	6	40%	
Matrix Spike (6110811-MS1)					Prepared: 11/22/16 13:35 Analyzed: 11/22/16 21:11							
QC Source Sample: DC-06->30' (0-0.5')_Prepared (A6J0990-36)												
EPA 6020A												
Lead	76.9	0.113	0.226	mg/kg dry	10	56.6	15.0	109	75-125%	---	---	

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Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120131 - EPA 3051A							**Soil**					
Blank (6120131-BLK1)					Prepared: 12/01/16 12:20		Analyzed: 12/01/16 19:47					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6120131-BS1)					Prepared: 12/01/16 12:20		Analyzed: 12/01/16 19:59					
EPA 6020A												
Lead	52.2	0.100	0.200	mg/kg wet	10	50.0	---	104	80-120%	---	---	
Duplicate (6120131-DUP1)					Prepared: 12/01/16 12:20		Analyzed: 12/01/16 20:44					
QC Source Sample: DC-08->30' (1-1.5')_Prepared (A6J1004-31)												
EPA 6020A												
Lead	**4.97**	0.108	0.215	mg/kg dry	10	---	4.30	---	---	14	40%	
Duplicate (6120131-DUP2)					Prepared: 12/01/16 12:20		Analyzed: 12/01/16 20:47					
QC Source Sample: DC-08->30' (1-1.5')_Prepared (A6J1004-31)												
EPA 6020A												
Lead	**4.10**	0.0994	0.199	mg/kg dry	10	---	4.30	---	---	5	40%	
Matrix Spike (6120131-MS1)					Prepared: 12/01/16 12:20		Analyzed: 12/01/16 20:50					
QC Source Sample: DC-08->30' (1-1.5')_Prepared (A6J1004-31)												
EPA 6020A												
Lead	58.0	0.109	0.218	mg/kg dry	10	54.6	4.30	98	75-125%	---	---	
Matrix Spike (6120131-MS2)					Prepared: 12/01/16 12:20		Analyzed: 12/01/16 21:26					
QC Source Sample: DC-10-15-30' (0.5-1')_Prepared (A6J1004-39)												
EPA 6020A												
Lead	59.5	0.106	0.212	mg/kg dry	10	53.0	4.20	104	75-125%	---	---	

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120139 - EPA 3051A									Soil			
Blank (6120139-BLK1)					Prepared: 12/01/16 14:24		Analyzed: 12/01/16 21:32					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6120139-BS1)					Prepared: 12/01/16 14:24		Analyzed: 12/01/16 21:35					
EPA 6020A												
Lead	54.5	0.100	0.200	mg/kg wet	10	50.0	---	109	80-120%	---	---	
Duplicate (6120139-DUP1)					Prepared: 12/01/16 14:24		Analyzed: 12/01/16 22:26					
QC Source Sample: DC-12-15-30' (1-1.5')_Prepared (A6J1008-32)												
EPA 6020A												
Lead	**13.9**	0.103	0.206	mg/kg dry	10	---	14.2	---	---	3	40%	
Duplicate (6120139-DUP2)					Prepared: 12/01/16 14:24		Analyzed: 12/01/16 22:38					
QC Source Sample: DC-12-15-30' (1-1.5')_Prepared (A6J1008-32)												
EPA 6020A												
Lead	**13.6**	0.110	0.220	mg/kg dry	10	---	14.2	---	---	5	40%	
Matrix Spike (6120139-MS1)					Prepared: 12/01/16 14:24		Analyzed: 12/01/16 22:41					
QC Source Sample: DC-12-15-30' (1-1.5')_Prepared (A6J1008-32)												
EPA 6020A												
Lead	67.4	0.102	0.205	mg/kg dry	10	51.2	14.2	104	75-125%	---	---	
Matrix Spike (6120139-MS2)					Prepared: 12/01/16 14:24		Analyzed: 12/01/16 23:02					
QC Source Sample: DC-13-15-30' (1-1.5')_Prepared (A6J1008-38)												
EPA 6020A												
Lead	66.1	0.106	0.212	mg/kg dry	10	52.9	8.36	109	75-125%	---	---	

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Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120170 - EPA 3051A									Soil			
Blank (6120170-BLK1)					Prepared: 12/02/16 09:58		Analyzed: 12/02/16 20:04					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6120170-BS1)					Prepared: 12/02/16 09:58		Analyzed: 12/02/16 20:07					
EPA 6020A												
Lead	53.4	0.100	0.200	mg/kg wet	10	50.0	---	107	80-120%	---	---	
Duplicate (6120170-DUP1)					Prepared: 12/02/16 09:58		Analyzed: 12/02/16 20:28					
QC Source Sample: DC-13->30' (1-1.5')_Prepared (A6J1010-21)												
EPA 6020A												
Lead	**6.39**	0.111	0.223	mg/kg dry	10	---	6.29	---	---	2	40%	
Duplicate (6120170-DUP2)					Prepared: 12/02/16 09:58		Analyzed: 12/02/16 20:31					
QC Source Sample: DC-13->30' (1-1.5')_Prepared (A6J1010-21)												
EPA 6020A												
Lead	**6.38**	0.110	0.220	mg/kg dry	10	---	6.29	---	---	1	40%	
Matrix Spike (6120170-MS1)					Prepared: 12/02/16 09:58		Analyzed: 12/02/16 20:34					
QC Source Sample: DC-13->30' (1-1.5')_Prepared (A6J1010-21)												
EPA 6020A												
Lead	62.8	0.112	0.223	mg/kg dry	10	55.8	6.29	101	75-125%	---	---	
Matrix Spike (6120170-MS2)					Prepared: 12/02/16 09:58		Analyzed: 12/02/16 21:43					
QC Source Sample: DC-16-15-30' (1-1.5')_Prepared (A6J1010-37)												
EPA 6020A												
Lead	59.6	0.108	0.215	mg/kg dry	10	53.8	4.40	103	75-125%	---	---	

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120175 - EPA 3051A							**Soil**					
Blank (6120175-BLK1)					Prepared: 12/02/16 12:02		Analyzed: 12/02/16 16:28					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6120175-BS1)					Prepared: 12/02/16 12:02		Analyzed: 12/02/16 16:32					
EPA 6020A												
Lead	47.8	0.100	0.200	mg/kg wet	10	50.0	---	96	80-120%	---	---	
Duplicate (6120175-DUP1)					Prepared: 12/02/16 12:02		Analyzed: 12/02/16 17:17					
QC Source Sample: DC-17-15-30' (0.5-1')_Prepared (A6J1011-22)												
EPA 6020A												
Lead	**5.81**	0.105	0.210	mg/kg dry	10	---	5.89	---	---	1	40%	
Duplicate (6120175-DUP2)					Prepared: 12/02/16 12:02		Analyzed: 12/02/16 17:21					
QC Source Sample: DC-17-15-30' (0.5-1')_Prepared (A6J1011-22)												
EPA 6020A												
Lead	**5.87**	0.105	0.210	mg/kg dry	10	---	5.89	---	---	0.5	40%	
Matrix Spike (6120175-MS1)					Prepared: 12/02/16 12:02		Analyzed: 12/02/16 17:25					
QC Source Sample: DC-17-15-30' (0.5-1')_Prepared (A6J1011-22)												
EPA 6020A												
Lead	57.5	0.109	0.217	mg/kg dry	10	54.3	5.89	95	75-125%	---	---	
Matrix Spike (6120175-MS2)					Prepared: 12/02/16 12:02		Analyzed: 12/02/16 19:06					
QC Source Sample: DC-19->30' (0-0.5')_Prepared (A6J1011-36)												
EPA 6020A												
Lead	59.5	0.113	0.225	mg/kg dry	10	56.4	9.27	89	75-125%	---	---	

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120189 - EPA 3051A									Soil			
Blank (6120189-BLK1)					Prepared: 12/02/16 14:32 Analyzed: 12/05/16 11:52							
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6120189-BS1)					Prepared: 12/02/16 14:32 Analyzed: 12/05/16 11:55							
EPA 6020A												
Lead	45.5	0.100	0.200	mg/kg wet	10	50.0	---	91	80-120%	---	---	
Duplicate (6120189-DUP1)					Prepared: 12/02/16 14:32 Analyzed: 12/05/16 13:25							
QC Source Sample: BM-03->30' (0-0.5')_Prepared (A6J1013-16)												
EPA 6020A												
Lead	**8.02**	0.103	0.206	mg/kg dry	10	---	7.56	---	---	6	40%	
Duplicate (6120189-DUP2)					Prepared: 12/02/16 14:32 Analyzed: 12/05/16 13:29							
QC Source Sample: BM-03->30' (0-0.5')_Prepared (A6J1013-16)												
EPA 6020A												
Lead	**8.02**	0.110	0.221	mg/kg dry	10	---	7.56	---	---	6	40%	
Matrix Spike (6120189-MS1)					Prepared: 12/02/16 14:32 Analyzed: 12/05/16 13:32							
QC Source Sample: BM-03->30' (0-0.5')_Prepared (A6J1013-16)												
EPA 6020A												
Lead	58.8	0.111	0.222	mg/kg dry	10	55.4	7.56	93	75-125%	---	---	
Matrix Spike (6120189-MS2)					Prepared: 12/02/16 14:32 Analyzed: 12/05/16 13:44							
QC Source Sample: BM-03->30' (1-1.5')_Prepared (A6J1013-18)												
EPA 6020A												
Lead	62.4	0.120	0.240	mg/kg dry	10	59.9	9.27	89	75-125%	---	---	

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Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120380 - EPA 3051A									Soil			
Blank (6120380-BLK1)					Prepared: 12/09/16 14:57		Analyzed: 12/12/16 15:33					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6120380-BS1)					Prepared: 12/09/16 14:57		Analyzed: 12/12/16 15:36					
EPA 6020A												
Lead	54.5	0.100	0.200	mg/kg wet	10	50.0	---	109	80-120%	---	---	
Duplicate (6120380-DUP1)					Prepared: 12/09/16 14:57		Analyzed: 12/12/16 15:42					
QC Source Sample: DC-21-15-30' (0-0.5')_Prepared (A6J1012-26)												
EPA 6020A												
Lead	**104**	0.109	0.217	mg/kg dry	10	---	95.0	---	---	9	40%	
Duplicate (6120380-DUP2)					Prepared: 12/09/16 14:57		Analyzed: 12/12/16 15:45					
QC Source Sample: DC-21-15-30' (0-0.5')_Prepared (A6J1012-26)												
EPA 6020A												
Lead	**97.9**	0.109	0.217	mg/kg dry	10	---	95.0	---	---	3	40%	
Matrix Spike (6120380-MS1)					Prepared: 12/09/16 14:57		Analyzed: 12/12/16 15:58					
QC Source Sample: DC-21-15-30' (0-0.5')_Prepared (A6J1012-26)												
EPA 6020A												
Lead	152	0.101	0.202	mg/kg dry	10	50.6	95.0	112	75-125%	---	---	

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120537 - EPA 3051A											**Solid**	
Blank (6120537-BLK1)					Prepared: 12/15/16 15:23		Analyzed: 12/16/16 12:16					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg	10	---	---	---	---	---	---	
LCS (6120537-BS1)					Prepared: 12/15/16 15:23		Analyzed: 12/16/16 12:20					
EPA 6020A												
Lead	46.2	0.100	0.200	mg/kg	10	50.0	---	92	80-120%	---	---	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110441 - Total Solids (Dry Weight)											**Soil**	
Duplicate (6110441-DUP1)					Prepared: 11/10/16 10:03		Analyzed: 11/11/16 08:59					
QC Source Sample: DC-02-15-30' (0-0.5')_Prepared (A6J0986-27)												
EPA 8000C												
% Solids	**96.4**	---	1.00	% by Weight	1	---	96.5	---	---	0.09	10%	
Duplicate (6110441-DUP2)					Prepared: 11/10/16 10:03		Analyzed: 11/11/16 08:59					
QC Source Sample: DC-03->30' (0-0.5')_Prepared (A6J0986-37)												
EPA 8000C												
% Solids	**96.3**	---	1.00	% by Weight	1	---	96.5	---	---	0.2	10%	
Batch 6110484 - Total Solids (Dry Weight)											**Soil**	
Duplicate (6110484-DUP1)					Prepared: 11/11/16 09:09		Analyzed: 11/14/16 08:08					
QC Source Sample: DC-05->30' (0.5-1')_Prepared (A6J0990-31)												
EPA 8000C												
% Solids	**96.3**	---	1.00	% by Weight	1	---	96.4	---	---	0.2	10%	
Duplicate (6110484-DUP2)					Prepared: 11/11/16 09:09		Analyzed: 11/14/16 08:08					
QC Source Sample: DC-07-15-30' (1-1.5')_Prepared (A6J1004-21)												
EPA 8000C												
% Solids	**96.2**	---	1.00	% by Weight	1	---	96.4	---	---	0.2	10%	
Duplicate (6110484-DUP3)					Prepared: 11/11/16 09:09		Analyzed: 11/14/16 08:08					
QC Source Sample: DC-08->30' (1-1.5')_Prepared (A6J1004-31)												
EPA 8000C												
% Solids	**96.7**	---	1.00	% by Weight	1	---	97.1	---	---	0.3	10%	
Batch 6110537 - Total Solids (Dry Weight)											**Soil**	
Duplicate (6110537-DUP1)					Prepared: 11/14/16 11:36		Analyzed: 11/15/16 08:59					
QC Source Sample: DC-12-15-30' (0-0.5')_Prepared (A6J1008-30)												
EPA 8000C												
% Solids	**98.2**	---	1.00	% by Weight	1	---	98.2	---	---	0.001	10%	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110537 - Total Solids (Dry Weight)							Soil					
Duplicate (6110537-DUP2)					Prepared: 11/14/16 11:36		Analyzed: 11/15/16 08:59					
QC Source Sample: DC-13->30' (0.5-1')_Prepared (A6J1008-40)												
EPA 8000C												
% Solids	**97.0**	---	1.00	% by Weight	1	---	97.0	---	---	0.03	10%	
Batch 6110575 - Total Solids (Dry Weight)							Soil					
Duplicate (6110575-DUP1)					Prepared: 11/15/16 10:25		Analyzed: 11/16/16 09:08					
QC Source Sample: DC-15-15-30' (0.5-1')_Prepared (A6J1010-29)												
EPA 8000C												
% Solids	**95.8**	---	1.00	% by Weight	1	---	95.9	---	---	0.08	10%	
Duplicate (6110575-DUP2)					Prepared: 11/15/16 10:25		Analyzed: 11/16/16 09:08					
QC Source Sample: DC-16->30' (0.5-1')_Prepared (A6J1010-39)												
EPA 8000C												
% Solids	**98.8**	---	1.00	% by Weight	1	---	98.9	---	---	0.05	10%	
Batch 6110622 - Total Solids (Dry Weight)							Soil					
Duplicate (6110622-DUP1)					Prepared: 11/16/16 11:04		Analyzed: 11/17/16 08:46					
QC Source Sample: DC-18->30' (0-0.5')_Prepared (A6J1011-30)												
EPA 8000C												
% Solids	**98.0**	---	1.00	% by Weight	1	---	96.0	---	---	2	10%	
Duplicate (6110622-DUP2)					Prepared: 11/16/16 11:04		Analyzed: 11/17/16 08:46					
QC Source Sample: DC-20-15-30' (0.5-1')_Prepared (A6J1011-40)												
EPA 8000C												
% Solids	**98.3**	---	1.00	% by Weight	1	---	98.2	---	---	0.1	10%	
Batch 6110669 - Total Solids (Dry Weight)							Soil					
Duplicate (6110669-DUP1)					Prepared: 11/17/16 10:15		Analyzed: 11/18/16 09:30					

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110669 - Total Solids (Dry Weight)											**Soil**	
Duplicate (6110669-DUP1)					Prepared: 11/17/16 10:15 Analyzed: 11/18/16 09:30							
QC Source Sample: DC-21->30' (1-1.5')_Prepared (A6J1012-31)												
EPA 8000C												
% Solids	**96.6**	---	1.00	% by Weight	1	---	96.7	---	---	0.08	10%	
Batch 6110719 - Total Solids (Dry Weight)											**Soil**	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

SAMPLE PREPARATION INFORMATION

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6110449							
A6J0986-21	Soil	EPA 8270D (SIM)	10/18/16 09:12	11/10/16 11:14	10.69g/2mL	10g/2mL	0.94
A6J0986-23	Soil	EPA 8270D (SIM)	10/18/16 09:27	11/10/16 11:14	10.26g/2mL	10g/2mL	0.98
A6J0986-24	Soil	EPA 8270D (SIM)	10/18/16 09:34	11/10/16 11:14	10.59g/2mL	10g/2mL	0.94
A6J0986-25	Soil	EPA 8270D (SIM)	10/18/16 09:38	11/10/16 11:14	10.11g/2mL	10g/2mL	0.99
A6J0986-26	Soil	EPA 8270D (SIM)	10/18/16 09:43	11/10/16 11:14	10.39g/2mL	10g/2mL	0.96
A6J0986-27	Soil	EPA 8270D (SIM)	10/18/16 10:29	11/10/16 11:14	10.14g/2mL	10g/2mL	0.99
A6J0986-28	Soil	EPA 8270D (SIM)	10/18/16 10:29	11/10/16 11:14	10.27g/2mL	10g/2mL	0.97
A6J0986-29	Soil	EPA 8270D (SIM)	10/18/16 10:37	11/10/16 11:14	10.1g/2mL	10g/2mL	0.99
A6J0986-30	Soil	EPA 8270D (SIM)	10/18/16 10:44	11/10/16 11:14	10.61g/2mL	10g/2mL	0.94
A6J0986-31	Soil	EPA 8270D (SIM)	10/18/16 10:48	11/10/16 11:14	10.16g/2mL	10g/2mL	0.98
A6J0986-37	Soil	EPA 8270D (SIM)	10/18/16 11:48	11/10/16 11:14	10.24g/2mL	10g/2mL	0.98
A6J0986-38	Soil	EPA 8270D (SIM)	10/18/16 11:57	11/10/16 11:14	10.31g/2mL	10g/2mL	0.97
A6J0986-39	Soil	EPA 8270D (SIM)	10/18/16 12:04	11/10/16 11:14	10.66g/2mL	10g/2mL	0.94
A6J0986-40	Soil	EPA 8270D (SIM)	10/18/16 12:38	11/10/16 11:14	10.3g/2mL	10g/2mL	0.97
A6J0986-41RE1	Solid	EPA 8270D (SIM)	10/18/16 00:00	11/10/16 11:14	10.19g/2mL	10g/2mL	0.98
Batch: 6110476							
A6J0990-21	Soil	EPA 8270D (SIM)	10/18/16 12:45	11/11/16 07:02	10.53g/2mL	10g/2mL	0.95
A6J0990-22	Soil	EPA 8270D (SIM)	10/18/16 12:51	11/11/16 07:02	10.55g/2mL	10g/2mL	0.95
A6J0990-23	Soil	EPA 8270D (SIM)	10/18/16 12:56	11/11/16 07:02	10.37g/2mL	10g/2mL	0.96
A6J0990-24	Soil	EPA 8270D (SIM)	10/18/16 13:03	11/11/16 07:02	10.25g/2mL	10g/2mL	0.98
A6J0990-25	Soil	EPA 8270D (SIM)	10/18/16 13:09	11/11/16 07:02	10.47g/2mL	10g/2mL	0.96
A6J0990-26	Soil	EPA 8270D (SIM)	10/18/16 13:58	11/11/16 07:02	10.38g/2mL	10g/2mL	0.96
A6J0990-27	Soil	EPA 8270D (SIM)	10/18/16 14:07	11/11/16 07:02	10.45g/2mL	10g/2mL	0.96
A6J0990-28	Soil	EPA 8270D (SIM)	10/18/16 14:20	11/11/16 07:02	10.54g/2mL	10g/2mL	0.95
A6J0990-29	Soil	EPA 8270D (SIM)	10/18/16 14:20	11/11/16 07:02	10.59g/5mL	10g/2mL	2.36
A6J0990-30	Soil	EPA 8270D (SIM)	10/18/16 14:29	11/11/16 07:02	10.35g/2mL	10g/2mL	0.97
A6J0990-31	Soil	EPA 8270D (SIM)	10/18/16 14:36	11/11/16 07:02	10.7g/2mL	10g/2mL	0.94
A6J0990-32	Soil	EPA 8270D (SIM)	10/18/16 14:42	11/11/16 07:02	10.41g/2mL	10g/2mL	0.96
A6J0990-33	Soil	EPA 8270D (SIM)	10/18/16 15:09	11/11/16 07:02	10.27g/2mL	10g/2mL	0.97
A6J0990-34	Soil	EPA 8270D (SIM)	10/18/16 15:17	11/11/16 07:02	10.35g/2mL	10g/2mL	0.97
A6J0990-35	Soil	EPA 8270D (SIM)	10/18/16 15:24	11/11/16 07:02	10.43g/2mL	10g/2mL	0.96
A6J0990-36	Soil	EPA 8270D (SIM)	10/18/16 15:29	11/11/16 07:02	10.58g/2mL	10g/2mL	0.95
A6J0990-37	Soil	EPA 8270D (SIM)	10/18/16 15:37	11/11/16 07:02	10.31g/2mL	10g/2mL	0.97

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

SAMPLE PREPARATION INFORMATION

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0990-38	Soil	EPA 8270D (SIM)	10/18/16 15:43	11/11/16 07:02	10.28g/2mL	10g/2mL	0.97
A6J0990-39	Soil	EPA 8270D (SIM)	10/18/16 16:02	11/11/16 07:02	10.37g/2mL	10g/2mL	0.96
A6J0990-40	Soil	EPA 8270D (SIM)	10/18/16 16:08	11/11/16 07:02	10.61g/2mL	10g/2mL	0.94
A6J0990-41RE1	Solid	EPA 8270D (SIM)	10/18/16 00:00	11/11/16 07:02	10.3g/2mL	10g/2mL	0.97
Batch: 6110565							
A6J1004-22	Soil	EPA 8270D (SIM)	10/18/16 16:20	11/15/16 08:07	10.29g/2mL	10g/2mL	0.97
A6J1004-23	Soil	EPA 8270D (SIM)	10/18/16 16:25	11/15/16 08:07	10.41g/2mL	10g/2mL	0.96
A6J1004-24	Soil	EPA 8270D (SIM)	10/18/16 16:32	11/15/16 08:07	10.96g/2mL	10g/2mL	0.91
A6J1004-26	Soil	EPA 8270D (SIM)	10/18/16 17:02	11/15/16 08:07	10.57g/2mL	10g/2mL	0.95
A6J1004-27	Soil	EPA 8270D (SIM)	10/18/16 17:09	11/15/16 08:07	10.91g/2mL	10g/2mL	0.92
A6J1004-28	Soil	EPA 8270D (SIM)	10/18/16 17:15	11/15/16 08:07	10.41g/2mL	10g/2mL	0.96
A6J1004-29	Soil	EPA 8270D (SIM)	10/18/16 17:23	11/15/16 08:07	10.72g/5mL	10g/2mL	2.33
A6J1004-30	Soil	EPA 8270D (SIM)	10/18/16 17:23	11/15/16 08:07	10.54g/2mL	10g/2mL	0.95
A6J1004-31	Soil	EPA 8270D (SIM)	10/18/16 17:32	11/15/16 08:07	10.73g/2mL	10g/2mL	0.93
A6J1004-32	Soil	EPA 8270D (SIM)	10/19/16 09:31	11/15/16 08:08	10.18g/2mL	10g/2mL	0.98
A6J1004-33	Soil	EPA 8270D (SIM)	10/19/16 09:41	11/15/16 08:08	10.33g/2mL	10g/2mL	0.97
A6J1004-34	Soil	EPA 8270D (SIM)	10/19/16 09:50	11/15/16 08:08	10.55g/2mL	10g/2mL	0.95
A6J1004-35	Soil	EPA 8270D (SIM)	10/18/16 09:54	11/15/16 08:07	10.14g/2mL	10g/2mL	0.99
A6J1004-36	Soil	EPA 8270D (SIM)	10/19/16 10:02	11/15/16 08:08	10.95g/2mL	10g/2mL	0.91
A6J1004-37	Soil	EPA 8270D (SIM)	10/19/16 10:03	11/15/16 08:08	10.57g/2mL	10g/2mL	0.95
A6J1004-38	Soil	EPA 8270D (SIM)	10/19/16 10:51	11/15/16 08:08	10.35g/2mL	10g/2mL	0.97
A6J1004-39	Soil	EPA 8270D (SIM)	10/19/16 11:03	11/15/16 08:08	10.45g/2mL	10g/2mL	0.96
A6J1004-40	Soil	EPA 8270D (SIM)	10/19/16 11:07	11/15/16 08:08	10.78g/2mL	10g/2mL	0.93
A6J1004-41RE1	Solid	EPA 8270D (SIM)	10/19/16 11:07	11/15/16 08:08	10.29g/2mL	10g/2mL	0.97
Batch: 6110578							
A6J1008-21	Soil	EPA 8270D (SIM)	10/19/16 11:12	11/15/16 11:56	11.28g/2mL	10g/2mL	0.89
A6J1008-22	Soil	EPA 8270D (SIM)	10/19/16 11:19	11/15/16 11:56	10.53g/2mL	10g/2mL	0.95
A6J1008-23	Soil	EPA 8270D (SIM)	10/19/16 11:24	11/15/16 11:56	11.54g/2mL	10g/2mL	0.87
A6J1008-24	Soil	EPA 8270D (SIM)	10/19/16 12:14	11/15/16 11:56	10.85g/2mL	10g/2mL	0.92
A6J1008-25	Soil	EPA 8270D (SIM)	10/19/16 12:26	11/15/16 11:56	11.42g/2mL	10g/2mL	0.88
A6J1008-26	Soil	EPA 8270D (SIM)	10/19/16 12:31	11/15/16 11:56	11.21g/2mL	10g/2mL	0.89
A6J1008-27	Soil	EPA 8270D (SIM)	10/19/16 12:36	11/15/16 11:56	11.53g/2mL	10g/2mL	0.87
A6J1008-28	Soil	EPA 8270D (SIM)	10/19/16 12:40	11/15/16 11:56	11.36g/2mL	10g/2mL	0.88
A6J1008-29	Soil	EPA 8270D (SIM)	10/19/16 12:45	11/15/16 11:56	11.32g/2mL	10g/2mL	0.88

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

SAMPLE PREPARATION INFORMATION

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J1008-30	Soil	EPA 8270D (SIM)	10/19/16 13:19	11/15/16 11:56	11.29g/2mL	10g/2mL	0.89
A6J1008-31	Soil	EPA 8270D (SIM)	10/19/16 13:28	11/15/16 11:56	10.66g/2mL	10g/2mL	0.94
A6J1008-32	Soil	EPA 8270D (SIM)	10/19/16 13:40	11/15/16 11:56	10.68g/2mL	10g/2mL	0.94
A6J1008-33	Soil	EPA 8270D (SIM)	10/19/16 13:51	11/15/16 11:56	10.75g/2mL	10g/2mL	0.93
A6J1008-34	Soil	EPA 8270D (SIM)	10/19/16 13:56	11/15/16 11:56	11.11g/2mL	10g/2mL	0.90
A6J1008-35	Soil	EPA 8270D (SIM)	10/19/16 14:09	11/15/16 11:56	11.29g/2mL	10g/2mL	0.89
A6J1008-36	Soil	EPA 8270D (SIM)	10/19/16 14:24	11/15/16 11:56	10.99g/2mL	10g/2mL	0.91
A6J1008-37	Soil	EPA 8270D (SIM)	10/19/16 14:29	11/15/16 11:56	10.88g/2mL	10g/2mL	0.92
A6J1008-38	Soil	EPA 8270D (SIM)	10/19/16 14:36	11/15/16 11:56	10.81g/2mL	10g/2mL	0.93
A6J1008-39	Soil	EPA 8270D (SIM)	10/19/16 14:42	11/15/16 11:56	10.78g/2mL	10g/2mL	0.93
A6J1008-40	Soil	EPA 8270D (SIM)	10/19/16 14:50	11/15/16 11:56	10.9g/2mL	10g/2mL	0.92
A6J1008-41RE1	Solid	EPA 8270D (SIM)	10/19/16 00:00	11/15/16 11:56	10.35g/2mL	10g/2mL	0.97
Batch: 6110701							
A6J1004-25	Soil	EPA 8270D (SIM)	10/18/16 16:54	11/18/16 06:40	10.63g/2mL	10g/2mL	0.94
Batch: 6110717							
A6J1010-21	Soil	EPA 8270D (SIM)	10/19/16 14:59	11/18/16 10:16	10.13g/2mL	10g/2mL	0.99
A6J1010-22	Soil	EPA 8270D (SIM)	10/19/16 15:46	11/18/16 10:16	10.08g/2mL	10g/2mL	0.99
A6J1010-23	Soil	EPA 8270D (SIM)	10/19/16 15:50	11/18/16 10:16	10.08g/2mL	10g/2mL	0.99
A6J1010-24	Soil	EPA 8270D (SIM)	10/19/16 15:55	11/18/16 10:16	10.05g/2mL	10g/2mL	1.00
A6J1010-25	Soil	EPA 8270D (SIM)	10/19/16 15:59	11/18/16 10:16	10.03g/2mL	10g/2mL	1.00
A6J1010-26	Soil	EPA 8270D (SIM)	10/19/16 16:05	11/18/16 10:16	10.02g/2mL	10g/2mL	1.00
A6J1010-27	Soil	EPA 8270D (SIM)	10/19/16 16:11	11/18/16 10:16	10.04g/2mL	10g/2mL	1.00
A6J1010-28	Soil	EPA 8270D (SIM)	10/19/16 16:40	11/18/16 10:16	10.04g/2mL	10g/2mL	1.00
A6J1010-29	Soil	EPA 8270D (SIM)	10/19/16 16:46	11/18/16 10:16	10.09g/2mL	10g/2mL	0.99
A6J1010-30	Soil	EPA 8270D (SIM)	10/19/16 16:50	11/18/16 10:16	10.05g/2mL	10g/2mL	1.00
A6J1010-31	Soil	EPA 8270D (SIM)	10/19/16 16:55	11/18/16 10:16	10.03g/2mL	10g/2mL	1.00
A6J1010-32	Soil	EPA 8270D (SIM)	10/19/16 17:01	11/18/16 10:16	10.06g/2mL	10g/2mL	0.99
A6J1010-33	Soil	EPA 8270D (SIM)	10/19/16 17:07	11/18/16 10:16	10.03g/2mL	10g/2mL	1.00
A6J1010-34	Soil	EPA 8270D (SIM)	10/19/16 17:07	11/18/16 10:16	10.06g/2mL	10g/2mL	0.99
A6J1010-35	Soil	EPA 8270D (SIM)	10/20/16 08:52	11/18/16 10:17	10.08g/2mL	10g/2mL	0.99
A6J1010-36	Soil	EPA 8270D (SIM)	10/20/16 09:01	11/18/16 10:17	10.09g/2mL	10g/2mL	0.99
A6J1010-37	Soil	EPA 8270D (SIM)	10/20/16 09:06	11/18/16 10:17	10.03g/2mL	10g/2mL	1.00
A6J1010-38	Soil	EPA 8270D (SIM)	10/20/16 09:14	11/18/16 10:17	10.06g/2mL	10g/2mL	0.99
A6J1010-39	Soil	EPA 8270D (SIM)	10/20/16 09:20	11/18/16 10:17	10.04g/2mL	10g/2mL	1.00

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

SAMPLE PREPARATION INFORMATION

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J1010-40	Soil	EPA 8270D (SIM)	10/20/16 09:25	11/18/16 10:17	10.05g/2mL	10g/2mL	1.00
A6J1010-41RE1	Solid	EPA 8270D (SIM)	10/19/16 00:00	11/18/16 10:20	10.04g/2mL	10g/2mL	1.00
Batch: 6110745							
A6J1011-21	Soil	EPA 8270D (SIM)	10/20/16 09:51	11/21/16 07:26	10.74g/2mL	10g/2mL	0.93
A6J1011-22	Soil	EPA 8270D (SIM)	10/20/16 10:02	11/21/16 07:26	10.38g/2mL	10g/2mL	0.96
A6J1011-23	Soil	EPA 8270D (SIM)	10/20/16 10:09	11/21/16 07:26	10.63g/2mL	10g/2mL	0.94
A6J1011-24	Soil	EPA 8270D (SIM)	10/20/16 10:17	11/21/16 07:26	10.7g/2mL	10g/2mL	0.94
A6J1011-25	Soil	EPA 8270D (SIM)	10/20/16 10:24	11/21/16 07:26	10.69g/2mL	10g/2mL	0.94
A6J1011-26	Soil	EPA 8270D (SIM)	10/20/16 10:30	11/21/16 07:26	10.89g/2mL	10g/2mL	0.92
A6J1011-27	Soil	EPA 8270D (SIM)	10/20/16 10:48	11/21/16 07:26	10.77g/2mL	10g/2mL	0.93
A6J1011-28	Soil	EPA 8270D (SIM)	10/20/16 10:54	11/21/16 07:26	10.5g/2mL	10g/2mL	0.95
A6J1011-29	Soil	EPA 8270D (SIM)	10/20/16 11:02	11/21/16 07:26	10.26g/2mL	10g/2mL	0.98
A6J1011-30	Soil	EPA 8270D (SIM)	10/20/16 11:08	11/21/16 07:26	10.35g/2mL	10g/2mL	0.97
A6J1011-31	Soil	EPA 8270D (SIM)	10/20/16 11:15	11/21/16 07:26	10.62g/2mL	10g/2mL	0.94
A6J1011-32	Soil	EPA 8270D (SIM)	10/20/16 11:23	11/21/16 07:26	10.22g/2mL	10g/2mL	0.98
A6J1011-33	Soil	EPA 8270D (SIM)	10/20/16 11:38	11/21/16 07:26	10.53g/2mL	10g/2mL	0.95
A6J1011-34	Soil	EPA 8270D (SIM)	10/20/16 11:45	11/21/16 07:26	10.35g/2mL	10g/2mL	0.97
A6J1011-35	Soil	EPA 8270D (SIM)	10/20/16 11:53	11/21/16 07:26	10.57g/2mL	10g/2mL	0.95
A6J1011-36	Soil	EPA 8270D (SIM)	10/20/16 11:59	11/21/16 07:26	10.34g/2mL	10g/2mL	0.97
A6J1011-37	Soil	EPA 8270D (SIM)	10/20/16 12:06	11/21/16 07:26	10.23g/2mL	10g/2mL	0.98
A6J1011-38	Soil	EPA 8270D (SIM)	10/20/16 12:12	11/21/16 07:26	10.56g/2mL	10g/2mL	0.95
A6J1011-39	Soil	EPA 8270D (SIM)	10/21/16 08:58	11/21/16 07:26	10.72g/2mL	10g/2mL	0.93
A6J1011-40	Soil	EPA 8270D (SIM)	10/21/16 09:09	11/21/16 07:26	10.56g/2mL	10g/2mL	0.95
A6J1011-41RE1	Solid	EPA 8270D (SIM)	10/20/16 00:00	11/21/16 07:26	10.25g/2mL	10g/2mL	0.98
Batch: 6110816							
A6J0986-22RE1	Soil	EPA 8270D (SIM)	10/18/16 09:18	11/22/16 14:34	10.17g/2mL	10g/2mL	0.98
A6J0986-32RE1	Soil	EPA 8270D (SIM)	10/18/16 10:56	11/22/16 14:34	10.02g/2mL	10g/2mL	1.00
A6J0986-33RE1	Soil	EPA 8270D (SIM)	10/18/16 11:03	11/22/16 14:34	10.03g/2mL	10g/2mL	1.00
A6J0986-34RE1	Soil	EPA 8270D (SIM)	10/18/16 11:24	11/22/16 14:34	10.05g/2mL	10g/2mL	1.00
A6J0986-36RE1	Soil	EPA 8270D (SIM)	10/18/16 11:35	11/22/16 14:34	10.07g/2mL	10g/2mL	0.99
Batch: 6110864							
A6J1004-21RE1	Soil	EPA 8270D (SIM)	10/18/16 16:13	11/28/16 09:15	10.79g/2mL	10g/2mL	0.93
Batch: 6110865							
A6J1012-21	Soil	EPA 8270D (SIM)	10/21/16 09:20	11/28/16 09:18	10.35g/2mL	10g/2mL	0.97

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

SAMPLE PREPARATION INFORMATION

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J1012-22	Soil	EPA 8270D (SIM)	10/21/16 09:29	11/28/16 09:18	10.4g/2mL	10g/2mL	0.96
A6J1012-23	Soil	EPA 8270D (SIM)	10/21/16 09:42	11/28/16 09:18	10.65g/2mL	10g/2mL	0.94
A6J1012-24	Soil	EPA 8270D (SIM)	10/21/16 09:42	11/28/16 09:18	10.22g/2mL	10g/2mL	0.98
A6J1012-25	Soil	EPA 8270D (SIM)	10/21/16 09:50	11/28/16 09:18	10.59g/2mL	10g/2mL	0.94
A6J1012-26	Soil	EPA 8270D (SIM)	10/21/16 10:17	11/28/16 09:18	10.33g/5mL	10g/2mL	2.42
A6J1012-27	Soil	EPA 8270D (SIM)	10/21/16 10:31	11/28/16 09:18	10.19g/2mL	10g/2mL	0.98
A6J1012-28	Soil	EPA 8270D (SIM)	10/21/16 10:42	11/28/16 09:18	10.52g/2mL	10g/2mL	0.95
A6J1012-29	Soil	EPA 8270D (SIM)	10/21/16 10:52	11/28/16 09:18	10.49g/2mL	10g/2mL	0.95
A6J1012-30	Soil	EPA 8270D (SIM)	10/21/16 11:05	11/28/16 09:18	10.42g/2mL	10g/2mL	0.96
A6J1012-31	Soil	EPA 8270D (SIM)	10/21/16 11:16	11/28/16 09:18	10.27g/2mL	10g/2mL	0.97
A6J1012-32	Soil	EPA 8270D (SIM)	10/20/16 12:57	11/28/16 09:18	10.32g/5mL	10g/2mL	2.42
A6J1012-33	Soil	EPA 8270D (SIM)	10/20/16 13:06	11/28/16 09:18	10.54g/5mL	10g/2mL	2.37
A6J1012-34	Soil	EPA 8270D (SIM)	10/20/16 13:12	11/28/16 09:18	10.18g/2mL	10g/2mL	0.98
A6J1012-35	Soil	EPA 8270D (SIM)	10/20/16 13:20	11/28/16 09:18	10.07g/5mL	10g/2mL	2.48
A6J1012-36	Soil	EPA 8270D (SIM)	10/20/16 13:27	11/28/16 09:18	10.27g/2mL	10g/2mL	0.97
A6J1012-37	Soil	EPA 8270D (SIM)	10/20/16 13:39	11/28/16 09:18	10.04g/2mL	10g/2mL	1.00
A6J1012-38	Soil	EPA 8270D (SIM)	10/20/16 13:58	11/28/16 09:18	10.23g/2mL	10g/2mL	0.98
A6J1012-38RE1	Soil	EPA 8270D (SIM)	10/20/16 13:58	11/28/16 09:18	10.23g/2mL	10g/2mL	0.98
A6J1012-40	Soil	EPA 8270D (SIM)	10/20/16 14:23	11/28/16 09:18	10.85g/5mL	10g/2mL	2.30
A6J1012-41	Solid	EPA 8270D (SIM)	10/20/16 00:00	11/28/16 09:18	10.16g/2mL	10g/2mL	0.98
Batch: 6120103							
A6J1013-10	Soil	EPA 8270D (SIM)	10/20/16 14:33	12/01/16 07:25	10.5g/2mL	10g/2mL	0.95
A6J1013-11	Soil	EPA 8270D (SIM)	10/20/16 14:44	12/01/16 07:25	10.04g/2mL	10g/2mL	1.00
A6J1013-12	Soil	EPA 8270D (SIM)	10/20/16 14:52	12/01/16 07:25	10.54g/2mL	10g/2mL	0.95
A6J1013-13	Soil	EPA 8270D (SIM)	10/20/16 15:11	12/01/16 07:25	10.77g/2mL	10g/2mL	0.93
A6J1013-14	Soil	EPA 8270D (SIM)	10/20/16 15:24	12/01/16 07:25	10.26g/2mL	10g/2mL	0.98
A6J1013-15	Soil	EPA 8270D (SIM)	10/20/16 15:50	12/01/16 07:25	10.25g/2mL	10g/2mL	0.98
A6J1013-16	Soil	EPA 8270D (SIM)	10/20/16 15:32	12/01/16 07:25	10.76g/2mL	10g/2mL	0.93
A6J1013-18	Soil	EPA 8270D (SIM)	10/20/16 16:03	12/01/16 07:25	10.25g/2mL	10g/2mL	0.98
Batch: 6120255							
A6J1012-39RE1	Soil	EPA 8270D (SIM)	10/20/16 14:12	12/06/16 10:09	10.07g/2mL	10g/2mL	0.99
A6J1013-17RE1	Soil	EPA 8270D (SIM)	10/20/16 15:43	12/06/16 10:09	10.05g/2mL	10g/2mL	1.00
A6J1013-19RE1	Solid	EPA 8270D (SIM)	10/20/16 00:00	12/06/16 10:09	10.05g/2mL	10g/2mL	1.00
Batch: 7010394							

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

SAMPLE PREPARATION INFORMATION

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0986-35RE1	Soil	EPA 8270D (SIM)	10/18/16 11:35	01/12/17 10:34	10.34g/2mL	10g/2mL	0.97

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6110732							
A6J0986-21	Soil	EPA 6020A	10/18/16 09:12	11/18/16 13:33	0.474g/50mL	0.5g/50mL	1.05
A6J0986-22	Soil	EPA 6020A	10/18/16 09:18	11/18/16 13:33	0.466g/50mL	0.5g/50mL	1.07
A6J0986-23	Soil	EPA 6020A	10/18/16 09:27	11/18/16 13:33	0.469g/50mL	0.5g/50mL	1.07
A6J0986-24	Soil	EPA 6020A	10/18/16 09:34	11/18/16 13:33	0.45g/50mL	0.5g/50mL	1.11
A6J0986-25	Soil	EPA 6020A	10/18/16 09:38	11/18/16 13:33	0.47g/50mL	0.5g/50mL	1.06
A6J0986-26	Soil	EPA 6020A	10/18/16 09:43	11/18/16 13:33	0.495g/50mL	0.5g/50mL	1.01
A6J0986-27	Soil	EPA 6020A	10/18/16 10:29	11/18/16 13:33	0.509g/50mL	0.5g/50mL	0.98
A6J0986-28	Soil	EPA 6020A	10/18/16 10:29	11/18/16 13:33	0.506g/50mL	0.5g/50mL	0.99
A6J0986-29	Soil	EPA 6020A	10/18/16 10:37	11/18/16 13:33	0.473g/50mL	0.5g/50mL	1.06
A6J0986-30	Soil	EPA 6020A	10/18/16 10:44	11/18/16 13:33	0.49g/50mL	0.5g/50mL	1.02
A6J0986-31	Soil	EPA 6020A	10/18/16 10:48	11/18/16 13:33	0.485g/50mL	0.5g/50mL	1.03
A6J0986-32	Soil	EPA 6020A	10/18/16 10:56	11/18/16 13:33	0.48g/50mL	0.5g/50mL	1.04
A6J0986-33	Soil	EPA 6020A	10/18/16 11:03	11/18/16 13:33	0.454g/50mL	0.5g/50mL	1.10
A6J0986-34	Soil	EPA 6020A	10/18/16 11:24	11/18/16 13:33	0.476g/50mL	0.5g/50mL	1.05
A6J0986-35	Soil	EPA 6020A	10/18/16 11:35	11/18/16 13:33	0.461g/50mL	0.5g/50mL	1.08
A6J0986-37	Soil	EPA 6020A	10/18/16 11:48	11/18/16 13:33	0.498g/50mL	0.5g/50mL	1.00
Batch: 6110738							
A6J0986-36	Soil	EPA 6020A	10/18/16 11:35	11/18/16 16:06	0.5g/50mL	0.5g/50mL	1.00
A6J0986-38	Soil	EPA 6020A	10/18/16 11:57	11/18/16 16:06	0.495g/50mL	0.5g/50mL	1.01
A6J0986-39	Soil	EPA 6020A	10/18/16 12:04	11/18/16 16:06	0.482g/50mL	0.5g/50mL	1.04
A6J0986-40	Soil	EPA 6020A	10/18/16 12:38	11/18/16 16:06	0.492g/50mL	0.5g/50mL	1.02
A6J0990-21	Soil	EPA 6020A	10/18/16 12:45	11/18/16 16:06	0.482g/50mL	0.5g/50mL	1.04
A6J0990-22	Soil	EPA 6020A	10/18/16 12:51	11/18/16 16:06	0.455g/50mL	0.5g/50mL	1.10
A6J0990-23	Soil	EPA 6020A	10/18/16 12:56	11/18/16 16:06	0.465g/50mL	0.5g/50mL	1.08
A6J0990-24	Soil	EPA 6020A	10/18/16 13:03	11/18/16 16:06	0.514g/50mL	0.5g/50mL	0.97
A6J0990-25	Soil	EPA 6020A	10/18/16 13:09	11/18/16 16:06	0.492g/50mL	0.5g/50mL	1.02
A6J0990-26	Soil	EPA 6020A	10/18/16 13:58	11/18/16 16:06	0.477g/50mL	0.5g/50mL	1.05
A6J0990-27	Soil	EPA 6020A	10/18/16 14:07	11/18/16 16:06	0.495g/50mL	0.5g/50mL	1.01

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0990-28	Soil	EPA 6020A	10/18/16 14:20	11/18/16 16:06	0.455g/50mL	0.5g/50mL	1.10
A6J0990-29	Soil	EPA 6020A	10/18/16 14:20	11/18/16 16:06	0.461g/50mL	0.5g/50mL	1.08
A6J0990-30	Soil	EPA 6020A	10/18/16 14:29	11/18/16 16:06	0.494g/50mL	0.5g/50mL	1.01
A6J0990-31	Soil	EPA 6020A	10/18/16 14:36	11/18/16 16:06	0.494g/50mL	0.5g/50mL	1.01
A6J0990-32	Soil	EPA 6020A	10/18/16 14:42	11/18/16 16:06	0.504g/50mL	0.5g/50mL	0.99
Batch: 6110781							
A6J0986-41	Solid	EPA 6020A	10/18/16 00:00	11/21/16 15:44	0.485g/50mL	0.5g/50mL	1.03
A6J0990-41	Solid	EPA 6020A	10/18/16 00:00	11/21/16 15:44	0.478g/50mL	0.5g/50mL	1.05
Batch: 6110811							
A6J0990-33	Soil	EPA 6020A	10/18/16 15:09	11/22/16 13:35	0.502g/50mL	0.5g/50mL	1.00
A6J0990-34	Soil	EPA 6020A	10/18/16 15:17	11/22/16 13:35	0.485g/50mL	0.5g/50mL	1.03
A6J0990-35	Soil	EPA 6020A	10/18/16 15:24	11/22/16 13:35	0.496g/50mL	0.5g/50mL	1.01
A6J0990-36	Soil	EPA 6020A	10/18/16 15:29	11/22/16 13:35	0.506g/50mL	0.5g/50mL	0.99
A6J0990-37	Soil	EPA 6020A	10/18/16 15:37	11/22/16 13:35	0.464g/50mL	0.5g/50mL	1.08
A6J0990-38	Soil	EPA 6020A	10/18/16 15:43	11/22/16 13:35	0.488g/50mL	0.5g/50mL	1.02
A6J0990-39	Soil	EPA 6020A	10/18/16 16:02	11/22/16 13:35	0.495g/50mL	0.5g/50mL	1.01
A6J0990-40	Soil	EPA 6020A	10/18/16 16:08	11/22/16 13:35	0.502g/50mL	0.5g/50mL	1.00
Batch: 6120131							
A6J1004-21	Soil	EPA 6020A	10/18/16 16:13	12/01/16 12:20	0.472g/50mL	0.5g/50mL	1.06
A6J1004-22	Soil	EPA 6020A	10/18/16 16:20	12/01/16 12:20	0.48g/50mL	0.5g/50mL	1.04
A6J1004-23	Soil	EPA 6020A	10/18/16 16:25	12/01/16 12:20	0.464g/50mL	0.5g/50mL	1.08
A6J1004-24	Soil	EPA 6020A	10/18/16 16:32	12/01/16 12:20	0.51g/50mL	0.5g/50mL	0.98
A6J1004-25	Soil	EPA 6020A	10/18/16 16:54	12/01/16 12:20	0.47g/50mL	0.5g/50mL	1.06
A6J1004-26	Soil	EPA 6020A	10/18/16 17:02	12/01/16 12:20	0.493g/50mL	0.5g/50mL	1.01
A6J1004-27	Soil	EPA 6020A	10/18/16 17:09	12/01/16 12:20	0.515g/50mL	0.5g/50mL	0.97
A6J1004-28	Soil	EPA 6020A	10/18/16 17:15	12/01/16 12:20	0.491g/50mL	0.5g/50mL	1.02
A6J1004-29	Soil	EPA 6020A	10/18/16 17:23	12/01/16 12:20	0.46g/50mL	0.5g/50mL	1.09
A6J1004-30	Soil	EPA 6020A	10/18/16 17:23	12/01/16 12:20	0.474g/50mL	0.5g/50mL	1.05
A6J1004-31	Soil	EPA 6020A	10/18/16 17:32	12/01/16 12:20	0.509g/50mL	0.5g/50mL	0.98
A6J1004-32	Soil	EPA 6020A	10/19/16 09:31	12/01/16 12:20	0.503g/50mL	0.5g/50mL	0.99
A6J1004-33	Soil	EPA 6020A	10/19/16 09:41	12/01/16 12:20	0.482g/50mL	0.5g/50mL	1.04
A6J1004-34	Soil	EPA 6020A	10/19/16 09:50	12/01/16 12:20	0.472g/50mL	0.5g/50mL	1.06
A6J1004-35	Soil	EPA 6020A	10/18/16 09:54	12/01/16 12:20	0.473g/50mL	0.5g/50mL	1.06
A6J1004-36	Soil	EPA 6020A	10/19/16 10:02	12/01/16 12:20	0.465g/50mL	0.5g/50mL	1.08

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J1004-37	Soil	EPA 6020A	10/19/16 10:03	12/01/16 12:20	0.481g/50mL	0.5g/50mL	1.04
A6J1004-38	Soil	EPA 6020A	10/19/16 10:51	12/01/16 12:20	0.464g/50mL	0.5g/50mL	1.08
A6J1004-39	Soil	EPA 6020A	10/19/16 11:03	12/01/16 12:20	0.497g/50mL	0.5g/50mL	1.01
Batch: 6120139							
A6J1004-40	Soil	EPA 6020A	10/19/16 11:07	12/01/16 14:24	0.455g/50mL	0.5g/50mL	1.10
A6J1008-21	Soil	EPA 6020A	10/19/16 11:12	12/01/16 14:24	0.461g/50mL	0.5g/50mL	1.08
A6J1008-22	Soil	EPA 6020A	10/19/16 11:19	12/01/16 14:24	0.459g/50mL	0.5g/50mL	1.09
A6J1008-23	Soil	EPA 6020A	10/19/16 11:24	12/01/16 14:24	0.472g/50mL	0.5g/50mL	1.06
A6J1008-24	Soil	EPA 6020A	10/19/16 12:14	12/01/16 14:24	0.467g/50mL	0.5g/50mL	1.07
A6J1008-25	Soil	EPA 6020A	10/19/16 12:26	12/01/16 14:24	0.46g/50mL	0.5g/50mL	1.09
A6J1008-26	Soil	EPA 6020A	10/19/16 12:31	12/01/16 14:24	0.466g/50mL	0.5g/50mL	1.07
A6J1008-27	Soil	EPA 6020A	10/19/16 12:36	12/01/16 14:24	0.457g/50mL	0.5g/50mL	1.09
A6J1008-28	Soil	EPA 6020A	10/19/16 12:40	12/01/16 14:24	0.467g/50mL	0.5g/50mL	1.07
A6J1008-29	Soil	EPA 6020A	10/19/16 12:45	12/01/16 14:24	0.483g/50mL	0.5g/50mL	1.04
A6J1008-30	Soil	EPA 6020A	10/19/16 13:19	12/01/16 14:24	0.501g/50mL	0.5g/50mL	1.00
A6J1008-31	Soil	EPA 6020A	10/19/16 13:28	12/01/16 14:24	0.487g/50mL	0.5g/50mL	1.03
A6J1008-32	Soil	EPA 6020A	10/19/16 13:40	12/01/16 14:24	0.461g/50mL	0.5g/50mL	1.08
A6J1008-33	Soil	EPA 6020A	10/19/16 13:51	12/01/16 14:24	0.466g/50mL	0.5g/50mL	1.07
A6J1008-34	Soil	EPA 6020A	10/19/16 13:56	12/01/16 14:24	0.486g/50mL	0.5g/50mL	1.03
A6J1008-35	Soil	EPA 6020A	10/19/16 14:09	12/01/16 14:24	0.474g/50mL	0.5g/50mL	1.05
A6J1008-36	Soil	EPA 6020A	10/19/16 14:24	12/01/16 14:24	0.455g/50mL	0.5g/50mL	1.10
A6J1008-37	Soil	EPA 6020A	10/19/16 14:29	12/01/16 14:24	0.468g/50mL	0.5g/50mL	1.07
A6J1008-38	Soil	EPA 6020A	10/19/16 14:36	12/01/16 14:24	0.456g/50mL	0.5g/50mL	1.10
Batch: 6120170							
A6J1008-39	Soil	EPA 6020A	10/19/16 14:42	12/02/16 09:58	0.477g/50mL	0.5g/50mL	1.05
A6J1008-40	Soil	EPA 6020A	10/19/16 14:50	12/02/16 09:58	0.46g/50mL	0.5g/50mL	1.09
A6J1010-21	Soil	EPA 6020A	10/19/16 14:59	12/02/16 09:58	0.46g/50mL	0.5g/50mL	1.09
A6J1010-22	Soil	EPA 6020A	10/19/16 15:46	12/02/16 09:58	0.455g/50mL	0.5g/50mL	1.10
A6J1010-23	Soil	EPA 6020A	10/19/16 15:50	12/02/16 09:58	0.473g/50mL	0.5g/50mL	1.06
A6J1010-24	Soil	EPA 6020A	10/19/16 15:55	12/02/16 09:58	0.473g/50mL	0.5g/50mL	1.06
A6J1010-25	Soil	EPA 6020A	10/19/16 15:59	12/02/16 09:58	0.485g/50mL	0.5g/50mL	1.03
A6J1010-26	Soil	EPA 6020A	10/19/16 16:05	12/02/16 09:58	0.498g/50mL	0.5g/50mL	1.00
A6J1010-27	Soil	EPA 6020A	10/19/16 16:11	12/02/16 09:58	0.493g/50mL	0.5g/50mL	1.01
A6J1010-28	Soil	EPA 6020A	10/19/16 16:40	12/02/16 09:58	0.484g/50mL	0.5g/50mL	1.03

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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Tigard, OR 97223
503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J1010-29	Soil	EPA 6020A	10/19/16 16:46	12/02/16 09:58	0.462g/50mL	0.5g/50mL	1.08
A6J1010-30	Soil	EPA 6020A	10/19/16 16:50	12/02/16 09:58	0.483g/50mL	0.5g/50mL	1.04
A6J1010-31	Soil	EPA 6020A	10/19/16 16:55	12/02/16 09:58	0.48g/50mL	0.5g/50mL	1.04
A6J1010-32	Soil	EPA 6020A	10/19/16 17:01	12/02/16 09:58	0.506g/50mL	0.5g/50mL	0.99
A6J1010-33	Soil	EPA 6020A	10/19/16 17:07	12/02/16 09:58	0.504g/50mL	0.5g/50mL	0.99
A6J1010-34	Soil	EPA 6020A	10/19/16 17:07	12/02/16 09:58	0.472g/50mL	0.5g/50mL	1.06
A6J1010-35	Soil	EPA 6020A	10/20/16 08:52	12/02/16 09:58	0.488g/50mL	0.5g/50mL	1.02
A6J1010-36	Soil	EPA 6020A	10/20/16 09:01	12/02/16 09:58	0.506g/50mL	0.5g/50mL	0.99
A6J1010-37	Soil	EPA 6020A	10/20/16 09:06	12/02/16 09:58	0.507g/50mL	0.5g/50mL	0.99
Batch: 6120175							
A6J1010-38	Soil	EPA 6020A	10/20/16 09:14	12/02/16 12:02	0.47g/50mL	0.5g/50mL	1.06
A6J1010-39	Soil	EPA 6020A	10/20/16 09:20	12/02/16 12:02	0.478g/50mL	0.5g/50mL	1.05
A6J1010-40	Soil	EPA 6020A	10/20/16 09:25	12/02/16 12:02	0.477g/50mL	0.5g/50mL	1.05
A6J1011-21	Soil	EPA 6020A	10/20/16 09:51	12/02/16 12:02	0.492g/50mL	0.5g/50mL	1.02
A6J1011-22	Soil	EPA 6020A	10/20/16 10:02	12/02/16 12:02	0.511g/50mL	0.5g/50mL	0.98
A6J1011-23	Soil	EPA 6020A	10/20/16 10:09	12/02/16 12:02	0.513g/50mL	0.5g/50mL	0.98
A6J1011-24	Soil	EPA 6020A	10/20/16 10:17	12/02/16 12:02	0.453g/50mL	0.5g/50mL	1.10
A6J1011-25	Soil	EPA 6020A	10/20/16 10:24	12/02/16 12:02	0.477g/50mL	0.5g/50mL	1.05
A6J1011-26	Soil	EPA 6020A	10/20/16 10:30	12/02/16 12:02	0.491g/50mL	0.5g/50mL	1.02
A6J1011-27	Soil	EPA 6020A	10/20/16 10:48	12/02/16 12:02	0.48g/50mL	0.5g/50mL	1.04
A6J1011-28	Soil	EPA 6020A	10/20/16 10:54	12/02/16 12:02	0.479g/50mL	0.5g/50mL	1.04
A6J1011-29	Soil	EPA 6020A	10/20/16 11:02	12/02/16 12:02	0.463g/50mL	0.5g/50mL	1.08
A6J1011-30	Soil	EPA 6020A	10/20/16 11:08	12/02/16 12:02	0.508g/50mL	0.5g/50mL	0.98
A6J1011-31	Soil	EPA 6020A	10/20/16 11:15	12/02/16 12:02	0.475g/50mL	0.5g/50mL	1.05
A6J1011-32	Soil	EPA 6020A	10/20/16 11:23	12/02/16 12:02	0.481g/50mL	0.5g/50mL	1.04
A6J1011-33	Soil	EPA 6020A	10/20/16 11:38	12/02/16 12:02	0.454g/50mL	0.5g/50mL	1.10
A6J1011-34	Soil	EPA 6020A	10/20/16 11:45	12/02/16 12:02	0.453g/50mL	0.5g/50mL	1.10
A6J1011-35	Soil	EPA 6020A	10/20/16 11:53	12/02/16 12:02	0.488g/50mL	0.5g/50mL	1.02
A6J1011-36	Soil	EPA 6020A	10/20/16 11:59	12/02/16 12:02	0.472g/50mL	0.5g/50mL	1.06
Batch: 6120189							
A6J1011-37	Soil	EPA 6020A	10/20/16 12:06	12/02/16 14:32	0.482g/50mL	0.5g/50mL	1.04
A6J1011-38	Soil	EPA 6020A	10/20/16 12:12	12/02/16 14:32	0.455g/50mL	0.5g/50mL	1.10
A6J1011-39	Soil	EPA 6020A	10/21/16 08:58	12/02/16 14:32	0.52g/50mL	0.5g/50mL	0.96
A6J1011-40	Soil	EPA 6020A	10/21/16 09:09	12/02/16 14:32	0.468g/50mL	0.5g/50mL	1.07

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Tigard, OR 97223
503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J1012-21	Soil	EPA 6020A	10/21/16 09:20	12/02/16 14:32	0.462g/50mL	0.5g/50mL	1.08
A6J1012-22	Soil	EPA 6020A	10/21/16 09:29	12/02/16 14:32	0.481g/50mL	0.5g/50mL	1.04
A6J1012-23	Soil	EPA 6020A	10/21/16 09:42	12/02/16 14:32	0.454g/50mL	0.5g/50mL	1.10
A6J1012-24	Soil	EPA 6020A	10/21/16 09:42	12/02/16 14:32	0.462g/50mL	0.5g/50mL	1.08
A6J1012-25	Soil	EPA 6020A	10/21/16 09:50	12/02/16 14:32	0.51g/50mL	0.5g/50mL	0.98
A6J1012-27	Soil	EPA 6020A	10/21/16 10:31	12/02/16 14:32	0.478g/50mL	0.5g/50mL	1.05
A6J1013-10	Soil	EPA 6020A	10/20/16 14:33	12/02/16 14:32	0.473g/50mL	0.5g/50mL	1.06
A6J1013-11	Soil	EPA 6020A	10/20/16 14:44	12/02/16 14:32	0.456g/50mL	0.5g/50mL	1.10
A6J1013-12	Soil	EPA 6020A	10/20/16 14:52	12/02/16 14:32	0.464g/50mL	0.5g/50mL	1.08
A6J1013-13	Soil	EPA 6020A	10/20/16 15:11	12/02/16 14:32	0.473g/50mL	0.5g/50mL	1.06
A6J1013-14	Soil	EPA 6020A	10/20/16 15:24	12/02/16 14:32	0.477g/50mL	0.5g/50mL	1.05
A6J1013-15	Soil	EPA 6020A	10/20/16 15:50	12/02/16 14:32	0.471g/50mL	0.5g/50mL	1.06
A6J1013-16	Soil	EPA 6020A	10/20/16 15:32	12/02/16 14:32	0.486g/50mL	0.5g/50mL	1.03
A6J1013-17	Soil	EPA 6020A	10/20/16 15:43	12/02/16 14:32	0.482g/50mL	0.5g/50mL	1.04
A6J1013-18	Soil	EPA 6020A	10/20/16 16:03	12/02/16 14:32	0.464g/50mL	0.5g/50mL	1.08
Batch: 6120380							
A6J1012-26	Soil	EPA 6020A	10/21/16 10:17	12/09/16 14:57	0.451g/50mL	0.5g/50mL	1.11
A6J1012-28	Soil	EPA 6020A	10/21/16 10:42	12/09/16 14:57	0.467g/50mL	0.5g/50mL	1.07
A6J1012-29	Soil	EPA 6020A	10/21/16 10:52	12/09/16 14:57	0.467g/50mL	0.5g/50mL	1.07
A6J1012-30	Soil	EPA 6020A	10/21/16 11:05	12/09/16 14:57	0.498g/50mL	0.5g/50mL	1.00
A6J1012-31	Soil	EPA 6020A	10/21/16 11:16	12/09/16 14:57	0.459g/50mL	0.5g/50mL	1.09
A6J1012-32	Soil	EPA 6020A	10/20/16 12:57	12/09/16 14:57	0.46g/50mL	0.5g/50mL	1.09
A6J1012-33	Soil	EPA 6020A	10/20/16 13:06	12/09/16 14:57	0.462g/50mL	0.5g/50mL	1.08
A6J1012-34	Soil	EPA 6020A	10/20/16 13:12	12/09/16 14:57	0.458g/50mL	0.5g/50mL	1.09
A6J1012-35	Soil	EPA 6020A	10/20/16 13:20	12/09/16 14:57	0.47g/50mL	0.5g/50mL	1.06
A6J1012-36	Soil	EPA 6020A	10/20/16 13:27	12/09/16 14:57	0.467g/50mL	0.5g/50mL	1.07
A6J1012-37	Soil	EPA 6020A	10/20/16 13:39	12/09/16 14:57	0.462g/50mL	0.5g/50mL	1.08
A6J1012-38	Soil	EPA 6020A	10/20/16 13:58	12/09/16 14:57	0.491g/50mL	0.5g/50mL	1.02
A6J1012-39	Soil	EPA 6020A	10/20/16 14:12	12/09/16 14:57	0.513g/50mL	0.5g/50mL	0.98
A6J1012-40	Soil	EPA 6020A	10/20/16 14:23	12/09/16 14:57	0.451g/50mL	0.5g/50mL	1.11
Batch: 6120537							
A6J1004-41	Solid	EPA 6020A	10/19/16 11:07	12/15/16 15:23	0.481g/50mL	0.5g/50mL	1.04
A6J1008-41	Solid	EPA 6020A	10/19/16 00:00	12/15/16 15:23	0.467g/50mL	0.5g/50mL	1.07
A6J1010-41	Solid	EPA 6020A	10/19/16 00:00	12/15/16 15:23	0.47g/50mL	0.5g/50mL	1.06

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J1011-41	Solid	EPA 6020A	10/20/16 00:00	12/15/16 15:23	0.481g/50mL	0.5g/50mL	1.04
A6J1012-41	Solid	EPA 6020A	10/20/16 00:00	12/15/16 15:23	0.469g/50mL	0.5g/50mL	1.07
A6J1013-19	Solid	EPA 6020A	10/20/16 00:00	12/15/16 15:23	0.484g/50mL	0.5g/50mL	1.03

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6110441							
A6J0986-21	Soil	EPA 8000C	10/18/16 09:12	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
A6J0986-22	Soil	EPA 8000C	10/18/16 09:18	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
A6J0986-23	Soil	EPA 8000C	10/18/16 09:27	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
A6J0986-24	Soil	EPA 8000C	10/18/16 09:34	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
A6J0986-25	Soil	EPA 8000C	10/18/16 09:38	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
A6J0986-26	Soil	EPA 8000C	10/18/16 09:43	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
A6J0986-27	Soil	EPA 8000C	10/18/16 10:29	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
A6J0986-28	Soil	EPA 8000C	10/18/16 10:29	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
A6J0986-29	Soil	EPA 8000C	10/18/16 10:37	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
A6J0986-30	Soil	EPA 8000C	10/18/16 10:44	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
A6J0986-31	Soil	EPA 8000C	10/18/16 10:48	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
A6J0986-32	Soil	EPA 8000C	10/18/16 10:56	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
A6J0986-33	Soil	EPA 8000C	10/18/16 11:03	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
A6J0986-34	Soil	EPA 8000C	10/18/16 11:24	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
A6J0986-35	Soil	EPA 8000C	10/18/16 11:35	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
A6J0986-36	Soil	EPA 8000C	10/18/16 11:35	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
A6J0986-37	Soil	EPA 8000C	10/18/16 11:48	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
A6J0986-38	Soil	EPA 8000C	10/18/16 11:57	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
A6J0986-39	Soil	EPA 8000C	10/18/16 12:04	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
A6J0986-40	Soil	EPA 8000C	10/18/16 12:38	11/10/16 10:03	1N/A/1N/A	1N/A/1N/A	NA
Batch: 6110484							
A6J0990-21	Soil	EPA 8000C	10/18/16 12:45	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J0990-22	Soil	EPA 8000C	10/18/16 12:51	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J0990-23	Soil	EPA 8000C	10/18/16 12:56	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J0990-24	Soil	EPA 8000C	10/18/16 13:03	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J0990-25	Soil	EPA 8000C	10/18/16 13:09	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

SAMPLE PREPARATION INFORMATION

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J0990-26	Soil	EPA 8000C	10/18/16 13:58	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J0990-27	Soil	EPA 8000C	10/18/16 14:07	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J0990-28	Soil	EPA 8000C	10/18/16 14:20	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J0990-29	Soil	EPA 8000C	10/18/16 14:20	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J0990-30	Soil	EPA 8000C	10/18/16 14:29	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J0990-31	Soil	EPA 8000C	10/18/16 14:36	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J0990-32	Soil	EPA 8000C	10/18/16 14:42	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J0990-33	Soil	EPA 8000C	10/18/16 15:09	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J0990-34	Soil	EPA 8000C	10/18/16 15:17	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J0990-35	Soil	EPA 8000C	10/18/16 15:24	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J0990-36	Soil	EPA 8000C	10/18/16 15:29	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J0990-37	Soil	EPA 8000C	10/18/16 15:37	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J0990-38	Soil	EPA 8000C	10/18/16 15:43	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J0990-39	Soil	EPA 8000C	10/18/16 16:02	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J0990-40	Soil	EPA 8000C	10/18/16 16:08	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J1004-21	Soil	EPA 8000C	10/18/16 16:13	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J1004-22	Soil	EPA 8000C	10/18/16 16:20	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J1004-23	Soil	EPA 8000C	10/18/16 16:25	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J1004-24	Soil	EPA 8000C	10/18/16 16:32	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J1004-25	Soil	EPA 8000C	10/18/16 16:54	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J1004-26	Soil	EPA 8000C	10/18/16 17:02	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J1004-27	Soil	EPA 8000C	10/18/16 17:09	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J1004-28	Soil	EPA 8000C	10/18/16 17:15	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J1004-29	Soil	EPA 8000C	10/18/16 17:23	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J1004-30	Soil	EPA 8000C	10/18/16 17:23	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J1004-31	Soil	EPA 8000C	10/18/16 17:32	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J1004-32	Soil	EPA 8000C	10/19/16 09:31	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J1004-33	Soil	EPA 8000C	10/19/16 09:41	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J1004-34	Soil	EPA 8000C	10/19/16 09:50	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J1004-35	Soil	EPA 8000C	10/18/16 09:54	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J1004-36	Soil	EPA 8000C	10/19/16 10:02	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J1004-37	Soil	EPA 8000C	10/19/16 10:03	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J1004-38	Soil	EPA 8000C	10/19/16 10:51	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
A6J1004-39	Soil	EPA 8000C	10/19/16 11:03	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

SAMPLE PREPARATION INFORMATION

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J1004-40	Soil	EPA 8000C	10/19/16 11:07	11/11/16 09:09	1N/A/1N/A	1N/A/1N/A	NA
Batch: 6110537							
A6J1008-21	Soil	EPA 8000C	10/19/16 11:12	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
A6J1008-22	Soil	EPA 8000C	10/19/16 11:19	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
A6J1008-23	Soil	EPA 8000C	10/19/16 11:24	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
A6J1008-24	Soil	EPA 8000C	10/19/16 12:14	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
A6J1008-25	Soil	EPA 8000C	10/19/16 12:26	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
A6J1008-26	Soil	EPA 8000C	10/19/16 12:31	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
A6J1008-27	Soil	EPA 8000C	10/19/16 12:36	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
A6J1008-28	Soil	EPA 8000C	10/19/16 12:40	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
A6J1008-29	Soil	EPA 8000C	10/19/16 12:45	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
A6J1008-30	Soil	EPA 8000C	10/19/16 13:19	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
A6J1008-31	Soil	EPA 8000C	10/19/16 13:28	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
A6J1008-32	Soil	EPA 8000C	10/19/16 13:40	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
A6J1008-33	Soil	EPA 8000C	10/19/16 13:51	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
A6J1008-34	Soil	EPA 8000C	10/19/16 13:56	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
A6J1008-35	Soil	EPA 8000C	10/19/16 14:09	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
A6J1008-36	Soil	EPA 8000C	10/19/16 14:24	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
A6J1008-37	Soil	EPA 8000C	10/19/16 14:29	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
A6J1008-38	Soil	EPA 8000C	10/19/16 14:36	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
A6J1008-39	Soil	EPA 8000C	10/19/16 14:42	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
A6J1008-40	Soil	EPA 8000C	10/19/16 14:50	11/14/16 11:36	1N/A/1N/A	1N/A/1N/A	NA
Batch: 6110575							
A6J1010-21	Soil	EPA 8000C	10/19/16 14:59	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA
A6J1010-22	Soil	EPA 8000C	10/19/16 15:46	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA
A6J1010-23	Soil	EPA 8000C	10/19/16 15:50	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA
A6J1010-24	Soil	EPA 8000C	10/19/16 15:55	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA
A6J1010-25	Soil	EPA 8000C	10/19/16 15:59	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA
A6J1010-26	Soil	EPA 8000C	10/19/16 16:05	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA
A6J1010-27	Soil	EPA 8000C	10/19/16 16:11	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA
A6J1010-28	Soil	EPA 8000C	10/19/16 16:40	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA
A6J1010-29	Soil	EPA 8000C	10/19/16 16:46	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA
A6J1010-30	Soil	EPA 8000C	10/19/16 16:50	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA
A6J1010-31	Soil	EPA 8000C	10/19/16 16:55	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

SAMPLE PREPARATION INFORMATION

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J1010-32	Soil	EPA 8000C	10/19/16 17:01	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA
A6J1010-33	Soil	EPA 8000C	10/19/16 17:07	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA
A6J1010-34	Soil	EPA 8000C	10/19/16 17:07	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA
A6J1010-35	Soil	EPA 8000C	10/20/16 08:52	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA
A6J1010-36	Soil	EPA 8000C	10/20/16 09:01	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA
A6J1010-37	Soil	EPA 8000C	10/20/16 09:06	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA
A6J1010-38	Soil	EPA 8000C	10/20/16 09:14	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA
A6J1010-39	Soil	EPA 8000C	10/20/16 09:20	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA
A6J1010-40	Soil	EPA 8000C	10/20/16 09:25	11/15/16 10:25	1N/A/1N/A	1N/A/1N/A	NA
Batch: 6110622							
A6J1011-21	Soil	EPA 8000C	10/20/16 09:51	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
A6J1011-22	Soil	EPA 8000C	10/20/16 10:02	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
A6J1011-23	Soil	EPA 8000C	10/20/16 10:09	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
A6J1011-24	Soil	EPA 8000C	10/20/16 10:17	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
A6J1011-25	Soil	EPA 8000C	10/20/16 10:24	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
A6J1011-26	Soil	EPA 8000C	10/20/16 10:30	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
A6J1011-27	Soil	EPA 8000C	10/20/16 10:48	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
A6J1011-28	Soil	EPA 8000C	10/20/16 10:54	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
A6J1011-29	Soil	EPA 8000C	10/20/16 11:02	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
A6J1011-30	Soil	EPA 8000C	10/20/16 11:08	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
A6J1011-31	Soil	EPA 8000C	10/20/16 11:15	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
A6J1011-32	Soil	EPA 8000C	10/20/16 11:23	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
A6J1011-33	Soil	EPA 8000C	10/20/16 11:38	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
A6J1011-34	Soil	EPA 8000C	10/20/16 11:45	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
A6J1011-35	Soil	EPA 8000C	10/20/16 11:53	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
A6J1011-36	Soil	EPA 8000C	10/20/16 11:59	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
A6J1011-37	Soil	EPA 8000C	10/20/16 12:06	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
A6J1011-38	Soil	EPA 8000C	10/20/16 12:12	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
A6J1011-39	Soil	EPA 8000C	10/21/16 08:58	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
A6J1011-40	Soil	EPA 8000C	10/21/16 09:09	11/16/16 11:04	1N/A/1N/A	1N/A/1N/A	NA
Batch: 6110669							
A6J1012-21	Soil	EPA 8000C	10/21/16 09:20	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA
A6J1012-22	Soil	EPA 8000C	10/21/16 09:29	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA
A6J1012-23	Soil	EPA 8000C	10/21/16 09:42	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

SAMPLE PREPARATION INFORMATION

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6J1012-24	Soil	EPA 8000C	10/21/16 09:42	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA
A6J1012-25	Soil	EPA 8000C	10/21/16 09:50	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA
A6J1012-26	Soil	EPA 8000C	10/21/16 10:17	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA
A6J1012-27	Soil	EPA 8000C	10/21/16 10:31	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA
A6J1012-28	Soil	EPA 8000C	10/21/16 10:42	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA
A6J1012-29	Soil	EPA 8000C	10/21/16 10:52	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA
A6J1012-30	Soil	EPA 8000C	10/21/16 11:05	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA
A6J1012-31	Soil	EPA 8000C	10/21/16 11:16	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA
A6J1012-32	Soil	EPA 8000C	10/20/16 12:57	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA
A6J1012-33	Soil	EPA 8000C	10/20/16 13:06	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA
A6J1012-34	Soil	EPA 8000C	10/20/16 13:12	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA
A6J1012-35	Soil	EPA 8000C	10/20/16 13:20	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA
A6J1012-36	Soil	EPA 8000C	10/20/16 13:27	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA
A6J1012-37	Soil	EPA 8000C	10/20/16 13:39	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA
A6J1012-38	Soil	EPA 8000C	10/20/16 13:58	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA
A6J1012-39	Soil	EPA 8000C	10/20/16 14:12	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA
A6J1012-40	Soil	EPA 8000C	10/20/16 14:23	11/17/16 10:15	1N/A/1N/A	1N/A/1N/A	NA
Batch: 6110719							
A6J1013-10	Soil	EPA 8000C	10/20/16 14:33	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6J1013-11	Soil	EPA 8000C	10/20/16 14:44	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6J1013-12	Soil	EPA 8000C	10/20/16 14:52	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6J1013-13	Soil	EPA 8000C	10/20/16 15:11	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6J1013-14	Soil	EPA 8000C	10/20/16 15:24	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6J1013-15	Soil	EPA 8000C	10/20/16 15:50	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6J1013-16	Soil	EPA 8000C	10/20/16 15:32	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6J1013-17	Soil	EPA 8000C	10/20/16 15:43	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6J1013-18	Soil	EPA 8000C	10/20/16 16:03	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

Notes and Definitions

Qualifiers:

A-01	Sample is blank QC for the RSM grinding process and does not count toward the 20 client sample batch limit.
H-08	Sample hold time extended by freezing at -18 degrees C. Total time at 4 degrees C was less than the standard hold time.
J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
M-02	Due to matrix interference, this analyte cannot be accurately quantified. The reported result is estimated.
Q-05	Analyses are not controlled on RPD values from sample and duplicate concentrations that are below 5 times the reporting level.
Q-19	Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
Q-24	RPD for spike and spike duplicate is above established control limit. Recoveries for both spike and spike duplicate are within control limits.
Q-42	Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)
R-02	The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
R-04	Reporting levels elevated due to dilution necessary for analysis.
S-06	Surrogate recovery is outside of established control limits.
T-02	This Batch QC sample was analyzed outside of the method specified 12 hour tune window. Results are estimated.
T-03	This sample was analyzed outside of the method specified 12 hour tune window. Results are estimated.

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.

Apex Laboratories

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Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.

Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.

--- QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

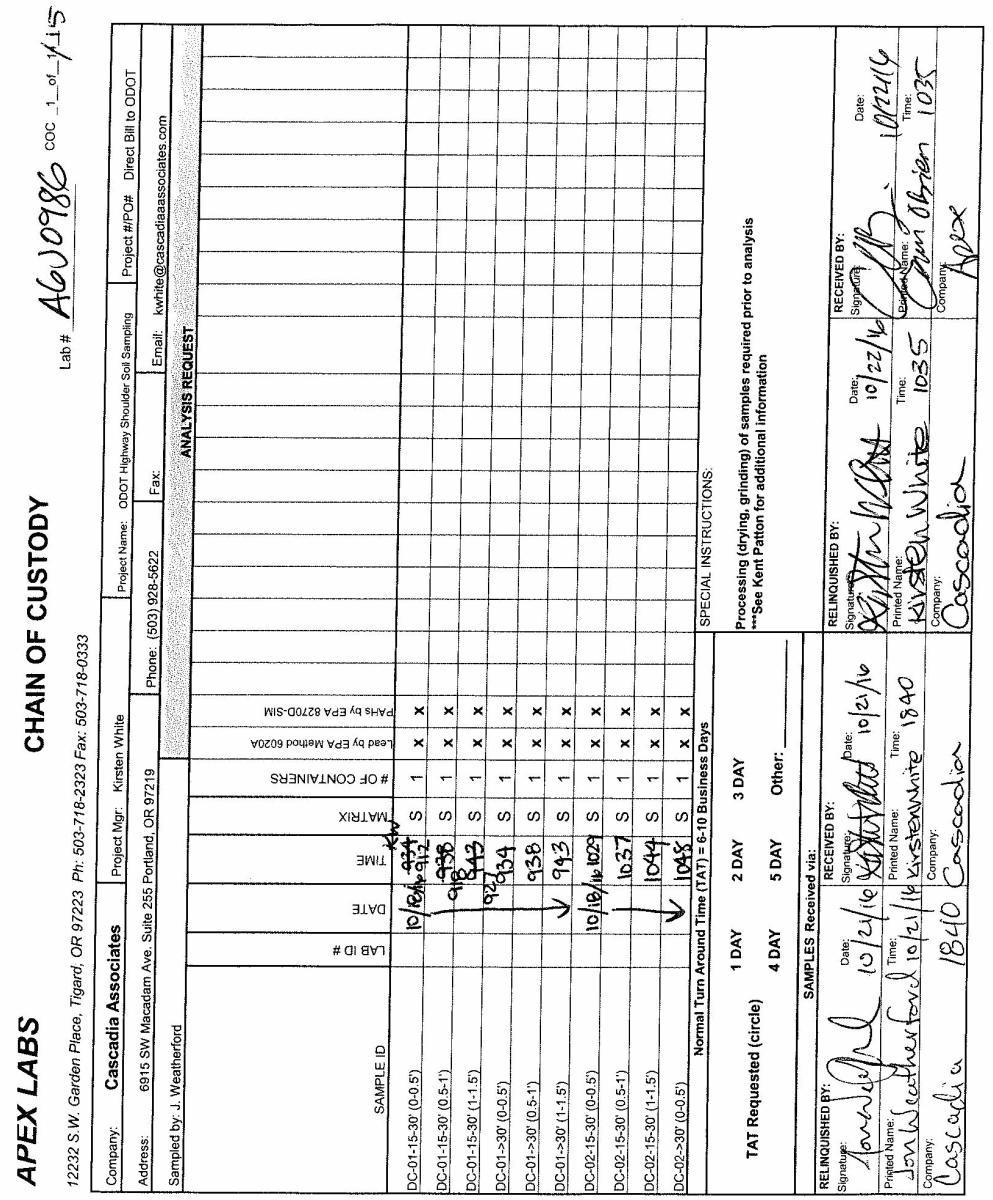
*** Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS — **CHAIN OF CUSTODY**

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # A6J0986 COC 1 of 1

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
DC-01-15-30' (0-0.5')		10/18/16	0912	S	1	x	x
DC-01-15-30' (0.5-1')			0938	S	1	x	x
DC-01-15-30' (1-1.5')			0843	S	1	x	x
DC-01->30' (0-0.5')			0934	S	1	x	x
DC-01->30' (0.5-1')			0938	S	1	x	x
DC-01->30' (1-1.5')		↓	0943	S	1	x	x
DC-02-15-30' (0-0.5')		10/18/16	1029	S	1	x	x
DC-02-15-30' (0.5-1')			1037	S	1	x	x
DC-02-15-30' (1-1.5')			1044	S	1	x	x
DC-02->30' (0-0.5')		↓	1048	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/21/16

RECEIVED BY: Signature: Date: 10/21/16

Printed Name: Jon Weatherford Time: 1840

Printed Name: Kirsten White Time: 1840

Company: Cascadia

RELINQUISHED BY: Signature: Date: 10/22/16

RECEIVED BY: Signature: Date: 10/22/16

Printed Name: Kirsten White Time: 1035

Printed Name: Sam Obrien Time: 1035

Company: Cascadia

Company: Apex

Apex Laboratories

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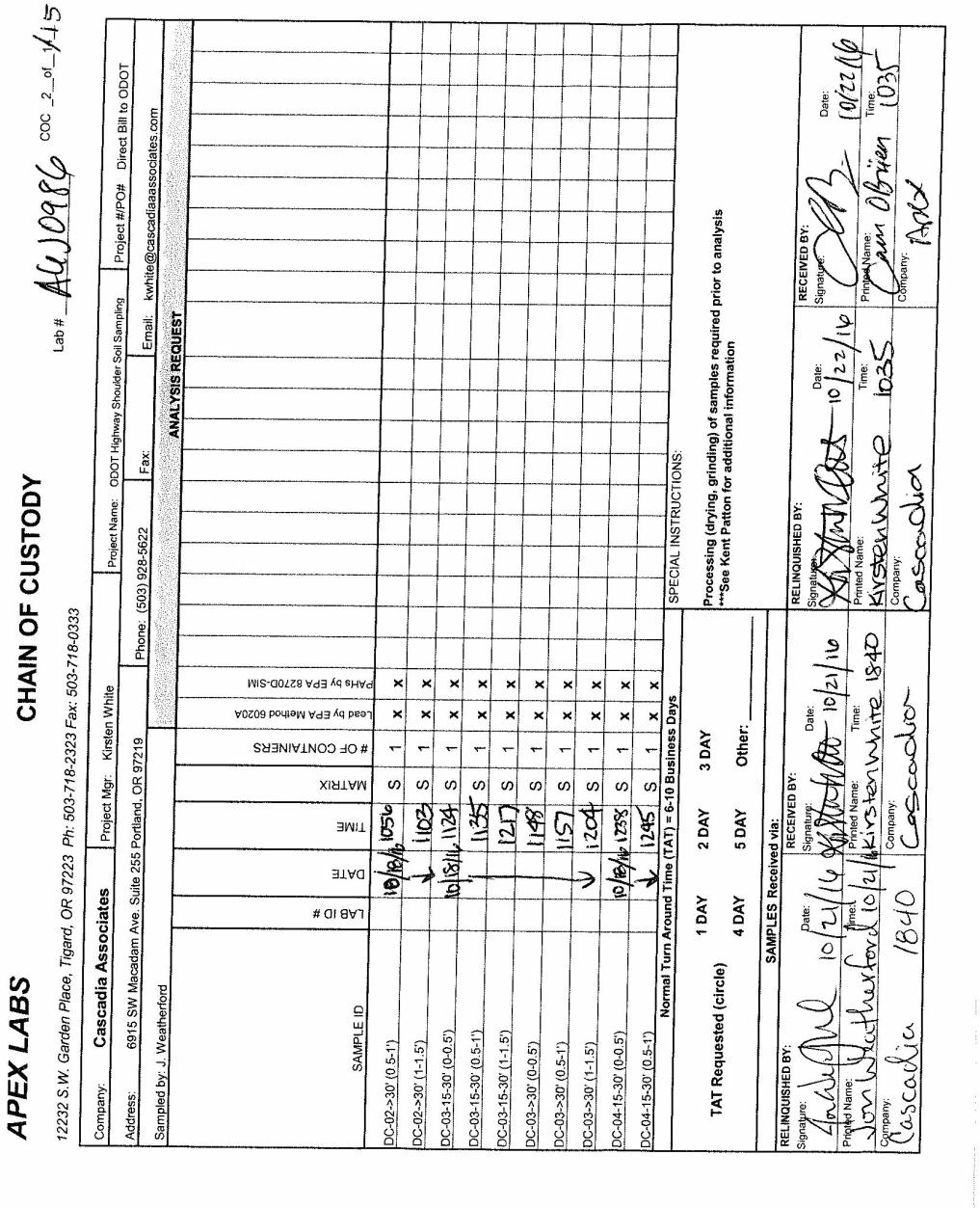
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS

CHAIN OF CUSTODY

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # AU0986 COC 2 of 115

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
DC-02->30' (0.5-1')		10/18/16	1056	S	1	x	x
DC-02->30' (1-1.5')			1103	S	1	x	x
DC-03-15-30' (0-0.5')		10/18/16	1124	S	1	x	x
DC-03-15-30' (0.5-1')			1135	S	1	x	x
DC-03-15-30' (1-1.5')			1217	S	1	x	x
DC-03->30' (0-0.5')			1148	S	1	x	x
DC-03->30' (0.5-1')			1157	S	1	x	x
DC-03->30' (1-1.5')			1204	S	1	x	x
DC-04-15-30' (0-0.5')		10/18/16	1238	S	1	x	x
DC-04-15-30' (0.5-1')			1245	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/21/16 Printed Name: Time: Company: Cascadia

RECEIVED BY: Signature: Date: 10/21/16 Printed Name: Kirsten White Time: 1840 Company: Cascadia

RELINQUISHED BY: Signature: Date: 10/22/16 Printed Name: Kirsten White Time: 1035 Company: Cascadia

RECEIVED BY: Signature: Date: 10/22/16 Printed Name: Sam O'Brien Time: 1035 Company: APEX

Apex Laboratories

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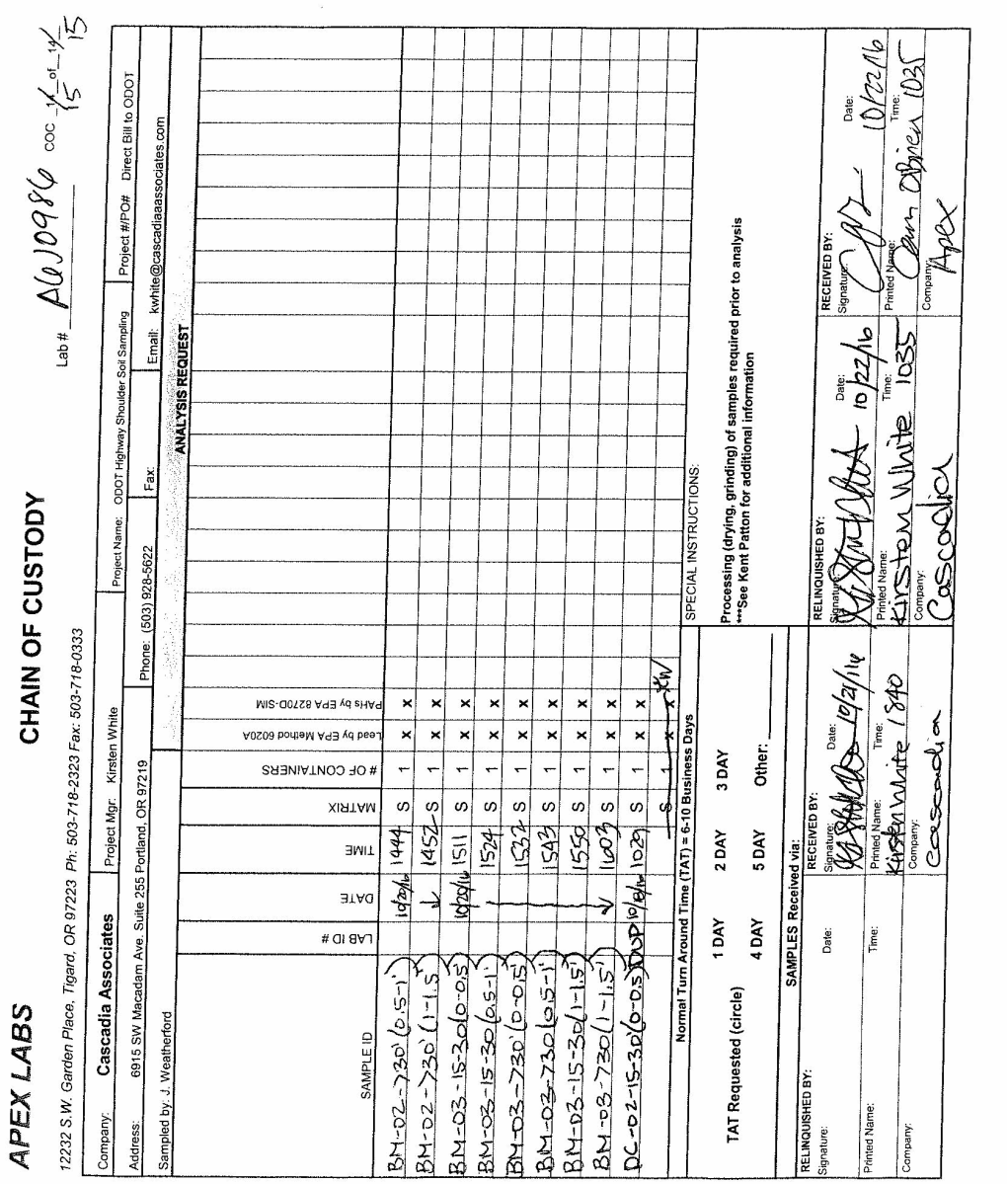
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # A6J0986 COC 1/15 of 1/15

Company: **Cascadia Associates** | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO#: Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BM-02-730' (0.5-1')		10/20/16	1444	S	1	x	x
BM-02-730' (1-1.5')		↓	1452	S	1	x	x
BM-03-15-30 (0-0.5')		10/20/16	1511	S	1	x	x
BM-03-15-30 (0.5-1')			1524	S	1	x	x
BM-03-730' (0-0.5')			1532	S	1	x	x
BM-03-730 (0.5-1')			1543	S	1	x	x
BM-03-15-30 (1-1.5')			1550	S	1	x	x
BM-03-730 (1-1.5')		↓	1603	S	1	x	x
DC-02-15-30' (0-0.5')	DUP	10/18/16	1029	S	1	x	x
				S	1	x	x KW

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

SPECIAL INSTRUCTIONS:

Processing (drying, grinding) of samples required prior to analysis
*****See Kent Patton for additional information**

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature: [signature] Date: 10/21/16	Signature: [signature] Date: 10/22/16	Signature: [signature] Date: 10/22/16
Printed Name: Time:	Printed Name: Kirsten White Time: 1840	Printed Name: Kirsten White Time: 1035	Printed Name: Cam O'Brien Time: 1035
Company:	Company: Cascadia	Company: Cascadia	Company: Apex

Apex Laboratories

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

APEX LABS COOLER RECEIPT FORM

Client: Cascadia Element WO#: A6 J0986

Project/Project #: ODOT Highway Shoulder Soil Sampling

Delivery info:

Date/Time Received: 10/22/16 @ 1035 By: CAB

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: CAB : 10/22/16 @ 1040

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	4.4	5.1	5.6				
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:							

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CAB : 10/22/16 @ 1510

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes X No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes___ No___ NA X

Comments:

Additional Information:

Labeled by: CAB Witness: CAB Cooler Inspected by: CAB See Project Contact Form: Y

Apex Laboratories

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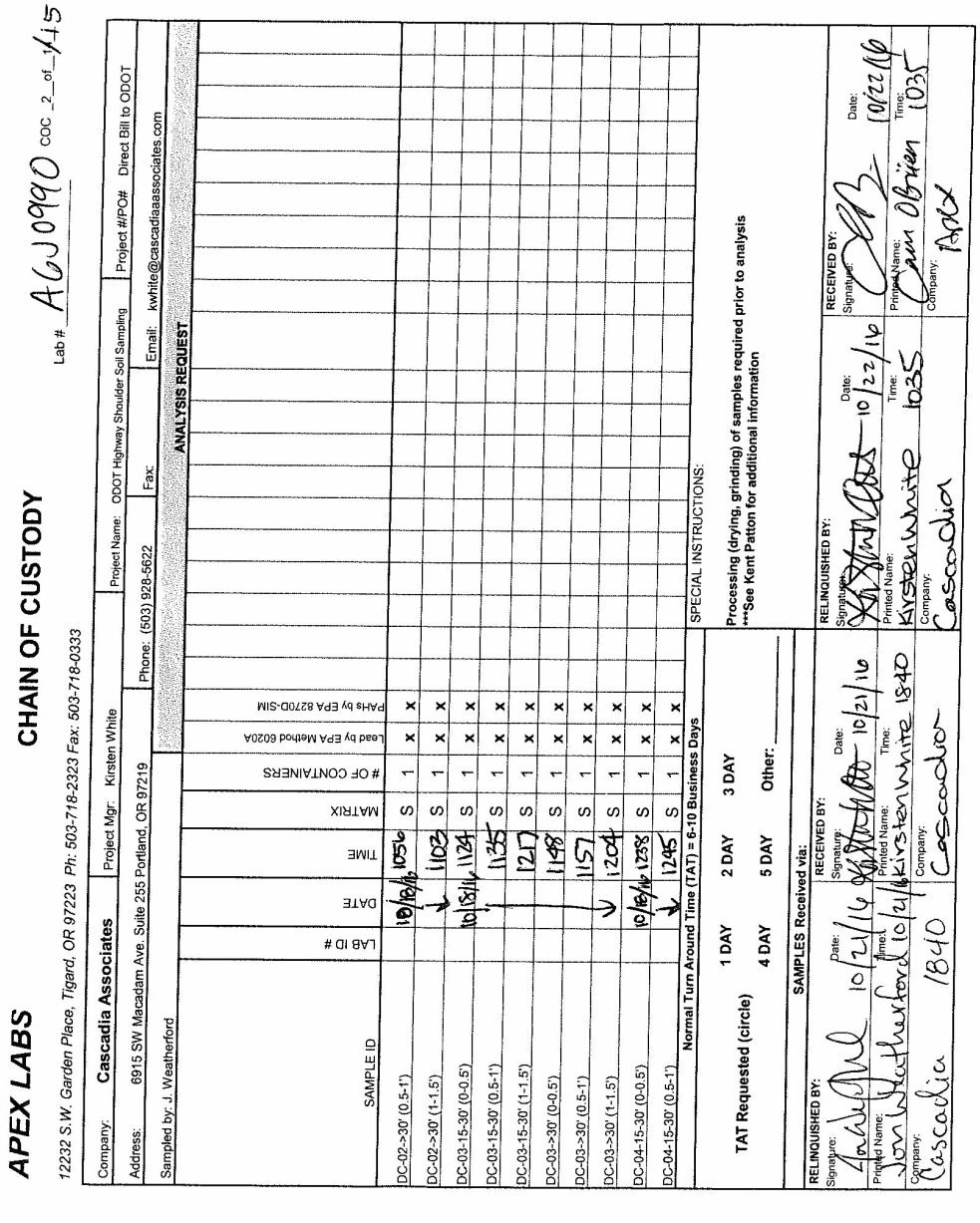
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS

CHAIN OF CUSTODY

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # AGJ0990 COC 2 of 4 5

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
DC-02->30' (0.5-1')		10/18/16	1056	S	1	x	x
DC-02->30' (1-1.5')			1103	S	1	x	x
DC-03-15-30' (0-0.5')		10/18/16	1124	S	1	x	x
DC-03-15-30' (0.5-1')			1135	S	1	x	x
DC-03-15-30' (1-1.5')			1217	S	1	x	x
DC-03->30' (0-0.5')			1148	S	1	x	x
DC-03->30' (0.5-1')			1157	S	1	x	x
DC-03->30' (1-1.5')			1204	S	1	x	x
DC-04-15-30' (0-0.5')		10/18/16	1238	S	1	x	x
DC-04-15-30' (0.5-1')			1245	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/21/16 Printed Name: Time: Company: Cascadia

RECEIVED BY: Signature: Date: 10/21/16 Printed Name: Time: Company:

RELINQUISHED BY: Signature: Date: 10/21/16 Printed Name: Kirsten White Time: 1840 Company: Cascadia

RECEIVED BY: Signature: Date: 10/22/16 Printed Name: Time: 1035 Company: APEX

RELINQUISHED BY: Signature: Date: 10/21/16 Printed Name: Jon Weatherford Time: 1840 Company: Cascadia

RECEIVED BY: Signature: Date: Printed Name: Time: Company:

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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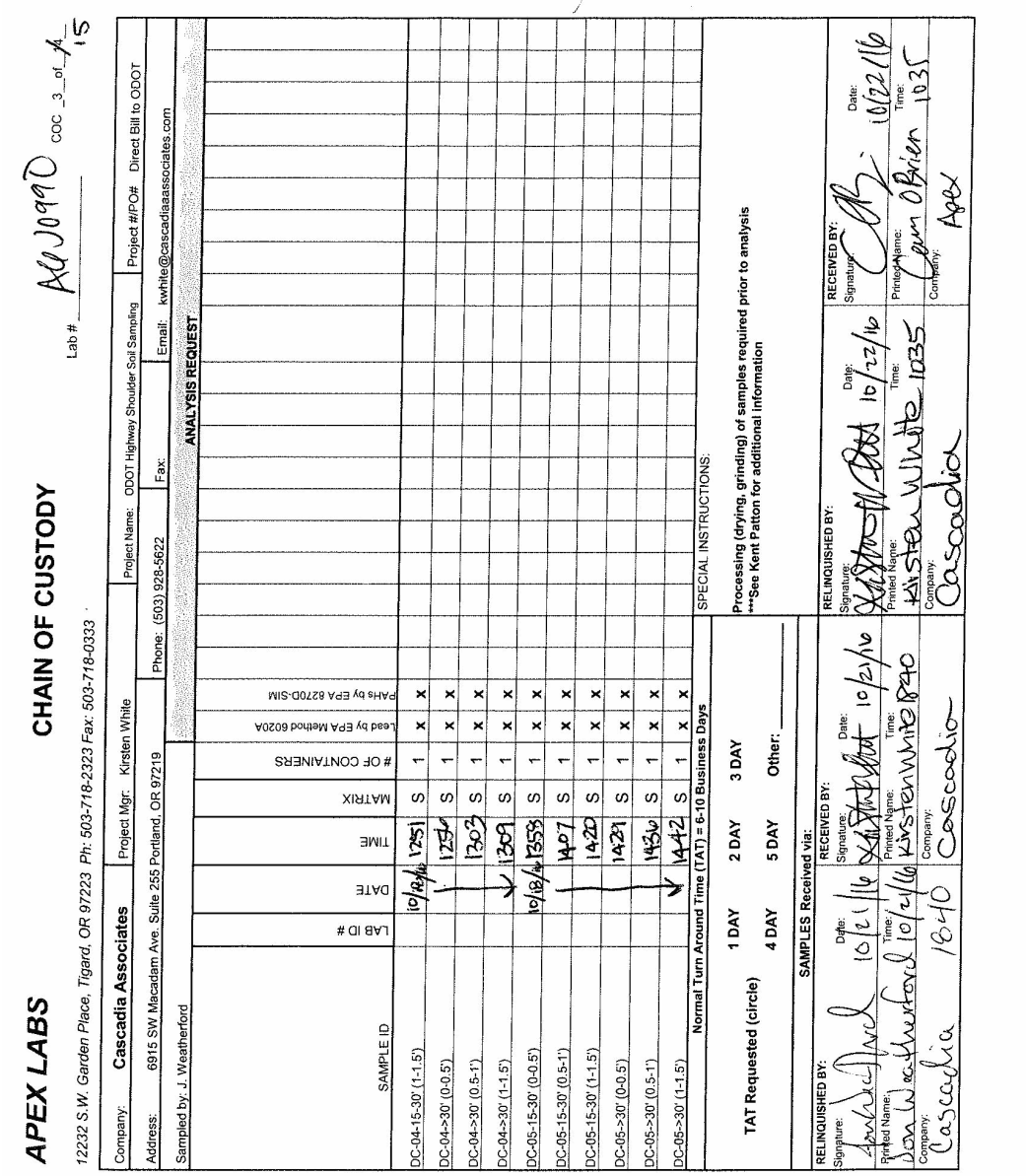
Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS

CHAIN OF CUSTODY

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # AQJ0997D COC _3_ of _4_ 15

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
DC-04-15-30' (1-1.5)		10/12/16	1251	S	1	x	x
DC-04->30' (0-0.5)			1254	S	1	x	x
DC-04->30' (0.5-1')			1303	S	1	x	x
DC-04->30' (1-1.5)			1309	S	1	x	x
DC-05-15-30' (0-0.5)		10/12/16	1353	S	1	x	x
DC-05-15-30' (0.5-1')			1407	S	1	x	x
DC-05-15-30' (1-1.5)			1420	S	1	x	x
DC-05->30' (0-0.5)			1429	S	1	x	x
DC-05->30' (0.5-1')			1436	S	1	x	x
DC-05->30' (1-1.5)			1442	S	1	x	x

SPECIAL INSTRUCTIONS:

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/12/16 Printed Name: Time: Company: Cascadia

RECEIVED BY: Signature: Date: 10/12/16 Printed Name: Time: Company:

RELINQUISHED BY: Signature: Date: 10/12/16 Printed Name: Kirsten White Time: 1035 Company: Cascadia

RECEIVED BY: Signature: Date: 10/12/16 Printed Name: Time: Company:

RELINQUISHED BY: Signature: Date: 10/12/16 Printed Name: Time: Company: Cascadia

RECEIVED BY: Signature: Date: 10/12/16 Printed Name: Leun O'Brien Time: 1035 Company: Apex

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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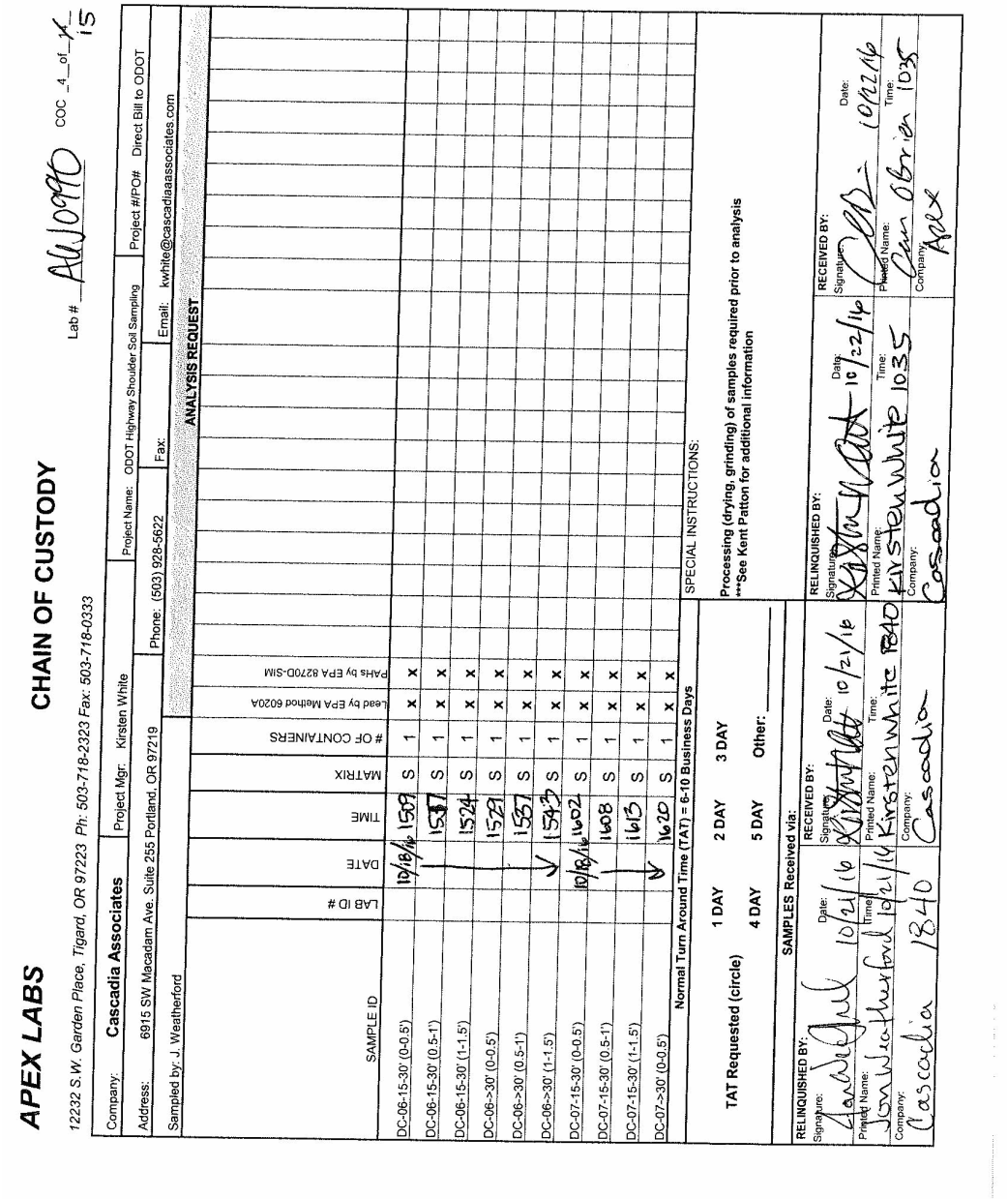
Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # AU10970 COC 4 of 4 15

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
DC-06-15-30' (0-0.5')		10/18/16	1509	S	1	x	x
DC-06-15-30' (0.5-1')			1537	S	1	x	x
DC-06-15-30' (1-1.5')			1524	S	1	x	x
DC-06->30' (0-0.5')			1529	S	1	x	x
DC-06->30' (0.5-1')			1537	S	1	x	x
DC-06->30' (1-1.5')		✓	1543	S	1	x	x
DC-07-15-30' (0-0.5')		10/18/16	1602	S	1	x	x
DC-07-15-30' (0.5-1')			1608	S	1	x	x
DC-07-15-30' (1-1.5')			1613	S	1	x	x
DC-07->30' (0-0.5')		✓	1620	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/21/16 Printed Name: Time: Company:

RECEIVED BY: Signature: Date: 10/21/16 Printed Name: Time: Company:

RELINQUISHED BY: Signature: Date: 10/21/16 Printed Name: Kirsten White Time: 1035 Company: Cascadia

RECEIVED BY: Signature: Date: 10/22/16 Printed Name: Sam O'Brien Time: 1035 Company: Apex

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

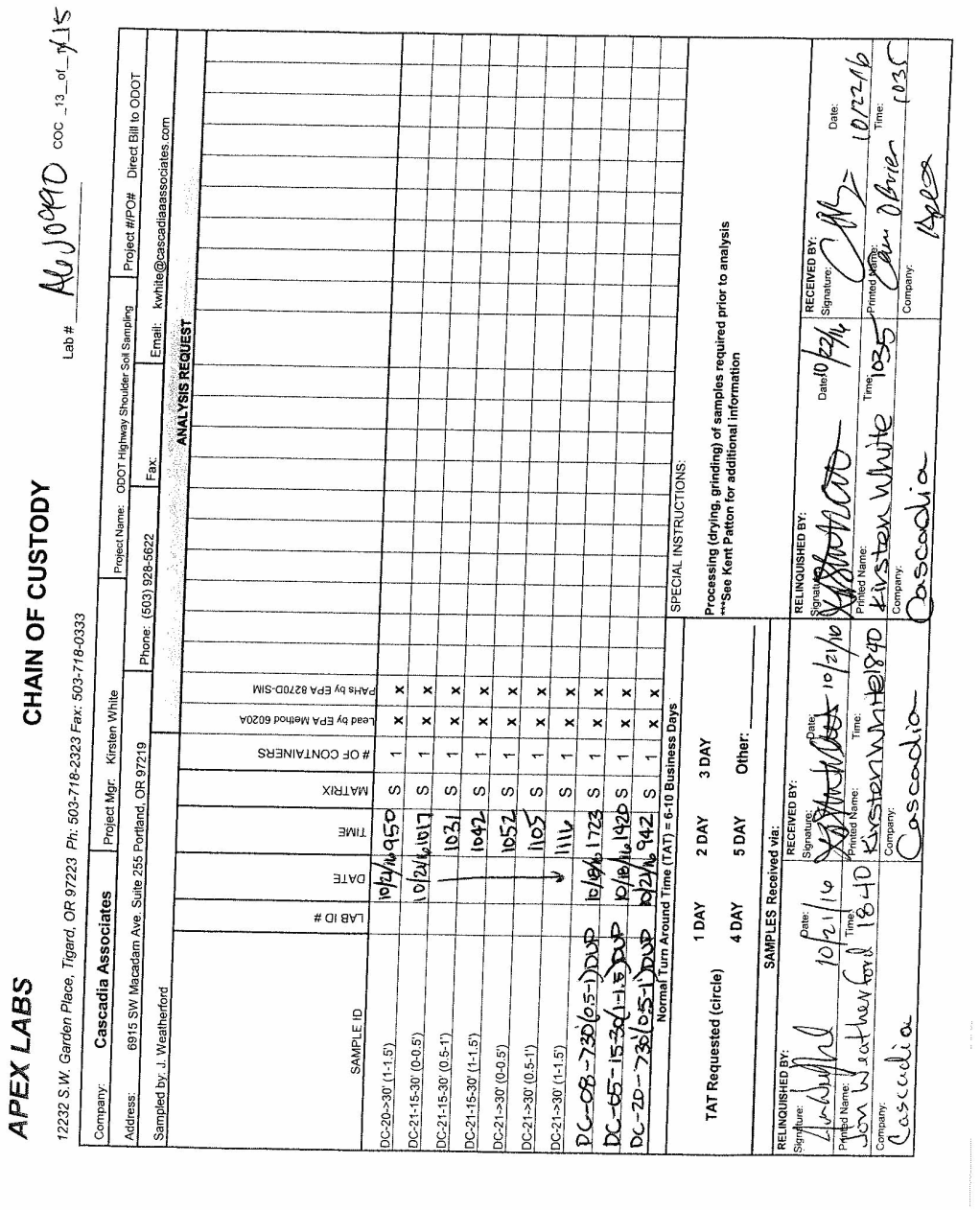
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS

CHAIN OF CUSTODY

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # AQJ0990 COC 13 of 15

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
DC-20->30' (1-1.5')		10/21/16	0950	S	1	x	x
DC-21-15-30' (0-0.5')		10/21/16	1017	S	1	x	x
DC-21-15-30' (0.5-1')			1031	S	1	x	x
DC-21-15-30' (1-1.5')			1042	S	1	x	x
DC-21->30' (0-0.5')			1052	S	1	x	x
DC-21->30' (0.5-1')			1105	S	1	x	x
DC-21->30' (1-1.5')			1114	S	1	x	x
DC-08-730(0.5-1)DUP		10/19/16	1723	S	1	x	x
DC-15-30(1-1.5)DUP		10/18/16	1420	S	1	x	x
DC-20-730(0.5-1)DUP		10/21/16	942	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/21/16 Time: 1840 Printed Name: Jon Weatherford Company: Cascadia

RECEIVED BY: Signature: Date: 10/21/16 Time: 1840 Printed Name: Kirsten White Company: Cascadia

RELINQUISHED BY: Signature: Date: 10/21/16 Time: 1035 Printed Name: Kirsten White Company: Cascadia

RECEIVED BY: Signature: Date: 10/22/16 Time: 1035 Printed Name: Ben O'Brien Company: Apex

Apex Laboratories

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Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

APEX LABS COOLER RECEIPT FORM

Client: Cascadia Element WO#: A6 J0990

Project/Project #: ODOT Highway Shoulder Soil Sampling

Delivery info:

Date/Time Received: 10/27/16 @ 1035 By: CAB

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: CAB : 10/27/16 @ 1040

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No V

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	4.4	5.1	5.6				
Received on Ice? (Y/N)	(Y)						
Temp. Blanks? (Y/N)	(Y)						
Ice Type: (Gel/Real/Other)	(Real)						
Condition:							

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CAB : 10/27/16 @ 1510

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes V No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA V

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes___ No___ NA V

Comments:

Additional Information:

Labeled by: 10/27/16 Witness: CAB Cooler Inspected by: CAB See Project Contact Form: Y

2

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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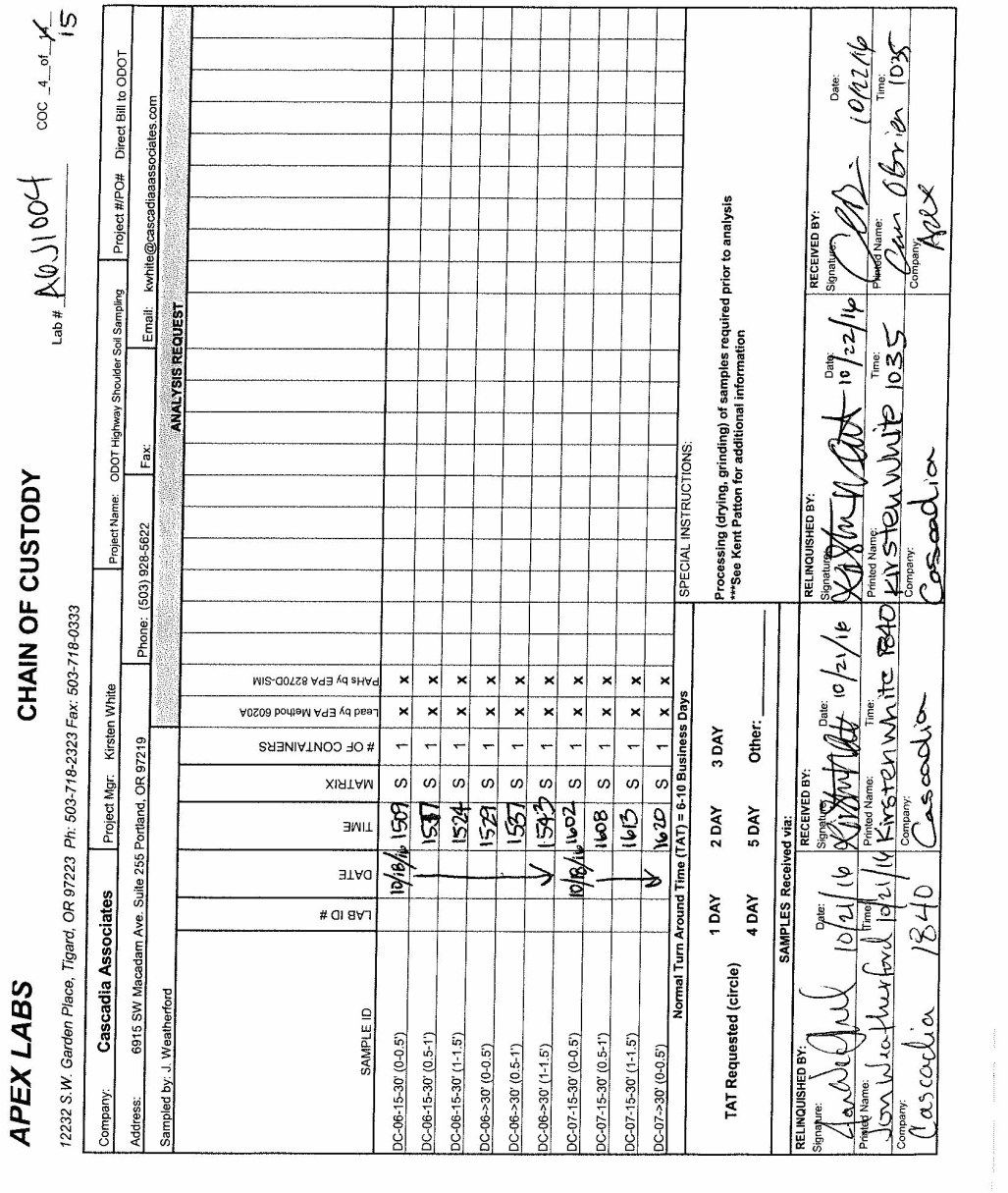
Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS — **CHAIN OF CUSTODY**

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # A0J1004 COC 4 of 4 15

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
DC-06-15-30' (0-0.5')		10/18/16	1509	S	1	x	x
DC-06-15-30' (0.5-1')			1537	S	1	x	x
DC-06-15-30' (1-1.5')			1524	S	1	x	x
DC-06->30' (0-0.5')			1529	S	1	x	x
DC-06->30' (0.5-1')			1537	S	1	x	x
DC-06->30' (1-1.5')		V	1543	S	1	x	x
DC-07-15-30' (0-0.5')		10/18/16	1602	S	1	x	x
DC-07-15-30' (0.5-1')			1608	S	1	x	x
DC-07-15-30' (1-1.5')			1613	S	1	x	x
DC-07->30' (0-0.5')		V	1620	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name:	Printed Name:	Printed Name:	Printed Name:
Company:	Company:	Company:	Company:
Date:	Date:	Date:	Date:
Time:	Time:	Time:	Time:

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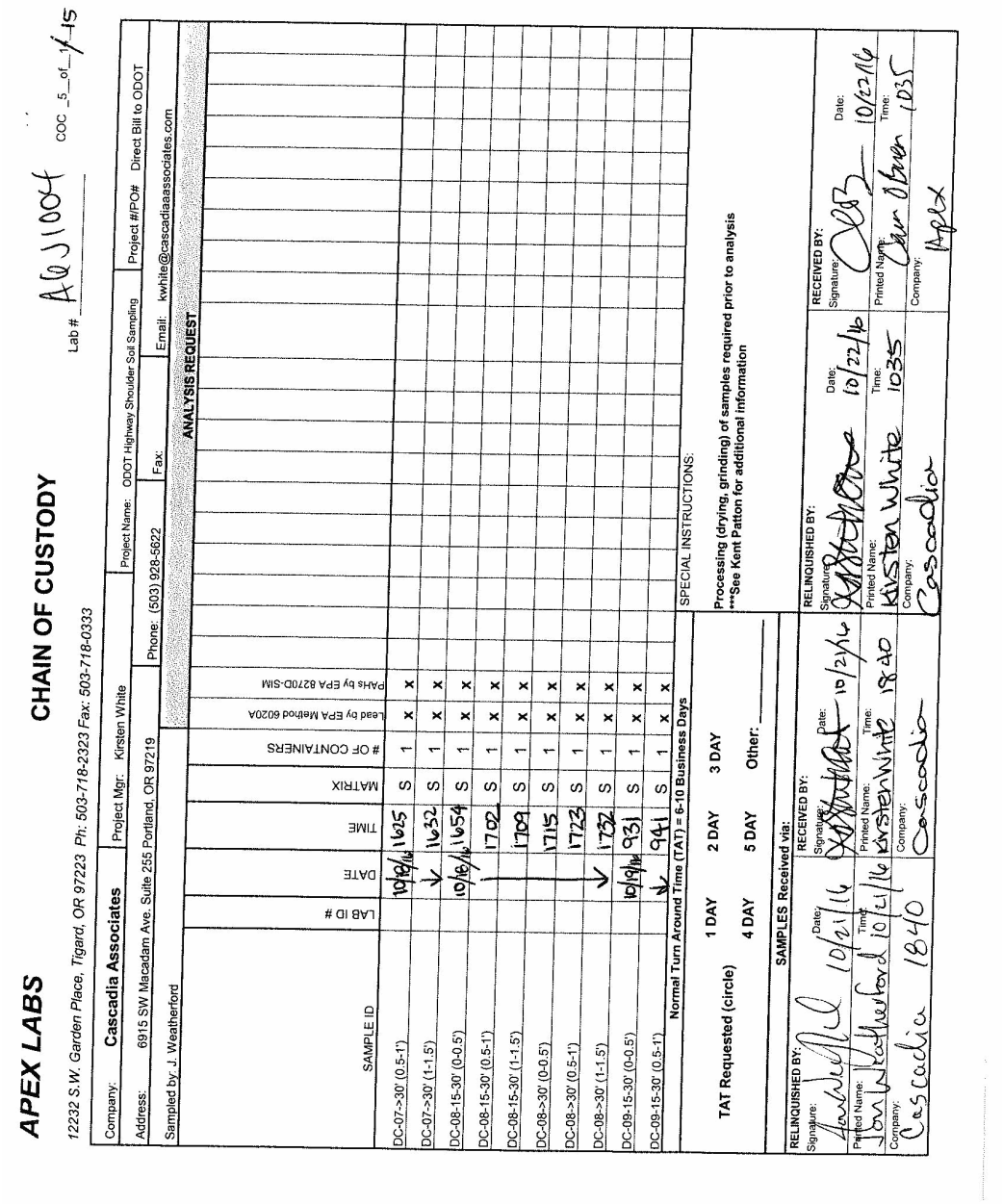
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS
12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # AQ11004 COC _5_ of _1_15

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT
Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com
Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
DC-07->30' (0.5-1')		10/19/16	1625	S	1	x	x
DC-07->30' (1-1.5')		↓	1632	S	1	x	x
DC-08-15-30' (0-0.5')		10/19/16	1654	S	1	x	x
DC-08-15-30' (0.5-1')			1702	S	1	x	x
DC-08-15-30' (1-1.5')			1709	S	1	x	x
DC-08->30' (0-0.5')			1715	S	1	x	x
DC-08->30' (0.5-1')			1723	S	1	x	x
DC-08->30' (1-1.5')		↓	1732	S	1	x	x
DC-09-15-30' (0-0.5')		10/19/16	931	S	1	x	x
DC-09-15-30' (0.5-1')		↓	941	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/21/16 Printed Name: Jon Weatherford Time: 10:41 Company: Cascadia

RECEIVED BY: Signature: Date: 10/21/16 Printed Name: Kirsten White Time: 18:40 Company: Cascadia

RELINQUISHED BY: Signature: Date: 10/22/16 Printed Name: Kirsten White Time: 1035 Company: Cascadia

RECEIVED BY: Signature: Date: 10/22/16 Printed Name: Lan Olsen Time: 1035 Company: Apex

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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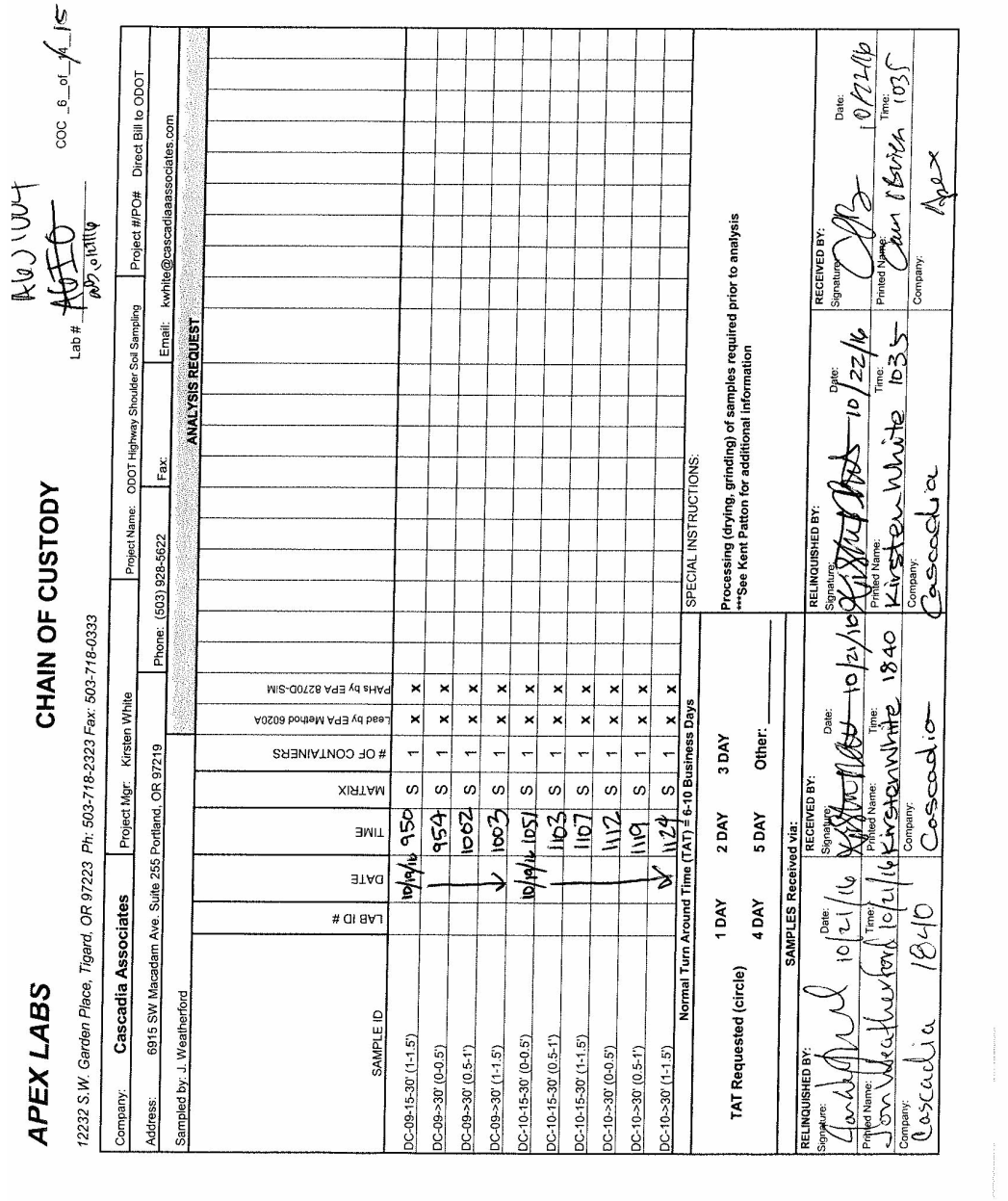
Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS — **CHAIN OF CUSTODY**

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

COC 6 of 14

Lab # AGFO

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
DC-09-15-30' (1-1.5')		10/19/16	950	S	1	x	x
DC-09->30' (0-0.5')			954	S	1	x	x
DC-09->30' (0.5-1')			1002	S	1	x	x
DC-09->30' (1-1.5')		↓	1003	S	1	x	x
DC-10-15-30' (0-0.5')		10/19/16	1051	S	1	x	x
DC-10-15-30' (0.5-1')			1103	S	1	x	x
DC-10-15-30' (1-1.5')			1107	S	1	x	x
DC-10->30' (0-0.5')			1112	S	1	x	x
DC-10->30' (0.5-1')			1119	S	1	x	x
DC-10->30' (1-1.5')		↓	1124	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Date: 10/21/16	Date: 10/21/16	Date: 10/22/16	Date: 10/22/16
Printed Name: Jon Weatherford	Printed Name: Kirsten White	Printed Name: Kirsten White	Printed Name: Dan Ibarra
Time: 1840	Time: 1840	Time: 1035	Time: 1035
Company: Cascadia	Company: Cascadia	Company: Cascadia	Company: Apex

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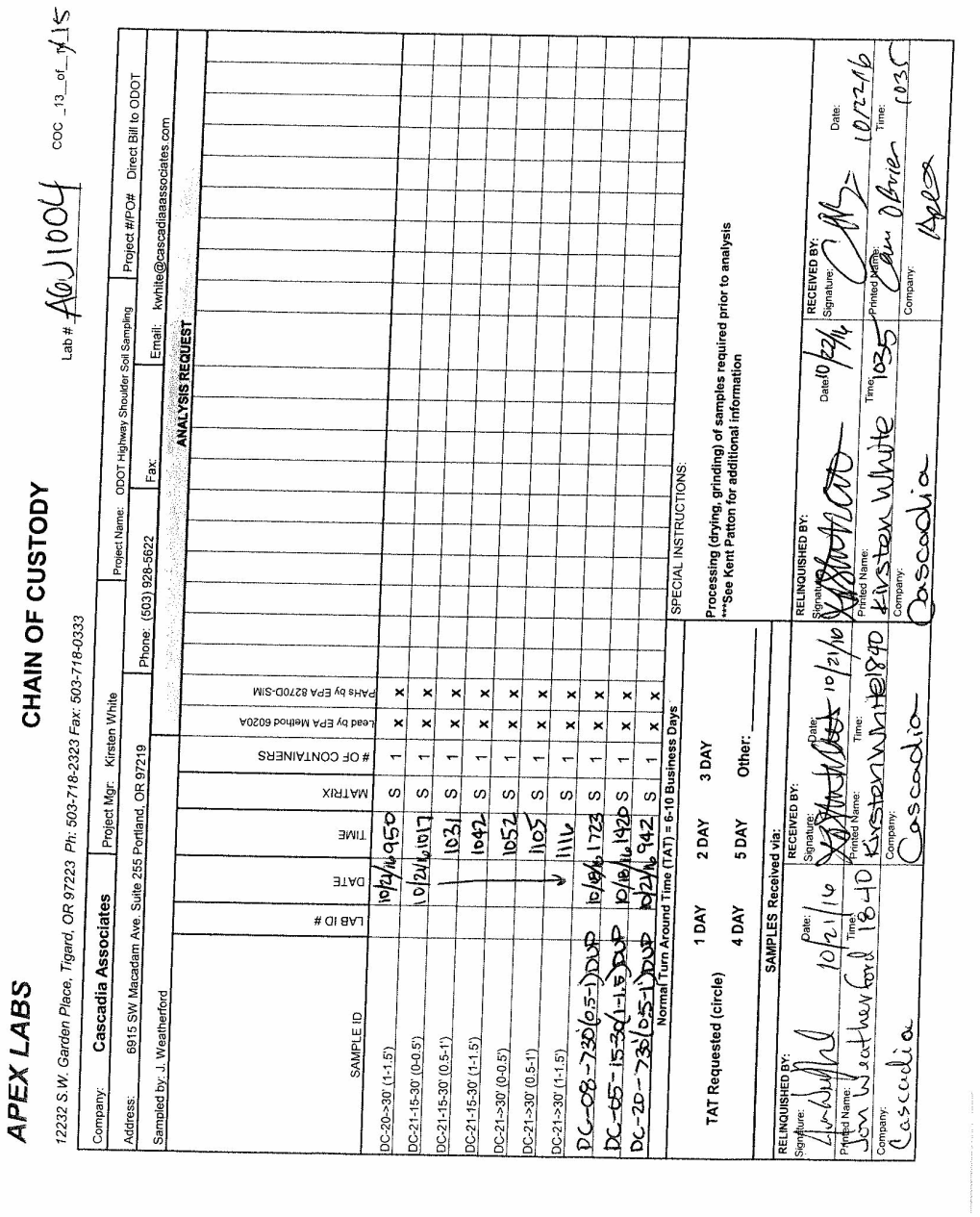
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



Apex Laboratories

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Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

APEX LABS COOLER RECEIPT FORM

Client: Cascadia — Element WO#: A61004

Project/Project #: ODOT Highway Shoulder Soil Sampling

Delivery info:

Date/Time Received: 10/22/16 @ 1035 By: OB

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: OB : 10/22/16 @ 1040

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	4.4	5.1	5.6				
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:							

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: OB : 10/22/16 @ 1510

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes___ No X Comments: DC-09->30'(1-1.5) time on coul. reads 10:09

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes___ No___ NA X

Comments:

Additional Information:

Labeled by: 10/22/16 OB (KM) Witness: OB Cooler Inspected by: OB See Project Contact Form: Y

3

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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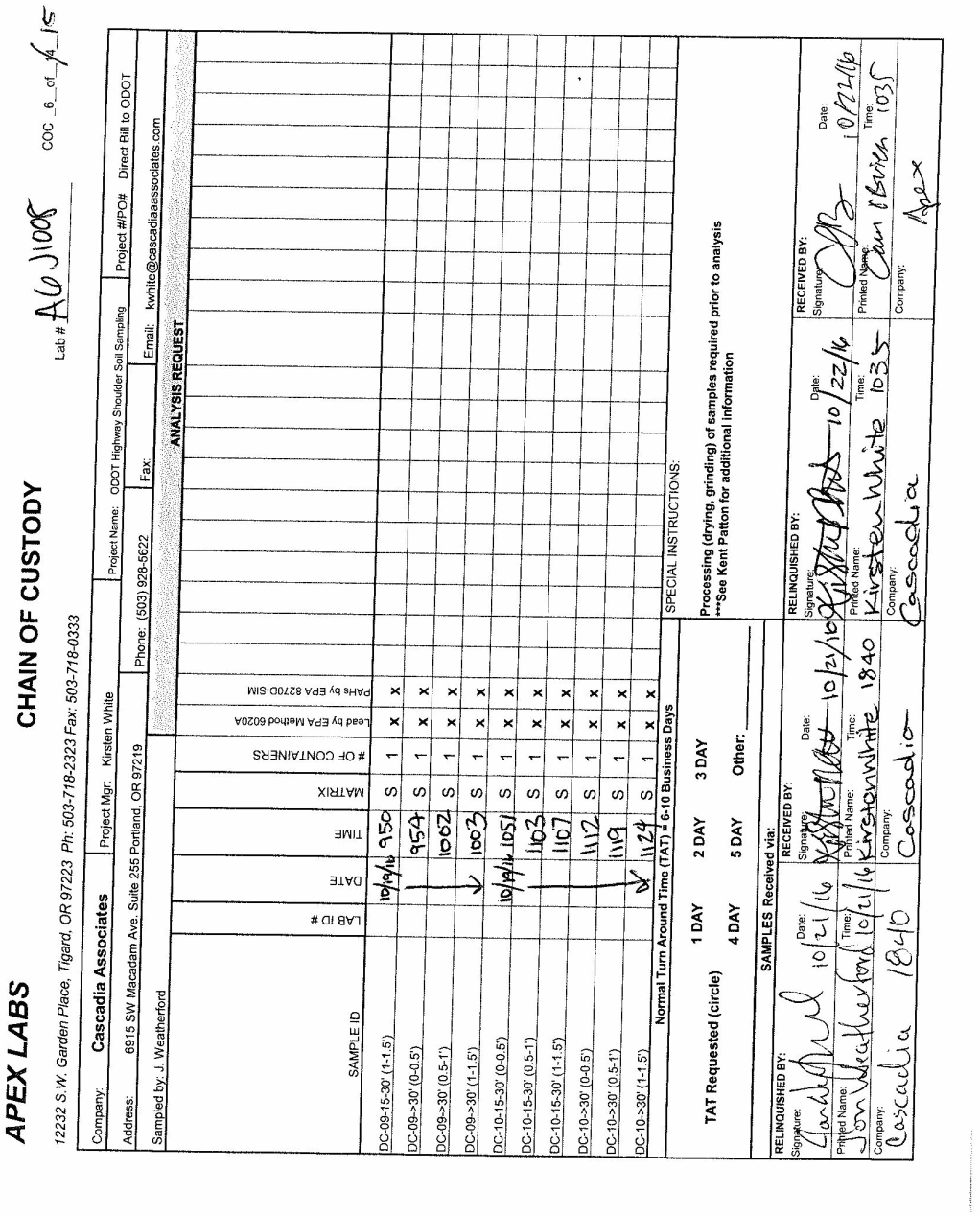
Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS **CHAIN OF CUSTODY** Lab # A6J1008 COC 6 of 14 15

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: **Cascadia Associates** Project Mgr: Kirsten White Project Name: ODOT Highway Shoulder Soil Sampling Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 Phone: (503) 928-5622 Fax: Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
DC-09-15-30' (1-1.5')		10/19/16	950	S	1	x	x
DC-09->30' (0-0.5')			954	S	1	x	x
DC-09->30' (0.5-1')			1002	S	1	x	x
DC-09->30' (1-1.5')			1003	S	1	x	x
DC-10-15-30' (0-0.5')		10/19/16	1051	S	1	x	x
DC-10-15-30' (0.5-1')			1103	S	1	x	x
DC-10-15-30' (1-1.5')			1107	S	1	x	x
DC-10->30' (0-0.5')			1112	S	1	x	x
DC-10->30' (0.5-1')			1119	S	1	x	x
DC-10->30' (1-1.5')			1124	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

SPECIAL INSTRUCTIONS:

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date: 10/21/16	Signature: [signature] Date: 10/21/16	Signature: [signature] Date: 10/22/16	Signature: [signature] Date: 10/22/16
Printed Name: Jon Weatherford Time: 10/21/16	Printed Name: Kirsten White Time: 1840	Printed Name: Kirsten White Time: 1035	Printed Name: Cam O'Brien Time: 1035
Company: Cascadia 1840	Company: Cascadia	Company: Cascadia	Company: Apex

Apex Laboratories

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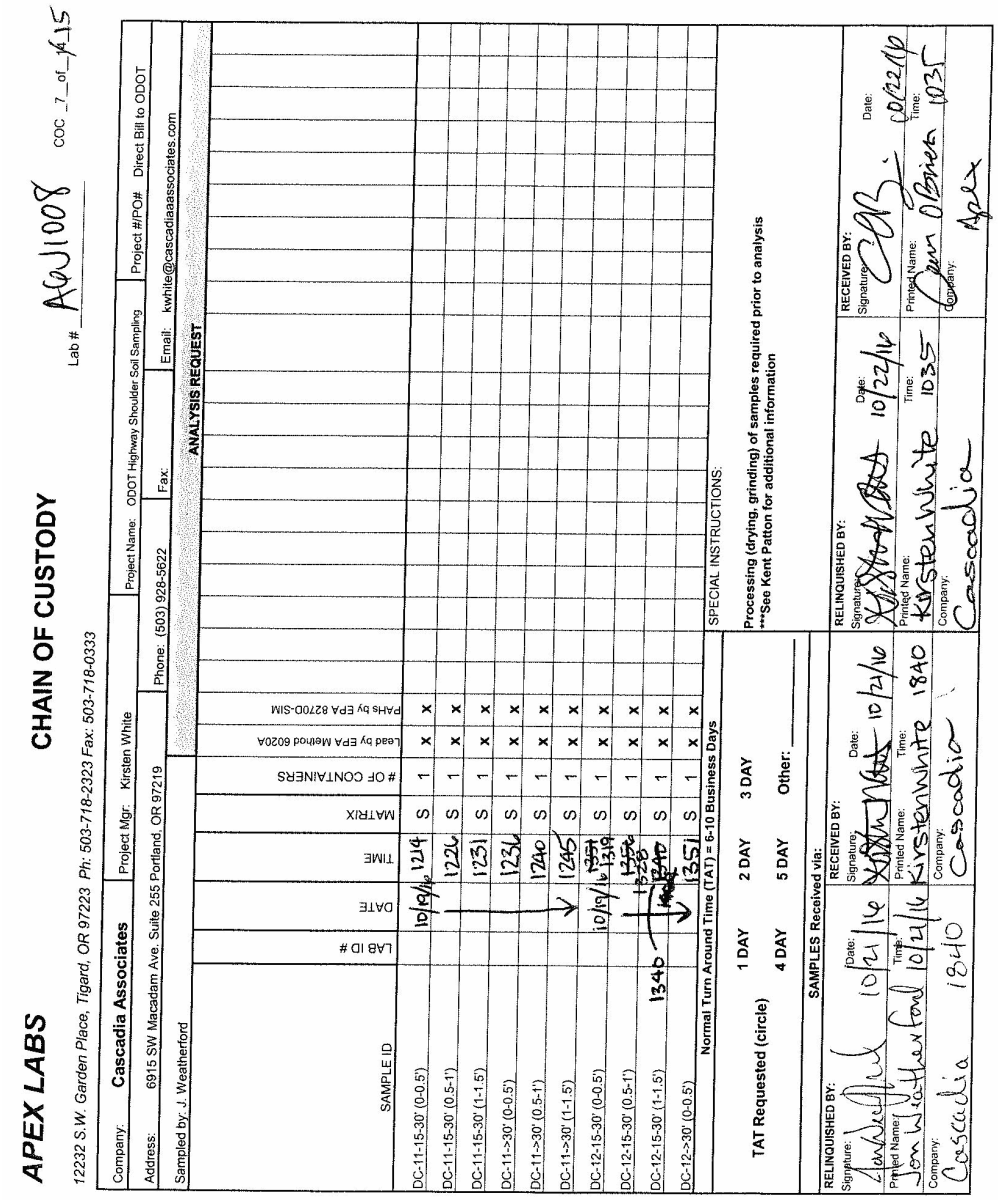
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # AQJ1008 COC 7 of 15

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
DC-11-15-30' (0-0.5')		10/19/16	1214	S	1	X	X
DC-11-15-30' (0.5-1')			1226	S	1	X	X
DC-11-15-30' (1-1.5')			1231	S	1	X	X
DC-11->30' (0-0.5')			1234	S	1	X	X
DC-11->30' (0.5-1')			1240	S	1	X	X
DC-11->30' (1-1.5')		↓	1245	S	1	X	X
DC-12-15-30' (0-0.5')		10/19/16	1301 1319	S	1	X	X
DC-12-15-30' (0.5-1')			1328 1340	S	1	X	X
DC-12-15-30' (1-1.5')	1340		1340	S	1	X	X
DC-12->30' (0-0.5')		↓	1351	S	1	X	X

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Daniel Ahn Date: 10/21/16 Time: 1840 Printed Name: Jon Weatherford Company: Cascadia

RECEIVED BY: Signature: Date: 10/21/16 Time: Printed Name: Company:

RELINQUISHED BY: Signature: Date: 10/22/16 Time: 1035 Printed Name: Kirsten White Company: Cascadia

RECEIVED BY: Signature: Date: 10/22/16 Time: 1035 Printed Name: Lam O'Brien Company: Apex

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa A Domenighini

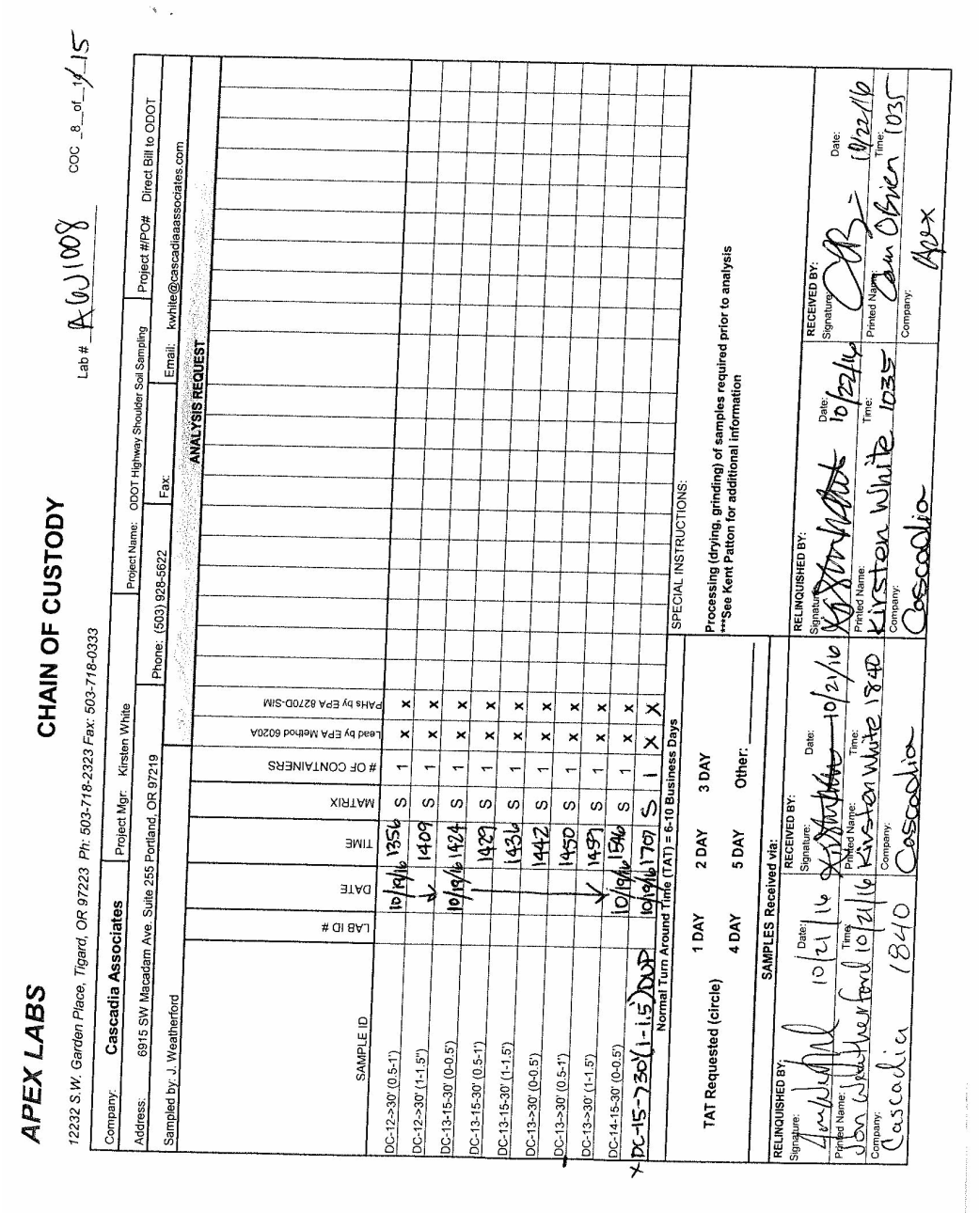
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS
12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # AGJ1008 COC _8_ of _15

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT
Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com
Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
DC-12->30' (0.5-1')		10/19/16	1356	S	1	x	x
DC-12->30' (1-1.5')		"	1409	S	1	x	x
DC-13-15-30' (0-0.5')		10/19/16	1424	S	1	x	x
DC-13-15-30' (0.5-1')			1427	S	1	x	x
DC-13-15-30' (1-1.5')			1431	S	1	x	x
DC-13->30' (0-0.5')			1442	S	1	x	x
DC-13->30' (0.5-1')			1450	S	1	x	x
DC-13->30' (1-1.5')		"	1457	S	1	x	x
DC-14-15-30' (0-0.5')		10/19/16	1540	S	1	x	x
DC-15->30'(1-1.5')DUP		10/19/16	1707	S	1	X	X

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/21/16 Printed Name: Time: Company: Cascadia

RECEIVED BY: Signature: Date: 10/21/16 Printed Name: Jon Weatherford Time: 1840 Company: Cascadia

RELINQUISHED BY: Signature: Date: 10/22/16 Printed Name: Kirsten White Time: 1035 Company: Cascadia

RECEIVED BY: Signature: Date: 10/22/16 Printed Name: Sam O'Brien Time: 1035 Company: Apex

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

APEX LABS COOLER RECEIPT FORM

Client: Cascadia Element WO#: A6J1008

Project/Project #: ODOT Highway Shoulder Soil Sampling

Delivery info:

Date/Time Received: 10/22/16 @ 1035 By:

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: : 10/22/16 @ 1040

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No Y

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	4.4	5.1	5.6				
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:							

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: : 10/22/16 @ 1510

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes Y No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA Y

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes___ No___ NA Y

Comments:

Additional Information:

Labeled by: Witness: Cooler Inspected by: See Project Contact Form: Y

4

Apex Laboratories

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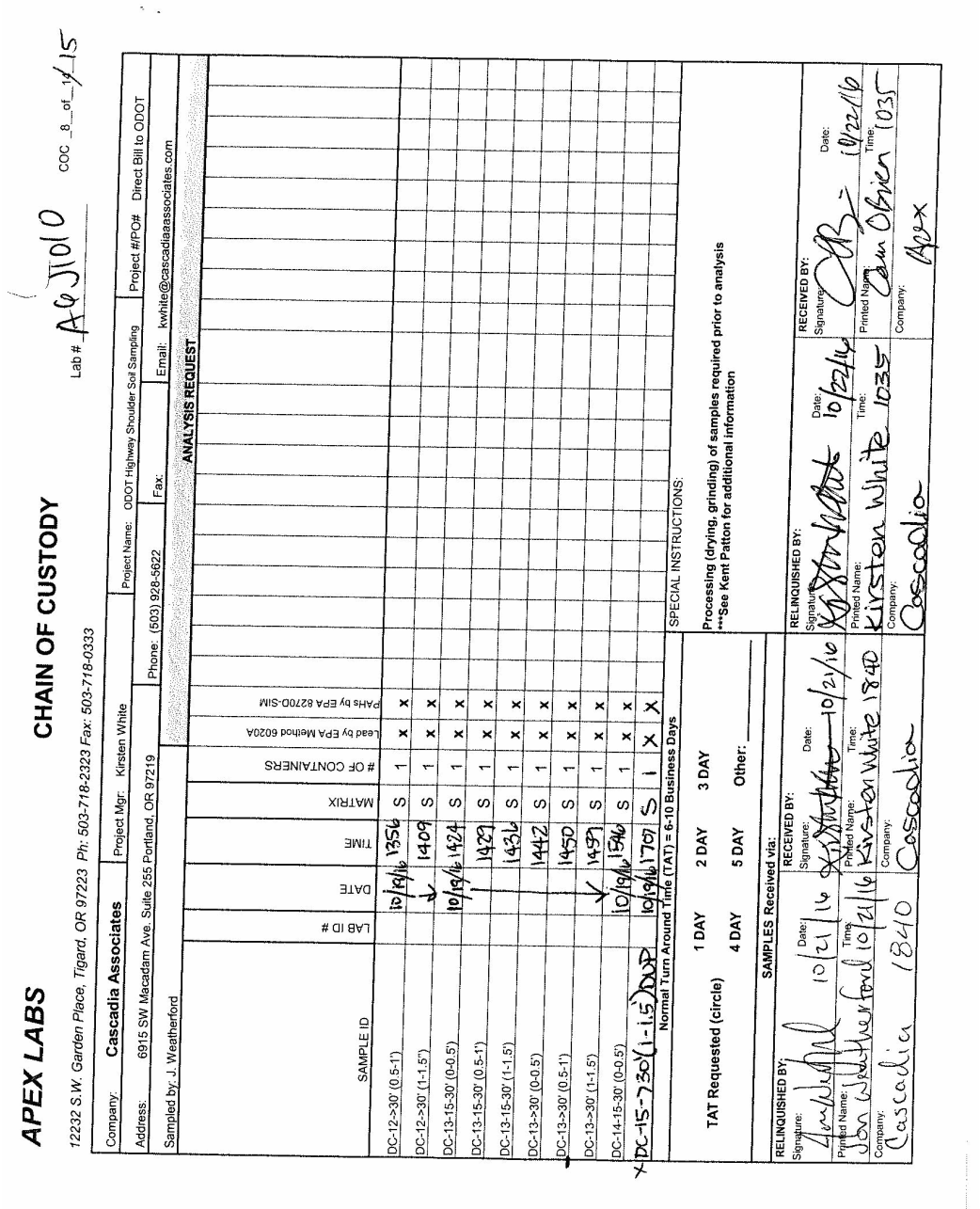
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # AQJ1010 COC _8_ of _15

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM	
DC-12->30' (0.5-1')		10/19/16	1356	S	1	x	x	
DC-12->30' (1-1.5')			1409	S	1	x	x	
DC-13-15-30' (0-0.5')		10/19/16	1424	S	1	x	x	
DC-13-15-30' (0.5-1')			1429	S	1	x	x	
DC-13-15-30' (1-1.5')			1436	S	1	x	x	
DC-13->30' (0-0.5')			1442	S	1	x	x	
DC-13->30' (0.5-1')			1450	S	1	x	x	
DC-13->30' (1-1.5')			1457	S	1	x	x	
DC-14-15-30' (0-0.5')		10/19/16	1540	S	1	x	x	
DC-15-7.5-30'(1-1.5')DUP		10/19/16	1707	S	1	X	X	

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/21/16 Time: 1840 Printed Name: Jon Weatherford Company: Cascadia

RECEIVED BY: Signature: Date: 10/21/16 Time: 1840 Printed Name: Kirsten White Company: Cascadia

RELINQUISHED BY: Signature: Date: 10/22/16 Time: 1035 Printed Name: Kirsten White Company: Cascadia

RECEIVED BY: Signature: Date: 10/22/16 Time: 1035 Printed Name: Sam O'Brien Company: Apex

Apex Laboratories

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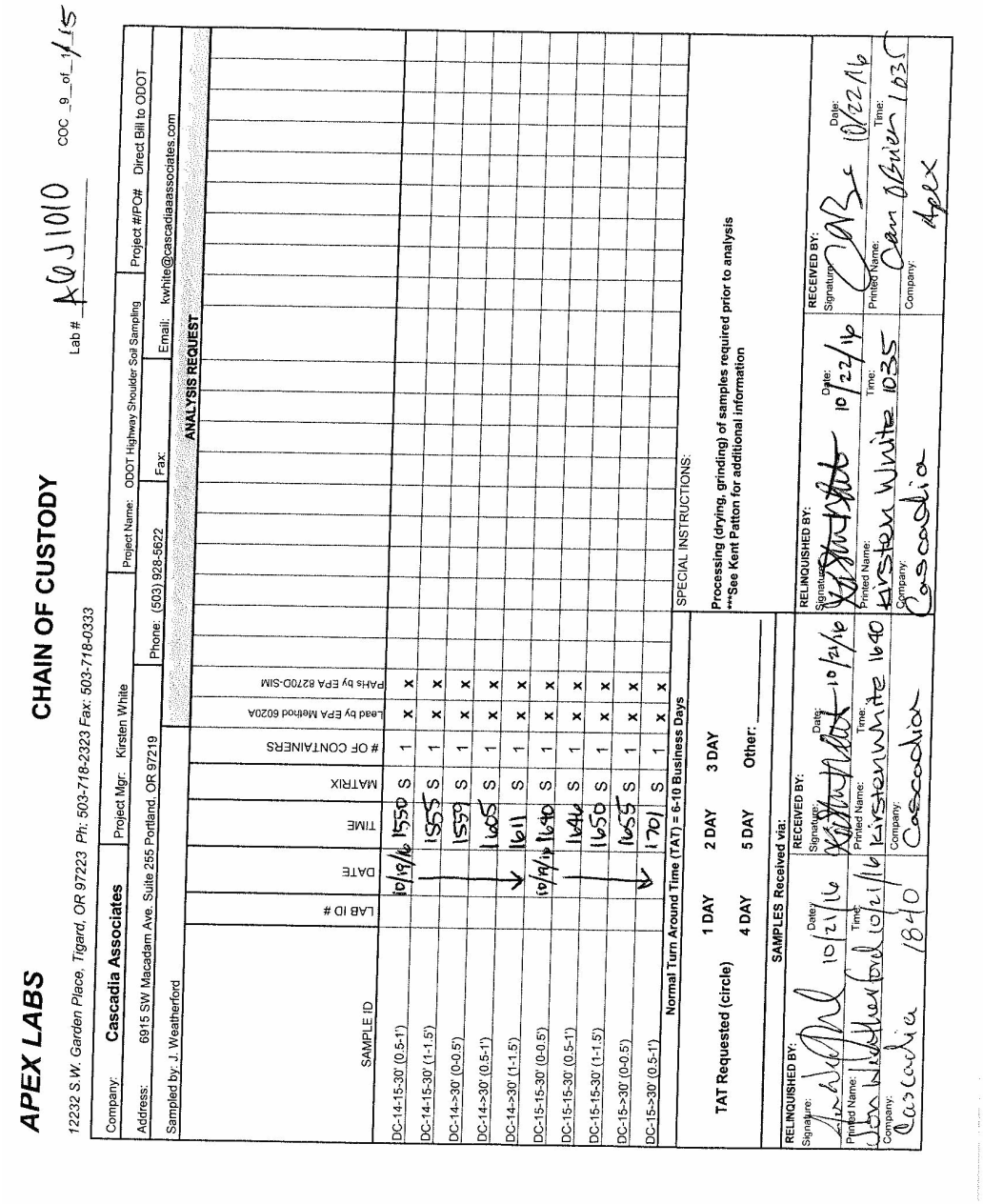
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS **CHAIN OF CUSTODY**

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # A6J1010 COC 9 of 1/15

Company: **Cascadia Associates** Project Mgr: Kirsten White Project Name: ODOT Highway Shoulder Soil Sampling Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 Phone: (503) 928-5622 Fax: Email: kwhite@cascadiaaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
DC-14-15-30' (0.5-1')		10/19/16	1550	S	1	x	x
DC-14-15-30' (1-1.5')			1555	S	1	x	x
DC-14->30' (0-0.5')			1559	S	1	x	x
DC-14->30' (0.5-1')			1605	S	1	x	x
DC-14->30' (1-1.5')			1611	S	1	x	x
DC-15-15-30' (0-0.5')		10/19/16	1640	S	1	x	x
DC-15-15-30' (0.5-1')			1646	S	1	x	x
DC-15-15-30' (1-1.5')			1650	S	1	x	x
DC-15->30' (0-0.5')			1655	S	1	x	x
DC-15->30' (0.5-1')			1701	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

SPECIAL INSTRUCTIONS:

Processing (drying, grinding) of samples required prior to analysis
*****See Kent Patton for additional information**

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date: 10/21/16	Signature: [signature] Date: 10/21/16	Signature: [signature] Date: 10/22/16	Signature: [signature] Date: 10/22/16
Printed Name: Jon Weatherford Time: 10/21/16	Printed Name: Kirsten White Time: 1640	Printed Name: Kirsten White Time: 1035	Printed Name: Jan O'Brien Time: 1035
Company: Cascadia 1840	Company: Cascadia	Company: Cascadia	Company: Apex

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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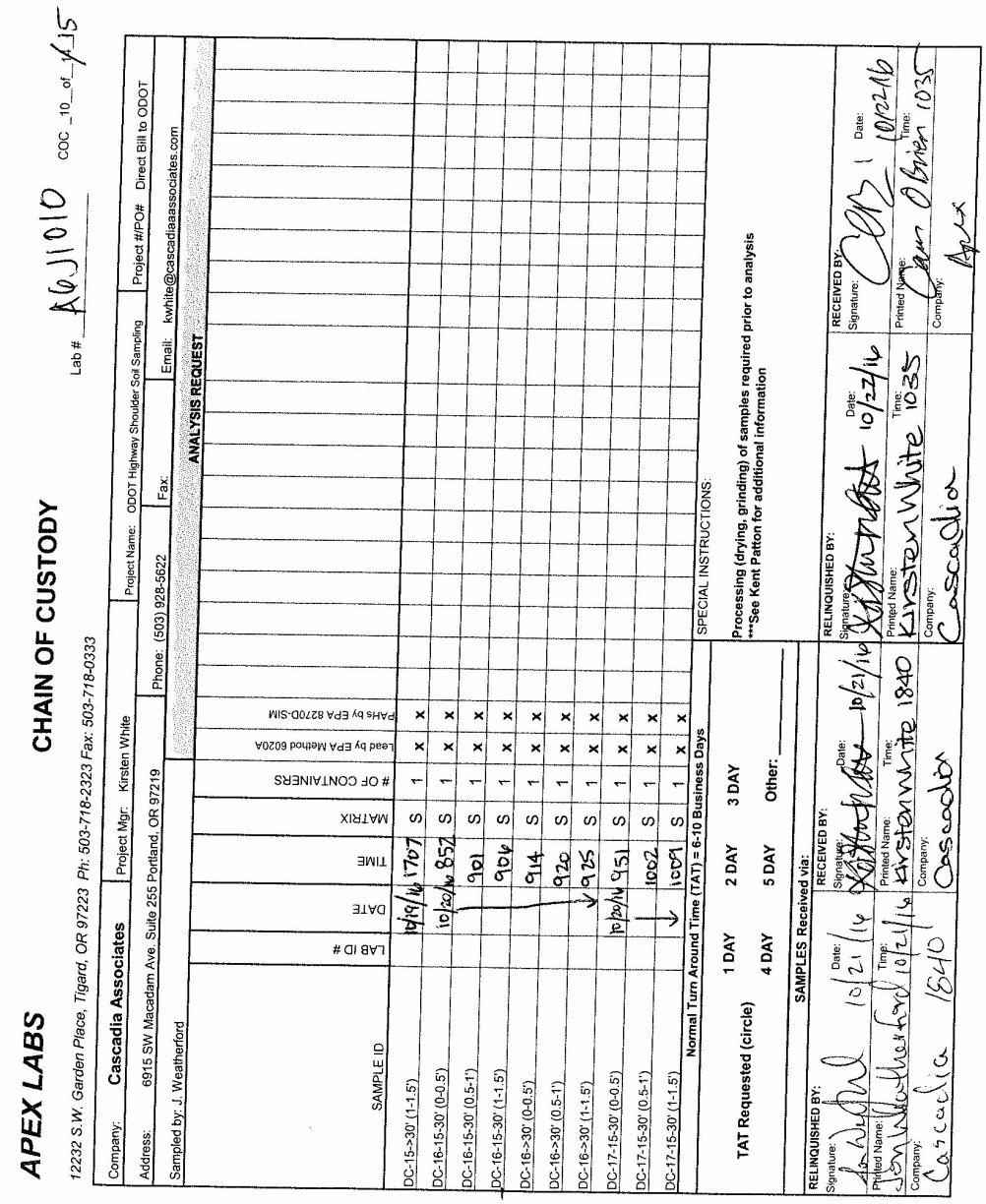
Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # A6J1010 COC _10_ of _15

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
DC-15->30' (1-1.5')		10/19/16	1707	S	1	x	x
DC-16-15-30' (0-0.5)		10/20/16	852	S	1	x	x
DC-16-15-30' (0.5-1')			901	S	1	x	x
DC-16-15-30' (1-1.5')			904	S	1	x	x
DC-16->30' (0-0.5')			914	S	1	x	x
DC-16->30' (0.5-1')			920	S	1	x	x
DC-16->30' (1-1.5')			925	S	1	x	x
DC-17-15-30' (0-0.5')		10/20/16	951	S	1	x	x
DC-17-15-30' (0.5-1')			1002	S	1	x	x
DC-17-15-30' (1-1.5')			1009	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/21/16 Printed Name: Time: 1840 Company: Cascadia

RECEIVED BY: Signature: Date: 10/21/16 Printed Name: Kirsten White Time: 1840 Company: Cascadia

RELINQUISHED BY: Signature: Date: 10/22/16 Printed Name: Kirsten White Time: 1035 Company: Cascadia

RECEIVED BY: Signature: Date: 10/22/16 Printed Name: Lauren O'Brien Time: 1035 Company: Apex

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

APEX LABS COOLER RECEIPT FORM

Client: Cascadia Element WO#: A6J010

Project/Project #: ODOT Highway Shoulder Soil Sampling

Delivery info:

Date/Time Received: 10/22/16 @ 1035 By: CAB

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: CAB : 10/22/16 @ 1040

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	4.4	5.1	5.6				
Received on Ice? (Y/N)	Y						
Temp. Blanks? (Y/N)	N						
Ice Type: (Gel/Real/Other)	Real						
Condition:							

Cooler out of temp? (Y/N) Possible reason why:
If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CAB : 10/27/16 @ 1510

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes X No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes Y No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes___ No___ NA Y

Comments:

Additional Information:

Labeled by: CAB 10/27/16 Witness: CAB Cooler Inspected by: CAB See Project Contact Form: Y

KAL

5

Apex Laboratories

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Lisa A Domenighini

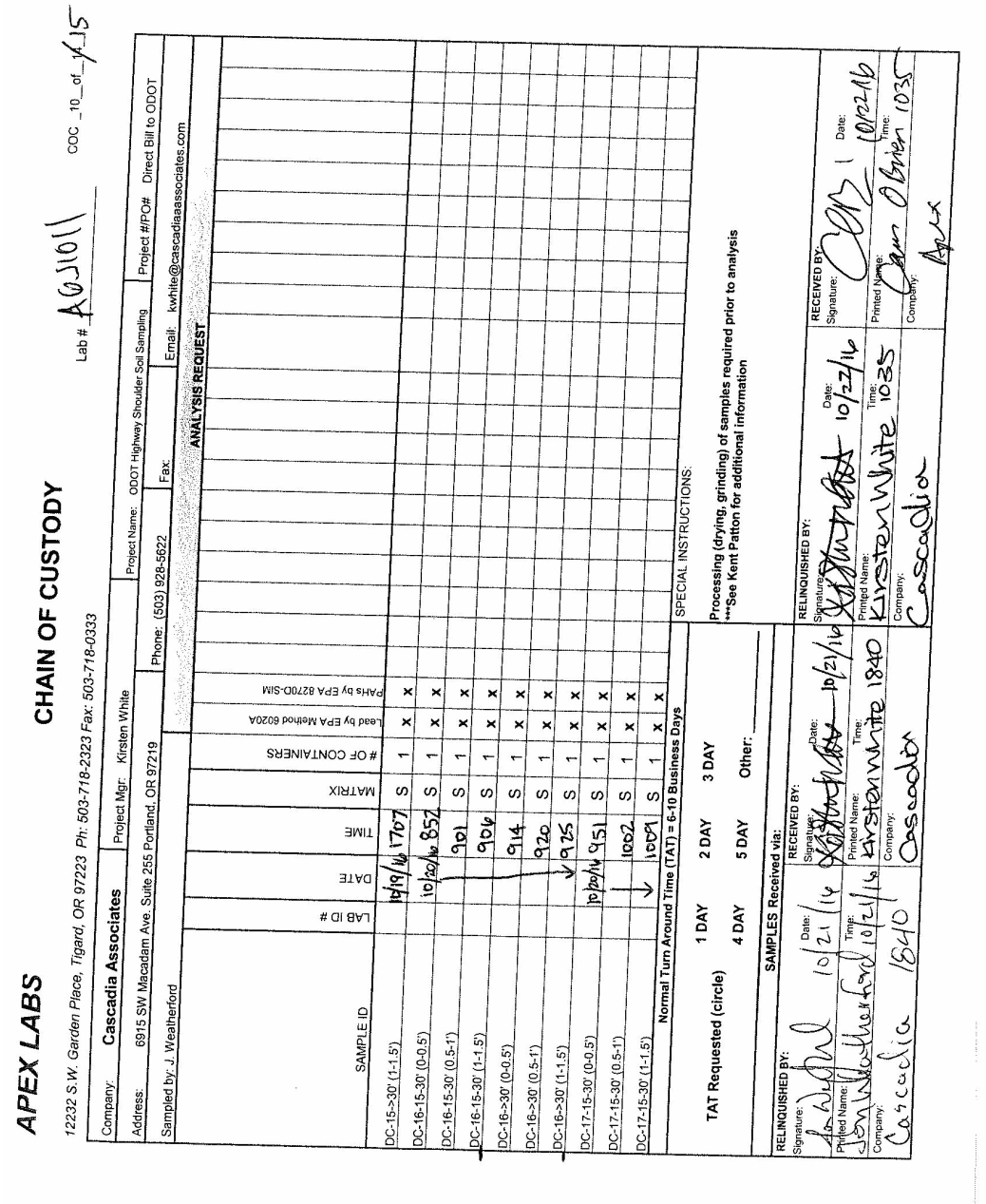
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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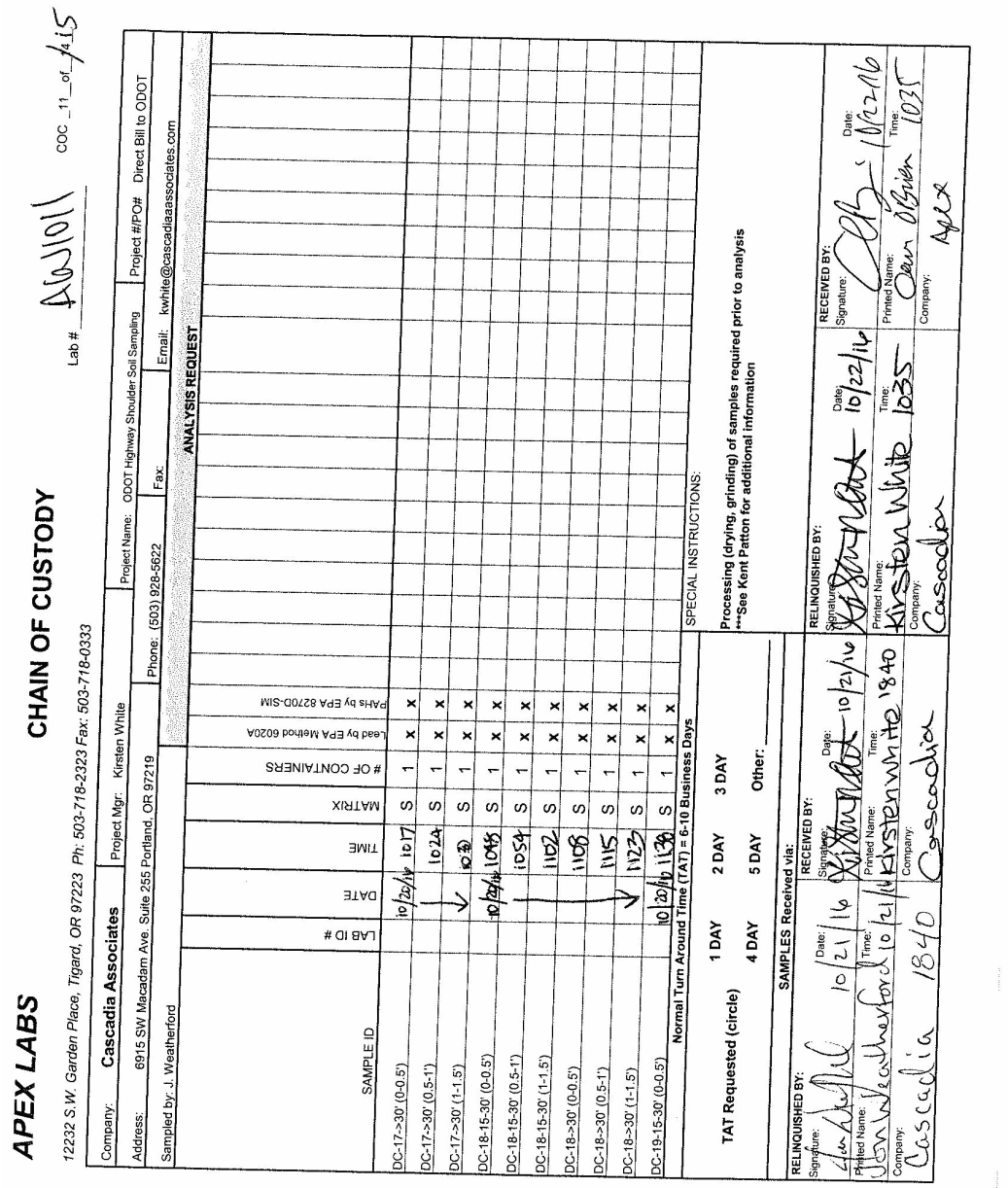
Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS

CHAIN OF CUSTODY

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # 410101 COC 11 of 415

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
DC-17->30' (0-0.5')		10/20/16	1017	S	1	x	x
DC-17->30' (0.5-1')			1024	S	1	x	x
DC-17->30' (1-1.5')			1031	S	1	x	x
DC-18-15-30' (0-0.5')		10/20/16	1045	S	1	x	x
DC-18-15-30' (0.5-1')			1054	S	1	x	x
DC-18-15-30' (1-1.5')			1102	S	1	x	x
DC-18->30' (0-0.5')			1108	S	1	x	x
DC-18->30' (0.5-1')			1115	S	1	x	x
DC-18->30' (1-1.5')			1123	S	1	x	x
DC-19-15-30' (0-0.5')		10/20/16	1138	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/21/16 Printed Name: Time: Company:

RECEIVED BY: Signature: Date: 10/21/16 Printed Name: Time: Company: Cascadia 1840

RELINQUISHED BY: Signature: Date: 10/21/16 Printed Name: Kirsten White Time: 1835 Company: Cascadia

RECEIVED BY: Signature: Date: 10/22/16 Printed Name: Sean Bigler Time: 1035 Company: Apex

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

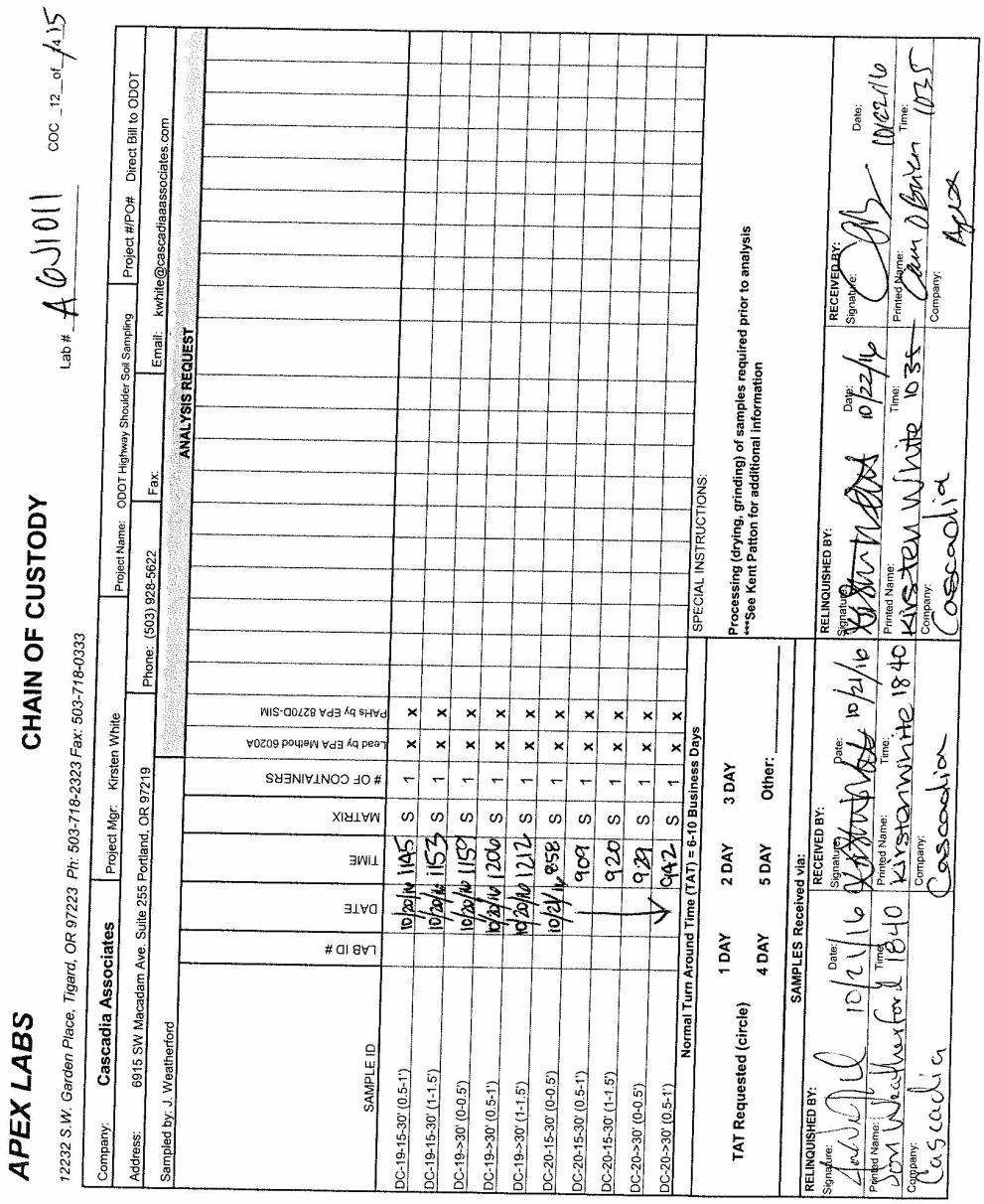
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS — **CHAIN OF CUSTODY** — Lab # A0J1011 — COC _12_ of _15

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
DC-19-15-30' (0.5-1')		10/20/16	1145	S	1	x	x
DC-19-15-30' (1-1.5')		10/20/16	1153	S	1	x	x
DC-19->30' (0-0.5')		10/20/16	1150	S	1	x	x
DC-19->30' (0.5-1')		10/20/16	1200	S	1	x	x
DC-19->30' (1-1.5')		10/20/16	1212	S	1	x	x
DC-20-15-30' (0-0.5')		10/21/16	0858	S	1	x	x
DC-20-15-30' (0.5-1')			0909	S	1	x	x
DC-20-15-30' (1-1.5')			0920	S	1	x	x
DC-20->30' (0-0.5')			0931	S	1	x	x
DC-20->30' (0.5-1')			0942	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Printed Name: Company: Date: 10/21/16 Time: 1840

RECEIVED BY: Signature: Printed Name: Kirsten White Company: Cascadia Date: 10/21/16 Time: 1840

RELINQUISHED BY: Signature: Printed Name: Kirsten White Company: Cascadia Date: 10/22/16 Time: 1035

RECEIVED BY: Signature: Printed Name: Cam O'Brien Company: Apex Date: 10/22/16 Time: 1035

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

APEX LABS COOLER RECEIPT FORM

Client: Cascadia

Project/Project #: ODOT Highway Shoulder Soil Sampling Element WO#: A6 J1011

Delivery info:

Date/Time Received: 10/22/16 @ 1035 By: CAB

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: CAB : 10/22/16 @ 1040

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	4.4	5.1	5.6				
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:							

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CAB : 10/27/16 @ 1510

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes X No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes___ No___ NA X

Comments:

Additional Information:

Labeled by: CAB 10/27/16 Witness: Cooler Inspected by: CAB See Project Contact Form: Y

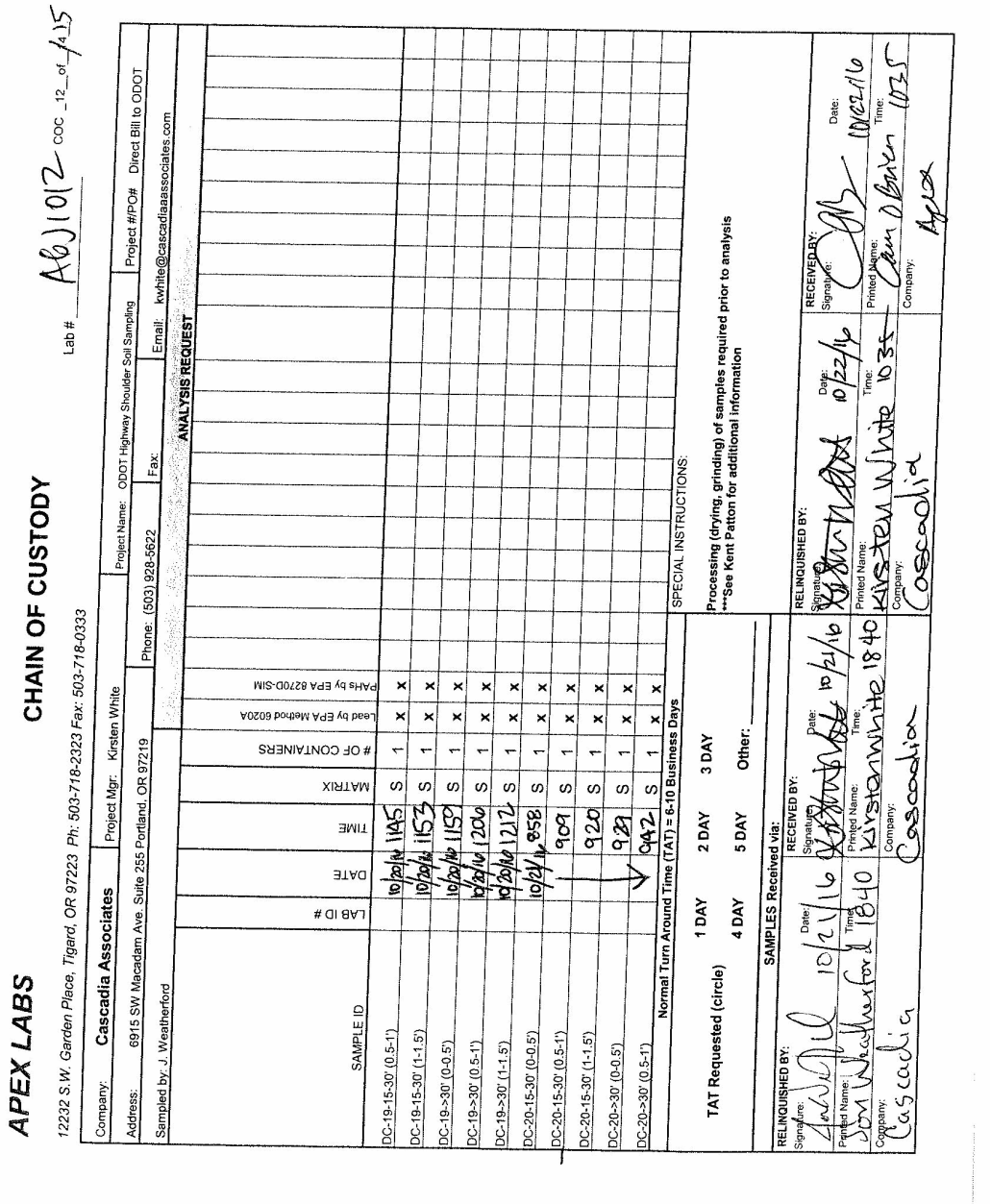
6

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS
12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # AOJ1012 COC -12- of 15

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT
Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com
Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
DC-19-15-30' (0.5-1')		10/20/16	1145	S	1	x	x
DC-19-15-30' (1-1.5')		10/20/16	1153	S	1	x	x
DC-19->30' (0-0.5')		10/20/16	1150	S	1	x	x
DC-19->30' (0.5-1')		10/20/16	1200	S	1	x	x
DC-19->30' (1-1.5')		10/20/16	1212	S	1	x	x
DC-20-15-30' (0-0.5')		10/21/16	0858	S	1	x	x
DC-20-15-30' (0.5-1')			909	S	1	x	x
DC-20-15-30' (1-1.5')			920	S	1	x	x
DC-20->30' (0-0.5')			933	S	1	x	x
DC-20->30' (0.5-1')		↓	0942	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/21/16 Printed Name: Time: Company:
RECEIVED BY: Signature: Date: 10/21/16 Printed Name: Kirsten White Time: 1840 Company: Cascadia
RELINQUISHED BY: Signature: Date: 10/22/16 Printed Name: Kirsten White Time: 1035 Company: Cascadia
RECEIVED BY: Signature: Date: 10/22/16 Printed Name: Sam O'Brien Time: 1035 Company: APEX

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

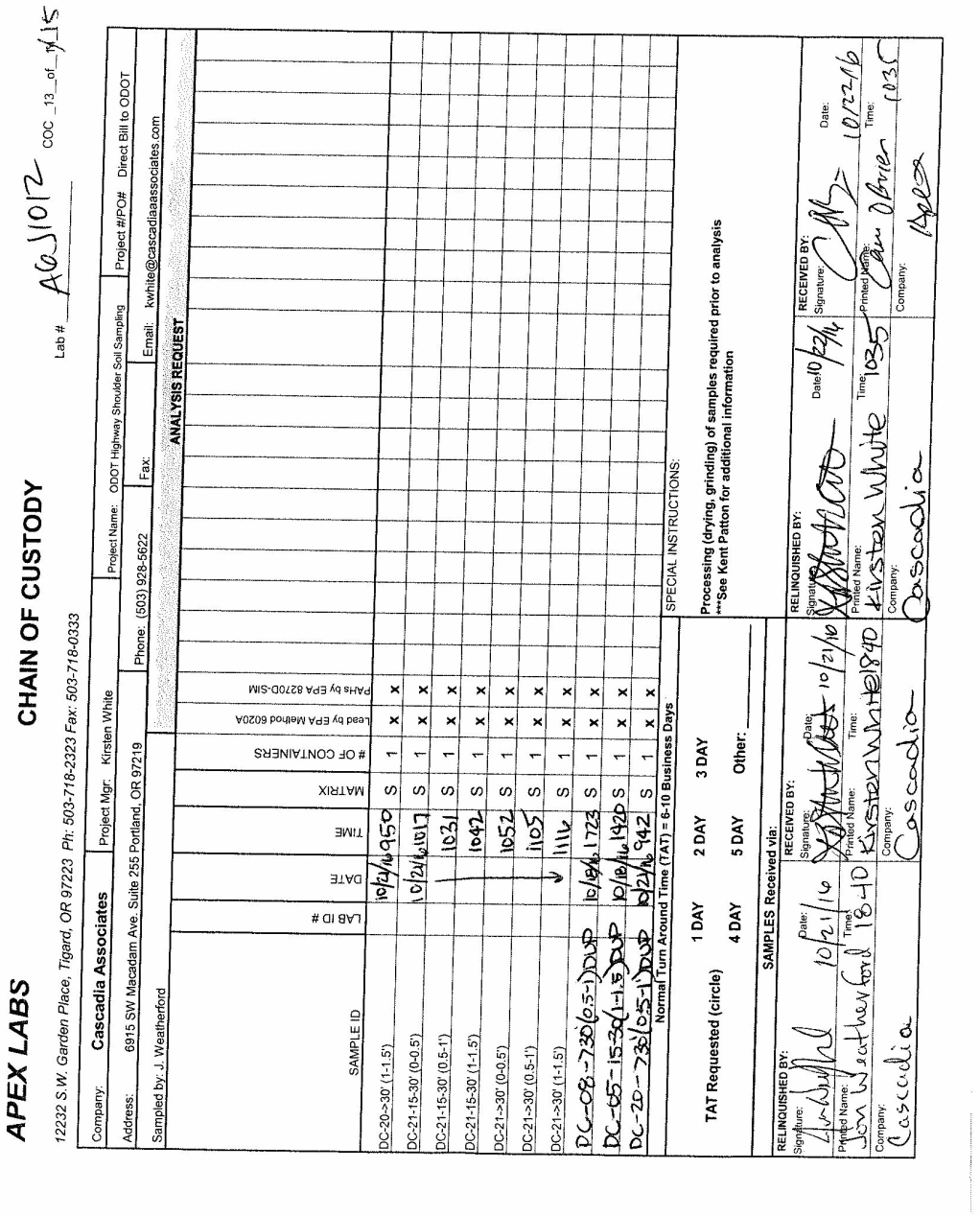
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS — **CHAIN OF CUSTODY**

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # AQ1012 COC 13 of 15

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
DC-20->30' (1-1.5')		10/21/16	0950	S	1	x	x
DC-21-15-30' (0-0.5')		10/21/16	1017	S	1	x	x
DC-21-15-30' (0.5-1')			1031	S	1	x	x
DC-21-15-30' (1-1.5')			1042	S	1	x	x
DC-21->30' (0-0.5')			1052	S	1	x	x
DC-21->30' (0.5-1')			1105	S	1	x	x
DC-21->30' (1-1.5')		↓	1116	S	1	x	x
DC-08-7.30(0.5-1)DUP		10/19/16	1723	S	1	x	x
DC-05-15.30(1-1.5)DUP		10/18/16	1920	S	1	x	x
DC-20-7.30(0.5-1)DUP		10/21/16	942	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/21/16 Time: 1840 Printed Name: Jon Weatherford Company: Cascadia

RECEIVED BY: Signature: Date: 10/21/16 Time: 1840 Printed Name: Kirsten White Company: Cascadia

RELINQUISHED BY: Signature: Date: 10/22/16 Time: 1035 Printed Name: Kirsten White Company: Cascadia

RECEIVED BY: Signature: Date: 10/22/16 Time: 1035 Printed Name: Cam O'Brien Company: Apex

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

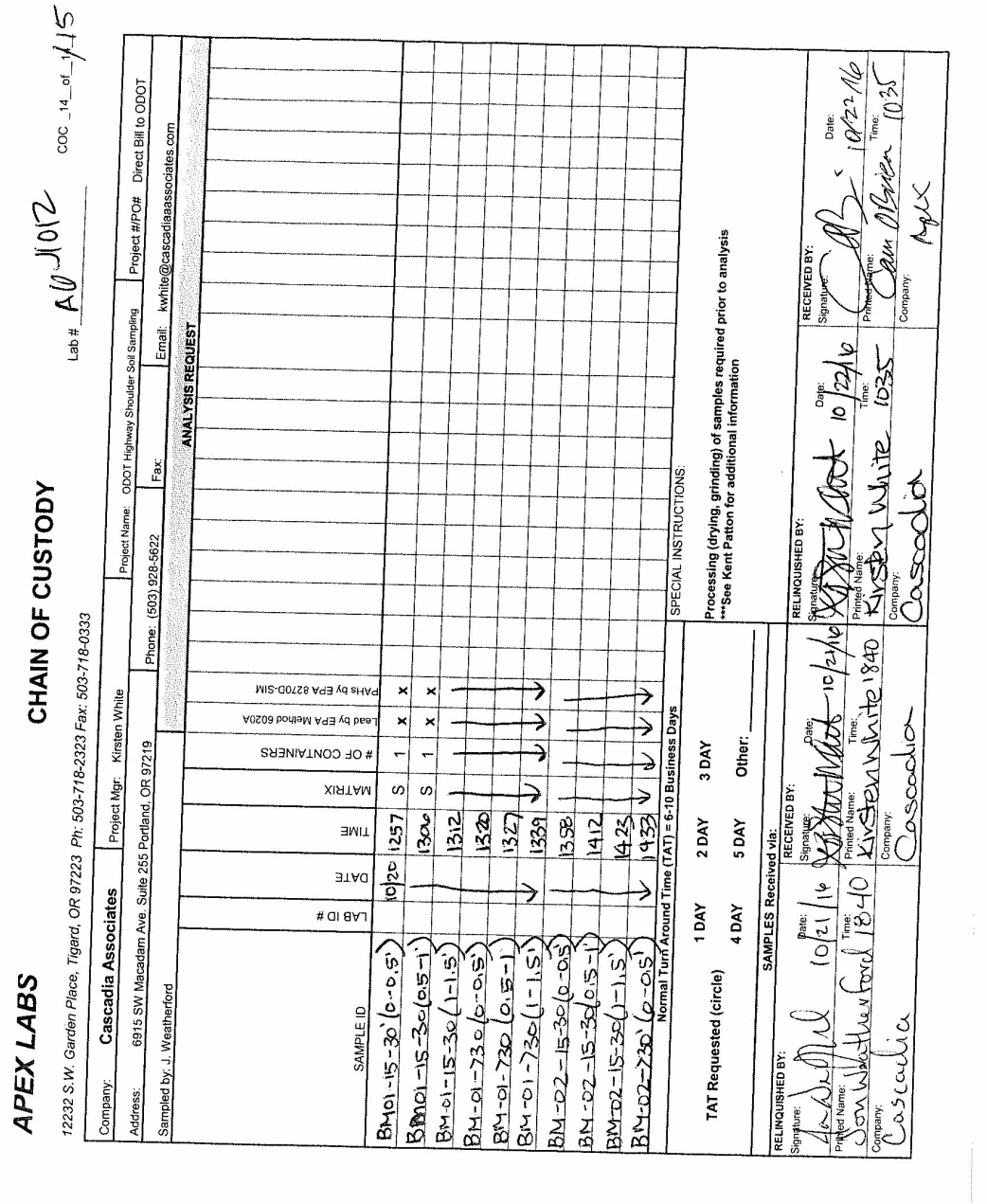
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # A0J1012 COC 14 of 15

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BM01-15-30'(0-0.5')		10/20	1257	S	1	x	x
BM01-15-30(0.5-1')			1300	S	1	x	x
BM-01-15-30(1-1.5')			1312				
BM-01-730(0-0.5')			1320				
BM-01-730(0.5-1')			1327				
BM-01-730(1-1.5')		↓	1339	↓	↓	↓	↓
BM-02-15-30(0-0.5')			1338				
BM-02-15-30(0.5-1')			1412				
BM02-15-30(1-1.5')			1423				
BM-02-730'(0-0.5')		↓	1433	↓	↓	↓	↓

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

Processing (drying, grinding) of samples required prior to analysis
*****See Kent Patton for additional information**

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/21/16 Printed Name: Time: 1840 Company: Cascadia

RECEIVED BY: Signature: Date: 10/21/16 Printed Name: Kirsten White Time: 1840 Company: Cascadia

RELINQUISHED BY: Signature: Date: 10/22/16 Printed Name: Kirsten White Time: 1035 Company: Cascadia

RECEIVED BY: Signature: Date: 10/22/16 Printed Name: Sam Gibson Time: 1035 Company: Apex

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

APEX LABS COOLER RECEIPT FORM

Client: Cascadia

Element WO#: A6 J1012

Project/Project #: ODOT Highway Shoulder Soil Sampling

Delivery info:

Date/Time Received: 10/27/16 @ 1035 By: CAB

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: CAB : 10/27/16 @ 1040

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No V

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes Y No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	4.4	5.1	5.6				
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:							

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CAB : 10/27/16 @ 1570

All Samples Intact? Yes X No___ Comments: CAB 10/27/16

Bottle Labels/COCs agree? Yes X No X Comments: BM-01->30'(1-1.5) date on cont. reads 10/02/16

Containers/Volumes Received Appropriate for Analysis? Yes V No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes___ No___ NA X

Comments:

Additional Information:

CAB 10/27/16

Labeled by: CAB KAL Witness: CAB Cooler Inspected by: CAB See Project Contact Form: Y

7

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

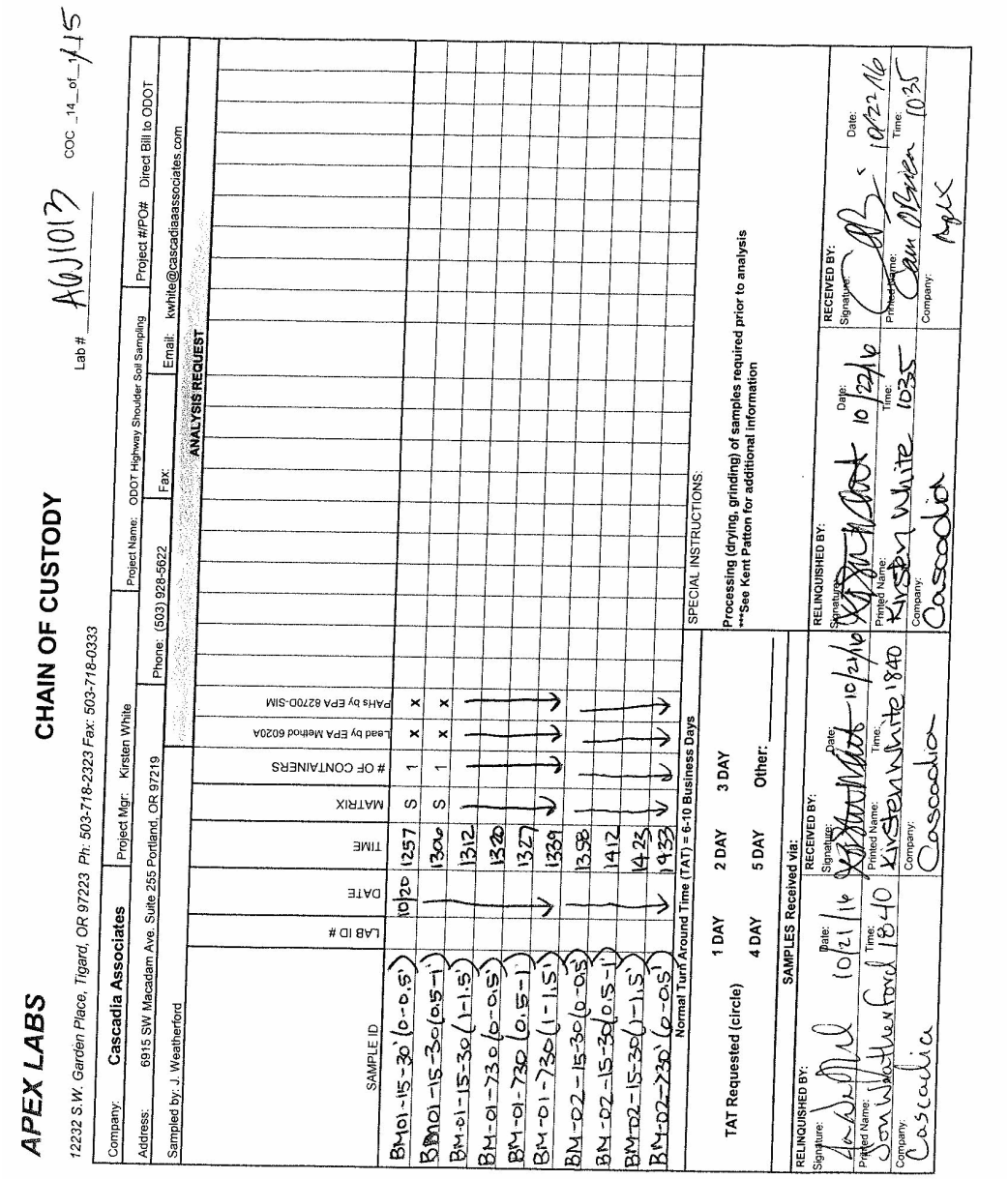
The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # A6J1017 COC 14 of 15

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BM01-15-30' (0-0.5')		10/20	1257	S	1	x	x
BM01-15-30 (0.5-1')			1300	S	1	x	x
BM-01-15-30 (1-1.5')			1312				
BM-01-730 (0-0.5')			1320				
BM-01-730 (0.5-1')			1327				
BM-01-730 (1-1.5')			1339				
BM-02-15-30 (0-0.5')			13.58				
BM-02-15-30 (0.5-1')			14.12				
BM-02-15-30 (1-1.5')			14.23				
BM-02-230 (0-0.5')			1433				

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

SAMPLES Received via:

RELINQUISHED BY: Signature: Printed Name: Company: Date: 10/21/16 Time: 1840

RECEIVED BY: Signature: Printed Name: Company: Date: 10/21/16 Time: 1840

RELINQUISHED BY: Signature: Printed Name: Company: Date: 10/22/16 Time: 1035

RECEIVED BY: Signature: Printed Name: Company: Date: 10/22/16 Time: 1035

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

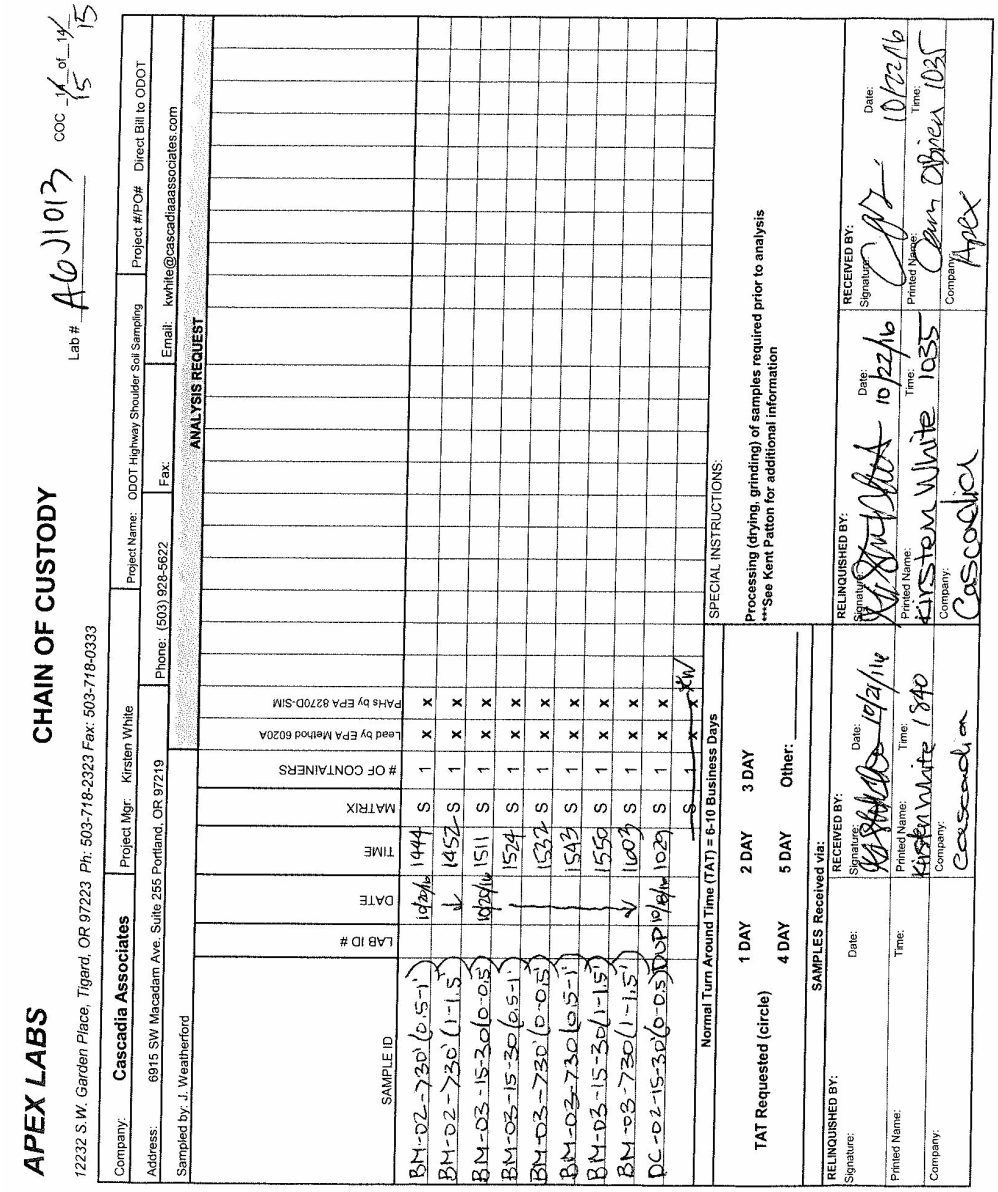
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11



APEX LABS — **CHAIN OF CUSTODY**

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # A6J1012 COC 14 of 14 15 15

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BM-02-730'(0.5-1')		10/20/16	1444	S	1	x	x
BM-02-730'(1-1.5'		↓	1452	S	1	x	x
BM-03-15-30(0-0.5'		10/20/16	1511	S	1	x	x
BM-03-15-30(0.5-1'			1524	S	1	x	x
BM-03-730'(0-0.5'			1532	S	1	x	x
BM-03-730(0.5-1'			1543	S	1	x	x
BM-03-15-30(1-1.5'			1550	S	1	x	x
BM-03-730'(1-1.5'		↓	1603	S	1	x	x
DC-02-15-30'(0-0.5'		10/20/16	1029	S	1	x	x
				S	1	x	x

SPECIAL INSTRUCTIONS:

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Date:	Date: 10/21/16	Date: 10/22/16	Date: 10/22/16
Printed Name:	Printed Name: Kirsten White	Printed Name: Kirsten White	Printed Name: Chris O'Brien
Time:	Time: 1840	Time: 1035	Time: 1035
Company:	Company: Cascadia	Company: Cascadia	Company: Apex

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/17/17 07:11

APEX LABS COOLER RECEIPT FORM

Client: Cascadia Element WO#: A6 J1013

Project/Project #: ODOT Highway Shoulder Soil Sampling

Delivery info:

Date/Time Received: 10/22/16 @ 1035 By: CAB

Delivered by: Apex ___ Client ✓ ESS ___ FedEx ___ UPS ___ Swift ___ Senvoy ___ SDS ___ Other ___

Cooler Inspection Inspected by: CAB : 10/22/16 @ 1040

Chain of Custody Included? Yes ✓ No ___ Custody Seals? Yes ___ No ✓

Signed/Dated by Client? Yes ✓ No ___

Signed/Dated by Apex? Yes ✓ No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	4.4	5.1	5.6				
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:							

Cooler out of temp? (Y/N) Possible reason why: ___

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CAB : 10/27/16 @ 1510

All Samples Intact? Yes ✓ No ___ Comments: ___

Bottle Labels/COCs agree? Yes ✓ No ✓ Comments: CAB 10/27/16 BM-03-15-30 (1-1.5) time reads 1532 on cont. BM-03-7 30'(0-0.5) time reads 15:43 on cont.

Containers/Volumes Received Appropriate for Analysis? Yes ✓ No ___ Comments: ___

Do VOA Vials have Visible Headspace? Yes ___ No ___ NA ✓

Comments ___

Water Samples: pH Checked and Appropriate (except VOAs): Yes ___ No ___ NA ✓

Comments: ___

Additional Information: BM-03-730'(0.5-1) time on cont. reads 15:50

Labeled by: CAB 10/27/16 CAL Witness: CAB Cooler Inspected by: CAB See Project Contact Form: Y

8

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Monday, January 16, 2017

Kirsten K. White
Cascadia Associates
6915 SW Macadam, Suite 255
Portland, OR 97219

RE: ODOT Clean Fill Project -- RSM / ODOT Clean Fill Project

Enclosed are the results of analyses for work order A6K0211, which was received by the laboratory on 10/28/2016 at 11:40:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: ldomenighini@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Lisa Domenighini, Client Services Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Apex Laboratories, LLC
12232 SW Garden Place Tigard, Oregon 97223 503.718.2323

January 16, 2017

Shawn Rapp
Oregon Department of Transportation
999 NW Frontage Rd. Suite 250
Troutdale, OR 97060

RE: Laboratory Case Narrative Work Order #s, A6K0211, A6K0212, A6K0213, A6K0214, A6K0215, A6K0216

Sample Storage:
Soil samples for this work order were frozen upon receipt at the laboratory. Samples were removed from frozen storage and brought to room temperature prior to processing. Samples were returned to frozen storage immediately following processing, in order to maximize hold times. Freezer conditions of storage are consistent with the guidelines provided in the Oregon DEQ approved Sediment Evaluation Framework (SEF) for the Pacific Northwest, July 2016. The accepted holding times for frozen samples in the SEF is two years for Lead (Pb) and one year for PAHs from date sample is collected. These hold times have been applied to all samples reported.

Representative Sample Methodology:
In order to reduce fundamental sampling error all samples were processed following Apex Labs Representative Sampling Methodology (RSM) SOP G-105. Sample handling per this SOP is consistent with the national ITRC ISM and professionally recognized MIS guidance documents.

The RSM protocols used included air drying soils and cool grinding of the entire sample to form a well-mixed sample of approximate 50 micron diameter particles. The air drying and cool grinding can lead to depletion of volatile and some semi-volatile compounds. Results for low molecular weight PAHs should be considered Estimate Values with a potential low bias.

The specific compounds that may be affected are the aromatics with two and three structural rings are: Anthracene, Acenaphthene, Acenaphthylene, Fluorene, Naphthalene, and Phenathrene.

Target carcinogenic PAHs are not adversely impacted by RSM preparation and the reported samples are not qualified.

If you have any questions concerning this report, please feel free to contact me
By email at: kpatton@apex-labs.com, or by phone at 503-718-2323.

Kent D. Patton
Director of Technical Services
Apex Laboratories, LLC

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BM-04-15-30' (0-0.5')_Prepared	A6K0211-22	Soil	10/24/16 08:42	10/28/16 11:40
BM-04-15-30' (0.5-1')_Prepared	A6K0211-23	Soil	10/24/16 08:53	10/28/16 11:40
BM-04-15-30' (1-1.5')_Prepared	A6K0211-24	Soil	10/24/16 09:05	10/28/16 11:40
BM-04-15-30' (1-1.5') DUP_Prepared	A6K0211-25	Soil	10/24/16 09:05	10/28/16 11:40
BM-04->30' (0-0.5')_Prepared	A6K0211-26	Soil	10/24/16 09:11	10/28/16 11:40
BM-04->30' (0.5-1')_Prepared	A6K0211-27	Soil	10/24/16 09:20	10/28/16 11:40
BM-04->30' (1-1.5')_Prepared	A6K0211-28	Soil	10/24/16 09:28	10/28/16 11:40
BM-05->30' (0-0.5')_Prepared	A6K0211-29	Soil	10/24/16 10:30	10/28/16 11:40
BM-05->30' (0.5-1')_Prepared	A6K0211-30	Soil	10/24/16 10:36	10/28/16 11:40
BM-05->30' (1-1.5')_Prepared	A6K0211-31	Soil	10/24/16 10:43	10/28/16 11:40
BM-06-15-30' (0-0.5')_Prepared	A6K0211-32	Soil	10/24/16 11:02	10/28/16 11:40
BM-06-15-30' (0.5-1')_Prepared	A6K0211-33	Soil	10/24/16 11:10	10/28/16 11:40
BM-06-15-30' (0.5-1') DUP_Prepared	A6K0211-34	Soil	10/24/16 11:10	10/28/16 11:40
BM-06-15-30' (1-1.5')_Prepared	A6K0211-35	Soil	10/24/16 11:19	10/28/16 11:40
BM-06->30' (0-0.5')_Prepared	A6K0211-36	Soil	10/24/16 11:31	10/28/16 11:40
BM-06->30' (0.5-1')_Prepared	A6K0211-37	Soil	10/24/16 11:43	10/28/16 11:40
BM-06->30' (1-1.5')_Prepared	A6K0211-38	Soil	10/24/16 11:55	10/28/16 11:40
BM-07-15-30' (0-0.5')_Prepared	A6K0211-39	Soil	10/24/16 12:35	10/28/16 11:40
BM-07-15-30' (0.5-1')_Prepared	A6K0211-40	Soil	10/24/16 12:44	10/28/16 11:40
BM-07-15-30' (1-1.5')_Prepared	A6K0211-41	Soil	10/24/16 12:54	10/28/16 11:40
BM-07->30' (0-0.5')_Prepared	A6K0211-42	Soil	10/24/16 13:05	10/28/16 11:40
Grind Blank	A6K0211-43	Solid	10/24/16 00:00	10/28/16 11:40
BM-07->30' (0.5-1')_Prepared	A6K0212-21	Soil	10/24/16 13:13	10/28/16 11:40
BM-07->30' (1-1.5')_Prepared	A6K0212-22	Soil	10/24/16 13:43	10/28/16 11:40
BM-08-15-30' (0-0.5')_Prepared	A6K0212-23	Soil	10/24/16 13:55	10/28/16 11:40
BM-08-15-30' (0.5-1')_Prepared	A6K0212-24	Soil	10/24/16 14:09	10/28/16 11:40
BM-08-15-30' (1-1.5')_Prepared	A6K0212-25	Soil	10/24/16 14:20	10/28/16 11:40
BM-08->30' (0-0.5')_Prepared	A6K0212-26	Soil	10/24/16 14:31	10/28/16 11:40
BM-08->30' (0.5-1')_Prepared	A6K0212-27	Soil	10/24/16 14:40	10/28/16 11:40
BM-08->30' (1-1.5')_Prepared	A6K0212-28	Soil	10/24/16 15:03	10/28/16 11:40
BM-09->30' (0-0.5')_Prepared	A6K0212-29	Soil	10/24/16 15:15	10/28/16 11:40
BM-09->30' (0.5-1')_Prepared	A6K0212-30	Soil	10/24/16 15:27	10/28/16 11:40
BM-09->30' (1-1.5')_Prepared	A6K0212-31	Soil	10/24/16 15:27	10/28/16 11:40
BM-10-15-30' (0-0.5')_Prepared	A6K0212-32	Soil	10/25/16 10:07	10/28/16 11:40
BM-10-15-30' (0.5-1')_Prepared	A6K0212-33	Soil	10/25/16 10:18	10/28/16 11:40

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BM-10-15-30' (1-1.5')_Prepared	A6K0212-34	Soil	10/25/16 10:30	10/28/16 11:40
BM-10->30' (0-0.5')_Prepared	A6K0212-35	Soil	10/25/16 10:39	10/28/16 11:40
BM-10->30' (0.5-1')_Prepared	A6K0212-36	Soil	10/25/16 10:46	10/28/16 11:40
BM-10->30' (1-1.5')_Prepared	A6K0212-37	Soil	10/25/16 10:55	10/28/16 11:40
BM-11-15-30' (0-0.5')_Prepared	A6K0212-38	Soil	10/25/16 11:07	10/28/16 11:40
BM-11-15-30' (0.5-1')_Prepared	A6K0212-39	Soil	10/25/16 11:19	10/28/16 11:40
BM-11-15-30' (1-1.5')_Prepared	A6K0212-40	Soil	10/25/16 11:32	10/28/16 11:40
Grind Blank	A6K0212-41	Solid	10/24/16 00:00	10/28/16 11:40
BM-11->30' (0-0.5')_Prepared	A6K0213-21	Soil	10/25/16 11:40	10/28/16 11:40
BM-11->30' (0.5-1')_Prepared	A6K0213-22	Soil	10/25/16 11:51	10/28/16 11:40
BM-11->30' (1-1.5')_Prepared	A6K0213-23	Soil	10/25/16 11:59	10/28/16 11:40
BM-12-15-30' (0-0.5')_Prepared	A6K0213-24	Soil	10/25/16 12:10	10/28/16 11:40
BM-12-15-30' (0-0.5') DUP_Prepared	A6K0213-25	Soil	10/25/16 12:10	10/28/16 11:40
BM-12-15-30' (0.5-1')_Prepared	A6K0213-26	Soil	10/25/16 12:19	10/28/16 11:40
BM-12-15-30' (1-1.5')_Prepared	A6K0213-27	Soil	10/25/16 12:27	10/28/16 11:40
BM-12->30' (0-0.5')_Prepared	A6K0213-28	Soil	10/25/16 12:37	10/28/16 11:40
BM-12->30' (0.5-1')_Prepared	A6K0213-29	Soil	10/25/16 12:46	10/28/16 11:40
BM-12->30' (1-1.5')_Prepared	A6K0213-30	Soil	10/25/16 12:54	10/28/16 11:40
BM-13-15-30' (0-0.5')_Prepared	A6K0213-31	Soil	10/25/16 13:07	10/28/16 11:40
BM-13-15-30' (0.5-1')_Prepared	A6K0213-32	Soil	10/25/16 13:15	10/28/16 11:40
BM-13-15-30' (1-1.5')_Prepared	A6K0213-33	Soil	10/25/16 13:23	10/28/16 11:40
BM-13->30' (0-0.5')_Prepared	A6K0213-34	Soil	10/25/16 13:31	10/28/16 11:40
BM-13->30' (0.5-1')_Prepared	A6K0213-35	Soil	10/25/16 13:40	10/28/16 11:40
BM-13->30' (1-1.5')_Prepared	A6K0213-36	Soil	10/25/16 13:49	10/28/16 11:40
BM-14->30' (0-0.5')_Prepared	A6K0213-37	Soil	10/25/16 14:03	10/28/16 11:40
BM-14->30' (0.5-1')_Prepared	A6K0213-38	Soil	10/25/16 14:11	10/28/16 11:40
BM-14->30' (1-1.5')_Prepared	A6K0213-39	Soil	10/25/16 14:21	10/28/16 11:40
BM-15->30' (0-0.5')_Prepared	A6K0213-40	Soil	10/25/16 15:14	10/28/16 11:40
Grind Blank	A6K0213-41	Solid	10/25/16 00:00	10/28/16 11:40
BM-15->30' (0.5-1')_Prepared	A6K0214-21	Soil	10/25/16 15:28	10/28/16 11:40
BM-15->30' (1-1.5')_Prepared	A6K0214-22	Soil	10/25/16 15:37	10/28/16 11:40
BM-16-15-30' (0-0.5')_Prepared	A6K0214-23	Soil	10/25/16 16:19	10/28/16 11:40
BM-16-15-30' (0.5-1')_Prepared	A6K0214-24	Soil	10/25/16 16:30	10/28/16 11:40
BM-16-15-30' (1-1.5')_Prepared	A6K0214-25	Soil	10/25/16 16:39	10/28/16 11:40
BM-16->30' (0-0.5')_Prepared	A6K0214-26	Soil	10/25/16 16:51	10/28/16 11:40

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

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Tigard, OR 97223
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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BM-16->30' (0.5-1')_Prepared	A6K0214-27	Soil	10/25/16 16:59	10/28/16 11:40
BM-16->30' (1-1.5')_Prepared	A6K0214-28	Soil	10/25/16 17:10	10/28/16 11:40
BM-17->30' (0-0.5')_Prepared	A6K0214-29	Soil	10/26/16 10:02	10/28/16 11:40
BM-17->30' (0.5-1')_Prepared	A6K0214-30	Soil	10/26/16 10:11	10/28/16 11:40
BM-17->30' (1-1.5')_Prepared	A6K0214-31	Soil	10/26/16 10:24	10/28/16 11:40
BM-17->30' (1-1.5') DUP_Prepared	A6K0214-32	Soil	10/26/16 10:24	10/28/16 11:40
BM-18-15-30' (0-0.5')_Prepared	A6K0214-33	Soil	10/26/16 10:59	10/28/16 11:40
BM-18-15-30' (0.5-1')_Prepared	A6K0214-34	Soil	10/26/16 11:14	10/28/16 11:40
BM-18-15-30' (1-1.5')_Prepared	A6K0214-35	Soil	10/26/16 11:28	10/28/16 11:40
BM-18->30' (0-0.5')_Prepared	A6K0214-36	Soil	10/26/16 11:40	10/28/16 11:40
BM-18->30' (0.5-1')_Prepared	A6K0214-37	Soil	10/26/16 11:53	10/28/16 11:40
BM-18->30' (1-1.5')_Prepared	A6K0214-38	Soil	10/26/16 12:05	10/28/16 11:40
BM-19-15-30' (0-0.5')_Prepared	A6K0214-39	Soil	10/26/16 12:43	10/28/16 11:40
BM-19-15-30' (0.5-1')_Prepared	A6K0214-40	Soil	10/26/16 12:55	10/28/16 11:40
Grind Blank	A6K0214-41	Solid	10/26/16 00:00	10/28/16 11:40
BM-19-15-30' (1-1.5')_Prepared	A6K0215-21	Soil	10/26/16 13:11	10/28/16 11:40
BM-19->30' (0-0.5')_Prepared	A6K0215-22	Soil	10/26/16 13:24	10/28/16 11:40
BM-19->30' (0.5-1')_Prepared	A6K0215-23	Soil	10/26/16 13:37	10/28/16 11:40
BM-19->30' (1-1.5')_Prepared	A6K0215-24	Soil	10/26/16 13:51	10/28/16 11:40
BM-20-15-30' (0-0.5')_Prepared	A6K0215-25	Soil	10/26/16 15:32	10/28/16 11:40
BM-20-15-30' (0.5-1')_Prepared	A6K0215-26	Soil	10/26/16 15:39	10/28/16 11:40
BM-20-15-30' (1-1.5')_Prepared	A6K0215-27	Soil	10/26/16 15:48	10/28/16 11:40
BM-20->30' (0-0.5')_Prepared	A6K0215-28	Soil	10/26/16 15:58	10/28/16 11:40
BM-20->30' (0.5-1')_Prepared	A6K0215-29	Soil	10/26/16 16:07	10/28/16 11:40
BM-20->30' (1-1.5')_Prepared	A6K0215-30	Soil	10/26/16 16:15	10/28/16 11:40
BM-21-15-30' (0-0.5')_Prepared	A6K0215-31	Soil	10/26/16 16:26	10/28/16 11:40
BM-21-15-30' (0.5-1')_Prepared	A6K0215-32	Soil	10/26/16 16:39	10/28/16 11:40
BM-21-15-30' (1-1.5')_Prepared	A6K0215-33	Soil	10/26/16 16:50	10/28/16 11:40
BM-21->30' (0-0.5')_Prepared	A6K0215-34	Soil	10/26/16 16:59	10/28/16 11:40
BM-21->30' (0.5-1')_Prepared	A6K0215-35	Soil	10/26/16 17:12	10/28/16 11:40
BM-21->30' (1-1.5')_Prepared	A6K0215-36	Soil	10/26/16 17:25	10/28/16 11:40
BM-22->30' (0-0.5')_Prepared	A6K0215-37	Soil	10/27/16 09:12	10/28/16 11:40
BM-22->30' (0-0.5') DUP_Prepared	A6K0215-38	Soil	10/27/16 09:12	10/28/16 11:40
BM-22->30' (0.5-1')_Prepared	A6K0215-39	Soil	10/27/16 09:25	10/28/16 11:40
BM-22->30' (1-1.5')_Prepared	A6K0215-40	Soil	10/27/16 09:34	10/28/16 11:40

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Grind Blank	A6K0215-41	Solid	10/26/16 00:00	10/28/16 11:40
BM-23-15-30' (0-0.5')_Prepared	A6K0216-16	Soil	10/27/16 09:57	10/28/16 11:40
BM-23-15-30' (0.5-1')_Prepared	A6K0216-17	Soil	10/27/16 10:09	10/28/16 11:40
BM-23-15-30' (1-1.5')_Prepared	A6K0216-18	Soil	10/27/16 10:20	10/28/16 11:40
BM-23->30' (0-0.5')_Prepared	A6K0216-19	Soil	10/27/16 10:29	10/28/16 11:40
BM-23->30' (0.5-1')_Prepared	A6K0216-20	Soil	10/27/16 10:41	10/28/16 11:40
BM-23->30' (1-1.5')_Prepared	A6K0216-21	Soil	10/27/16 10:53	10/28/16 11:40
BM-24->30' (0-0.5')_Prepared	A6K0216-22	Soil	10/27/16 13:10	10/28/16 11:40
BM-24->30' (0.5-1')_Prepared	A6K0216-23	Soil	10/27/16 13:19	10/28/16 11:40
BM-24->30' (1-1.5')_Prepared	A6K0216-24	Soil	10/27/16 13:31	10/28/16 11:40
BM-24-15-30' (0-0.5')_Prepared	A6K0216-25	Soil	10/27/16 12:38	10/28/16 11:40
BM-24-15-30' (0.5-1')_Prepared	A6K0216-26	Soil	10/27/16 12:49	10/28/16 11:40
BM-24-15-30' (1-1.5')_Prepared	A6K0216-27	Soil	10/27/16 13:01	10/28/16 11:40
BM-25->30' (0-0.5')_Prepared	A6K0216-28	Soil	10/27/16 13:47	10/28/16 11:40
BM-25->30' (0.5-1')_Prepared	A6K0216-29	Soil	10/27/16 14:02	10/28/16 11:40
BM-25->30' (1-1.5')_Prepared	A6K0216-30	Soil	10/27/16 14:18	10/28/16 11:40
Grind Blank	A6K0216-31	Solid	10/27/16 00:00	10/28/16 11:40

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL CASE NARRATIVE

Work Order: A6K0211

Amended Report Revision 1:

Change to Sample Identification:

This report supersedes all previous reports.

Due to laboratory login error, the sample ID was incorrect for sample A6K0211-36. Sample was originally reported as; BM-06->30' (0-0.5')_As Received . That sample ID has been changed, and is now reported as; BM-06->30' (0-0.5')_Prepared.

Lisa Domenighini
Client Services Manager
1/10/17

ANALYTICAL CASE NARRATIVE

Work Order: A6K0212

ANALYTICAL CASE NARRATIVE

Work Order: A6K0213

ANALYTICAL CASE NARRATIVE

Work Order: A6K0214

ANALYTICAL CASE NARRATIVE

Work Order: A6K0215

ANALYTICAL CASE NARRATIVE

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

Work Order: A6K0216

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-04-15-30' (0-0.5')_Prepared (A6K0211-22)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	1.93	3.85	ug/kg dry	1	12/05/16 17:14	EPA 8270D (SIM)	
Acenaphthylene	ND	1.93	3.85	"	"	"	"	
Anthracene	ND	1.93	3.85	"	"	"	"	
Benz(a)anthracene	ND	3.85	3.85	"	"	"	"	
Benzo(a)pyrene	ND	1.93	3.85	"	"	"	"	
Benzo(b)fluoranthene	ND	1.93	3.85	"	"	"	"	
Benzo(k)fluoranthene	ND	1.93	3.85	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.93	3.85	"	"	"	"	
Chrysene	ND	3.85	3.85	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.93	3.85	"	"	"	"	
Dibenzofuran	ND	1.93	3.85	"	"	"	"	
Fluoranthene	ND	1.93	3.85	"	"	"	"	
Fluorene	ND	1.93	3.85	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.93	3.85	"	"	"	"	
1-Methylnaphthalene	ND	3.85	7.71	"	"	"	"	
2-Methylnaphthalene	ND	3.85	7.71	"	"	"	"	
Naphthalene	ND	3.85	7.71	"	"	"	"	
Phenanthrene	ND	1.93	3.85	"	"	"	"	
Pyrene	ND	1.93	3.85	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 92 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*106 %*	*Limits: 54-127 %*	"	"	"	

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-04-15-30' (0.5-1')_Prepared (A6K0211-23)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	2.00	4.01	ug/kg dry	1	12/05/16 17:40	EPA 8270D (SIM)	
Acenaphthylene	ND	2.00	4.01	"	"	"	"	
Anthracene	ND	2.00	4.01	"	"	"	"	
Benz(a)anthracene	ND	2.00	4.01	"	"	"	"	
Benzo(a)pyrene	ND	2.00	4.01	"	"	"	"	
Benzo(b)fluoranthene	ND	2.00	4.01	"	"	"	"	
Benzo(k)fluoranthene	ND	2.00	4.01	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.00	4.01	"	"	"	"	
Chrysene	ND	2.00	4.01	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.00	4.01	"	"	"	"	
Dibenzofuran	ND	2.00	4.01	"	"	"	"	
Fluoranthene	ND	2.00	4.01	"	"	"	"	
Fluorene	ND	2.00	4.01	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.00	4.01	"	"	"	"	
1-Methylnaphthalene	ND	4.01	8.01	"	"	"	"	
2-Methylnaphthalene	ND	4.01	8.01	"	"	"	"	
Naphthalene	ND	4.01	8.01	"	"	"	"	
Phenanthrene	ND	2.00	4.01	"	"	"	"	
Pyrene	ND	2.00	4.01	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*84 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-04-15-30' (1-1.5')_Prepared (A6K0211-24)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	1.94	3.88	ug/kg dry	1	12/05/16 18:06	EPA 8270D (SIM)	
Acenaphthylene	ND	1.94	3.88	"	"	"	"	
Anthracene	ND	1.94	3.88	"	"	"	"	
Benz(a)anthracene	ND	1.94	3.88	"	"	"	"	
Benzo(a)pyrene	ND	1.94	3.88	"	"	"	"	
Benzo(b)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(k)fluoranthene	ND	1.94	3.88	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.94	3.88	"	"	"	"	
Chrysene	ND	1.94	3.88	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.94	3.88	"	"	"	"	
Dibenzofuran	ND	1.94	3.88	"	"	"	"	
Fluoranthene	ND	1.94	3.88	"	"	"	"	
Fluorene	ND	1.94	3.88	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.94	3.88	"	"	"	"	
1-Methylnaphthalene	ND	3.88	7.75	"	"	"	"	
2-Methylnaphthalene	ND	3.88	7.75	"	"	"	"	
Naphthalene	ND	3.88	7.75	"	"	"	"	
Phenanthrene	ND	1.94	3.88	"	"	"	"	
Pyrene	ND	1.94	3.88	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*84 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-04-15-30' (1-1.5') DUP_Prepared (A6K0211-25)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	2.00	3.99	ug/kg dry	1	12/05/16 18:31	EPA 8270D (SIM)	
Acenaphthylene	ND	2.00	3.99	"	"	"	"	
Anthracene	ND	2.00	3.99	"	"	"	"	
Benz(a)anthracene	ND	2.00	3.99	"	"	"	"	
Benzo(a)pyrene	ND	2.00	3.99	"	"	"	"	
Benzo(b)fluoranthene	ND	2.00	3.99	"	"	"	"	
Benzo(k)fluoranthene	ND	2.00	3.99	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.00	3.99	"	"	"	"	
Chrysene	ND	2.00	3.99	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.00	3.99	"	"	"	"	
Dibenzofuran	ND	2.00	3.99	"	"	"	"	
Fluoranthene	ND	2.00	3.99	"	"	"	"	
Fluorene	ND	2.00	3.99	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.00	3.99	"	"	"	"	
1-Methylnaphthalene	ND	3.99	7.98	"	"	"	"	
2-Methylnaphthalene	ND	3.99	7.98	"	"	"	"	
Naphthalene	ND	3.99	7.98	"	"	"	"	
Phenanthrene	ND	2.00	3.99	"	"	"	"	
Pyrene	ND	2.00	3.99	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*86 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-04->30' (0-0.5')_Prepared (A6K0211-26)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	1.99	3.99	ug/kg dry	1	12/05/16 18:57	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.99	"	"	"	"	
Anthracene	ND	1.99	3.99	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.99	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.99	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.99	"	"	"	"	
Chrysene	ND	1.99	3.99	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.99	"	"	"	"	
Dibenzofuran	ND	1.99	3.99	"	"	"	"	
Fluoranthene	ND	1.99	3.99	"	"	"	"	
Fluorene	ND	1.99	3.99	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.99	"	"	"	"	
1-Methylnaphthalene	ND	3.99	7.97	"	"	"	"	
2-Methylnaphthalene	ND	3.99	7.97	"	"	"	"	
Naphthalene	ND	3.99	7.97	"	"	"	"	
Phenanthrene	ND	1.99	3.99	"	"	"	"	
Pyrene	ND	1.99	3.99	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*90 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-04->30' (0.5-1')_Prepared (A6K0211-27)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	2.11	4.23	ug/kg dry	1	12/05/16 19:23	EPA 8270D (SIM)	
Acenaphthylene	ND	2.11	4.23	"	"	"	"	
Anthracene	ND	2.11	4.23	"	"	"	"	
Benz(a)anthracene	ND	2.11	4.23	"	"	"	"	
Benzo(a)pyrene	ND	2.11	4.23	"	"	"	"	
Benzo(b)fluoranthene	ND	2.11	4.23	"	"	"	"	
Benzo(k)fluoranthene	ND	2.11	4.23	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.11	4.23	"	"	"	"	
Chrysene	ND	2.11	4.23	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.11	4.23	"	"	"	"	
Dibenzofuran	ND	2.11	4.23	"	"	"	"	
Fluoranthene	ND	2.11	4.23	"	"	"	"	
Fluorene	ND	2.11	4.23	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.11	4.23	"	"	"	"	
1-Methylnaphthalene	ND	4.23	8.46	"	"	"	"	
2-Methylnaphthalene	ND	4.23	8.46	"	"	"	"	
Naphthalene	ND	4.23	8.46	"	"	"	"	
Phenanthrene	ND	2.11	4.23	"	"	"	"	
Pyrene	ND	2.11	4.23	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*83 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-04->30' (1-1.5')_Prepared (A6K0211-28)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	2.14	4.27	ug/kg dry	1	12/05/16 19:49	EPA 8270D (SIM)	
Acenaphthylene	ND	2.14	4.27	"	"	"	"	
Anthracene	ND	2.14	4.27	"	"	"	"	
Benz(a)anthracene	ND	2.14	4.27	"	"	"	"	
Benzo(a)pyrene	ND	2.14	4.27	"	"	"	"	
Benzo(b)fluoranthene	ND	2.14	4.27	"	"	"	"	
Benzo(k)fluoranthene	ND	2.14	4.27	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.14	4.27	"	"	"	"	
Chrysene	ND	2.14	4.27	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.14	4.27	"	"	"	"	
Dibenzofuran	ND	2.14	4.27	"	"	"	"	
Fluoranthene	ND	2.14	4.27	"	"	"	"	
Fluorene	ND	2.14	4.27	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.14	4.27	"	"	"	"	
1-Methylnaphthalene	ND	4.27	8.54	"	"	"	"	
2-Methylnaphthalene	ND	4.27	8.54	"	"	"	"	
Naphthalene	ND	4.27	8.54	"	"	"	"	
Phenanthrene	ND	2.14	4.27	"	"	"	"	
Pyrene	ND	2.14	4.27	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 76 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*87 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-05->30' (0-0.5')_Prepared (A6K0211-29)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	2.09	4.19	ug/kg dry	1	12/05/16 20:15	EPA 8270D (SIM)	
Acenaphthylene	**3.50**	2.09	4.19	"	"	"	"	J
Anthracene	ND	2.09	4.19	"	"	"	"	
Benz(a)anthracene	**7.86**	2.09	4.19	"	"	"	"	M-02
Benzo(a)pyrene	**15.6**	2.09	4.19	"	"	"	"	
Benzo(b)fluoranthene	**20.9**	2.09	4.19	"	"	"	"	M-02
Benzo(k)fluoranthene	**6.59**	2.09	4.19	"	"	"	"	M-02
Benzo(g,h,i)perylene	**17.7**	2.09	4.19	"	"	"	"	
Chrysene	**12.6**	2.09	4.19	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.09	4.19	"	"	"	"	
Dibenzofuran	ND	2.09	4.19	"	"	"	"	
Fluoranthene	**23.6**	2.09	4.19	"	"	"	"	
Fluorene	ND	2.09	4.19	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**13.2**	2.09	4.19	"	"	"	"	
1-Methylnaphthalene	ND	4.19	8.38	"	"	"	"	
2-Methylnaphthalene	ND	4.19	8.38	"	"	"	"	
Naphthalene	**5.20**	4.19	8.38	"	"	"	"	J
Phenanthrene	**10.7**	2.09	4.19	"	"	"	"	
Pyrene	**31.9**	2.09	4.19	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*83 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-05->30' (0.5-1')_Prepared (A6K0211-30)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	1.94	3.88	ug/kg dry	1	12/05/16 20:41	EPA 8270D (SIM)	
Acenaphthylene	ND	1.94	3.88	"	"	"	"	
Anthracene	ND	1.94	3.88	"	"	"	"	
Benz(a)anthracene	**2.97**	1.94	3.88	"	"	"	"	J
Benzo(a)pyrene	**3.85**	1.94	3.88	"	"	"	"	J
Benzo(b)fluoranthene	**6.36**	1.94	3.88	"	"	"	"	M-02
Benzo(k)fluoranthene	**2.41**	1.94	3.88	"	"	"	"	J
Benzo(g,h,i)perylene	**3.51**	1.94	3.88	"	"	"	"	J
Chrysene	**4.43**	1.94	3.88	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.94	3.88	"	"	"	"	
Dibenzofuran	**2.99**	1.94	3.88	"	"	"	"	J
Fluoranthene	**6.19**	1.94	3.88	"	"	"	"	
Fluorene	ND	1.94	3.88	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.50**	1.94	3.88	"	"	"	"	J
1-Methylnaphthalene	**7.29**	3.88	7.76	"	"	"	"	J
2-Methylnaphthalene	**8.91**	3.88	7.76	"	"	"	"	
Naphthalene	**7.02**	3.88	7.76	"	"	"	"	J
Phenanthrene	**9.28**	1.94	3.88	"	"	"	"	
Pyrene	**6.62**	1.94	3.88	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*88 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-05->30' (1-1.5')_Prepared (A6K0211-31)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	2.02	4.03	ug/kg dry	1	12/05/16 21:06	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.03	"	"	"	"	
Anthracene	ND	2.02	4.03	"	"	"	"	
Benz(a)anthracene	ND	2.02	4.03	"	"	"	"	
Benzo(a)pyrene	ND	2.02	4.03	"	"	"	"	
Benzo(b)fluoranthene	ND	2.02	4.03	"	"	"	"	
Benzo(k)fluoranthene	ND	2.02	4.03	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.02	4.03	"	"	"	"	
Chrysene	ND	2.02	4.03	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.02	4.03	"	"	"	"	
Dibenzofuran	ND	2.02	4.03	"	"	"	"	
Fluoranthene	ND	2.02	4.03	"	"	"	"	
Fluorene	ND	2.02	4.03	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.03	"	"	"	"	
1-Methylnaphthalene	ND	4.03	8.06	"	"	"	"	
2-Methylnaphthalene	ND	4.03	8.06	"	"	"	"	
Naphthalene	ND	4.03	8.06	"	"	"	"	
Phenanthrene	ND	2.02	4.03	"	"	"	"	
Pyrene	ND	2.02	4.03	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*88 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-06-15-30' (0-0.5')_Prepared (A6K0211-32)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	1.99	3.97	ug/kg dry	1	12/05/16 21:32	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.97	"	"	"	"	
Anthracene	ND	1.99	3.97	"	"	"	"	
Benz(a)anthracene	**3.16**	1.99	3.97	"	"	"	"	J
Benzo(a)pyrene	**6.56**	1.99	3.97	"	"	"	"	
Benzo(b)fluoranthene	**9.62**	1.99	3.97	"	"	"	"	M-02
Benzo(k)fluoranthene	**3.45**	1.99	3.97	"	"	"	"	J
Benzo(g,h,i)perylene	**9.12**	1.99	3.97	"	"	"	"	
Chrysene	**5.91**	1.99	3.97	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.99	3.97	"	"	"	"	
Dibenzofuran	ND	1.99	3.97	"	"	"	"	
Fluoranthene	**8.04**	1.99	3.97	"	"	"	"	
Fluorene	ND	1.99	3.97	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**6.47**	1.99	3.97	"	"	"	"	
1-Methylnaphthalene	ND	3.97	7.94	"	"	"	"	
2-Methylnaphthalene	ND	3.97	7.94	"	"	"	"	
Naphthalene	ND	3.97	7.94	"	"	"	"	
Phenanthrene	**4.44**	1.99	3.97	"	"	"	"	
Pyrene	**9.97**	1.99	3.97	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*89 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-06-15-30' (0.5-1')_Prepared (A6K0211-33)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	1.90	3.80	ug/kg dry	1	12/05/16 21:58	EPA 8270D (SIM)	
Acenaphthylene	ND	1.90	3.80	"	"	"	"	
Anthracene	ND	1.90	3.80	"	"	"	"	
Benz(a)anthracene	ND	1.90	3.80	"	"	"	"	
Benzo(a)pyrene	ND	1.90	3.80	"	"	"	"	
Benzo(b)fluoranthene	ND	1.90	3.80	"	"	"	"	
Benzo(k)fluoranthene	ND	1.90	3.80	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.90	3.80	"	"	"	"	
Chrysene	ND	1.90	3.80	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.90	3.80	"	"	"	"	
Dibenzofuran	ND	1.90	3.80	"	"	"	"	
Fluoranthene	ND	1.90	3.80	"	"	"	"	
Fluorene	ND	1.90	3.80	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.90	3.80	"	"	"	"	
1-Methylnaphthalene	ND	3.80	7.60	"	"	"	"	
2-Methylnaphthalene	ND	3.80	7.60	"	"	"	"	
Naphthalene	ND	3.80	7.60	"	"	"	"	
Phenanthrene	ND	1.90	3.80	"	"	"	"	
Pyrene	ND	1.90	3.80	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 79 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*92 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-06-15-30' (0.5-1') DUP_Prepared (A6K0211-34)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	2.01	4.03	ug/kg dry	1	12/05/16 22:24	EPA 8270D (SIM)	
Acenaphthylene	ND	2.01	4.03	"	"	"	"	
Anthracene	ND	2.01	4.03	"	"	"	"	
Benz(a)anthracene	ND	2.01	4.03	"	"	"	"	
Benzo(a)pyrene	ND	2.01	4.03	"	"	"	"	
Benzo(b)fluoranthene	ND	2.01	4.03	"	"	"	"	
Benzo(k)fluoranthene	ND	2.01	4.03	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.01	4.03	"	"	"	"	
Chrysene	ND	2.01	4.03	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.01	4.03	"	"	"	"	
Dibenzofuran	ND	2.01	4.03	"	"	"	"	
Fluoranthene	ND	2.01	4.03	"	"	"	"	
Fluorene	ND	2.01	4.03	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.01	4.03	"	"	"	"	
1-Methylnaphthalene	ND	4.03	8.05	"	"	"	"	
2-Methylnaphthalene	ND	4.03	8.05	"	"	"	"	
Naphthalene	ND	4.03	8.05	"	"	"	"	
Phenanthrene	ND	2.01	4.03	"	"	"	"	
Pyrene	ND	2.01	4.03	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*82 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-06-15-30' (1-1.5')_Prepared (A6K0211-35)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	1.95	3.89	ug/kg dry	1	12/05/16 22:49	EPA 8270D (SIM)	
Acenaphthylene	ND	1.95	3.89	"	"	"	"	
Anthracene	ND	1.95	3.89	"	"	"	"	
Benz(a)anthracene	ND	1.95	3.89	"	"	"	"	
Benzo(a)pyrene	ND	1.95	3.89	"	"	"	"	
Benzo(b)fluoranthene	ND	1.95	3.89	"	"	"	"	
Benzo(k)fluoranthene	ND	1.95	3.89	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.95	3.89	"	"	"	"	
Chrysene	ND	1.95	3.89	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.95	3.89	"	"	"	"	
Dibenzofuran	ND	1.95	3.89	"	"	"	"	
Fluoranthene	ND	1.95	3.89	"	"	"	"	
Fluorene	ND	1.95	3.89	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.95	3.89	"	"	"	"	
1-Methylnaphthalene	ND	3.89	7.78	"	"	"	"	
2-Methylnaphthalene	ND	3.89	7.78	"	"	"	"	
Naphthalene	ND	3.89	7.78	"	"	"	"	
Phenanthrene	ND	1.95	3.89	"	"	"	"	
Pyrene	ND	1.95	3.89	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 88 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*102 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-06->30' (0-0.5')_Prepared (A6K0211-36)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	1.91	3.82	ug/kg dry	1	12/05/16 23:15	EPA 8270D (SIM)	
Acenaphthylene	ND	1.91	3.82	"	"	"	"	
Anthracene	ND	1.91	3.82	"	"	"	"	
Benz(a)anthracene	**2.03**	1.91	3.82	"	"	"	"	J
Benzo(a)pyrene	**3.53**	1.91	3.82	"	"	"	"	J
Benzo(b)fluoranthene	**4.87**	1.91	3.82	"	"	"	"	M-02
Benzo(k)fluoranthene	**2.06**	1.91	3.82	"	"	"	"	J
Benzo(g,h,i)perylene	**3.93**	1.91	3.82	"	"	"	"	
Chrysene	**3.17**	1.91	3.82	"	"	"	"	J
Dibenz(a,h)anthracene	ND	1.91	3.82	"	"	"	"	
Dibenzofuran	ND	1.91	3.82	"	"	"	"	
Fluoranthene	**3.57**	1.91	3.82	"	"	"	"	J
Fluorene	ND	1.91	3.82	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.74**	1.91	3.82	"	"	"	"	J
1-Methylnaphthalene	ND	3.82	7.65	"	"	"	"	
2-Methylnaphthalene	ND	3.82	7.65	"	"	"	"	
Naphthalene	ND	3.82	7.65	"	"	"	"	
Phenanthrene	**2.23**	1.91	3.82	"	"	"	"	J
Pyrene	**4.39**	1.91	3.82	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*91 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-06->30' (0.5-1')_Prepared (A6K0211-37)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	1.99	3.98	ug/kg dry	1	12/05/16 23:41	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.98	"	"	"	"	
Anthracene	ND	1.99	3.98	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.98	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.98	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.98	"	"	"	"	
Chrysene	ND	1.99	3.98	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.98	"	"	"	"	
Dibenzofuran	ND	1.99	3.98	"	"	"	"	
Fluoranthene	ND	1.99	3.98	"	"	"	"	
Fluorene	ND	1.99	3.98	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.98	"	"	"	"	
1-Methylnaphthalene	ND	3.98	7.97	"	"	"	"	
2-Methylnaphthalene	ND	3.98	7.97	"	"	"	"	
Naphthalene	ND	3.98	7.97	"	"	"	"	
Phenanthrene	ND	1.99	3.98	"	"	"	"	
Pyrene	ND	1.99	3.98	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*86 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-06->30' (1-1.5')_Prepared (A6K0211-38)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	1.97	3.95	ug/kg dry	1	12/06/16 00:06	EPA 8270D (SIM)	
Acenaphthylene	ND	1.97	3.95	"	"	"	"	
Anthracene	ND	1.97	3.95	"	"	"	"	
Benz(a)anthracene	ND	1.97	3.95	"	"	"	"	
Benzo(a)pyrene	ND	1.97	3.95	"	"	"	"	
Benzo(b)fluoranthene	ND	1.97	3.95	"	"	"	"	
Benzo(k)fluoranthene	ND	1.97	3.95	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.97	3.95	"	"	"	"	
Chrysene	ND	1.97	3.95	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.97	3.95	"	"	"	"	
Dibenzofuran	ND	1.97	3.95	"	"	"	"	
Fluoranthene	ND	1.97	3.95	"	"	"	"	
Fluorene	ND	1.97	3.95	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.97	3.95	"	"	"	"	
1-Methylnaphthalene	ND	3.95	7.90	"	"	"	"	
2-Methylnaphthalene	ND	3.95	7.90	"	"	"	"	
Naphthalene	ND	3.95	7.90	"	"	"	"	
Phenanthrene	ND	1.97	3.95	"	"	"	"	
Pyrene	ND	1.97	3.95	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*86 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-07-15-30' (0-0.5')_Prepared (A6K0211-39)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	2.05	4.10	ug/kg dry	1	12/06/16 00:32	EPA 8270D (SIM)	
Acenaphthylene	**3.43**	2.05	4.10	"	"	"	"	J
Anthracene	**2.78**	2.05	4.10	"	"	"	"	J
Benz(a)anthracene	**19.9**	2.05	4.10	"	"	"	"	M-02
Benzo(a)pyrene	**33.0**	2.05	4.10	"	"	"	"	
Benzo(b)fluoranthene	**32.5**	2.05	4.10	"	"	"	"	M-02
Benzo(k)fluoranthene	**7.07**	2.05	4.10	"	"	"	"	M-02
Benzo(g,h,i)perylene	**35.7**	2.05	4.10	"	"	"	"	
Chrysene	**51.2**	2.05	4.10	"	"	"	"	M-02
Dibenz(a,h)anthracene	**7.50**	2.05	4.10	"	"	"	"	
Dibenzofuran	ND	2.05	4.10	"	"	"	"	
Fluoranthene	**22.8**	2.05	4.10	"	"	"	"	
Fluorene	ND	2.05	4.10	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**19.8**	2.05	4.10	"	"	"	"	
1-Methylnaphthalene	ND	4.10	8.20	"	"	"	"	
2-Methylnaphthalene	ND	4.10	8.20	"	"	"	"	
Naphthalene	**4.62**	4.10	8.20	"	"	"	"	J
Phenanthrene	**14.4**	2.05	4.10	"	"	"	"	
Pyrene	**38.5**	2.05	4.10	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 61 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*73 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-07-15-30' (0.5-1')_Prepared (A6K0211-40)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	1.97	3.95	ug/kg dry	1	12/06/16 00:58	EPA 8270D (SIM)	
Acenaphthylene	**3.07**	1.97	3.95	"	"	"	"	J
Anthracene	**9.14**	1.97	3.95	"	"	"	"	
Benz(a)anthracene	**26.1**	1.97	3.95	"	"	"	"	M-02
Benzo(a)pyrene	**30.0**	1.97	3.95	"	"	"	"	
Benzo(b)fluoranthene	**40.9**	1.97	3.95	"	"	"	"	M-02
Benzo(k)fluoranthene	**13.1**	1.97	3.95	"	"	"	"	M-02
Benzo(g,h,i)perylene	**28.8**	1.97	3.95	"	"	"	"	
Chrysene	**31.6**	1.97	3.95	"	"	"	"	M-02
Dibenz(a,h)anthracene	**5.19**	1.97	3.95	"	"	"	"	
Dibenzofuran	ND	1.97	3.95	"	"	"	"	
Fluoranthene	**49.1**	1.97	3.95	"	"	"	"	
Fluorene	ND	1.97	3.95	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**21.9**	1.97	3.95	"	"	"	"	
1-Methylnaphthalene	ND	3.95	7.89	"	"	"	"	
2-Methylnaphthalene	ND	3.95	7.89	"	"	"	"	
Naphthalene	**4.03**	3.95	7.89	"	"	"	"	J
Phenanthrene	**32.0**	1.97	3.95	"	"	"	"	
Pyrene	**42.6**	1.97	3.95	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*86 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-07-15-30' (1-1.5')_Prepared (A6K0211-41)			**Matrix: Soil**		**Batch: 6120155**			**H-08**
Acenaphthene	ND	1.91	3.82	ug/kg dry	1	12/06/16 01:23	EPA 8270D (SIM)	
Acenaphthylene	ND	1.91	3.82	"	"	"	"	
Anthracene	ND	1.91	3.82	"	"	"	"	
Benz(a)anthracene	ND	1.91	3.82	"	"	"	"	
Benzo(a)pyrene	**2.22**	1.91	3.82	"	"	"	"	J
Benzo(b)fluoranthene	ND	1.91	3.82	"	"	"	"	
Benzo(k)fluoranthene	ND	1.91	3.82	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.91	3.82	"	"	"	"	
Chrysene	ND	1.91	3.82	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.91	3.82	"	"	"	"	
Dibenzofuran	ND	1.91	3.82	"	"	"	"	
Fluoranthene	ND	1.91	3.82	"	"	"	"	
Fluorene	ND	1.91	3.82	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.91	3.82	"	"	"	"	
1-Methylnaphthalene	ND	3.82	7.65	"	"	"	"	
2-Methylnaphthalene	ND	3.82	7.65	"	"	"	"	
Naphthalene	ND	3.82	7.65	"	"	"	"	
Phenanthrene	ND	1.91	3.82	"	"	"	"	
Pyrene	ND	1.91	3.82	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*89 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-07->30' (0-0.5')_Prepared (A6K0211-42)			**Matrix: Soil**		**Batch: 6120166**			**H-08**
Acenaphthene	ND	2.03	4.07	ug/kg dry	1	12/06/16 11:29	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.07	"	"	"	"	
Anthracene	ND	2.03	4.07	"	"	"	"	
Benz(a)anthracene	**2.20**	2.03	4.07	"	"	"	"	J
Benzo(a)pyrene	**3.15**	2.03	4.07	"	"	"	"	J
Benzo(b)fluoranthene	**6.63**	2.03	4.07	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	2.03	4.07	"	"	"	"	
Benzo(g,h,i)perylene	**5.59**	2.03	4.07	"	"	"	"	
Chrysene	**7.24**	2.03	4.07	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.03	4.07	"	"	"	"	
Dibenzofuran	ND	2.03	4.07	"	"	"	"	
Fluoranthene	**7.53**	2.03	4.07	"	"	"	"	
Fluorene	ND	2.03	4.07	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**4.03**	2.03	4.07	"	"	"	"	J
1-Methylnaphthalene	ND	4.07	8.13	"	"	"	"	
2-Methylnaphthalene	ND	4.07	8.13	"	"	"	"	
Naphthalene	**7.75**	4.07	8.13	"	"	"	"	J
Phenanthrene	**6.10**	2.03	4.07	"	"	"	"	
Pyrene	**8.19**	2.03	4.07	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6K0211-43)			**Matrix: Solid**		**Batch: 6120155**			**A-01, H-08**
Acenaphthene	ND	1.94	3.87	ug/kg wet	1	12/06/16 01:49	EPA 8270D (SIM)	
Acenaphthylene	ND	1.94	3.87	"	"	"	"	
Anthracene	ND	1.94	3.87	"	"	"	"	
Benz(a)anthracene	ND	1.94	3.87	"	"	"	"	
Benzo(a)pyrene	ND	1.94	3.87	"	"	"	"	
Benzo(b)fluoranthene	ND	1.94	3.87	"	"	"	"	
Benzo(k)fluoranthene	ND	1.94	3.87	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.94	3.87	"	"	"	"	
Chrysene	ND	1.94	3.87	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.94	3.87	"	"	"	"	
Dibenzofuran	ND	1.94	3.87	"	"	"	"	
Fluoranthene	ND	1.94	3.87	"	"	"	"	
Fluorene	ND	1.94	3.87	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.94	3.87	"	"	"	"	
1-Methylnaphthalene	ND	3.87	7.74	"	"	"	"	
2-Methylnaphthalene	ND	3.87	7.74	"	"	"	"	
Naphthalene	ND	3.87	7.74	"	"	"	"	
Phenanthrene	ND	1.94	3.87	"	"	"	"	
Pyrene	ND	1.94	3.87	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 62 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*79 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-07->30' (0.5-1')_Prepared (A6K0212-21)			**Matrix: Soil**		**Batch: 6120172**			**H-08**
Acenaphthene	ND	1.80	3.59	ug/kg dry	1	12/06/16 12:47	EPA 8270D (SIM)	
Acenaphthylene	ND	1.80	3.59	"	"	"	"	
Anthracene	ND	1.80	3.59	"	"	"	"	
Benz(a)anthracene	ND	1.80	3.59	"	"	"	"	
Benzo(a)pyrene	ND	1.80	3.59	"	"	"	"	
Benzo(b)fluoranthene	ND	1.80	3.59	"	"	"	"	
Benzo(k)fluoranthene	ND	1.80	3.59	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.80	3.59	"	"	"	"	
Chrysene	ND	1.80	3.59	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.80	3.59	"	"	"	"	
Dibenzofuran	ND	1.80	3.59	"	"	"	"	
Fluoranthene	ND	1.80	3.59	"	"	"	"	
Fluorene	ND	1.80	3.59	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.80	3.59	"	"	"	"	
1-Methylnaphthalene	ND	3.59	7.19	"	"	"	"	
2-Methylnaphthalene	ND	3.59	7.19	"	"	"	"	
Naphthalene	ND	3.59	7.19	"	"	"	"	
Phenanthrene	ND	1.80	3.59	"	"	"	"	
Pyrene	ND	1.80	3.59	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 53 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*57 %*	*Limits: 54-127 %*	"	"	"	

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-07->30' (1-1.5')_Prepared (A6K0212-22RE1)			**Matrix: Soil**		**Batch: 6120304**			**H-08**
Acenaphthene	ND	2.08	4.15	ug/kg dry	1	12/08/16 17:58	EPA 8270D (SIM)	
Acenaphthylene	ND	2.08	4.15	"	"	"	"	
Anthracene	ND	2.08	4.15	"	"	"	"	
Benz(a)anthracene	ND	2.08	4.15	"	"	"	"	
Benzo(a)pyrene	ND	2.08	4.15	"	"	"	"	
Benzo(b)fluoranthene	ND	2.08	4.15	"	"	"	"	
Benzo(k)fluoranthene	ND	2.08	4.15	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.08	4.15	"	"	"	"	
Chrysene	ND	2.08	4.15	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.08	4.15	"	"	"	"	
Dibenzofuran	ND	2.08	4.15	"	"	"	"	
Fluoranthene	ND	2.08	4.15	"	"	"	"	
Fluorene	ND	2.08	4.15	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.08	4.15	"	"	"	"	
1-Methylnaphthalene	ND	4.15	8.30	"	"	"	"	
2-Methylnaphthalene	ND	4.15	8.30	"	"	"	"	
Naphthalene	ND	4.15	8.30	"	"	"	"	
Phenanthrene	ND	2.08	4.15	"	"	"	"	
Pyrene	ND	2.08	4.15	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 62 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*71 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-08-15-30' (0-0.5')_Prepared (A6K0212-23)			**Matrix: Soil**		**Batch: 6120172**			**H-08**
Acenaphthene	ND	4.88	9.76	ug/kg dry	1	12/06/16 13:39	EPA 8270D (SIM)	
Acenaphthylene	ND	4.88	9.76	"	"	"	"	
Anthracene	ND	4.88	9.76	"	"	"	"	
Benz(a)anthracene	ND	4.88	9.76	"	"	"	"	
Benzo(a)pyrene	ND	4.88	9.76	"	"	"	"	
Benzo(b)fluoranthene	ND	4.88	9.76	"	"	"	"	
Benzo(k)fluoranthene	ND	4.88	9.76	"	"	"	"	
Benzo(g,h,i)perylene	**5.22**	4.88	9.76	"	"	"	"	J
Chrysene	ND	4.88	9.76	"	"	"	"	
Dibenz(a,h)anthracene	ND	4.88	9.76	"	"	"	"	
Dibenzofuran	ND	4.88	9.76	"	"	"	"	
Fluoranthene	ND	4.88	9.76	"	"	"	"	
Fluorene	ND	4.88	9.76	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	4.88	9.76	"	"	"	"	
1-Methylnaphthalene	ND	9.76	19.5	"	"	"	"	
2-Methylnaphthalene	ND	9.76	19.5	"	"	"	"	
Naphthalene	ND	9.76	19.5	"	"	"	"	
Phenanthrene	ND	4.88	9.76	"	"	"	"	
Pyrene	ND	4.88	9.76	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*77 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-08-15-30' (0.5-1')_Prepared (A6K0212-24)			**Matrix: Soil**		**Batch: 6120172**			**H-08**
Acenaphthene	ND	1.96	3.93	ug/kg dry	1	12/06/16 15:23	EPA 8270D (SIM)	
Acenaphthylene	ND	1.96	3.93	"	"	"	"	
Anthracene	ND	1.96	3.93	"	"	"	"	
Benz(a)anthracene	ND	1.96	3.93	"	"	"	"	
Benzo(a)pyrene	ND	1.96	3.93	"	"	"	"	
Benzo(b)fluoranthene	ND	1.96	3.93	"	"	"	"	
Benzo(k)fluoranthene	ND	1.96	3.93	"	"	"	"	
Benzo(g,h,i)perylene	**3.17**	1.96	3.93	"	"	"	"	J
Chrysene	ND	1.96	3.93	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.96	3.93	"	"	"	"	
Dibenzofuran	ND	1.96	3.93	"	"	"	"	
Fluoranthene	ND	1.96	3.93	"	"	"	"	
Fluorene	ND	1.96	3.93	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.96	3.93	"	"	"	"	
1-Methylnaphthalene	ND	3.93	7.86	"	"	"	"	
2-Methylnaphthalene	ND	3.93	7.86	"	"	"	"	
Naphthalene	ND	3.93	7.86	"	"	"	"	
Phenanthrene	ND	1.96	3.93	"	"	"	"	
Pyrene	ND	1.96	3.93	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 60 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*68 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-08-15-30' (1-1.5')_Prepared (A6K0212-25)			**Matrix: Soil**		**Batch: 6120172**			**H-08**
Acenaphthene	ND	1.98	3.96	ug/kg dry	1	12/06/16 15:49	EPA 8270D (SIM)	
Acenaphthylene	ND	1.98	3.96	"	"	"	"	
Anthracene	ND	1.98	3.96	"	"	"	"	
Benz(a)anthracene	ND	1.98	3.96	"	"	"	"	
Benzo(a)pyrene	ND	1.98	3.96	"	"	"	"	
Benzo(b)fluoranthene	**1.99**	1.98	3.96	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.98	3.96	"	"	"	"	
Benzo(g,h,i)perylene	**2.51**	1.98	3.96	"	"	"	"	J
Chrysene	ND	1.98	3.96	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.98	3.96	"	"	"	"	
Dibenzofuran	ND	1.98	3.96	"	"	"	"	
Fluoranthene	ND	1.98	3.96	"	"	"	"	
Fluorene	ND	1.98	3.96	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.98	3.96	"	"	"	"	
1-Methylnaphthalene	ND	3.96	7.91	"	"	"	"	
2-Methylnaphthalene	ND	3.96	7.91	"	"	"	"	
Naphthalene	ND	3.96	7.91	"	"	"	"	
Phenanthrene	ND	1.98	3.96	"	"	"	"	
Pyrene	ND	1.98	3.96	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*75 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-08->30' (0-0.5')_Prepared (A6K0212-26)			**Matrix: Soil**		**Batch: 6120172**			**H-08**
Acenaphthene	ND	2.03	4.07	ug/kg dry	1	12/06/16 16:15	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.07	"	"	"	"	
Anthracene	ND	2.03	4.07	"	"	"	"	
Benz(a)anthracene	ND	4.07	4.07	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.07	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.07	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.07	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.07	"	"	"	"	
Chrysene	ND	4.07	4.07	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.07	"	"	"	"	
Dibenzofuran	ND	2.03	4.07	"	"	"	"	
Fluoranthene	ND	2.03	4.07	"	"	"	"	
Fluorene	ND	2.03	4.07	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.07	"	"	"	"	
1-Methylnaphthalene	ND	4.07	8.14	"	"	"	"	
2-Methylnaphthalene	ND	4.07	8.14	"	"	"	"	
Naphthalene	ND	4.07	8.14	"	"	"	"	
Phenanthrene	ND	2.03	4.07	"	"	"	"	
Pyrene	ND	2.03	4.07	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 52 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*58 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-08->30' (0.5-1')_Prepared (A6K0212-27)			**Matrix: Soil**		**Batch: 6120172**			**H-08**
Acenaphthene	ND	2.07	4.15	ug/kg dry	1	12/06/16 16:41	EPA 8270D (SIM)	
Acenaphthylene	ND	2.07	4.15	"	"	"	"	
Anthracene	ND	2.07	4.15	"	"	"	"	
Benz(a)anthracene	ND	2.07	4.15	"	"	"	"	
Benzo(a)pyrene	ND	2.07	4.15	"	"	"	"	
Benzo(b)fluoranthene	ND	2.07	4.15	"	"	"	"	
Benzo(k)fluoranthene	ND	2.07	4.15	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.07	4.15	"	"	"	"	
Chrysene	ND	2.07	4.15	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.07	4.15	"	"	"	"	
Dibenzofuran	ND	2.07	4.15	"	"	"	"	
Fluoranthene	ND	2.07	4.15	"	"	"	"	
Fluorene	ND	2.07	4.15	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.07	4.15	"	"	"	"	
1-Methylnaphthalene	ND	4.15	8.30	"	"	"	"	
2-Methylnaphthalene	ND	4.15	8.30	"	"	"	"	
Naphthalene	ND	4.15	8.30	"	"	"	"	
Phenanthrene	ND	2.07	4.15	"	"	"	"	
Pyrene	ND	2.07	4.15	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*74 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-08->30' (1-1.5')_Prepared (A6K0212-28RE1)			**Matrix: Soil**		**Batch: 6120304**			**H-08**
Acenaphthene	ND	2.07	4.13	ug/kg dry	1	12/08/16 18:24	EPA 8270D (SIM)	
Acenaphthylene	ND	2.07	4.13	"	"	"	"	
Anthracene	ND	2.07	4.13	"	"	"	"	
Benz(a)anthracene	ND	2.07	4.13	"	"	"	"	
Benzo(a)pyrene	ND	2.07	4.13	"	"	"	"	
Benzo(b)fluoranthene	ND	2.07	4.13	"	"	"	"	
Benzo(k)fluoranthene	ND	2.07	4.13	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.07	4.13	"	"	"	"	
Chrysene	ND	2.07	4.13	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.07	4.13	"	"	"	"	
Dibenzofuran	ND	2.07	4.13	"	"	"	"	
Fluoranthene	ND	2.07	4.13	"	"	"	"	
Fluorene	ND	2.07	4.13	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.07	4.13	"	"	"	"	
1-Methylnaphthalene	ND	4.13	8.26	"	"	"	"	
2-Methylnaphthalene	ND	4.13	8.26	"	"	"	"	
Naphthalene	ND	4.13	8.26	"	"	"	"	
Phenanthrene	ND	2.07	4.13	"	"	"	"	
Pyrene	ND	2.07	4.13	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 61 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*66 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-09->30' (0-0.5')_Prepared (A6K0212-29)			**Matrix: Soil**		**Batch: 6120172**			**H-08**
Acenaphthene	ND	1.99	3.98	ug/kg dry	1	12/06/16 17:33	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.98	"	"	"	"	
Anthracene	ND	1.99	3.98	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.98	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.98	"	"	"	"	
Benzo(b)fluoranthene	**3.94**	1.99	3.98	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(g,h,i)perylene	**2.66**	1.99	3.98	"	"	"	"	J
Chrysene	**5.65**	1.99	3.98	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	1.99	3.98	"	"	"	"	
Dibenzofuran	ND	1.99	3.98	"	"	"	"	
Fluoranthene	**6.57**	1.99	3.98	"	"	"	"	
Fluorene	ND	1.99	3.98	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.98	"	"	"	"	
1-Methylnaphthalene	ND	3.98	7.96	"	"	"	"	
2-Methylnaphthalene	ND	3.98	7.96	"	"	"	"	
Naphthalene	ND	3.98	7.96	"	"	"	"	
Phenanthrene	**4.20**	1.99	3.98	"	"	"	"	
Pyrene	**5.25**	1.99	3.98	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 55 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*60 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-09->30' (0.5-1')_Prepared (A6K0212-30)			**Matrix: Soil**		**Batch: 6120172**			**H-08**
Acenaphthene	ND	1.93	3.86	ug/kg dry	1	12/06/16 17:59	EPA 8270D (SIM)	
Acenaphthylene	ND	1.93	3.86	"	"	"	"	
Anthracene	ND	1.93	3.86	"	"	"	"	
Benz(a)anthracene	ND	3.86	3.86	"	"	"	"	
Benzo(a)pyrene	ND	1.93	3.86	"	"	"	"	
Benzo(b)fluoranthene	**2.49**	1.93	3.86	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.93	3.86	"	"	"	"	
Benzo(g,h,i)perylene	**2.63**	1.93	3.86	"	"	"	"	J
Chrysene	ND	4.82	4.82	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	1.93	3.86	"	"	"	"	
Dibenzofuran	ND	1.93	3.86	"	"	"	"	
Fluoranthene	ND	1.93	3.86	"	"	"	"	
Fluorene	ND	1.93	3.86	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.93	3.86	"	"	"	"	
1-Methylnaphthalene	ND	3.86	7.71	"	"	"	"	
2-Methylnaphthalene	ND	3.86	7.71	"	"	"	"	
Naphthalene	ND	3.86	7.71	"	"	"	"	
Phenanthrene	**1.95**	1.93	3.86	"	"	"	"	J
Pyrene	**2.38**	1.93	3.86	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 50 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*61 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-09->30' (1-1.5')_Prepared (A6K0212-31)			**Matrix: Soil**		**Batch: 6120172**			**H-08**
Acenaphthene	ND	1.91	3.81	ug/kg dry	1	12/06/16 18:25	EPA 8270D (SIM)	
Acenaphthylene	ND	1.91	3.81	"	"	"	"	
Anthracene	ND	1.91	3.81	"	"	"	"	
Benz(a)anthracene	ND	1.91	3.81	"	"	"	"	
Benzo(a)pyrene	ND	1.91	3.81	"	"	"	"	
Benzo(b)fluoranthene	**2.44**	1.91	3.81	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.91	3.81	"	"	"	"	
Benzo(g,h,i)perylene	**2.07**	1.91	3.81	"	"	"	"	J
Chrysene	**2.57**	1.91	3.81	"	"	"	"	J
Dibenz(a,h)anthracene	ND	1.91	3.81	"	"	"	"	
Dibenzofuran	ND	1.91	3.81	"	"	"	"	
Fluoranthene	ND	1.91	3.81	"	"	"	"	
Fluorene	ND	1.91	3.81	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.91	3.81	"	"	"	"	
1-Methylnaphthalene	ND	3.81	7.63	"	"	"	"	
2-Methylnaphthalene	ND	3.81	7.63	"	"	"	"	
Naphthalene	ND	3.81	7.63	"	"	"	"	
Phenanthrene	ND	1.91	3.81	"	"	"	"	
Pyrene	**2.01**	1.91	3.81	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 53 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*59 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-10-15-30' (0-0.5')_Prepared (A6K0212-32RE1)			**Matrix: Soil**		**Batch: 6120304**			**H-08**
Acenaphthene	ND	2.08	4.15	ug/kg dry	1	12/08/16 20:07	EPA 8270D (SIM)	
Acenaphthylene	ND	2.08	4.15	"	"	"	"	
Anthracene	ND	2.08	4.15	"	"	"	"	
Benz(a)anthracene	ND	4.15	4.15	"	"	"	"	
Benzo(a)pyrene	**5.17**	2.08	4.15	"	"	"	"	
Benzo(b)fluoranthene	**11.4**	2.08	4.15	"	"	"	"	M-02
Benzo(k)fluoranthene	**2.35**	2.08	4.15	"	"	"	"	J
Benzo(g,h,i)perylene	**17.1**	2.08	4.15	"	"	"	"	
Chrysene	ND	12.5	12.5	"	"	"	"	R-02
Dibenz(a,h)anthracene	**3.46**	2.08	4.15	"	"	"	"	J
Dibenzofuran	ND	2.08	4.15	"	"	"	"	
Fluoranthene	**2.64**	2.08	4.15	"	"	"	"	J
Fluorene	ND	2.08	4.15	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**6.88**	2.08	4.15	"	"	"	"	
1-Methylnaphthalene	ND	4.15	8.30	"	"	"	"	
2-Methylnaphthalene	ND	4.15	8.30	"	"	"	"	
Naphthalene	ND	4.15	8.30	"	"	"	"	
Phenanthrene	**2.51**	2.08	4.15	"	"	"	"	J
Pyrene	**4.40**	2.08	4.15	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 54 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*60 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-10-15-30' (0.5-1')_Prepared (A6K0212-33)			**Matrix: Soil**		**Batch: 6120172**			**H-08**
Acenaphthene	ND	1.98	3.96	ug/kg dry	1	12/06/16 19:17	EPA 8270D (SIM)	
Acenaphthylene	ND	1.98	3.96	"	"	"	"	
Anthracene	ND	1.98	3.96	"	"	"	"	
Benz(a)anthracene	ND	6.94	6.94	"	"	"	"	R-02
Benzo(a)pyrene	**2.05**	1.98	3.96	"	"	"	"	J
Benzo(b)fluoranthene	**4.16**	1.98	3.96	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	1.98	3.96	"	"	"	"	
Benzo(g,h,i)perylene	**6.69**	1.98	3.96	"	"	"	"	
Chrysene	ND	7.93	7.93	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	1.98	3.96	"	"	"	"	
Dibenzofuran	ND	1.98	3.96	"	"	"	"	
Fluoranthene	ND	1.98	3.96	"	"	"	"	
Fluorene	ND	1.98	3.96	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.88**	1.98	3.96	"	"	"	"	J
1-Methylnaphthalene	ND	3.96	7.93	"	"	"	"	
2-Methylnaphthalene	ND	3.96	7.93	"	"	"	"	
Naphthalene	ND	3.96	7.93	"	"	"	"	
Phenanthrene	ND	1.98	3.96	"	"	"	"	
Pyrene	ND	1.98	3.96	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 48 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*55 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-10-15-30' (1-1.5')_Prepared (A6K0212-34)			**Matrix: Soil**		**Batch: 6120172**			**H-08**
Acenaphthene	ND	5.90	11.8	ug/kg dry	3	12/06/16 19:43	EPA 8270D (SIM)	
Acenaphthylene	ND	5.90	11.8	"	"	"	"	
Anthracene	ND	5.90	11.8	"	"	"	"	
Benz(a)anthracene	ND	64.9	64.9	"	"	"	"	R-02
Benzo(a)pyrene	**16.0**	5.90	11.8	"	"	"	"	
Benzo(b)fluoranthene	**29.7**	5.90	11.8	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	5.90	11.8	"	"	"	"	
Benzo(g,h,i)perylene	**41.4**	5.90	11.8	"	"	"	"	
Chrysene	ND	73.8	73.8	"	"	"	"	R-02
Dibenz(a,h)anthracene	**14.1**	5.90	11.8	"	"	"	"	
Dibenzofuran	ND	5.90	11.8	"	"	"	"	
Fluoranthene	ND	5.90	11.8	"	"	"	"	
Fluorene	ND	5.90	11.8	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**17.8**	5.90	11.8	"	"	"	"	
1-Methylnaphthalene	ND	11.8	23.6	"	"	"	"	
2-Methylnaphthalene	ND	11.8	23.6	"	"	"	"	
Naphthalene	ND	11.8	23.6	"	"	"	"	
Phenanthrene	ND	5.90	11.8	"	"	"	"	
Pyrene	**8.32**	5.90	11.8	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 84 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*87 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-10->30' (0-0.5')_Prepared (A6K0212-35)			**Matrix: Soil**		**Batch: 6120172**			**H-08**
Acenaphthene	ND	2.12	4.24	ug/kg dry	1	12/06/16 20:09	EPA 8270D (SIM)	
Acenaphthylene	ND	2.12	4.24	"	"	"	"	
Anthracene	ND	2.12	4.24	"	"	"	"	
Benz(a)anthracene	ND	2.12	4.24	"	"	"	"	
Benzo(a)pyrene	ND	2.12	4.24	"	"	"	"	
Benzo(b)fluoranthene	ND	2.12	4.24	"	"	"	"	
Benzo(k)fluoranthene	ND	2.12	4.24	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.12	4.24	"	"	"	"	
Chrysene	ND	2.12	4.24	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.12	4.24	"	"	"	"	
Dibenzofuran	ND	2.12	4.24	"	"	"	"	
Fluoranthene	ND	2.12	4.24	"	"	"	"	
Fluorene	ND	2.12	4.24	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.12	4.24	"	"	"	"	
1-Methylnaphthalene	ND	4.24	8.48	"	"	"	"	
2-Methylnaphthalene	ND	4.24	8.48	"	"	"	"	
Naphthalene	ND	4.24	8.48	"	"	"	"	
Phenanthrene	ND	2.12	4.24	"	"	"	"	
Pyrene	ND	2.12	4.24	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 53 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*57 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-10->30' (0.5-1')_Prepared (A6K0212-36RE1)			**Matrix: Soil**		**Batch: 6120304**			**H-08**
Acenaphthene	ND	2.12	4.23	ug/kg dry	1	12/08/16 19:15	EPA 8270D (SIM)	
Acenaphthylene	ND	2.12	4.23	"	"	"	"	
Anthracene	ND	2.12	4.23	"	"	"	"	
Benz(a)anthracene	ND	2.12	4.23	"	"	"	"	
Benzo(a)pyrene	ND	2.12	4.23	"	"	"	"	
Benzo(b)fluoranthene	ND	2.12	4.23	"	"	"	"	
Benzo(k)fluoranthene	ND	2.12	4.23	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.12	4.23	"	"	"	"	
Chrysene	ND	2.12	4.23	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.12	4.23	"	"	"	"	
Dibenzofuran	ND	2.12	4.23	"	"	"	"	
Fluoranthene	ND	2.12	4.23	"	"	"	"	
Fluorene	ND	2.12	4.23	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.12	4.23	"	"	"	"	
1-Methylnaphthalene	ND	4.23	8.47	"	"	"	"	
2-Methylnaphthalene	ND	4.23	8.47	"	"	"	"	
Naphthalene	ND	4.23	8.47	"	"	"	"	
Phenanthrene	ND	2.12	4.23	"	"	"	"	
Pyrene	ND	2.12	4.23	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 45 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*47 %*	*Limits: 54-127 %*	"	"	"	*S-03*

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-10->30' (1-1.5')_Prepared (A6K0212-37)			**Matrix: Soil**		**Batch: 6120172**			**H-08**
Acenaphthene	ND	2.13	4.26	ug/kg dry	1	12/07/16 10:29	EPA 8270D (SIM)	
Acenaphthylene	ND	2.13	4.26	"	"	"	"	
Anthracene	ND	2.13	4.26	"	"	"	"	
Benz(a)anthracene	ND	2.13	4.26	"	"	"	"	
Benzo(a)pyrene	ND	2.13	4.26	"	"	"	"	
Benzo(b)fluoranthene	ND	2.13	4.26	"	"	"	"	
Benzo(k)fluoranthene	ND	2.13	4.26	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.13	4.26	"	"	"	"	
Chrysene	ND	2.13	4.26	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.13	4.26	"	"	"	"	
Dibenzofuran	ND	2.13	4.26	"	"	"	"	
Fluoranthene	ND	2.13	4.26	"	"	"	"	
Fluorene	ND	2.13	4.26	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.13	4.26	"	"	"	"	
1-Methylnaphthalene	ND	4.26	8.51	"	"	"	"	
2-Methylnaphthalene	ND	4.26	8.51	"	"	"	"	
Naphthalene	ND	4.26	8.51	"	"	"	"	
Phenanthrene	ND	2.13	4.26	"	"	"	"	
Pyrene	ND	2.13	4.26	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 59 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*55 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-11-15-30' (0-0.5')_Prepared (A6K0212-38RE1)			**Matrix: Soil**		**Batch: 6120350**			**H-08**
Acenaphthene	ND	1.95	3.90	ug/kg dry	1	12/13/16 12:37	EPA 8270D (SIM)	
Acenaphthylene	ND	1.95	3.90	"	"	"	"	
Anthracene	ND	1.95	3.90	"	"	"	"	
Benz(a)anthracene	ND	5.86	5.86	"	"	"	"	R-02
Benzo(a)pyrene	**3.05**	1.95	3.90	"	"	"	"	J
Benzo(b)fluoranthene	**4.50**	1.95	3.90	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	1.95	3.90	"	"	"	"	
Benzo(g,h,i)perylene	**7.99**	1.95	3.90	"	"	"	"	
Chrysene	ND	5.86	5.86	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	1.95	3.90	"	"	"	"	
Dibenzofuran	ND	1.95	3.90	"	"	"	"	
Fluoranthene	**1.95**	1.95	3.90	"	"	"	"	J
Fluorene	ND	1.95	3.90	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.70**	1.95	3.90	"	"	"	"	J
1-Methylnaphthalene	ND	3.90	7.81	"	"	"	"	
2-Methylnaphthalene	ND	3.90	7.81	"	"	"	"	
Naphthalene	ND	3.90	7.81	"	"	"	"	
Phenanthrene	ND	1.95	3.90	"	"	"	"	
Pyrene	**2.60**	1.95	3.90	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 61 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*67 %*	*Limits: 54-127 %*	"	"	"	

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-11-15-30' (0.5-1')_Prepared (A6K0212-39)			**Matrix: Soil**		**Batch: 6120172**			**H-08**
Acenaphthene	ND	1.91	3.83	ug/kg dry	1	12/07/16 11:20	EPA 8270D (SIM)	
Acenaphthylene	ND	1.91	3.83	"	"	"	"	
Anthracene	ND	1.91	3.83	"	"	"	"	
Benz(a)anthracene	ND	11.5	11.5	"	"	"	"	R-02
Benzo(a)pyrene	**2.65**	1.91	3.83	"	"	"	"	J
Benzo(b)fluoranthene	**5.33**	1.91	3.83	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	1.91	3.83	"	"	"	"	
Benzo(g,h,i)perylene	**5.73**	1.91	3.83	"	"	"	"	
Chrysene	ND	13.4	13.4	"	"	"	"	R-02
Dibenz(a,h)anthracene	**2.19**	1.91	3.83	"	"	"	"	J
Dibenzofuran	ND	1.91	3.83	"	"	"	"	
Fluoranthene	ND	1.91	3.83	"	"	"	"	
Fluorene	ND	1.91	3.83	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.91	3.83	"	"	"	"	
1-Methylnaphthalene	ND	3.83	7.65	"	"	"	"	
2-Methylnaphthalene	ND	3.83	7.65	"	"	"	"	
Naphthalene	ND	3.83	7.65	"	"	"	"	
Phenanthrene	ND	1.91	3.83	"	"	"	"	
Pyrene	ND	1.91	3.83	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 62 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*62 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-11-15-30' (1-1.5')_Prepared (A6K0212-40)			**Matrix: Soil**		**Batch: 6120172**			**H-08**
Acenaphthene	ND	1.92	3.85	ug/kg dry	1	12/07/16 11:46	EPA 8270D (SIM)	
Acenaphthylene	ND	1.92	3.85	"	"	"	"	
Anthracene	ND	1.92	3.85	"	"	"	"	
Benz(a)anthracene	ND	3.85	3.85	"	"	"	"	
Benzo(a)pyrene	ND	1.92	3.85	"	"	"	"	
Benzo(b)fluoranthene	ND	1.92	3.85	"	"	"	"	
Benzo(k)fluoranthene	ND	1.92	3.85	"	"	"	"	
Benzo(g,h,i)perylene	**3.02**	1.92	3.85	"	"	"	"	J
Chrysene	ND	3.85	3.85	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.92	3.85	"	"	"	"	
Dibenzofuran	ND	1.92	3.85	"	"	"	"	
Fluoranthene	ND	1.92	3.85	"	"	"	"	
Fluorene	ND	1.92	3.85	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.92	3.85	"	"	"	"	
1-Methylnaphthalene	ND	3.85	7.70	"	"	"	"	
2-Methylnaphthalene	ND	3.85	7.70	"	"	"	"	
Naphthalene	ND	3.85	7.70	"	"	"	"	
Phenanthrene	ND	1.92	3.85	"	"	"	"	
Pyrene	ND	1.92	3.85	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 56 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*61 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6K0212-41)			**Matrix: Solid**		**Batch: 6120172**			**A-01, H-08**
Acenaphthene	ND	1.87	3.73	ug/kg wet	1	12/07/16 12:12	EPA 8270D (SIM)	
Acenaphthylene	ND	1.87	3.73	"	"	"	"	
Anthracene	ND	1.87	3.73	"	"	"	"	
Benz(a)anthracene	ND	1.87	3.73	"	"	"	"	
Benzo(a)pyrene	ND	1.87	3.73	"	"	"	"	
Benzo(b)fluoranthene	ND	1.87	3.73	"	"	"	"	
Benzo(k)fluoranthene	ND	1.87	3.73	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.87	3.73	"	"	"	"	
Chrysene	ND	1.87	3.73	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.87	3.73	"	"	"	"	
Dibenzofuran	ND	1.87	3.73	"	"	"	"	
Fluoranthene	ND	1.87	3.73	"	"	"	"	
Fluorene	ND	1.87	3.73	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.87	3.73	"	"	"	"	
1-Methylnaphthalene	ND	3.73	7.47	"	"	"	"	
2-Methylnaphthalene	ND	3.73	7.47	"	"	"	"	
Naphthalene	ND	3.73	7.47	"	"	"	"	
Phenanthrene	ND	1.87	3.73	"	"	"	"	
Pyrene	ND	1.87	3.73	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 58 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*57 %*	*Limits: 54-127 %*	"	"	"	

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-11->30' (0-0.5')_Prepared (A6K0213-21RE1)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.08	4.15	ug/kg dry	1	12/09/16 16:37	EPA 8270D (SIM)	
Acenaphthylene	ND	2.08	4.15	"	"	"	"	
Anthracene	ND	2.08	4.15	"	"	"	"	
Benz(a)anthracene	ND	4.15	4.15	"	"	"	"	
Benzo(a)pyrene	ND	2.08	4.15	"	"	"	"	
Benzo(b)fluoranthene	ND	2.08	4.15	"	"	"	"	
Benzo(k)fluoranthene	ND	2.08	4.15	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.08	4.15	"	"	"	"	
Chrysene	ND	4.15	4.15	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.08	4.15	"	"	"	"	
Dibenzofuran	ND	2.08	4.15	"	"	"	"	
Fluoranthene	ND	2.08	4.15	"	"	"	"	
Fluorene	ND	2.08	4.15	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.08	4.15	"	"	"	"	
1-Methylnaphthalene	ND	4.15	8.31	"	"	"	"	
2-Methylnaphthalene	ND	4.15	8.31	"	"	"	"	
Naphthalene	ND	4.15	8.31	"	"	"	"	
Phenanthrene	ND	2.08	4.15	"	"	"	"	
Pyrene	ND	2.08	4.15	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*75 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-11->30' (0.5-1')_Prepared (A6K0213-22RE1)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.08	4.16	ug/kg dry	1	12/09/16 17:03	EPA 8270D (SIM)	
Acenaphthylene	ND	2.08	4.16	"	"	"	"	
Anthracene	ND	2.08	4.16	"	"	"	"	
Benz(a)anthracene	ND	2.08	4.16	"	"	"	"	
Benzo(a)pyrene	ND	2.08	4.16	"	"	"	"	
Benzo(b)fluoranthene	ND	2.08	4.16	"	"	"	"	
Benzo(k)fluoranthene	ND	2.08	4.16	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.08	4.16	"	"	"	"	
Chrysene	ND	2.08	4.16	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.08	4.16	"	"	"	"	
Dibenzofuran	ND	2.08	4.16	"	"	"	"	
Fluoranthene	ND	2.08	4.16	"	"	"	"	
Fluorene	ND	2.08	4.16	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.08	4.16	"	"	"	"	
1-Methylnaphthalene	ND	4.16	8.32	"	"	"	"	
2-Methylnaphthalene	ND	4.16	8.32	"	"	"	"	
Naphthalene	ND	4.16	8.32	"	"	"	"	
Phenanthrene	ND	2.08	4.16	"	"	"	"	
Pyrene	ND	2.08	4.16	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 63 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*72 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-11->30' (1-1.5')_Prepared (A6K0213-23RE1)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.08	4.16	ug/kg dry	1	12/09/16 17:28	EPA 8270D (SIM)	
Acenaphthylene	ND	2.08	4.16	"	"	"	"	
Anthracene	ND	2.08	4.16	"	"	"	"	
Benz(a)anthracene	ND	2.08	4.16	"	"	"	"	
Benzo(a)pyrene	ND	2.08	4.16	"	"	"	"	
Benzo(b)fluoranthene	ND	2.08	4.16	"	"	"	"	
Benzo(k)fluoranthene	ND	2.08	4.16	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.08	4.16	"	"	"	"	
Chrysene	ND	2.08	4.16	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.08	4.16	"	"	"	"	
Dibenzofuran	ND	2.08	4.16	"	"	"	"	
Fluoranthene	ND	2.08	4.16	"	"	"	"	
Fluorene	ND	2.08	4.16	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.08	4.16	"	"	"	"	
1-Methylnaphthalene	ND	4.16	8.33	"	"	"	"	
2-Methylnaphthalene	ND	4.16	8.33	"	"	"	"	
Naphthalene	ND	4.16	8.33	"	"	"	"	
Phenanthrene	ND	2.08	4.16	"	"	"	"	
Pyrene	ND	2.08	4.16	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 63 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*67 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-12-15-30' (0-0.5')_Prepared (A6K0213-24RE1)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.04	4.08	ug/kg dry	1	12/09/16 17:54	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.08	"	"	"	"	
Anthracene	ND	2.04	4.08	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.08	"	"	"	"	
Benzo(a)pyrene	ND	2.04	4.08	"	"	"	"	
Benzo(b)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(k)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.04	4.08	"	"	"	"	
Chrysene	ND	2.04	4.08	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.04	4.08	"	"	"	"	
Dibenzofuran	ND	2.04	4.08	"	"	"	"	
Fluoranthene	ND	2.04	4.08	"	"	"	"	
Fluorene	ND	2.04	4.08	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.08	"	"	"	"	
1-Methylnaphthalene	ND	4.08	8.17	"	"	"	"	
2-Methylnaphthalene	ND	4.08	8.17	"	"	"	"	
Naphthalene	ND	4.08	8.17	"	"	"	"	
Phenanthrene	ND	2.04	4.08	"	"	"	"	
Pyrene	ND	2.04	4.08	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*80 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-12-15-30' (0-0.5') DUP_Prepared (A6K0213-25)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.04	4.08	ug/kg dry	1	12/07/16 19:32	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.08	"	"	"	"	
Anthracene	ND	2.04	4.08	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.08	"	"	"	"	
Benzo(a)pyrene	ND	2.04	4.08	"	"	"	"	
Benzo(b)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(k)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.04	4.08	"	"	"	"	
Chrysene	ND	2.04	4.08	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.04	4.08	"	"	"	"	
Dibenzofuran	ND	2.04	4.08	"	"	"	"	
Fluoranthene	ND	2.04	4.08	"	"	"	"	
Fluorene	ND	2.04	4.08	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.08	"	"	"	"	
1-Methylnaphthalene	ND	4.08	8.16	"	"	"	"	
2-Methylnaphthalene	ND	4.08	8.16	"	"	"	"	
Naphthalene	ND	4.08	8.16	"	"	"	"	
Phenanthrene	ND	2.04	4.08	"	"	"	"	
Pyrene	**2.24**	2.04	4.08	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*67 %*	*Limits: 54-127 %*	"	"	"	

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-12-15-30' (0.5-1')_Prepared (A6K0213-26)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.05	4.09	ug/kg dry	1	12/09/16 18:20	EPA 8270D (SIM)	
Acenaphthylene	ND	2.05	4.09	"	"	"	"	
Anthracene	ND	2.05	4.09	"	"	"	"	
Benz(a)anthracene	ND	2.05	4.09	"	"	"	"	
Benzo(a)pyrene	ND	2.05	4.09	"	"	"	"	
Benzo(b)fluoranthene	ND	2.05	4.09	"	"	"	"	
Benzo(k)fluoranthene	ND	2.05	4.09	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.05	4.09	"	"	"	"	
Chrysene	ND	2.05	4.09	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.05	4.09	"	"	"	"	
Dibenzofuran	ND	2.05	4.09	"	"	"	"	
Fluoranthene	ND	2.05	4.09	"	"	"	"	
Fluorene	ND	2.05	4.09	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.05	4.09	"	"	"	"	
1-Methylnaphthalene	ND	4.09	8.19	"	"	"	"	
2-Methylnaphthalene	ND	4.09	8.19	"	"	"	"	
Naphthalene	ND	4.09	8.19	"	"	"	"	
Phenanthrene	ND	2.05	4.09	"	"	"	"	
Pyrene	ND	2.05	4.09	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*68 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-12-15-30' (1-1.5')_Prepared (A6K0213-27)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.04	4.08	ug/kg dry	1	12/09/16 18:46	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.08	"	"	"	"	
Anthracene	ND	2.04	4.08	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.08	"	"	"	"	
Benzo(a)pyrene	ND	2.04	4.08	"	"	"	"	
Benzo(b)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(k)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.04	4.08	"	"	"	"	
Chrysene	ND	2.04	4.08	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.04	4.08	"	"	"	"	
Dibenzofuran	ND	2.04	4.08	"	"	"	"	
Fluoranthene	ND	2.04	4.08	"	"	"	"	
Fluorene	ND	2.04	4.08	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.08	"	"	"	"	
1-Methylnaphthalene	ND	4.08	8.16	"	"	"	"	
2-Methylnaphthalene	ND	4.08	8.16	"	"	"	"	
Naphthalene	ND	4.08	8.16	"	"	"	"	
Phenanthrene	ND	2.04	4.08	"	"	"	"	
Pyrene	ND	2.04	4.08	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*75 %*	*Limits: 54-127 %*	"	"	"	

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503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-12->30' (0-0.5')_Prepared (A6K0213-28)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.04	4.08	ug/kg dry	1	12/09/16 19:12	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.08	"	"	"	"	
Anthracene	ND	2.04	4.08	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.08	"	"	"	"	
Benzo(a)pyrene	ND	2.04	4.08	"	"	"	"	
Benzo(b)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(k)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.04	4.08	"	"	"	"	
Chrysene	ND	2.04	4.08	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.04	4.08	"	"	"	"	
Dibenzofuran	ND	2.04	4.08	"	"	"	"	
Fluoranthene	**2.70**	2.04	4.08	"	"	"	"	J
Fluorene	ND	2.04	4.08	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.08	"	"	"	"	
1-Methylnaphthalene	ND	4.08	8.15	"	"	"	"	
2-Methylnaphthalene	ND	4.08	8.15	"	"	"	"	
Naphthalene	ND	4.08	8.15	"	"	"	"	
Phenanthrene	ND	2.04	4.08	"	"	"	"	
Pyrene	**3.33**	2.04	4.08	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*75 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-12->30' (0.5-1')_Prepared (A6K0213-29)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.03	4.07	ug/kg dry	1	12/09/16 19:38	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.07	"	"	"	"	
Anthracene	ND	2.03	4.07	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.07	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.07	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.07	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.07	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.07	"	"	"	"	
Chrysene	ND	2.03	4.07	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.07	"	"	"	"	
Dibenzofuran	ND	2.03	4.07	"	"	"	"	
Fluoranthene	ND	2.03	4.07	"	"	"	"	
Fluorene	ND	2.03	4.07	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.07	"	"	"	"	
1-Methylnaphthalene	ND	4.07	8.14	"	"	"	"	
2-Methylnaphthalene	ND	4.07	8.14	"	"	"	"	
Naphthalene	ND	4.07	8.14	"	"	"	"	
Phenanthrene	ND	2.03	4.07	"	"	"	"	
Pyrene	ND	2.03	4.07	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*75 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-12->30' (1-1.5')_Prepared (A6K0213-30)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.04	4.08	ug/kg dry	1	12/09/16 20:04	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.08	"	"	"	"	
Anthracene	ND	2.04	4.08	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.08	"	"	"	"	
Benzo(a)pyrene	ND	2.04	4.08	"	"	"	"	
Benzo(b)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(k)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.04	4.08	"	"	"	"	
Chrysene	ND	2.04	4.08	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.04	4.08	"	"	"	"	
Dibenzofuran	ND	2.04	4.08	"	"	"	"	
Fluoranthene	ND	2.04	4.08	"	"	"	"	
Fluorene	ND	2.04	4.08	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.08	"	"	"	"	
1-Methylnaphthalene	ND	4.08	8.16	"	"	"	"	
2-Methylnaphthalene	ND	4.08	8.16	"	"	"	"	
Naphthalene	ND	4.08	8.16	"	"	"	"	
Phenanthrene	ND	2.04	4.08	"	"	"	"	
Pyrene	ND	2.04	4.08	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*72 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-13-15-30' (0-0.5')_Prepared (A6K0213-31)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.10	4.21	ug/kg dry	1	12/09/16 20:31	EPA 8270D (SIM)	
Acenaphthylene	ND	2.10	4.21	"	"	"	"	
Anthracene	ND	2.10	4.21	"	"	"	"	
Benz(a)anthracene	ND	2.10	4.21	"	"	"	"	
Benzo(a)pyrene	ND	2.10	4.21	"	"	"	"	
Benzo(b)fluoranthene	ND	2.10	4.21	"	"	"	"	
Benzo(k)fluoranthene	ND	2.10	4.21	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.10	4.21	"	"	"	"	
Chrysene	ND	2.10	4.21	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.10	4.21	"	"	"	"	
Dibenzofuran	ND	2.10	4.21	"	"	"	"	
Fluoranthene	ND	2.10	4.21	"	"	"	"	
Fluorene	ND	2.10	4.21	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.10	4.21	"	"	"	"	
1-Methylnaphthalene	ND	4.21	8.41	"	"	"	"	
2-Methylnaphthalene	ND	4.21	8.41	"	"	"	"	
Naphthalene	ND	4.21	8.41	"	"	"	"	
Phenanthrene	ND	2.10	4.21	"	"	"	"	
Pyrene	ND	2.10	4.21	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*72 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-13-15-30' (0.5-1')_Prepared (A6K0213-32)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.10	4.20	ug/kg dry	1	12/09/16 20:57	EPA 8270D (SIM)	
Acenaphthylene	ND	2.10	4.20	"	"	"	"	
Anthracene	ND	2.10	4.20	"	"	"	"	
Benz(a)anthracene	ND	2.10	4.20	"	"	"	"	
Benzo(a)pyrene	ND	2.10	4.20	"	"	"	"	
Benzo(b)fluoranthene	ND	2.10	4.20	"	"	"	"	
Benzo(k)fluoranthene	ND	2.10	4.20	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.10	4.20	"	"	"	"	
Chrysene	ND	2.10	4.20	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.10	4.20	"	"	"	"	
Dibenzofuran	ND	2.10	4.20	"	"	"	"	
Fluoranthene	ND	2.10	4.20	"	"	"	"	
Fluorene	ND	2.10	4.20	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.10	4.20	"	"	"	"	
1-Methylnaphthalene	ND	4.20	8.40	"	"	"	"	
2-Methylnaphthalene	ND	4.20	8.40	"	"	"	"	
Naphthalene	ND	4.20	8.40	"	"	"	"	
Phenanthrene	ND	2.10	4.20	"	"	"	"	
Pyrene	ND	2.10	4.20	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*73 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-13-15-30' (1-1.5')_Prepared (A6K0213-33)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.08	4.15	ug/kg dry	1	12/09/16 21:23	EPA 8270D (SIM)	
Acenaphthylene	ND	2.08	4.15	"	"	"	"	
Anthracene	ND	2.08	4.15	"	"	"	"	
Benz(a)anthracene	ND	2.08	4.15	"	"	"	"	
Benzo(a)pyrene	ND	2.08	4.15	"	"	"	"	
Benzo(b)fluoranthene	ND	2.08	4.15	"	"	"	"	
Benzo(k)fluoranthene	ND	2.08	4.15	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.08	4.15	"	"	"	"	
Chrysene	ND	2.08	4.15	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.08	4.15	"	"	"	"	
Dibenzofuran	ND	2.08	4.15	"	"	"	"	
Fluoranthene	ND	2.08	4.15	"	"	"	"	
Fluorene	ND	2.08	4.15	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.08	4.15	"	"	"	"	
1-Methylnaphthalene	ND	4.15	8.31	"	"	"	"	
2-Methylnaphthalene	ND	4.15	8.31	"	"	"	"	
Naphthalene	ND	4.15	8.31	"	"	"	"	
Phenanthrene	ND	2.08	4.15	"	"	"	"	
Pyrene	ND	2.08	4.15	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*84 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-13->30' (0-0.5')_Prepared (A6K0213-34)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.05	4.09	ug/kg dry	1	12/09/16 21:49	EPA 8270D (SIM)	
Acenaphthylene	ND	2.05	4.09	"	"	"	"	
Anthracene	ND	2.05	4.09	"	"	"	"	
Benz(a)anthracene	ND	2.05	4.09	"	"	"	"	
Benzo(a)pyrene	ND	2.05	4.09	"	"	"	"	
Benzo(b)fluoranthene	ND	2.05	4.09	"	"	"	"	
Benzo(k)fluoranthene	ND	2.05	4.09	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.05	4.09	"	"	"	"	
Chrysene	ND	2.05	4.09	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.05	4.09	"	"	"	"	
Dibenzofuran	ND	2.05	4.09	"	"	"	"	
Fluoranthene	ND	2.05	4.09	"	"	"	"	
Fluorene	ND	2.05	4.09	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.05	4.09	"	"	"	"	
1-Methylnaphthalene	ND	4.09	8.19	"	"	"	"	
2-Methylnaphthalene	ND	4.09	8.19	"	"	"	"	
Naphthalene	ND	4.09	8.19	"	"	"	"	
Phenanthrene	ND	2.05	4.09	"	"	"	"	
Pyrene	ND	2.05	4.09	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*72 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-13->30' (0.5-1')_Prepared (A6K0213-35)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.08	4.16	ug/kg dry	1	12/09/16 22:15	EPA 8270D (SIM)	
Acenaphthylene	ND	2.08	4.16	"	"	"	"	
Anthracene	ND	2.08	4.16	"	"	"	"	
Benz(a)anthracene	ND	2.08	4.16	"	"	"	"	
Benzo(a)pyrene	ND	2.08	4.16	"	"	"	"	
Benzo(b)fluoranthene	ND	2.08	4.16	"	"	"	"	
Benzo(k)fluoranthene	ND	2.08	4.16	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.08	4.16	"	"	"	"	
Chrysene	ND	2.08	4.16	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.08	4.16	"	"	"	"	
Dibenzofuran	ND	2.08	4.16	"	"	"	"	
Fluoranthene	ND	2.08	4.16	"	"	"	"	
Fluorene	ND	2.08	4.16	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.08	4.16	"	"	"	"	
1-Methylnaphthalene	ND	4.16	8.32	"	"	"	"	
2-Methylnaphthalene	ND	4.16	8.32	"	"	"	"	
Naphthalene	ND	4.16	8.32	"	"	"	"	
Phenanthrene	ND	2.08	4.16	"	"	"	"	
Pyrene	ND	2.08	4.16	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-13->30' (1-1.5')_Prepared (A6K0213-36)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.09	4.18	ug/kg dry	1	12/09/16 22:41	EPA 8270D (SIM)	
Acenaphthylene	ND	2.09	4.18	"	"	"	"	
Anthracene	ND	2.09	4.18	"	"	"	"	
Benz(a)anthracene	ND	2.09	4.18	"	"	"	"	
Benzo(a)pyrene	ND	2.09	4.18	"	"	"	"	
Benzo(b)fluoranthene	ND	2.09	4.18	"	"	"	"	
Benzo(k)fluoranthene	ND	2.09	4.18	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.09	4.18	"	"	"	"	
Chrysene	ND	2.09	4.18	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.09	4.18	"	"	"	"	
Dibenzofuran	ND	2.09	4.18	"	"	"	"	
Fluoranthene	ND	2.09	4.18	"	"	"	"	
Fluorene	ND	2.09	4.18	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.09	4.18	"	"	"	"	
1-Methylnaphthalene	ND	4.18	8.37	"	"	"	"	
2-Methylnaphthalene	ND	4.18	8.37	"	"	"	"	
Naphthalene	ND	4.18	8.37	"	"	"	"	
Phenanthrene	ND	2.09	4.18	"	"	"	"	
Pyrene	ND	2.09	4.18	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*79 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-14->30' (0-0.5')_Prepared (A6K0213-37)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.06	4.12	ug/kg dry	1	12/09/16 23:07	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.12	"	"	"	"	
Anthracene	ND	2.06	4.12	"	"	"	"	
Benz(a)anthracene	**2.73**	2.06	4.12	"	"	"	"	J
Benzo(a)pyrene	**2.79**	2.06	4.12	"	"	"	"	J
Benzo(b)fluoranthene	**4.61**	2.06	4.12	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	2.06	4.12	"	"	"	"	
Benzo(g,h,i)perylene	**3.26**	2.06	4.12	"	"	"	"	J
Chrysene	**4.28**	2.06	4.12	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	2.06	4.12	"	"	"	"	
Dibenzofuran	ND	2.06	4.12	"	"	"	"	
Fluoranthene	**3.74**	2.06	4.12	"	"	"	"	J
Fluorene	ND	2.06	4.12	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.50**	2.06	4.12	"	"	"	"	J
1-Methylnaphthalene	**6.98**	4.12	8.23	"	"	"	"	J
2-Methylnaphthalene	**9.84**	4.12	8.23	"	"	"	"	
Naphthalene	**8.41**	4.12	8.23	"	"	"	"	
Phenanthrene	**3.84**	2.06	4.12	"	"	"	"	J
Pyrene	**4.17**	2.06	4.12	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 54 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*64 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-14->30' (0.5-1')_Prepared (A6K0213-38)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.05	4.11	ug/kg dry	1	12/09/16 23:33	EPA 8270D (SIM)	
Acenaphthylene	ND	2.05	4.11	"	"	"	"	
Anthracene	ND	2.05	4.11	"	"	"	"	
Benz(a)anthracene	**2.10**	2.05	4.11	"	"	"	"	J
Benzo(a)pyrene	ND	2.05	4.11	"	"	"	"	
Benzo(b)fluoranthene	**2.86**	2.05	4.11	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.05	4.11	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.05	4.11	"	"	"	"	
Chrysene	**2.05**	2.05	4.11	"	"	"	"	J
Dibenz(a,h)anthracene	ND	2.05	4.11	"	"	"	"	
Dibenzofuran	ND	2.05	4.11	"	"	"	"	
Fluoranthene	**2.11**	2.05	4.11	"	"	"	"	J
Fluorene	ND	2.05	4.11	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.05	4.11	"	"	"	"	
1-Methylnaphthalene	ND	4.11	8.22	"	"	"	"	
2-Methylnaphthalene	ND	4.11	8.22	"	"	"	"	
Naphthalene	ND	4.11	8.22	"	"	"	"	
Phenanthrene	ND	2.05	4.11	"	"	"	"	
Pyrene	**2.52**	2.05	4.11	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*80 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-14->30' (1-1.5')_Prepared (A6K0213-39)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.04	4.09	ug/kg dry	1	12/09/16 23:59	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.09	"	"	"	"	
Anthracene	ND	2.04	4.09	"	"	"	"	
Benz(a)anthracene	**2.70**	2.04	4.09	"	"	"	"	J
Benzo(a)pyrene	**2.17**	2.04	4.09	"	"	"	"	J
Benzo(b)fluoranthene	**3.47**	2.04	4.09	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.04	4.09	"	"	"	"	
Benzo(g,h,i)perylene	**2.46**	2.04	4.09	"	"	"	"	J
Chrysene	**2.96**	2.04	4.09	"	"	"	"	J
Dibenz(a,h)anthracene	ND	2.04	4.09	"	"	"	"	
Dibenzofuran	ND	2.04	4.09	"	"	"	"	
Fluoranthene	**3.69**	2.04	4.09	"	"	"	"	J
Fluorene	ND	2.04	4.09	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.09	"	"	"	"	
1-Methylnaphthalene	ND	4.09	8.17	"	"	"	"	
2-Methylnaphthalene	ND	4.09	8.17	"	"	"	"	
Naphthalene	ND	4.09	8.17	"	"	"	"	
Phenanthrene	**2.80**	2.04	4.09	"	"	"	"	J
Pyrene	**4.18**	2.04	4.09	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*77 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-15->30' (0-0.5')_Prepared (A6K0213-40)			**Matrix: Soil**		**Batch: 6120211**			**H-08**
Acenaphthene	ND	2.16	4.32	ug/kg dry	1	12/10/16 00:25	EPA 8270D (SIM)	
Acenaphthylene	ND	2.16	4.32	"	"	"	"	
Anthracene	ND	2.16	4.32	"	"	"	"	
Benz(a)anthracene	ND	2.16	4.32	"	"	"	"	
Benzo(a)pyrene	ND	2.16	4.32	"	"	"	"	
Benzo(b)fluoranthene	ND	2.16	4.32	"	"	"	"	
Benzo(k)fluoranthene	ND	2.16	4.32	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.16	4.32	"	"	"	"	
Chrysene	ND	2.16	4.32	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.16	4.32	"	"	"	"	
Dibenzofuran	ND	2.16	4.32	"	"	"	"	
Fluoranthene	ND	2.16	4.32	"	"	"	"	
Fluorene	ND	2.16	4.32	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.16	4.32	"	"	"	"	
1-Methylnaphthalene	ND	4.32	8.64	"	"	"	"	
2-Methylnaphthalene	ND	4.32	8.64	"	"	"	"	
Naphthalene	ND	4.32	8.64	"	"	"	"	
Phenanthrene	ND	2.16	4.32	"	"	"	"	
Pyrene	ND	2.16	4.32	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*75 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6K0213-41)			**Matrix: Solid**		**Batch: 6120211**			**A-01, H-08**
Acenaphthene	ND	1.99	3.99	ug/kg wet	1	12/10/16 00:51	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.99	"	"	"	"	
Anthracene	ND	1.99	3.99	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.99	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.99	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.99	"	"	"	"	
Chrysene	ND	1.99	3.99	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.99	"	"	"	"	
Dibenzofuran	ND	1.99	3.99	"	"	"	"	
Fluoranthene	ND	1.99	3.99	"	"	"	"	
Fluorene	ND	1.99	3.99	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.99	"	"	"	"	
1-Methylnaphthalene	ND	3.99	7.98	"	"	"	"	
2-Methylnaphthalene	ND	3.99	7.98	"	"	"	"	
Naphthalene	ND	3.99	7.98	"	"	"	"	
Phenanthrene	ND	1.99	3.99	"	"	"	"	
Pyrene	ND	1.99	3.99	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*85 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-15->30' (0.5-1')_Prepared (A6K0214-21)			**Matrix: Soil**		**Batch: 6120232**			**H-08**
Acenaphthene	ND	2.17	4.34	ug/kg dry	1	12/09/16 15:14	EPA 8270D (SIM)	
Acenaphthylene	ND	2.17	4.34	"	"	"	"	
Anthracene	ND	2.17	4.34	"	"	"	"	
Benz(a)anthracene	ND	2.17	4.34	"	"	"	"	
Benzo(a)pyrene	ND	2.17	4.34	"	"	"	"	
Benzo(b)fluoranthene	ND	2.17	4.34	"	"	"	"	
Benzo(k)fluoranthene	ND	2.17	4.34	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.17	4.34	"	"	"	"	
Chrysene	ND	2.17	4.34	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.17	4.34	"	"	"	"	
Dibenzofuran	ND	2.17	4.34	"	"	"	"	
Fluoranthene	**4.00**	2.17	4.34	"	"	"	"	J
Fluorene	ND	2.17	4.34	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.17	4.34	"	"	"	"	
1-Methylnaphthalene	ND	4.34	8.68	"	"	"	"	
2-Methylnaphthalene	ND	4.34	8.68	"	"	"	"	
Naphthalene	ND	4.34	8.68	"	"	"	"	
Phenanthrene	**4.42**	2.17	4.34	"	"	"	"	
Pyrene	**2.26**	2.17	4.34	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*64 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-15->30' (1-1.5')_Prepared (A6K0214-22)			**Matrix: Soil**		**Batch: 6120232**			**H-08**
Acenaphthene	ND	2.18	4.36	ug/kg dry	1	12/09/16 15:40	EPA 8270D (SIM)	
Acenaphthylene	ND	2.18	4.36	"	"	"	"	
Anthracene	ND	2.18	4.36	"	"	"	"	
Benz(a)anthracene	ND	2.18	4.36	"	"	"	"	
Benzo(a)pyrene	ND	2.18	4.36	"	"	"	"	
Benzo(b)fluoranthene	ND	2.18	4.36	"	"	"	"	
Benzo(k)fluoranthene	ND	2.18	4.36	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.18	4.36	"	"	"	"	
Chrysene	ND	2.18	4.36	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.18	4.36	"	"	"	"	
Dibenzofuran	ND	2.18	4.36	"	"	"	"	
Fluoranthene	**2.80**	2.18	4.36	"	"	"	"	J
Fluorene	ND	2.18	4.36	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.18	4.36	"	"	"	"	
1-Methylnaphthalene	ND	4.36	8.72	"	"	"	"	
2-Methylnaphthalene	ND	4.36	8.72	"	"	"	"	
Naphthalene	ND	4.36	8.72	"	"	"	"	
Phenanthrene	**3.24**	2.18	4.36	"	"	"	"	J
Pyrene	ND	2.18	4.36	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 58 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*58 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-16-15-30' (0-0.5')_Prepared (A6K0214-23)			**Matrix: Soil**		**Batch: 6120232**			**H-08**
Acenaphthene	ND	2.06	4.12	ug/kg dry	1	12/09/16 16:07	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.12	"	"	"	"	
Anthracene	ND	2.06	4.12	"	"	"	"	
Benz(a)anthracene	ND	2.06	4.12	"	"	"	"	
Benzo(a)pyrene	ND	2.06	4.12	"	"	"	"	
Benzo(b)fluoranthene	ND	2.06	4.12	"	"	"	"	
Benzo(k)fluoranthene	ND	2.06	4.12	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.06	4.12	"	"	"	"	
Chrysene	ND	2.06	4.12	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.06	4.12	"	"	"	"	
Dibenzofuran	ND	2.06	4.12	"	"	"	"	
Fluoranthene	ND	2.06	4.12	"	"	"	"	
Fluorene	ND	2.06	4.12	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.06	4.12	"	"	"	"	
1-Methylnaphthalene	ND	4.12	8.25	"	"	"	"	
2-Methylnaphthalene	ND	4.12	8.25	"	"	"	"	
Naphthalene	ND	4.12	8.25	"	"	"	"	
Phenanthrene	ND	2.06	4.12	"	"	"	"	
Pyrene	ND	2.06	4.12	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 59 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*61 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-16-15-30' (0.5-1')_Prepared (A6K0214-24)			**Matrix: Soil**		**Batch: 6120232**			**H-08**
Acenaphthene	ND	2.06	4.13	ug/kg dry	1	12/09/16 16:33	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.13	"	"	"	"	
Anthracene	ND	2.06	4.13	"	"	"	"	
Benz(a)anthracene	ND	2.06	4.13	"	"	"	"	
Benzo(a)pyrene	ND	2.06	4.13	"	"	"	"	
Benzo(b)fluoranthene	ND	2.06	4.13	"	"	"	"	
Benzo(k)fluoranthene	ND	2.06	4.13	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.06	4.13	"	"	"	"	
Chrysene	ND	2.06	4.13	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.06	4.13	"	"	"	"	
Dibenzofuran	ND	2.06	4.13	"	"	"	"	
Fluoranthene	ND	2.06	4.13	"	"	"	"	
Fluorene	ND	2.06	4.13	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.06	4.13	"	"	"	"	
1-Methylnaphthalene	ND	4.13	8.26	"	"	"	"	
2-Methylnaphthalene	ND	4.13	8.26	"	"	"	"	
Naphthalene	ND	4.13	8.26	"	"	"	"	
Phenanthrene	ND	2.06	4.13	"	"	"	"	
Pyrene	ND	2.06	4.13	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 51 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*61 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-16-15-30' (1-1.5')_Prepared (A6K0214-25)			**Matrix: Soil**		**Batch: 6120232**			**H-08**
Acenaphthene	ND	2.06	4.12	ug/kg dry	1	12/09/16 16:59	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.12	"	"	"	"	
Anthracene	ND	2.06	4.12	"	"	"	"	
Benz(a)anthracene	ND	2.06	4.12	"	"	"	"	
Benzo(a)pyrene	ND	2.06	4.12	"	"	"	"	
Benzo(b)fluoranthene	ND	2.06	4.12	"	"	"	"	
Benzo(k)fluoranthene	ND	2.06	4.12	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.06	4.12	"	"	"	"	
Chrysene	ND	2.06	4.12	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.06	4.12	"	"	"	"	
Dibenzofuran	ND	2.06	4.12	"	"	"	"	
Fluoranthene	ND	2.06	4.12	"	"	"	"	
Fluorene	ND	2.06	4.12	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.06	4.12	"	"	"	"	
1-Methylnaphthalene	ND	4.12	8.24	"	"	"	"	
2-Methylnaphthalene	ND	4.12	8.24	"	"	"	"	
Naphthalene	ND	4.12	8.24	"	"	"	"	
Phenanthrene	ND	2.06	4.12	"	"	"	"	
Pyrene	ND	2.06	4.12	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 62 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*60 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-16->30' (0-0.5')_Prepared (A6K0214-26)			**Matrix: Soil**		**Batch: 6120232**			**H-08**
Acenaphthene	ND	2.05	4.11	ug/kg dry	1	12/09/16 17:25	EPA 8270D (SIM)	
Acenaphthylene	ND	2.05	4.11	"	"	"	"	
Anthracene	ND	2.05	4.11	"	"	"	"	
Benz(a)anthracene	ND	2.05	4.11	"	"	"	"	
Benzo(a)pyrene	ND	2.05	4.11	"	"	"	"	
Benzo(b)fluoranthene	ND	2.05	4.11	"	"	"	"	
Benzo(k)fluoranthene	ND	2.05	4.11	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.05	4.11	"	"	"	"	
Chrysene	ND	2.05	4.11	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.05	4.11	"	"	"	"	
Dibenzofuran	ND	2.05	4.11	"	"	"	"	
Fluoranthene	ND	2.05	4.11	"	"	"	"	
Fluorene	ND	2.05	4.11	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.05	4.11	"	"	"	"	
1-Methylnaphthalene	ND	4.11	8.21	"	"	"	"	
2-Methylnaphthalene	ND	4.11	8.21	"	"	"	"	
Naphthalene	ND	4.11	8.21	"	"	"	"	
Phenanthrene	ND	2.05	4.11	"	"	"	"	
Pyrene	ND	2.05	4.11	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 72 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*68 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-16->30' (0.5-1')_Prepared (A6K0214-27)			**Matrix: Soil**		**Batch: 6120232**			**H-08**
Acenaphthene	ND	2.06	4.11	ug/kg dry	1	12/09/16 17:51	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.11	"	"	"	"	
Anthracene	ND	2.06	4.11	"	"	"	"	
Benz(a)anthracene	ND	2.06	4.11	"	"	"	"	
Benzo(a)pyrene	ND	2.06	4.11	"	"	"	"	
Benzo(b)fluoranthene	ND	2.06	4.11	"	"	"	"	
Benzo(k)fluoranthene	ND	2.06	4.11	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.06	4.11	"	"	"	"	
Chrysene	ND	2.06	4.11	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.06	4.11	"	"	"	"	
Dibenzofuran	ND	2.06	4.11	"	"	"	"	
Fluoranthene	ND	2.06	4.11	"	"	"	"	
Fluorene	ND	2.06	4.11	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.06	4.11	"	"	"	"	
1-Methylnaphthalene	ND	4.11	8.22	"	"	"	"	
2-Methylnaphthalene	ND	4.11	8.22	"	"	"	"	
Naphthalene	ND	4.11	8.22	"	"	"	"	
Phenanthrene	ND	2.06	4.11	"	"	"	"	
Pyrene	ND	2.06	4.11	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 59 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*60 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-16->30' (1-1.5')_Prepared (A6K0214-28)			**Matrix: Soil**		**Batch: 6120232**			**H-08**
Acenaphthene	ND	2.07	4.13	ug/kg dry	1	12/09/16 18:17	EPA 8270D (SIM)	
Acenaphthylene	ND	2.07	4.13	"	"	"	"	
Anthracene	ND	2.07	4.13	"	"	"	"	
Benz(a)anthracene	ND	2.07	4.13	"	"	"	"	
Benzo(a)pyrene	ND	2.07	4.13	"	"	"	"	
Benzo(b)fluoranthene	ND	2.07	4.13	"	"	"	"	
Benzo(k)fluoranthene	ND	2.07	4.13	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.07	4.13	"	"	"	"	
Chrysene	ND	2.07	4.13	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.07	4.13	"	"	"	"	
Dibenzofuran	ND	2.07	4.13	"	"	"	"	
Fluoranthene	ND	2.07	4.13	"	"	"	"	
Fluorene	ND	2.07	4.13	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.07	4.13	"	"	"	"	
1-Methylnaphthalene	ND	4.13	8.26	"	"	"	"	
2-Methylnaphthalene	ND	4.13	8.26	"	"	"	"	
Naphthalene	ND	4.13	8.26	"	"	"	"	
Phenanthrene	ND	2.07	4.13	"	"	"	"	
Pyrene	ND	2.07	4.13	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 63 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*64 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-17->30' (0-0.5')_Prepared (A6K0214-29)			**Matrix: Soil**		**Batch: 6120232**			**H-08**
Acenaphthene	ND	2.03	4.07	ug/kg dry	1	12/09/16 18:43	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.07	"	"	"	"	
Anthracene	ND	2.03	4.07	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.07	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.07	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.07	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.07	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.07	"	"	"	"	
Chrysene	ND	2.03	4.07	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.07	"	"	"	"	
Dibenzofuran	ND	2.03	4.07	"	"	"	"	
Fluoranthene	ND	2.03	4.07	"	"	"	"	
Fluorene	ND	2.03	4.07	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.07	"	"	"	"	
1-Methylnaphthalene	ND	4.07	8.14	"	"	"	"	
2-Methylnaphthalene	ND	4.07	8.14	"	"	"	"	
Naphthalene	ND	4.07	8.14	"	"	"	"	
Phenanthrene	ND	2.03	4.07	"	"	"	"	
Pyrene	ND	2.03	4.07	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 59 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*63 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-17->30' (0.5-1')_Prepared (A6K0214-30)			**Matrix: Soil**		**Batch: 6120232**			**H-08**
Acenaphthene	ND	2.04	4.08	ug/kg dry	1	12/09/16 19:09	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.08	"	"	"	"	
Anthracene	ND	2.04	4.08	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.08	"	"	"	"	
Benzo(a)pyrene	ND	2.04	4.08	"	"	"	"	
Benzo(b)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(k)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.04	4.08	"	"	"	"	
Chrysene	ND	2.04	4.08	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.04	4.08	"	"	"	"	
Dibenzofuran	ND	2.04	4.08	"	"	"	"	
Fluoranthene	ND	2.04	4.08	"	"	"	"	
Fluorene	ND	2.04	4.08	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.08	"	"	"	"	
1-Methylnaphthalene	ND	4.08	8.15	"	"	"	"	
2-Methylnaphthalene	ND	4.08	8.15	"	"	"	"	
Naphthalene	ND	4.08	8.15	"	"	"	"	
Phenanthrene	ND	2.04	4.08	"	"	"	"	
Pyrene	ND	2.04	4.08	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 49 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*66 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-17->30' (1-1.5')_Prepared (A6K0214-31)			**Matrix: Soil**		**Batch: 6120232**			**H-08**
Acenaphthene	ND	2.02	4.05	ug/kg dry	1	12/09/16 19:35	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.05	"	"	"	"	
Anthracene	ND	2.02	4.05	"	"	"	"	
Benz(a)anthracene	ND	2.02	4.05	"	"	"	"	
Benzo(a)pyrene	ND	2.02	4.05	"	"	"	"	
Benzo(b)fluoranthene	ND	2.02	4.05	"	"	"	"	
Benzo(k)fluoranthene	ND	2.02	4.05	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.02	4.05	"	"	"	"	
Chrysene	ND	2.02	4.05	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.02	4.05	"	"	"	"	
Dibenzofuran	ND	2.02	4.05	"	"	"	"	
Fluoranthene	ND	2.02	4.05	"	"	"	"	
Fluorene	ND	2.02	4.05	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.05	"	"	"	"	
1-Methylnaphthalene	ND	4.05	8.09	"	"	"	"	
2-Methylnaphthalene	ND	4.05	8.09	"	"	"	"	
Naphthalene	ND	4.05	8.09	"	"	"	"	
Phenanthrene	ND	2.02	4.05	"	"	"	"	
Pyrene	ND	2.02	4.05	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 54 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*58 %*	*Limits: 54-127 %*	"	"	"	

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-17->30' (1-1.5') DUP_Prepared (A6K0214-32)			**Matrix: Soil**		**Batch: 6120232**			**H-08**
Acenaphthene	ND	2.03	4.05	ug/kg dry	1	12/09/16 20:01	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.05	"	"	"	"	
Anthracene	ND	2.03	4.05	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.05	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.05	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.05	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.05	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.05	"	"	"	"	
Chrysene	ND	2.03	4.05	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.05	"	"	"	"	
Dibenzofuran	ND	2.03	4.05	"	"	"	"	
Fluoranthene	ND	2.03	4.05	"	"	"	"	
Fluorene	ND	2.03	4.05	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.05	"	"	"	"	
1-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
2-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
Naphthalene	ND	4.05	8.10	"	"	"	"	
Phenanthrene	ND	2.03	4.05	"	"	"	"	
Pyrene	ND	2.03	4.05	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 59 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*63 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-18-15-30' (0-0.5')_Prepared (A6K0214-33)			**Matrix: Soil**		**Batch: 6120232**			**H-08**
Acenaphthene	ND	2.04	4.09	ug/kg dry	1	12/09/16 20:27	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.09	"	"	"	"	
Anthracene	ND	2.04	4.09	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.09	"	"	"	"	
Benzo(a)pyrene	ND	2.04	4.09	"	"	"	"	
Benzo(b)fluoranthene	ND	2.04	4.09	"	"	"	"	
Benzo(k)fluoranthene	ND	2.04	4.09	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.04	4.09	"	"	"	"	
Chrysene	ND	2.04	4.09	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.04	4.09	"	"	"	"	
Dibenzofuran	ND	2.04	4.09	"	"	"	"	
Fluoranthene	ND	2.04	4.09	"	"	"	"	
Fluorene	ND	2.04	4.09	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.09	"	"	"	"	
1-Methylnaphthalene	ND	4.09	8.17	"	"	"	"	
2-Methylnaphthalene	ND	4.09	8.17	"	"	"	"	
Naphthalene	ND	4.09	8.17	"	"	"	"	
Phenanthrene	ND	2.04	4.09	"	"	"	"	
Pyrene	ND	2.04	4.09	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 50 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*61 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-18-15-30' (0.5-1')_Prepared (A6K0214-34)			**Matrix: Soil**		**Batch: 6120232**			**H-08**
Acenaphthene	ND	2.05	4.10	ug/kg dry	1	12/09/16 20:53	EPA 8270D (SIM)	
Acenaphthylene	ND	2.05	4.10	"	"	"	"	
Anthracene	ND	2.05	4.10	"	"	"	"	
Benz(a)anthracene	ND	2.05	4.10	"	"	"	"	
Benzo(a)pyrene	ND	2.05	4.10	"	"	"	"	
Benzo(b)fluoranthene	ND	2.05	4.10	"	"	"	"	
Benzo(k)fluoranthene	ND	2.05	4.10	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.05	4.10	"	"	"	"	
Chrysene	ND	2.05	4.10	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.05	4.10	"	"	"	"	
Dibenzofuran	ND	2.05	4.10	"	"	"	"	
Fluoranthene	ND	2.05	4.10	"	"	"	"	
Fluorene	ND	2.05	4.10	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.05	4.10	"	"	"	"	
1-Methylnaphthalene	ND	4.10	8.19	"	"	"	"	
2-Methylnaphthalene	ND	4.10	8.19	"	"	"	"	
Naphthalene	ND	4.10	8.19	"	"	"	"	
Phenanthrene	ND	2.05	4.10	"	"	"	"	
Pyrene	ND	2.05	4.10	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 60 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*62 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-18-15-30' (1-1.5')_Prepared (A6K0214-35)			**Matrix: Soil**		**Batch: 6120232**			**H-08**
Acenaphthene	ND	2.06	4.11	ug/kg dry	1	12/09/16 21:19	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.11	"	"	"	"	
Anthracene	ND	2.06	4.11	"	"	"	"	
Benz(a)anthracene	ND	2.06	4.11	"	"	"	"	
Benzo(a)pyrene	ND	2.06	4.11	"	"	"	"	
Benzo(b)fluoranthene	ND	2.06	4.11	"	"	"	"	
Benzo(k)fluoranthene	ND	2.06	4.11	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.06	4.11	"	"	"	"	
Chrysene	ND	2.06	4.11	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.06	4.11	"	"	"	"	
Dibenzofuran	ND	2.06	4.11	"	"	"	"	
Fluoranthene	ND	2.06	4.11	"	"	"	"	
Fluorene	ND	2.06	4.11	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.06	4.11	"	"	"	"	
1-Methylnaphthalene	ND	4.11	8.22	"	"	"	"	
2-Methylnaphthalene	ND	4.11	8.22	"	"	"	"	
Naphthalene	ND	4.11	8.22	"	"	"	"	
Phenanthrene	ND	2.06	4.11	"	"	"	"	
Pyrene	ND	2.06	4.11	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 58 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*61 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-18->30' (0-0.5')_Prepared (A6K0214-36)			**Matrix: Soil**		**Batch: 6120232**			**H-08**
Acenaphthene	ND	2.06	4.11	ug/kg dry	1	12/09/16 21:45	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.11	"	"	"	"	
Anthracene	ND	2.06	4.11	"	"	"	"	
Benz(a)anthracene	ND	2.06	4.11	"	"	"	"	
Benzo(a)pyrene	ND	2.06	4.11	"	"	"	"	
Benzo(b)fluoranthene	ND	2.06	4.11	"	"	"	"	
Benzo(k)fluoranthene	ND	2.06	4.11	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.06	4.11	"	"	"	"	
Chrysene	ND	2.06	4.11	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.06	4.11	"	"	"	"	
Dibenzofuran	ND	2.06	4.11	"	"	"	"	
Fluoranthene	ND	2.06	4.11	"	"	"	"	
Fluorene	ND	2.06	4.11	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.06	4.11	"	"	"	"	
1-Methylnaphthalene	ND	4.11	8.23	"	"	"	"	
2-Methylnaphthalene	ND	4.11	8.23	"	"	"	"	
Naphthalene	ND	4.11	8.23	"	"	"	"	
Phenanthrene	ND	2.06	4.11	"	"	"	"	
Pyrene	ND	2.06	4.11	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 56 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*57 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-18->30' (0.5-1')_Prepared (A6K0214-37RE1)			**Matrix: Soil**		**Batch: 6120419**			**H-08**
Acenaphthene	ND	1.99	3.98	ug/kg dry	1	12/13/16 10:49	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.98	"	"	"	"	
Anthracene	ND	1.99	3.98	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.98	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.98	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.98	"	"	"	"	
Chrysene	ND	1.99	3.98	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.98	"	"	"	"	
Dibenzofuran	ND	1.99	3.98	"	"	"	"	
Fluoranthene	ND	1.99	3.98	"	"	"	"	
Fluorene	ND	1.99	3.98	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.98	"	"	"	"	
1-Methylnaphthalene	ND	3.98	7.96	"	"	"	"	
2-Methylnaphthalene	ND	3.98	7.96	"	"	"	"	
Naphthalene	ND	3.98	7.96	"	"	"	"	
Phenanthrene	ND	1.99	3.98	"	"	"	"	
Pyrene	ND	1.99	3.98	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 57 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*50 %*	*Limits: 54-127 %*	"	"	"	*S-03*

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-18->30' (1-1.5')_Prepared (A6K0214-38)			**Matrix: Soil**		**Batch: 6120232**			**H-08**
Acenaphthene	ND	2.06	4.12	ug/kg dry	1	12/09/16 22:37	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.12	"	"	"	"	
Anthracene	ND	2.06	4.12	"	"	"	"	
Benz(a)anthracene	ND	2.06	4.12	"	"	"	"	
Benzo(a)pyrene	ND	2.06	4.12	"	"	"	"	
Benzo(b)fluoranthene	ND	2.06	4.12	"	"	"	"	
Benzo(k)fluoranthene	ND	2.06	4.12	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.06	4.12	"	"	"	"	
Chrysene	ND	2.06	4.12	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.06	4.12	"	"	"	"	
Dibenzofuran	ND	2.06	4.12	"	"	"	"	
Fluoranthene	ND	2.06	4.12	"	"	"	"	
Fluorene	ND	2.06	4.12	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.06	4.12	"	"	"	"	
1-Methylnaphthalene	ND	4.12	8.24	"	"	"	"	
2-Methylnaphthalene	ND	4.12	8.24	"	"	"	"	
Naphthalene	ND	4.12	8.24	"	"	"	"	
Phenanthrene	ND	2.06	4.12	"	"	"	"	
Pyrene	ND	2.06	4.12	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 62 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*64 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-19-15-30' (0-0.5')_Prepared (A6K0214-39RE1)			**Matrix: Soil**		**Batch: 6120419**			**H-08**
Acenaphthene	ND	2.09	4.19	ug/kg dry	1	12/13/16 11:41	EPA 8270D (SIM)	
Acenaphthylene	ND	2.09	4.19	"	"	"	"	
Anthracene	ND	2.09	4.19	"	"	"	"	
Benz(a)anthracene	ND	2.09	4.19	"	"	"	"	
Benzo(a)pyrene	ND	2.09	4.19	"	"	"	"	
Benzo(b)fluoranthene	ND	2.09	4.19	"	"	"	"	
Benzo(k)fluoranthene	ND	2.09	4.19	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.09	4.19	"	"	"	"	
Chrysene	ND	2.09	4.19	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.09	4.19	"	"	"	"	
Dibenzofuran	ND	2.09	4.19	"	"	"	"	
Fluoranthene	ND	2.09	4.19	"	"	"	"	
Fluorene	ND	2.09	4.19	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.09	4.19	"	"	"	"	
1-Methylnaphthalene	ND	4.19	8.37	"	"	"	"	
2-Methylnaphthalene	ND	4.19	8.37	"	"	"	"	
Naphthalene	ND	4.19	8.37	"	"	"	"	
Phenanthrene	ND	2.09	4.19	"	"	"	"	
Pyrene	ND	2.09	4.19	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 57 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*54 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-19-15-30' (0.5-1')_Prepared (A6K0214-40RE1)			**Matrix: Soil**		**Batch: 6120419**			**H-08**
Acenaphthene	ND	2.12	4.24	ug/kg dry	1	12/13/16 12:07	EPA 8270D (SIM)	
Acenaphthylene	ND	2.12	4.24	"	"	"	"	
Anthracene	ND	2.12	4.24	"	"	"	"	
Benz(a)anthracene	ND	2.12	4.24	"	"	"	"	
Benzo(a)pyrene	ND	2.12	4.24	"	"	"	"	
Benzo(b)fluoranthene	ND	2.12	4.24	"	"	"	"	
Benzo(k)fluoranthene	ND	2.12	4.24	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.12	4.24	"	"	"	"	
Chrysene	ND	2.12	4.24	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.12	4.24	"	"	"	"	
Dibenzofuran	ND	2.12	4.24	"	"	"	"	
Fluoranthene	ND	2.12	4.24	"	"	"	"	
Fluorene	ND	2.12	4.24	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.12	4.24	"	"	"	"	
1-Methylnaphthalene	ND	4.24	8.48	"	"	"	"	
2-Methylnaphthalene	ND	4.24	8.48	"	"	"	"	
Naphthalene	ND	4.24	8.48	"	"	"	"	
Phenanthrene	ND	2.12	4.24	"	"	"	"	Q-42
Pyrene	ND	2.12	4.24	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 55 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*51 %*	*Limits: 54-127 %*	"	"	"	*S-03*

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6K0214-41RE1)			**Matrix: Solid**		**Batch: 6120419**			**A-01, H-08**
Acenaphthene	ND	1.99	3.98	ug/kg wet	1	12/13/16 12:59	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.98	"	"	"	"	
Anthracene	ND	1.99	3.98	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.98	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.98	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.98	"	"	"	"	
Chrysene	ND	1.99	3.98	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.98	"	"	"	"	
Dibenzofuran	ND	1.99	3.98	"	"	"	"	
Fluoranthene	ND	1.99	3.98	"	"	"	"	
Fluorene	ND	1.99	3.98	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.98	"	"	"	"	
1-Methylnaphthalene	ND	3.98	7.97	"	"	"	"	
2-Methylnaphthalene	ND	3.98	7.97	"	"	"	"	
Naphthalene	ND	3.98	7.97	"	"	"	"	
Phenanthrene	ND	1.99	3.98	"	"	"	"	
Pyrene	ND	1.99	3.98	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 72 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*69 %*	*Limits: 54-127 %*	"	"	"	

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-19-15-30' (1-1.5')_Prepared (A6K0215-21RE1)			**Matrix: Soil**		**Batch: 6120471**			**H-08**
Acenaphthene	ND	2.02	4.04	ug/kg dry	1	12/13/16 19:01	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.04	"	"	"	"	
Anthracene	ND	2.02	4.04	"	"	"	"	
Benz(a)anthracene	ND	2.02	4.04	"	"	"	"	
Benzo(a)pyrene	ND	2.02	4.04	"	"	"	"	
Benzo(b)fluoranthene	ND	2.02	4.04	"	"	"	"	
Benzo(k)fluoranthene	ND	2.02	4.04	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.02	4.04	"	"	"	"	
Chrysene	ND	2.02	4.04	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.02	4.04	"	"	"	"	
Dibenzofuran	ND	2.02	4.04	"	"	"	"	
Fluoranthene	ND	2.02	4.04	"	"	"	"	
Fluorene	ND	2.02	4.04	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.04	"	"	"	"	
1-Methylnaphthalene	ND	4.04	8.08	"	"	"	"	
2-Methylnaphthalene	ND	4.04	8.08	"	"	"	"	
Naphthalene	ND	4.04	8.08	"	"	"	"	
Phenanthrene	ND	2.02	4.04	"	"	"	"	
Pyrene	ND	2.02	4.04	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 84 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*74 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-19->30' (0-0.5')_Prepared (A6K0215-22)			**Matrix: Soil**		**Batch: 6120306**			**H-08**
Acenaphthene	ND	2.02	4.04	ug/kg dry	1	12/12/16 17:57	EPA 8270D (SIM)	
Acenaphthylene	ND	2.02	4.04	"	"	"	"	
Anthracene	ND	2.02	4.04	"	"	"	"	
Benz(a)anthracene	ND	2.02	4.04	"	"	"	"	
Benzo(a)pyrene	ND	2.02	4.04	"	"	"	"	
Benzo(b)fluoranthene	ND	2.02	4.04	"	"	"	"	
Benzo(k)fluoranthene	ND	2.02	4.04	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.02	4.04	"	"	"	"	
Chrysene	ND	2.02	4.04	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.02	4.04	"	"	"	"	
Dibenzofuran	ND	2.02	4.04	"	"	"	"	
Fluoranthene	ND	2.02	4.04	"	"	"	"	
Fluorene	ND	2.02	4.04	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.02	4.04	"	"	"	"	
1-Methylnaphthalene	ND	4.04	8.09	"	"	"	"	
2-Methylnaphthalene	ND	4.04	8.09	"	"	"	"	
Naphthalene	ND	4.04	8.09	"	"	"	"	
Phenanthrene	ND	2.02	4.04	"	"	"	"	
Pyrene	ND	2.02	4.04	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*70 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-19->30' (0.5-1')_Prepared (A6K0215-23)			**Matrix: Soil**		**Batch: 6120306**			**H-08**
Acenaphthene	ND	2.04	4.08	ug/kg dry	1	12/12/16 18:23	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.08	"	"	"	"	
Anthracene	ND	2.04	4.08	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.08	"	"	"	"	
Benzo(a)pyrene	ND	2.04	4.08	"	"	"	"	
Benzo(b)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(k)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.04	4.08	"	"	"	"	
Chrysene	ND	2.04	4.08	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.04	4.08	"	"	"	"	
Dibenzofuran	ND	2.04	4.08	"	"	"	"	
Fluoranthene	ND	2.04	4.08	"	"	"	"	
Fluorene	ND	2.04	4.08	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.08	"	"	"	"	
1-Methylnaphthalene	ND	4.08	8.17	"	"	"	"	
2-Methylnaphthalene	ND	4.08	8.17	"	"	"	"	
Naphthalene	ND	4.08	8.17	"	"	"	"	
Phenanthrene	ND	2.04	4.08	"	"	"	"	
Pyrene	ND	2.04	4.08	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 58 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*67 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-19->30' (1-1.5')_Prepared (A6K0215-24)			**Matrix: Soil**		**Batch: 6120306**			**H-08**
Acenaphthene	ND	2.04	4.09	ug/kg dry	1	12/12/16 18:48	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.09	"	"	"	"	
Anthracene	ND	2.04	4.09	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.09	"	"	"	"	
Benzo(a)pyrene	ND	2.04	4.09	"	"	"	"	
Benzo(b)fluoranthene	ND	2.04	4.09	"	"	"	"	
Benzo(k)fluoranthene	ND	2.04	4.09	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.04	4.09	"	"	"	"	
Chrysene	ND	2.04	4.09	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.04	4.09	"	"	"	"	
Dibenzofuran	ND	2.04	4.09	"	"	"	"	
Fluoranthene	ND	2.04	4.09	"	"	"	"	
Fluorene	ND	2.04	4.09	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.09	"	"	"	"	
1-Methylnaphthalene	ND	4.09	8.17	"	"	"	"	
2-Methylnaphthalene	ND	4.09	8.17	"	"	"	"	
Naphthalene	ND	4.09	8.17	"	"	"	"	
Phenanthrene	ND	2.04	4.09	"	"	"	"	
Pyrene	ND	2.04	4.09	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 61 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*61 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-20-15-30' (0-0.5')_Prepared (A6K0215-25)			**Matrix: Soil**		**Batch: 6120306**			**H-08**
Acenaphthene	ND	2.03	4.06	ug/kg dry	1	12/12/16 19:15	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.06	"	"	"	"	
Anthracene	ND	2.03	4.06	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.06	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.06	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.06	"	"	"	"	
Chrysene	ND	2.03	4.06	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.06	"	"	"	"	
Dibenzofuran	ND	2.03	4.06	"	"	"	"	
Fluoranthene	ND	2.03	4.06	"	"	"	"	
Fluorene	ND	2.03	4.06	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.06	"	"	"	"	
1-Methylnaphthalene	ND	4.06	8.13	"	"	"	"	
2-Methylnaphthalene	ND	4.06	8.13	"	"	"	"	
Naphthalene	ND	4.06	8.13	"	"	"	"	
Phenanthrene	ND	2.03	4.06	"	"	"	"	
Pyrene	ND	2.03	4.06	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 61 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*72 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-20-15-30' (0.5-1')_Prepared (A6K0215-26)			**Matrix: Soil**		**Batch: 6120306**			**H-08**
Acenaphthene	ND	2.03	4.06	ug/kg dry	1	12/12/16 19:41	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.06	"	"	"	"	
Anthracene	ND	2.03	4.06	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.06	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.06	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.06	"	"	"	"	
Chrysene	ND	2.03	4.06	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.06	"	"	"	"	
Dibenzofuran	ND	2.03	4.06	"	"	"	"	
Fluoranthene	ND	2.03	4.06	"	"	"	"	
Fluorene	ND	2.03	4.06	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.06	"	"	"	"	
1-Methylnaphthalene	ND	4.06	8.13	"	"	"	"	
2-Methylnaphthalene	ND	4.06	8.13	"	"	"	"	
Naphthalene	ND	4.06	8.13	"	"	"	"	
Phenanthrene	ND	2.03	4.06	"	"	"	"	
Pyrene	ND	2.03	4.06	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 55 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*62 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-20-15-30' (1-1.5')_Prepared (A6K0215-27)			**Matrix: Soil**		**Batch: 6120306**			**H-08**
Acenaphthene	ND	2.03	4.05	ug/kg dry	1	12/12/16 20:06	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.05	"	"	"	"	
Anthracene	ND	2.03	4.05	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.05	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.05	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.05	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.05	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.05	"	"	"	"	
Chrysene	ND	2.03	4.05	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.05	"	"	"	"	
Dibenzofuran	ND	2.03	4.05	"	"	"	"	
Fluoranthene	ND	2.03	4.05	"	"	"	"	
Fluorene	ND	2.03	4.05	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.05	"	"	"	"	
1-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
2-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
Naphthalene	ND	4.05	8.10	"	"	"	"	
Phenanthrene	ND	2.03	4.05	"	"	"	"	
Pyrene	ND	2.03	4.05	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*73 %*	*Limits: 54-127 %*	"	"	"	

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Lisa A Domenighini

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-20->30' (0-0.5')_Prepared (A6K0215-28)			**Matrix: Soil**		**Batch: 6120306**			**H-08**
Acenaphthene	ND	2.03	4.06	ug/kg dry	1	12/12/16 20:32	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.06	"	"	"	"	
Anthracene	ND	2.03	4.06	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.06	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.06	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.06	"	"	"	"	
Chrysene	ND	2.03	4.06	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.06	"	"	"	"	
Dibenzofuran	ND	2.03	4.06	"	"	"	"	
Fluoranthene	ND	2.03	4.06	"	"	"	"	
Fluorene	ND	2.03	4.06	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.06	"	"	"	"	
1-Methylnaphthalene	ND	4.06	8.13	"	"	"	"	
2-Methylnaphthalene	ND	4.06	8.13	"	"	"	"	
Naphthalene	ND	4.06	8.13	"	"	"	"	
Phenanthrene	ND	2.03	4.06	"	"	"	"	
Pyrene	ND	2.03	4.06	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*68 %*	*Limits: 54-127 %*	"	"	"	

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503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-20->30' (0.5-1')_Prepared (A6K0215-29)			**Matrix: Soil**		**Batch: 6120306**			**H-08**
Acenaphthene	ND	2.03	4.06	ug/kg dry	1	12/12/16 20:58	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.06	"	"	"	"	
Anthracene	ND	2.03	4.06	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.06	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.06	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.06	"	"	"	"	
Chrysene	ND	2.03	4.06	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.06	"	"	"	"	
Dibenzofuran	ND	2.03	4.06	"	"	"	"	
Fluoranthene	ND	2.03	4.06	"	"	"	"	
Fluorene	ND	2.03	4.06	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.06	"	"	"	"	
1-Methylnaphthalene	ND	4.06	8.13	"	"	"	"	
2-Methylnaphthalene	ND	4.06	8.13	"	"	"	"	
Naphthalene	ND	4.06	8.13	"	"	"	"	
Phenanthrene	ND	2.03	4.06	"	"	"	"	
Pyrene	ND	2.03	4.06	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*67 %*	*Limits: 54-127 %*	"	"	"	

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-20->30' (1-1.5')_Prepared (A6K0215-30)			**Matrix: Soil**		**Batch: 6120306**			**H-08**
Acenaphthene	ND	2.03	4.05	ug/kg dry	1	12/12/16 22:42	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.05	"	"	"	"	
Anthracene	ND	2.03	4.05	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.05	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.05	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.05	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.05	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.05	"	"	"	"	
Chrysene	ND	2.03	4.05	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.05	"	"	"	"	
Dibenzofuran	ND	2.03	4.05	"	"	"	"	
Fluoranthene	ND	2.03	4.05	"	"	"	"	
Fluorene	ND	2.03	4.05	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.05	"	"	"	"	
1-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
2-Methylnaphthalene	ND	4.05	8.10	"	"	"	"	
Naphthalene	ND	4.05	8.10	"	"	"	"	
Phenanthrene	ND	2.03	4.05	"	"	"	"	
Pyrene	ND	2.03	4.05	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 57 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*65 %*	*Limits: 54-127 %*	"	"	"	

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503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-21-15-30' (0-0.5')_Prepared (A6K0215-31RE1)			**Matrix: Soil**		**Batch: 6120471**			**H-08**
Acenaphthene	ND	1.99	3.98	ug/kg dry	1	12/13/16 19:26	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.98	"	"	"	"	
Anthracene	ND	1.99	3.98	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.98	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.98	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.98	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.98	"	"	"	"	
Chrysene	ND	1.99	3.98	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.98	"	"	"	"	
Dibenzofuran	ND	1.99	3.98	"	"	"	"	
Fluoranthene	ND	1.99	3.98	"	"	"	"	
Fluorene	ND	1.99	3.98	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.98	"	"	"	"	
1-Methylnaphthalene	ND	3.98	7.96	"	"	"	"	
2-Methylnaphthalene	ND	3.98	7.96	"	"	"	"	
Naphthalene	ND	3.98	7.96	"	"	"	"	
Phenanthrene	ND	1.99	3.98	"	"	"	"	
Pyrene	ND	1.99	3.98	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 90 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-21-15-30' (0.5-1')_Prepared (A6K0215-32)			**Matrix: Soil**		**Batch: 6120306**			**H-08**
Acenaphthene	ND	2.06	4.12	ug/kg dry	1	12/12/16 23:33	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.12	"	"	"	"	
Anthracene	ND	2.06	4.12	"	"	"	"	
Benz(a)anthracene	ND	2.06	4.12	"	"	"	"	
Benzo(a)pyrene	ND	2.06	4.12	"	"	"	"	
Benzo(b)fluoranthene	ND	2.06	4.12	"	"	"	"	
Benzo(k)fluoranthene	ND	2.06	4.12	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.06	4.12	"	"	"	"	
Chrysene	ND	2.06	4.12	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.06	4.12	"	"	"	"	
Dibenzofuran	ND	2.06	4.12	"	"	"	"	
Fluoranthene	ND	2.06	4.12	"	"	"	"	
Fluorene	ND	2.06	4.12	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.06	4.12	"	"	"	"	
1-Methylnaphthalene	ND	4.12	8.25	"	"	"	"	
2-Methylnaphthalene	ND	4.12	8.25	"	"	"	"	
Naphthalene	ND	4.12	8.25	"	"	"	"	
Phenanthrene	ND	2.06	4.12	"	"	"	"	
Pyrene	ND	2.06	4.12	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*69 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-21-15-30' (1-1.5')_Prepared (A6K0215-33)			**Matrix: Soil**		**Batch: 6120306**			**H-08**
Acenaphthene	ND	2.06	4.11	ug/kg dry	1	12/12/16 23:59	EPA 8270D (SIM)	
Acenaphthylene	ND	2.06	4.11	"	"	"	"	
Anthracene	ND	2.06	4.11	"	"	"	"	
Benz(a)anthracene	ND	2.06	4.11	"	"	"	"	
Benzo(a)pyrene	ND	2.06	4.11	"	"	"	"	
Benzo(b)fluoranthene	ND	2.06	4.11	"	"	"	"	
Benzo(k)fluoranthene	ND	2.06	4.11	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.06	4.11	"	"	"	"	
Chrysene	ND	2.06	4.11	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.06	4.11	"	"	"	"	
Dibenzofuran	ND	2.06	4.11	"	"	"	"	
Fluoranthene	ND	2.06	4.11	"	"	"	"	
Fluorene	ND	2.06	4.11	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.06	4.11	"	"	"	"	
1-Methylnaphthalene	ND	4.11	8.23	"	"	"	"	
2-Methylnaphthalene	ND	4.11	8.23	"	"	"	"	
Naphthalene	ND	4.11	8.23	"	"	"	"	
Phenanthrene	ND	2.06	4.11	"	"	"	"	
Pyrene	ND	2.06	4.11	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 61 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*66 %*	*Limits: 54-127 %*	"	"	"	

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503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-21->30' (0-0.5')_Prepared (A6K0215-34)			**Matrix: Soil**		**Batch: 6120306**			**H-08**
Acenaphthene	ND	2.13	4.26	ug/kg dry	1	12/13/16 00:25	EPA 8270D (SIM)	
Acenaphthylene	ND	2.13	4.26	"	"	"	"	
Anthracene	ND	2.13	4.26	"	"	"	"	
Benz(a)anthracene	ND	2.13	4.26	"	"	"	"	
Benzo(a)pyrene	**2.16**	2.13	4.26	"	"	"	"	J
Benzo(b)fluoranthene	ND	2.13	4.26	"	"	"	"	
Benzo(k)fluoranthene	ND	2.13	4.26	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.13	4.26	"	"	"	"	
Chrysene	ND	2.13	4.26	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.13	4.26	"	"	"	"	
Dibenzofuran	ND	2.13	4.26	"	"	"	"	
Fluoranthene	ND	2.13	4.26	"	"	"	"	
Fluorene	ND	2.13	4.26	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.13	4.26	"	"	"	"	
1-Methylnaphthalene	ND	4.26	8.52	"	"	"	"	
2-Methylnaphthalene	ND	4.26	8.52	"	"	"	"	
Naphthalene	ND	4.26	8.52	"	"	"	"	
Phenanthrene	ND	2.13	4.26	"	"	"	"	
Pyrene	ND	2.13	4.26	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 54 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*56 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-21->30' (0.5-1')_Prepared (A6K0215-35RE1)			**Matrix: Soil**		**Batch: 6120471**			**H-08**
Acenaphthene	ND	2.00	4.00	ug/kg dry	1	12/13/16 19:52	EPA 8270D (SIM)	
Acenaphthylene	ND	2.00	4.00	"	"	"	"	
Anthracene	ND	2.00	4.00	"	"	"	"	
Benz(a)anthracene	ND	2.00	4.00	"	"	"	"	
Benzo(a)pyrene	ND	2.00	4.00	"	"	"	"	
Benzo(b)fluoranthene	ND	2.00	4.00	"	"	"	"	
Benzo(k)fluoranthene	ND	2.00	4.00	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.00	4.00	"	"	"	"	
Chrysene	ND	2.00	4.00	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.00	4.00	"	"	"	"	
Dibenzofuran	ND	2.00	4.00	"	"	"	"	
Fluoranthene	ND	2.00	4.00	"	"	"	"	
Fluorene	ND	2.00	4.00	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.00	4.00	"	"	"	"	
1-Methylnaphthalene	ND	4.00	8.00	"	"	"	"	
2-Methylnaphthalene	ND	4.00	8.00	"	"	"	"	
Naphthalene	ND	4.00	8.00	"	"	"	"	
Phenanthrene	ND	2.00	4.00	"	"	"	"	
Pyrene	ND	2.00	4.00	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 91 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*81 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-21->30' (1-1.5')_Prepared (A6K0215-36)			**Matrix: Soil**		**Batch: 6120306**			**H-08**
Acenaphthene	ND	2.08	4.16	ug/kg dry	1	12/13/16 01:16	EPA 8270D (SIM)	
Acenaphthylene	ND	2.08	4.16	"	"	"	"	
Anthracene	ND	2.08	4.16	"	"	"	"	
Benz(a)anthracene	ND	2.08	4.16	"	"	"	"	
Benzo(a)pyrene	ND	2.08	4.16	"	"	"	"	
Benzo(b)fluoranthene	ND	2.08	4.16	"	"	"	"	
Benzo(k)fluoranthene	ND	2.08	4.16	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.08	4.16	"	"	"	"	
Chrysene	ND	2.08	4.16	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.08	4.16	"	"	"	"	
Dibenzofuran	ND	2.08	4.16	"	"	"	"	
Fluoranthene	ND	2.08	4.16	"	"	"	"	
Fluorene	ND	2.08	4.16	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.08	4.16	"	"	"	"	
1-Methylnaphthalene	ND	4.16	8.33	"	"	"	"	
2-Methylnaphthalene	ND	4.16	8.33	"	"	"	"	
Naphthalene	ND	4.16	8.33	"	"	"	"	
Phenanthrene	ND	2.08	4.16	"	"	"	"	
Pyrene	ND	2.08	4.16	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 54 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*58 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-22->30' (0-0.5')_Prepared (A6K0215-37)			**Matrix: Soil**		**Batch: 6120306**			**H-08**
Acenaphthene	ND	2.04	4.08	ug/kg dry	1	12/13/16 01:42	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.08	"	"	"	"	
Anthracene	ND	2.04	4.08	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.08	"	"	"	"	
Benzo(a)pyrene	ND	2.04	4.08	"	"	"	"	
Benzo(b)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(k)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.04	4.08	"	"	"	"	
Chrysene	ND	2.04	4.08	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.04	4.08	"	"	"	"	
Dibenzofuran	ND	2.04	4.08	"	"	"	"	
Fluoranthene	ND	2.04	4.08	"	"	"	"	
Fluorene	ND	2.04	4.08	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.08	"	"	"	"	
1-Methylnaphthalene	ND	4.08	8.16	"	"	"	"	
2-Methylnaphthalene	ND	4.08	8.16	"	"	"	"	
Naphthalene	ND	4.08	8.16	"	"	"	"	
Phenanthrene	ND	2.04	4.08	"	"	"	"	
Pyrene	ND	2.04	4.08	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 49 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*59 %*	*Limits: 54-127 %*	"	"	"	

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-22->30' (0-0.5') DUP_Prepared (A6K0215-38)			**Matrix: Soil**		**Batch: 6120306**			**H-08**
Acenaphthene	ND	2.04	4.08	ug/kg dry	1	12/13/16 02:07	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.08	"	"	"	"	
Anthracene	ND	2.04	4.08	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.08	"	"	"	"	
Benzo(a)pyrene	ND	2.04	4.08	"	"	"	"	
Benzo(b)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(k)fluoranthene	ND	2.04	4.08	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.04	4.08	"	"	"	"	
Chrysene	ND	2.04	4.08	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.04	4.08	"	"	"	"	
Dibenzofuran	ND	2.04	4.08	"	"	"	"	
Fluoranthene	ND	2.04	4.08	"	"	"	"	
Fluorene	ND	2.04	4.08	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.08	"	"	"	"	
1-Methylnaphthalene	ND	4.08	8.15	"	"	"	"	
2-Methylnaphthalene	ND	4.08	8.15	"	"	"	"	
Naphthalene	ND	4.08	8.15	"	"	"	"	
Phenanthrene	ND	2.04	4.08	"	"	"	"	
Pyrene	ND	2.04	4.08	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 54 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*62 %*	*Limits: 54-127 %*	"	"	"	

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-22->30' (0.5-1')_Prepared (A6K0215-39)			**Matrix: Soil**		**Batch: 6120306**			**H-08**
Acenaphthene	ND	2.03	4.06	ug/kg dry	1	12/13/16 02:33	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.06	"	"	"	"	
Anthracene	ND	2.03	4.06	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.06	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.06	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.06	"	"	"	"	
Chrysene	ND	2.03	4.06	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.06	"	"	"	"	
Dibenzofuran	ND	2.03	4.06	"	"	"	"	
Fluoranthene	ND	2.03	4.06	"	"	"	"	
Fluorene	ND	2.03	4.06	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.06	"	"	"	"	
1-Methylnaphthalene	ND	4.06	8.12	"	"	"	"	
2-Methylnaphthalene	ND	4.06	8.12	"	"	"	"	
Naphthalene	ND	4.06	8.12	"	"	"	"	
Phenanthrene	ND	2.03	4.06	"	"	"	"	
Pyrene	ND	2.03	4.06	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 55 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*60 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-22->30' (1-1.5')_Prepared (A6K0215-40)			**Matrix: Soil**		**Batch: 6120306**			**H-08**
Acenaphthene	ND	2.04	4.07	ug/kg dry	1	12/13/16 02:59	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.07	"	"	"	"	
Anthracene	ND	2.04	4.07	"	"	"	"	
Benz(a)anthracene	ND	2.04	4.07	"	"	"	"	
Benzo(a)pyrene	ND	2.04	4.07	"	"	"	"	
Benzo(b)fluoranthene	ND	2.04	4.07	"	"	"	"	
Benzo(k)fluoranthene	ND	2.04	4.07	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.04	4.07	"	"	"	"	
Chrysene	ND	2.04	4.07	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.04	4.07	"	"	"	"	
Dibenzofuran	ND	2.04	4.07	"	"	"	"	
Fluoranthene	ND	2.04	4.07	"	"	"	"	
Fluorene	ND	2.04	4.07	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.07	"	"	"	"	
1-Methylnaphthalene	ND	4.07	8.14	"	"	"	"	
2-Methylnaphthalene	ND	4.07	8.14	"	"	"	"	
Naphthalene	ND	4.07	8.14	"	"	"	"	
Phenanthrene	ND	2.04	4.07	"	"	"	"	
Pyrene	ND	2.04	4.07	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 63 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*68 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6K0215-41)			**Matrix: Solid**		**Batch: 6120306**			**A-01, H-08**
Acenaphthene	ND	1.99	3.99	ug/kg wet	1	12/12/16 15:01	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.99	"	"	"	"	
Anthracene	ND	1.99	3.99	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.99	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.99	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.99	"	"	"	"	
Chrysene	ND	1.99	3.99	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.99	"	"	"	"	
Dibenzofuran	ND	1.99	3.99	"	"	"	"	
Fluoranthene	ND	1.99	3.99	"	"	"	"	
Fluorene	ND	1.99	3.99	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.99	"	"	"	"	
1-Methylnaphthalene	ND	3.99	7.98	"	"	"	"	
2-Methylnaphthalene	ND	3.99	7.98	"	"	"	"	
Naphthalene	ND	3.99	7.98	"	"	"	"	
Phenanthrene	ND	1.99	3.99	"	"	"	"	
Pyrene	ND	1.99	3.99	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 58 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*55 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-23-15-30' (0-0.5')_Prepared (A6K0216-16)			**Matrix: Soil**		**Batch: 6120350**			**H-08**
Acenaphthene	ND	1.99	3.99	ug/kg dry	1	12/13/16 13:03	EPA 8270D (SIM)	
Acenaphthylene	ND	1.99	3.99	"	"	"	"	
Anthracene	ND	1.99	3.99	"	"	"	"	
Benz(a)anthracene	ND	1.99	3.99	"	"	"	"	
Benzo(a)pyrene	ND	1.99	3.99	"	"	"	"	
Benzo(b)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(k)fluoranthene	ND	1.99	3.99	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.99	3.99	"	"	"	"	
Chrysene	ND	1.99	3.99	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.99	3.99	"	"	"	"	
Dibenzofuran	ND	1.99	3.99	"	"	"	"	
Fluoranthene	ND	1.99	3.99	"	"	"	"	
Fluorene	ND	1.99	3.99	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.99	3.99	"	"	"	"	
1-Methylnaphthalene	ND	3.99	7.98	"	"	"	"	
2-Methylnaphthalene	ND	3.99	7.98	"	"	"	"	
Naphthalene	ND	3.99	7.98	"	"	"	"	
Phenanthrene	ND	1.99	3.99	"	"	"	"	
Pyrene	ND	1.99	3.99	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 93 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*102 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-23-15-30' (0.5-1')_Prepared (A6K0216-17)			**Matrix: Soil**		**Batch: 6120350**			**H-08**
Acenaphthene	ND	1.95	3.90	ug/kg dry	1	12/13/16 13:29	EPA 8270D (SIM)	
Acenaphthylene	ND	1.95	3.90	"	"	"	"	
Anthracene	ND	1.95	3.90	"	"	"	"	
Benz(a)anthracene	ND	1.95	3.90	"	"	"	"	
Benzo(a)pyrene	ND	1.95	3.90	"	"	"	"	
Benzo(b)fluoranthene	ND	1.95	3.90	"	"	"	"	
Benzo(k)fluoranthene	ND	1.95	3.90	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.95	3.90	"	"	"	"	
Chrysene	ND	1.95	3.90	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.95	3.90	"	"	"	"	
Dibenzofuran	ND	1.95	3.90	"	"	"	"	
Fluoranthene	ND	1.95	3.90	"	"	"	"	
Fluorene	ND	1.95	3.90	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.95	3.90	"	"	"	"	
1-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
2-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
Naphthalene	ND	3.90	7.80	"	"	"	"	
Phenanthrene	ND	1.95	3.90	"	"	"	"	
Pyrene	ND	1.95	3.90	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-23-15-30' (1-1.5')_Prepared (A6K0216-18)			**Matrix: Soil**		**Batch: 6120350**			**H-08**
Acenaphthene	ND	2.05	4.09	ug/kg dry	1	12/13/16 13:54	EPA 8270D (SIM)	
Acenaphthylene	ND	2.05	4.09	"	"	"	"	
Anthracene	ND	2.05	4.09	"	"	"	"	
Benz(a)anthracene	ND	2.05	4.09	"	"	"	"	
Benzo(a)pyrene	ND	2.05	4.09	"	"	"	"	
Benzo(b)fluoranthene	ND	2.05	4.09	"	"	"	"	
Benzo(k)fluoranthene	ND	2.05	4.09	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.05	4.09	"	"	"	"	
Chrysene	ND	2.05	4.09	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.05	4.09	"	"	"	"	
Dibenzofuran	ND	2.05	4.09	"	"	"	"	
Fluoranthene	ND	2.05	4.09	"	"	"	"	
Fluorene	ND	2.05	4.09	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.05	4.09	"	"	"	"	
1-Methylnaphthalene	ND	4.09	8.18	"	"	"	"	
2-Methylnaphthalene	ND	4.09	8.18	"	"	"	"	
Naphthalene	ND	4.09	8.18	"	"	"	"	
Phenanthrene	ND	2.05	4.09	"	"	"	"	
Pyrene	ND	2.05	4.09	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 91 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*106 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-23->30' (0-0.5')_Prepared (A6K0216-19)			**Matrix: Soil**		**Batch: 6120350**			**H-08**
Acenaphthene	ND	1.90	3.80	ug/kg dry	1	12/13/16 15:38	EPA 8270D (SIM)	
Acenaphthylene	ND	1.90	3.80	"	"	"	"	
Anthracene	ND	1.90	3.80	"	"	"	"	
Benz(a)anthracene	ND	1.90	3.80	"	"	"	"	
Benzo(a)pyrene	ND	1.90	3.80	"	"	"	"	
Benzo(b)fluoranthene	ND	1.90	3.80	"	"	"	"	
Benzo(k)fluoranthene	ND	1.90	3.80	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.90	3.80	"	"	"	"	
Chrysene	ND	1.90	3.80	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.90	3.80	"	"	"	"	
Dibenzofuran	ND	1.90	3.80	"	"	"	"	
Fluoranthene	ND	1.90	3.80	"	"	"	"	
Fluorene	ND	1.90	3.80	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.90	3.80	"	"	"	"	
1-Methylnaphthalene	ND	3.80	7.60	"	"	"	"	
2-Methylnaphthalene	ND	3.80	7.60	"	"	"	"	
Naphthalene	ND	3.80	7.60	"	"	"	"	
Phenanthrene	ND	1.90	3.80	"	"	"	"	
Pyrene	ND	1.90	3.80	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 87 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*97 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-23->30' (0.5-1')_Prepared (A6K0216-20)			**Matrix: Soil**		**Batch: 6120350**			**H-08**
Acenaphthene	ND	1.97	3.93	ug/kg dry	1	12/13/16 16:04	EPA 8270D (SIM)	
Acenaphthylene	ND	1.97	3.93	"	"	"	"	
Anthracene	ND	1.97	3.93	"	"	"	"	
Benz(a)anthracene	ND	1.97	3.93	"	"	"	"	
Benzo(a)pyrene	ND	1.97	3.93	"	"	"	"	
Benzo(b)fluoranthene	ND	1.97	3.93	"	"	"	"	
Benzo(k)fluoranthene	ND	1.97	3.93	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.97	3.93	"	"	"	"	
Chrysene	ND	1.97	3.93	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.97	3.93	"	"	"	"	
Dibenzofuran	ND	1.97	3.93	"	"	"	"	
Fluoranthene	ND	1.97	3.93	"	"	"	"	
Fluorene	ND	1.97	3.93	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.97	3.93	"	"	"	"	
1-Methylnaphthalene	ND	3.93	7.86	"	"	"	"	
2-Methylnaphthalene	ND	3.93	7.86	"	"	"	"	
Naphthalene	ND	3.93	7.86	"	"	"	"	
Phenanthrene	ND	1.97	3.93	"	"	"	"	
Pyrene	ND	1.97	3.93	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*77 %*	*Limits: 54-127 %*	"	"	"	

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-23->30' (1-1.5')_Prepared (A6K0216-21)			**Matrix: Soil**		**Batch: 6120350**			**H-08**
Acenaphthene	ND	1.92	3.83	ug/kg dry	1	12/13/16 16:29	EPA 8270D (SIM)	
Acenaphthylene	ND	1.92	3.83	"	"	"	"	
Anthracene	ND	1.92	3.83	"	"	"	"	
Benz(a)anthracene	ND	1.92	3.83	"	"	"	"	
Benzo(a)pyrene	ND	1.92	3.83	"	"	"	"	
Benzo(b)fluoranthene	ND	1.92	3.83	"	"	"	"	
Benzo(k)fluoranthene	ND	1.92	3.83	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.92	3.83	"	"	"	"	
Chrysene	ND	1.92	3.83	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.92	3.83	"	"	"	"	
Dibenzofuran	ND	1.92	3.83	"	"	"	"	
Fluoranthene	ND	1.92	3.83	"	"	"	"	
Fluorene	ND	1.92	3.83	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.92	3.83	"	"	"	"	
1-Methylnaphthalene	ND	3.83	7.67	"	"	"	"	
2-Methylnaphthalene	ND	3.83	7.67	"	"	"	"	
Naphthalene	ND	3.83	7.67	"	"	"	"	
Phenanthrene	ND	1.92	3.83	"	"	"	"	
Pyrene	ND	1.92	3.83	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*74 %*	*Limits: 54-127 %*	"	"	"	

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503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-24->30' (0-0.5')_Prepared (A6K0216-22)			**Matrix: Soil**		**Batch: 6120350**			**H-08**
Acenaphthene	ND	2.04	4.09	ug/kg dry	1	12/13/16 16:55	EPA 8270D (SIM)	
Acenaphthylene	ND	2.04	4.09	"	"	"	"	
Anthracene	ND	2.04	4.09	"	"	"	"	
Benz(a)anthracene	ND	4.09	4.09	"	"	"	"	
Benzo(a)pyrene	**2.08**	2.04	4.09	"	"	"	"	J
Benzo(b)fluoranthene	**2.48**	2.04	4.09	"	"	"	"	J
Benzo(k)fluoranthene	ND	2.04	4.09	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.04	4.09	"	"	"	"	
Chrysene	ND	4.09	4.09	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.04	4.09	"	"	"	"	
Dibenzofuran	ND	2.04	4.09	"	"	"	"	
Fluoranthene	ND	2.04	4.09	"	"	"	"	
Fluorene	ND	2.04	4.09	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.09	"	"	"	"	
1-Methylnaphthalene	ND	4.09	8.18	"	"	"	"	
2-Methylnaphthalene	ND	4.09	8.18	"	"	"	"	
Naphthalene	ND	4.09	8.18	"	"	"	"	
Phenanthrene	ND	2.04	4.09	"	"	"	"	
Pyrene	ND	2.04	4.09	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 63 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*73 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-24->30' (0.5-1')_Prepared (A6K0216-23)			**Matrix: Soil**		**Batch: 6120350**			**H-08**
Acenaphthene	ND	2.03	4.05	ug/kg dry	1	12/13/16 17:21	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.05	"	"	"	"	
Anthracene	ND	2.03	4.05	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.05	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.05	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.05	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.05	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.05	"	"	"	"	
Chrysene	ND	2.03	4.05	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.05	"	"	"	"	
Dibenzofuran	ND	2.03	4.05	"	"	"	"	
Fluoranthene	ND	2.03	4.05	"	"	"	"	
Fluorene	ND	2.03	4.05	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.05	"	"	"	"	
1-Methylnaphthalene	ND	4.05	8.11	"	"	"	"	
2-Methylnaphthalene	ND	4.05	8.11	"	"	"	"	
Naphthalene	ND	4.05	8.11	"	"	"	"	
Phenanthrene	ND	2.03	4.05	"	"	"	"	
Pyrene	ND	2.03	4.05	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*77 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-24->30' (1-1.5')_Prepared (A6K0216-24)			**Matrix: Soil**		**Batch: 6120350**			**H-08**
Acenaphthene	ND	1.95	3.90	ug/kg dry	1	12/13/16 17:47	EPA 8270D (SIM)	
Acenaphthylene	ND	1.95	3.90	"	"	"	"	
Anthracene	ND	1.95	3.90	"	"	"	"	
Benz(a)anthracene	ND	1.95	3.90	"	"	"	"	
Benzo(a)pyrene	ND	1.95	3.90	"	"	"	"	
Benzo(b)fluoranthene	ND	1.95	3.90	"	"	"	"	
Benzo(k)fluoranthene	ND	1.95	3.90	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.95	3.90	"	"	"	"	
Chrysene	ND	1.95	3.90	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.95	3.90	"	"	"	"	
Dibenzofuran	ND	1.95	3.90	"	"	"	"	
Fluoranthene	ND	1.95	3.90	"	"	"	"	
Fluorene	ND	1.95	3.90	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.95	3.90	"	"	"	"	
1-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
2-Methylnaphthalene	ND	3.90	7.80	"	"	"	"	
Naphthalene	ND	3.90	7.80	"	"	"	"	
Phenanthrene	ND	1.95	3.90	"	"	"	"	
Pyrene	ND	1.95	3.90	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*79 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-24-15-30' (0-0.5')_Prepared (A6K0216-25)			**Matrix: Soil**		**Batch: 6120350**			**H-08**
Acenaphthene	ND	1.96	3.93	ug/kg dry	1	12/13/16 18:13	EPA 8270D (SIM)	
Acenaphthylene	ND	1.96	3.93	"	"	"	"	
Anthracene	ND	1.96	3.93	"	"	"	"	
Benz(a)anthracene	**2.14**	1.96	3.93	"	"	"	"	J
Benzo(a)pyrene	**3.46**	1.96	3.93	"	"	"	"	J
Benzo(b)fluoranthene	**4.49**	1.96	3.93	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	1.96	3.93	"	"	"	"	
Benzo(g,h,i)perylene	**4.57**	1.96	3.93	"	"	"	"	
Chrysene	**3.38**	1.96	3.93	"	"	"	"	J
Dibenz(a,h)anthracene	ND	1.96	3.93	"	"	"	"	
Dibenzofuran	ND	1.96	3.93	"	"	"	"	
Fluoranthene	**2.37**	1.96	3.93	"	"	"	"	J
Fluorene	ND	1.96	3.93	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**2.27**	1.96	3.93	"	"	"	"	J
1-Methylnaphthalene	ND	3.93	7.85	"	"	"	"	
2-Methylnaphthalene	ND	3.93	7.85	"	"	"	"	
Naphthalene	ND	3.93	7.85	"	"	"	"	
Phenanthrene	**2.04**	1.96	3.93	"	"	"	"	J
Pyrene	**3.43**	1.96	3.93	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*78 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-24-15-30' (0.5-1')_Prepared (A6K0216-26)			**Matrix: Soil**		**Batch: 6120350**			**H-08**
Acenaphthene	ND	1.92	3.84	ug/kg dry	1	12/13/16 18:39	EPA 8270D (SIM)	
Acenaphthylene	ND	1.92	3.84	"	"	"	"	
Anthracene	ND	1.92	3.84	"	"	"	"	
Benz(a)anthracene	ND	1.92	3.84	"	"	"	"	
Benzo(a)pyrene	ND	1.92	3.84	"	"	"	"	
Benzo(b)fluoranthene	ND	1.92	3.84	"	"	"	"	
Benzo(k)fluoranthene	ND	1.92	3.84	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.92	3.84	"	"	"	"	
Chrysene	ND	1.92	3.84	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.92	3.84	"	"	"	"	
Dibenzofuran	ND	1.92	3.84	"	"	"	"	
Fluoranthene	ND	1.92	3.84	"	"	"	"	
Fluorene	ND	1.92	3.84	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.92	3.84	"	"	"	"	
1-Methylnaphthalene	ND	3.84	7.67	"	"	"	"	
2-Methylnaphthalene	ND	3.84	7.67	"	"	"	"	
Naphthalene	ND	3.84	7.67	"	"	"	"	
Phenanthrene	ND	1.92	3.84	"	"	"	"	
Pyrene	ND	1.92	3.84	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*75 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-24-15-30' (1-1.5')_Prepared (A6K0216-27)			**Matrix: Soil**		**Batch: 6120350**			**H-08**
Acenaphthene	ND	2.03	4.06	ug/kg dry	1	12/13/16 19:05	EPA 8270D (SIM)	
Acenaphthylene	ND	2.03	4.06	"	"	"	"	
Anthracene	ND	2.03	4.06	"	"	"	"	
Benz(a)anthracene	ND	2.03	4.06	"	"	"	"	
Benzo(a)pyrene	ND	2.03	4.06	"	"	"	"	
Benzo(b)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(k)fluoranthene	ND	2.03	4.06	"	"	"	"	
Benzo(g,h,i)perylene	ND	2.03	4.06	"	"	"	"	
Chrysene	ND	2.03	4.06	"	"	"	"	
Dibenz(a,h)anthracene	ND	2.03	4.06	"	"	"	"	
Dibenzofuran	ND	2.03	4.06	"	"	"	"	
Fluoranthene	ND	2.03	4.06	"	"	"	"	
Fluorene	ND	2.03	4.06	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2.03	4.06	"	"	"	"	
1-Methylnaphthalene	ND	4.06	8.12	"	"	"	"	
2-Methylnaphthalene	ND	4.06	8.12	"	"	"	"	
Naphthalene	ND	4.06	8.12	"	"	"	"	
Phenanthrene	ND	2.03	4.06	"	"	"	"	
Pyrene	ND	2.03	4.06	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 61 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*80 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-25->30' (0-0.5')_Prepared (A6K0216-28)			**Matrix: Soil**		**Batch: 6120350**			**H-08**
Acenaphthene	ND	1.93	3.86	ug/kg dry	1	12/13/16 19:31	EPA 8270D (SIM)	
Acenaphthylene	ND	1.93	3.86	"	"	"	"	
Anthracene	ND	1.93	3.86	"	"	"	"	
Benz(a)anthracene	ND	6.76	6.76	"	"	"	"	R-02
Benzo(a)pyrene	**2.25**	1.93	3.86	"	"	"	"	J
Benzo(b)fluoranthene	**3.76**	1.93	3.86	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.93	3.86	"	"	"	"	
Benzo(g,h,i)perylene	**2.32**	1.93	3.86	"	"	"	"	J
Chrysene	ND	6.76	6.76	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	1.93	3.86	"	"	"	"	
Dibenzofuran	ND	1.93	3.86	"	"	"	"	
Fluoranthene	**2.27**	1.93	3.86	"	"	"	"	J
Fluorene	ND	1.93	3.86	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.93	3.86	"	"	"	"	
1-Methylnaphthalene	ND	3.86	7.72	"	"	"	"	
2-Methylnaphthalene	ND	3.86	7.72	"	"	"	"	
Naphthalene	ND	3.86	7.72	"	"	"	"	
Phenanthrene	**3.56**	1.93	3.86	"	"	"	"	J
Pyrene	**2.16**	1.93	3.86	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*83 %*	*Limits: 54-127 %*	"	"	"	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-25->30' (0.5-1')_Prepared (A6K0216-29)			**Matrix: Soil**		**Batch: 6120350**			**H-08**
Acenaphthene	ND	1.97	3.94	ug/kg dry	1	12/13/16 19:56	EPA 8270D (SIM)	
Acenaphthylene	ND	1.97	3.94	"	"	"	"	
Anthracene	ND	1.97	3.94	"	"	"	"	
Benz(a)anthracene	ND	3.94	3.94	"	"	"	"	
Benzo(a)pyrene	**2.37**	1.97	3.94	"	"	"	"	J
Benzo(b)fluoranthene	**2.64**	1.97	3.94	"	"	"	"	J
Benzo(k)fluoranthene	ND	1.97	3.94	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.97	3.94	"	"	"	"	
Chrysene	ND	3.94	3.94	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.97	3.94	"	"	"	"	
Dibenzofuran	ND	1.97	3.94	"	"	"	"	
Fluoranthene	ND	1.97	3.94	"	"	"	"	
Fluorene	ND	1.97	3.94	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.97	3.94	"	"	"	"	
1-Methylnaphthalene	ND	3.94	7.87	"	"	"	"	
2-Methylnaphthalene	ND	3.94	7.87	"	"	"	"	
Naphthalene	ND	3.94	7.87	"	"	"	"	
Phenanthrene	**2.45**	1.97	3.94	"	"	"	"	J
Pyrene	**2.02**	1.97	3.94	"	"	"	"	J
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 61 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*80 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-25->30' (1-1.5')_Prepared (A6K0216-30)			**Matrix: Soil**		**Batch: 6120350**			**H-08**
Acenaphthene	ND	1.90	3.79	ug/kg dry	1	12/13/16 20:22	EPA 8270D (SIM)	
Acenaphthylene	ND	1.90	3.79	"	"	"	"	
Anthracene	ND	1.90	3.79	"	"	"	"	
Benz(a)anthracene	ND	1.90	3.79	"	"	"	"	
Benzo(a)pyrene	ND	1.90	3.79	"	"	"	"	
Benzo(b)fluoranthene	ND	1.90	3.79	"	"	"	"	
Benzo(k)fluoranthene	ND	1.90	3.79	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.90	3.79	"	"	"	"	
Chrysene	ND	1.90	3.79	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.90	3.79	"	"	"	"	
Dibenzofuran	ND	1.90	3.79	"	"	"	"	
Fluoranthene	ND	1.90	3.79	"	"	"	"	
Fluorene	ND	1.90	3.79	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.90	3.79	"	"	"	"	
1-Methylnaphthalene	ND	3.79	7.58	"	"	"	"	
2-Methylnaphthalene	ND	3.79	7.58	"	"	"	"	
Naphthalene	ND	3.79	7.58	"	"	"	"	
Phenanthrene	ND	1.90	3.79	"	"	"	"	
Pyrene	ND	1.90	3.79	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*79 %*	*Limits: 54-127 %*	"	"	"	

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6K0216-31)			**Matrix: Solid**		**Batch: 6120350**			**H-08**
Acenaphthene	ND	1.98	3.96	ug/kg wet	1	12/13/16 20:48	EPA 8270D (SIM)	
Acenaphthylene	ND	1.98	3.96	"	"	"	"	
Anthracene	ND	1.98	3.96	"	"	"	"	
Benz(a)anthracene	ND	1.98	3.96	"	"	"	"	
Benzo(a)pyrene	ND	1.98	3.96	"	"	"	"	
Benzo(b)fluoranthene	ND	1.98	3.96	"	"	"	"	
Benzo(k)fluoranthene	ND	1.98	3.96	"	"	"	"	
Benzo(g,h,i)perylene	ND	1.98	3.96	"	"	"	"	
Chrysene	ND	1.98	3.96	"	"	"	"	
Dibenz(a,h)anthracene	ND	1.98	3.96	"	"	"	"	
Dibenzofuran	ND	1.98	3.96	"	"	"	"	
Fluoranthene	ND	1.98	3.96	"	"	"	"	
Fluorene	ND	1.98	3.96	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	1.98	3.96	"	"	"	"	
1-Methylnaphthalene	ND	3.96	7.92	"	"	"	"	
2-Methylnaphthalene	ND	3.96	7.92	"	"	"	"	
Naphthalene	ND	3.96	7.92	"	"	"	"	
Phenanthrene	ND	1.98	3.96	"	"	"	"	
Pyrene	ND	1.98	3.96	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 62 %*	*Limits: 44-115 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*76 %*	*Limits: 54-127 %*	"	"	"	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-04-15-30' (0-0.5')_Prepared (A6K0211-22)			**Matrix: Soil**					
Batch: 6120469								
Lead	**6.46**	0.107	0.214	mg/kg dry	10	12/14/16 16:24	EPA 6020A	
BM-04-15-30' (0.5-1')_Prepared (A6K0211-23)			**Matrix: Soil**					
Batch: 6120469								
Lead	**3.05**	0.100	0.200	mg/kg dry	10	12/14/16 16:45	EPA 6020A	
BM-04-15-30' (1-1.5')_Prepared (A6K0211-24)			**Matrix: Soil**					
Batch: 6120469								
Lead	**2.46**	0.112	0.224	mg/kg dry	10	12/14/16 16:48	EPA 6020A	
BM-04-15-30' (1-1.5') DUP_Prepared (A6K0211-25)			**Matrix: Soil**					
Batch: 6120469								
Lead	**2.54**	0.110	0.220	mg/kg dry	10	12/14/16 16:51	EPA 6020A	
BM-04->30' (0-0.5')_Prepared (A6K0211-26)			**Matrix: Soil**					
Batch: 6120469								
Lead	**11.9**	0.112	0.224	mg/kg dry	10	12/14/16 16:54	EPA 6020A	
BM-04->30' (0.5-1')_Prepared (A6K0211-27)			**Matrix: Soil**					
Batch: 6120469								
Lead	**9.57**	0.122	0.244	mg/kg dry	10	12/14/16 16:57	EPA 6020A	
BM-04->30' (1-1.5')_Prepared (A6K0211-28)			**Matrix: Soil**					
Batch: 6120469								
Lead	**7.21**	0.120	0.241	mg/kg dry	10	12/14/16 17:00	EPA 6020A	
BM-05->30' (0-0.5')_Prepared (A6K0211-29)			**Matrix: Soil**					
Batch: 6120469								
Lead	**9.55**	0.117	0.234	mg/kg dry	10	12/14/16 17:03	EPA 6020A	
BM-05->30' (0.5-1')_Prepared (A6K0211-30)			**Matrix: Soil**					
Batch: 6120469								
Lead	**5.77**	0.109	0.219	mg/kg dry	10	12/14/16 17:06	EPA 6020A	
BM-05->30' (1-1.5')_Prepared (A6K0211-31)			**Matrix: Soil**					
Batch: 6120469								
Lead	**3.05**	0.112	0.223	mg/kg dry	10	12/14/16 17:09	EPA 6020A	
BM-06-15-30' (0-0.5')_Prepared (A6K0211-32)			**Matrix: Soil**					
Batch: 6120469								
Lead	**8.41**	0.108	0.217	mg/kg dry	10	12/14/16 17:21	EPA 6020A	
BM-06-15-30' (0.5-1')_Prepared (A6K0211-33)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-06-15-30' (0.5-1')_Prepared (A6K0211-33)			**Matrix: Soil**					
Batch: 6120469								
Lead	**4.53**	0.107	0.215	mg/kg dry	10	12/14/16 17:24	EPA 6020A	
BM-06-15-30' (0.5-1') DUP_Prepared (A6K0211-34)			**Matrix: Soil**					
Batch: 6120469								
Lead	**4.71**	0.113	0.226	mg/kg dry	10	12/14/16 17:27	EPA 6020A	
BM-06-15-30' (1-1.5')_Prepared (A6K0211-35)			**Matrix: Soil**					
Batch: 6120469								
Lead	**4.72**	0.100	0.200	mg/kg dry	10	12/14/16 17:30	EPA 6020A	
BM-06->30' (0-0.5')_Prepared (A6K0211-36)			**Matrix: Soil**					
Batch: 6120469								
Lead	**7.54**	0.113	0.226	mg/kg dry	10	12/14/16 17:33	EPA 6020A	
BM-06->30' (0.5-1')_Prepared (A6K0211-37)			**Matrix: Soil**					
Batch: 6120469								
Lead	**3.95**	0.106	0.211	mg/kg dry	10	12/14/16 17:36	EPA 6020A	
BM-06->30' (1-1.5')_Prepared (A6K0211-38)			**Matrix: Soil**					
Batch: 6120469								
Lead	**3.86**	0.105	0.210	mg/kg dry	10	12/14/16 17:39	EPA 6020A	
BM-07-15-30' (0-0.5')_Prepared (A6K0211-39)			**Matrix: Soil**					
Batch: 6120469								
Lead	**37.0**	0.114	0.229	mg/kg dry	10	12/14/16 17:42	EPA 6020A	
BM-07-15-30' (0.5-1')_Prepared (A6K0211-40)			**Matrix: Soil**					
Batch: 6120469								
Lead	**23.8**	0.114	0.228	mg/kg dry	10	12/14/16 17:45	EPA 6020A	
BM-07-15-30' (1-1.5')_Prepared (A6K0211-41)			**Matrix: Soil**					
Batch: 6120628								
Lead	**6.54**	0.110	0.220	mg/kg dry	10	12/20/16 21:17	EPA 6020A	
BM-07->30' (0-0.5')_Prepared (A6K0211-42)			**Matrix: Soil**					
Batch: 6120628								
Lead	**15.4**	0.108	0.215	mg/kg dry	10	12/20/16 21:20	EPA 6020A	
Grind Blank (A6K0211-43)			**Matrix: Solid**					
Batch: 6120695								
Lead	ND	0.106	0.212	mg/kg	10	12/21/16 20:47	EPA 6020A	R-04
BM-07->30' (0.5-1')_Prepared (A6K0212-21)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-07->30' (0.5-1')_Prepared (A6K0212-21)			**Matrix: Soil**					
Batch: 6120380								
Lead	**10.0**	0.110	0.220	mg/kg dry	10	12/12/16 16:55	EPA 6020A	
BM-07->30' (1-1.5')_Prepared (A6K0212-22)			**Matrix: Soil**					
Batch: 6120380								
Lead	**8.16**	0.108	0.217	mg/kg dry	10	12/12/16 16:58	EPA 6020A	
BM-08-15-30' (0-0.5')_Prepared (A6K0212-23)			**Matrix: Soil**					
Batch: 6120628								
Lead	**8.68**	0.100	0.201	mg/kg dry	10	12/20/16 21:23	EPA 6020A	
BM-08-15-30' (0.5-1')_Prepared (A6K0212-24)			**Matrix: Soil**					
Batch: 6120380								
Lead	**16.0**	0.103	0.207	mg/kg dry	10	12/12/16 17:01	EPA 6020A	
BM-08-15-30' (1-1.5')_Prepared (A6K0212-25)			**Matrix: Soil**					
Batch: 6120380								
Lead	**10.6**	0.107	0.213	mg/kg dry	10	12/12/16 17:05	EPA 6020A	
BM-08->30' (0-0.5')_Prepared (A6K0212-26)			**Matrix: Soil**					
Batch: 6120380								
Lead	**11.6**	0.104	0.209	mg/kg dry	10	12/12/16 17:08	EPA 6020A	
BM-08->30' (0.5-1')_Prepared (A6K0212-27)			**Matrix: Soil**					
Batch: 6120628								
Lead	**7.65**	0.115	0.230	mg/kg dry	10	12/21/16 15:08	EPA 6020A	
BM-08->30' (1-1.5')_Prepared (A6K0212-28)			**Matrix: Soil**					
Batch: 6120628								
Lead	**6.71**	0.112	0.224	mg/kg dry	10	12/21/16 15:11	EPA 6020A	
BM-09->30' (0-0.5')_Prepared (A6K0212-29)			**Matrix: Soil**					
Batch: 6120628								
Lead	**37.3**	0.113	0.226	mg/kg dry	10	12/21/16 16:01	EPA 6020A	
BM-09->30' (0.5-1')_Prepared (A6K0212-30)			**Matrix: Soil**					
Batch: 6120628								
Lead	**52.1**	0.110	0.220	mg/kg dry	10	12/21/16 16:04	EPA 6020A	
BM-09->30' (1-1.5')_Prepared (A6K0212-31)			**Matrix: Soil**					
Batch: 6120628								
Lead	**29.8**	0.113	0.226	mg/kg dry	10	12/21/16 16:41	EPA 6020A	
BM-10-15-30' (0-0.5')_Prepared (A6K0212-32)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-10-15-30' (0-0.5')_Prepared (A6K0212-32)			**Matrix: Soil**					
Batch: 6120628								
Lead	**22.1**	0.113	0.226	mg/kg dry	10	12/21/16 16:44	EPA 6020A	
BM-10-15-30' (0.5-1')_Prepared (A6K0212-33)			**Matrix: Soil**					
Batch: 6120628								
Lead	**15.0**	0.116	0.232	mg/kg dry	10	12/21/16 16:47	EPA 6020A	
BM-10-15-30' (1-1.5')_Prepared (A6K0212-34)			**Matrix: Soil**					
Batch: 6120628								
Lead	**29.4**	0.105	0.210	mg/kg dry	10	12/21/16 17:08	EPA 6020A	
BM-10->30' (0-0.5')_Prepared (A6K0212-35)			**Matrix: Soil**					
Batch: 6120628								
Lead	**11.0**	0.115	0.230	mg/kg dry	10	12/21/16 17:11	EPA 6020A	
BM-10->30' (0.5-1')_Prepared (A6K0212-36)			**Matrix: Soil**					
Batch: 6120628								
Lead	**7.81**	0.112	0.224	mg/kg dry	10	12/21/16 17:23	EPA 6020A	
BM-10->30' (1-1.5')_Prepared (A6K0212-37)			**Matrix: Soil**					
Batch: 6120628								
Lead	**7.52**	0.117	0.233	mg/kg dry	10	12/21/16 17:26	EPA 6020A	
BM-11-15-30' (0-0.5')_Prepared (A6K0212-38)			**Matrix: Soil**					
Batch: 6120628								
Lead	**19.7**	0.113	0.226	mg/kg dry	10	12/21/16 17:29	EPA 6020A	
BM-11-15-30' (0.5-1')_Prepared (A6K0212-39)			**Matrix: Soil**					
Batch: 6120628								
Lead	**16.2**	0.107	0.213	mg/kg dry	10	12/21/16 17:32	EPA 6020A	
BM-11-15-30' (1-1.5')_Prepared (A6K0212-40)			**Matrix: Soil**					
Batch: 6120628								
Lead	**12.8**	0.107	0.214	mg/kg dry	10	12/21/16 17:35	EPA 6020A	
Grind Blank (A6K0212-41)			**Matrix: Solid**					
Batch: 6120695								
Lead	**0.120**	0.110	0.219	mg/kg	10	12/21/16 21:31	EPA 6020A	J
BM-11->30' (0-0.5')_Prepared (A6K0213-21)			**Matrix: Soil**					
Batch: 6120628								
Lead	**14.3**	0.108	0.216	mg/kg dry	10	12/21/16 17:43	EPA 6020A	
BM-11->30' (0.5-1')_Prepared (A6K0213-22)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-11->30' (0.5-1')_Prepared (A6K0213-22)			**Matrix: Soil**					
Batch: 6120628								
Lead	**8.36**	0.113	0.227	mg/kg dry	10	12/21/16 17:46	EPA 6020A	
BM-11->30' (1-1.5')_Prepared (A6K0213-23)			**Matrix: Soil**					
Batch: 6120634								
Lead	**6.37**	0.109	0.217	mg/kg dry	10	12/21/16 13:17	EPA 6020A	
BM-12-15-30' (0-0.5')_Prepared (A6K0213-24)			**Matrix: Soil**					
Batch: 6120634								
Lead	**8.52**	0.113	0.225	mg/kg dry	10	12/21/16 13:21	EPA 6020A	
BM-12-15-30' (0-0.5') DUP_Prepared (A6K0213-25)			**Matrix: Soil**					
Batch: 6120634								
Lead	**11.0**	0.111	0.222	mg/kg dry	10	12/21/16 13:24	EPA 6020A	
BM-12-15-30' (0.5-1')_Prepared (A6K0213-26)			**Matrix: Soil**					
Batch: 6120634								
Lead	**4.90**	0.102	0.204	mg/kg dry	10	12/21/16 13:41	EPA 6020A	
BM-12-15-30' (1-1.5')_Prepared (A6K0213-27)			**Matrix: Soil**					
Batch: 6120634								
Lead	**5.76**	0.113	0.226	mg/kg dry	10	12/21/16 13:46	EPA 6020A	
BM-12->30' (0-0.5')_Prepared (A6K0213-28)			**Matrix: Soil**					
Batch: 6120634								
Lead	**11.9**	0.109	0.218	mg/kg dry	10	12/21/16 17:12	EPA 6020A	
BM-12->30' (0.5-1')_Prepared (A6K0213-29)			**Matrix: Soil**					
Batch: 6120634								
Lead	**5.70**	0.110	0.219	mg/kg dry	10	12/21/16 17:16	EPA 6020A	
BM-12->30' (1-1.5')_Prepared (A6K0213-30)			**Matrix: Soil**					
Batch: 6120634								
Lead	**5.51**	0.107	0.215	mg/kg dry	10	12/21/16 17:20	EPA 6020A	
BM-13-15-30' (0-0.5')_Prepared (A6K0213-31)			**Matrix: Soil**					
Batch: 6120634								
Lead	**8.58**	0.116	0.232	mg/kg dry	10	12/21/16 17:23	EPA 6020A	
BM-13-15-30' (0.5-1')_Prepared (A6K0213-32)			**Matrix: Soil**					
Batch: 6120634								
Lead	**6.92**	0.116	0.232	mg/kg dry	10	12/21/16 17:27	EPA 6020A	
BM-13-15-30' (1-1.5')_Prepared (A6K0213-33)			**Matrix: Soil**					

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-13-15-30' (1-1.5')_Prepared (A6K0213-33)			**Matrix: Soil**					
Batch: 6120634								
Lead	**6.05**	0.111	0.222	mg/kg dry	10	12/21/16 17:31	EPA 6020A	
BM-13->30' (0-0.5')_Prepared (A6K0213-34)			**Matrix: Soil**					
Batch: 6120634								
Lead	**7.72**	0.103	0.207	mg/kg dry	10	12/21/16 17:35	EPA 6020A	
BM-13->30' (0.5-1')_Prepared (A6K0213-35)			**Matrix: Soil**					
Batch: 6120634								
Lead	**7.15**	0.106	0.213	mg/kg dry	10	12/21/16 17:49	EPA 6020A	
BM-13->30' (1-1.5')_Prepared (A6K0213-36)			**Matrix: Soil**					
Batch: 6120634								
Lead	**6.46**	0.109	0.219	mg/kg dry	10	12/21/16 17:53	EPA 6020A	
BM-14->30' (0-0.5')_Prepared (A6K0213-37)			**Matrix: Soil**					
Batch: 6120634								
Lead	**8.94**	0.112	0.224	mg/kg dry	10	12/21/16 17:57	EPA 6020A	
BM-14->30' (0.5-1')_Prepared (A6K0213-38)			**Matrix: Soil**					
Batch: 6120634								
Lead	**7.84**	0.112	0.224	mg/kg dry	10	12/21/16 18:01	EPA 6020A	
BM-14->30' (1-1.5')_Prepared (A6K0213-39)			**Matrix: Soil**					
Batch: 6120634								
Lead	**6.42**	0.106	0.213	mg/kg dry	10	12/21/16 18:04	EPA 6020A	
BM-15->30' (0-0.5')_Prepared (A6K0213-40)			**Matrix: Soil**					
Batch: 6120634								
Lead	**12.3**	0.116	0.231	mg/kg dry	10	12/21/16 18:08	EPA 6020A	
Grind Blank (A6K0213-41)			**Matrix: Solid**					
Batch: 6120695								
Lead	ND	0.110	0.221	mg/kg	10	12/21/16 21:35	EPA 6020A	
BM-15->30' (0.5-1')_Prepared (A6K0214-21)			**Matrix: Soil**					
Batch: 6120634								
Lead	**10.3**	0.121	0.241	mg/kg dry	10	12/21/16 18:12	EPA 6020A	
BM-15->30' (1-1.5')_Prepared (A6K0214-22)			**Matrix: Soil**					
Batch: 6120654								
Lead	**10.5**	0.121	0.242	mg/kg dry	10	12/21/16 18:42	EPA 6020A	
BM-16-15-30' (0-0.5')_Prepared (A6K0214-23)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-16-15-30' (0-0.5')_Prepared (A6K0214-23)			**Matrix: Soil**					
Batch: 6120654								
Lead	**7.54**	0.105	0.211	mg/kg dry	10	12/21/16 18:45	EPA 6020A	
BM-16-15-30' (0.5-1')_Prepared (A6K0214-24)			**Matrix: Soil**					
Batch: 6120654								
Lead	**5.07**	0.107	0.214	mg/kg dry	10	12/21/16 18:49	EPA 6020A	
BM-16-15-30' (1-1.5')_Prepared (A6K0214-25)			**Matrix: Soil**					
Batch: 6120654								
Lead	**5.88**	0.109	0.219	mg/kg dry	10	12/21/16 18:53	EPA 6020A	
BM-16->30' (0-0.5')_Prepared (A6K0214-26)			**Matrix: Soil**					
Batch: 6120654								
Lead	**5.57**	0.114	0.228	mg/kg dry	10	12/21/16 18:57	EPA 6020A	
BM-16->30' (0.5-1')_Prepared (A6K0214-27)			**Matrix: Soil**					
Batch: 6120654								
Lead	**5.83**	0.103	0.206	mg/kg dry	10	12/21/16 19:04	EPA 6020A	
BM-16->30' (1-1.5')_Prepared (A6K0214-28)			**Matrix: Soil**					
Batch: 6120654								
Lead	**6.29**	0.111	0.221	mg/kg dry	10	12/21/16 19:08	EPA 6020A	
BM-17->30' (0-0.5')_Prepared (A6K0214-29)			**Matrix: Soil**					
Batch: 6120654								
Lead	**6.21**	0.0998	0.200	mg/kg dry	10	12/21/16 19:12	EPA 6020A	
BM-17->30' (0.5-1')_Prepared (A6K0214-30)			**Matrix: Soil**					
Batch: 6120654								
Lead	**5.03**	0.109	0.218	mg/kg dry	10	12/21/16 19:27	EPA 6020A	
BM-17->30' (1-1.5')_Prepared (A6K0214-31)			**Matrix: Soil**					
Batch: 6120654								
Lead	**4.16**	0.106	0.212	mg/kg dry	10	12/21/16 19:31	EPA 6020A	
BM-17->30' (1-1.5') DUP_Prepared (A6K0214-32)			**Matrix: Soil**					
Batch: 6120654								
Lead	**4.11**	0.111	0.222	mg/kg dry	10	12/21/16 19:42	EPA 6020A	
BM-18-15-30' (0-0.5')_Prepared (A6K0214-33)			**Matrix: Soil**					
Batch: 6120654								
Lead	**7.52**	0.107	0.214	mg/kg dry	10	12/21/16 19:46	EPA 6020A	
BM-18-15-30' (0.5-1')_Prepared (A6K0214-34)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-18-15-30' (0.5-1')_Prepared (A6K0214-34)			**Matrix: Soil**					
Batch: 6120654								
Lead	**4.94**	0.114	0.227	mg/kg dry	10	12/21/16 19:50	EPA 6020A	
BM-18-15-30' (1-1.5')_Prepared (A6K0214-35)			**Matrix: Soil**					
Batch: 6120654								
Lead	**3.28**	0.101	0.202	mg/kg dry	10	12/21/16 19:54	EPA 6020A	
BM-18->30' (0-0.5')_Prepared (A6K0214-36)			**Matrix: Soil**					
Batch: 6120654								
Lead	**8.90**	0.110	0.220	mg/kg dry	10	12/21/16 19:58	EPA 6020A	
BM-18->30' (0.5-1')_Prepared (A6K0214-37)			**Matrix: Soil**					
Batch: 6120654								
Lead	**6.33**	0.111	0.221	mg/kg dry	10	12/21/16 20:02	EPA 6020A	
BM-18->30' (1-1.5')_Prepared (A6K0214-38)			**Matrix: Soil**					
Batch: 6120654								
Lead	**4.48**	0.103	0.206	mg/kg dry	10	12/21/16 22:05	EPA 6020A	
BM-19-15-30' (0-0.5')_Prepared (A6K0214-39)			**Matrix: Soil**					
Batch: 6120654								
Lead	**6.19**	0.110	0.220	mg/kg dry	10	12/21/16 22:20	EPA 6020A	
BM-19-15-30' (0.5-1')_Prepared (A6K0214-40)			**Matrix: Soil**					
Batch: 6120654								
Lead	**6.07**	0.113	0.226	mg/kg dry	10	12/21/16 22:24	EPA 6020A	
Grind Blank (A6K0214-41)			**Matrix: Solid**					
Batch: 6120695								
Lead	ND	0.108	0.217	mg/kg	10	12/21/16 21:39	EPA 6020A	
BM-19-15-30' (1-1.5')_Prepared (A6K0215-21)			**Matrix: Soil**					
Batch: 6120661								
Lead	**5.78**	0.114	0.229	mg/kg dry	10	12/21/16 22:38	EPA 6020A	
BM-19->30' (0-0.5')_Prepared (A6K0215-22)			**Matrix: Soil**					
Batch: 6120661								
Lead	**4.25**	0.110	0.221	mg/kg dry	10	12/21/16 22:53	EPA 6020A	
BM-19->30' (0.5-1')_Prepared (A6K0215-23)			**Matrix: Soil**					
Batch: 6120661								
Lead	**4.11**	0.111	0.223	mg/kg dry	10	12/21/16 22:57	EPA 6020A	
BM-19->30' (1-1.5')_Prepared (A6K0215-24)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-19->30' (1-1.5')_Prepared (A6K0215-24)			**Matrix: Soil**					
Batch: 6120661								
Lead	**3.45**	0.109	0.217	mg/kg dry	10	12/21/16 23:01	EPA 6020A	
BM-20-15-30' (0-0.5')_Prepared (A6K0215-25)			**Matrix: Soil**					
Batch: 6120661								
Lead	**1.27**	0.108	0.216	mg/kg dry	10	12/21/16 23:04	EPA 6020A	
BM-20-15-30' (0.5-1')_Prepared (A6K0215-26)			**Matrix: Soil**					
Batch: 6120661								
Lead	**0.840**	0.102	0.204	mg/kg dry	10	12/21/16 23:08	EPA 6020A	
BM-20-15-30' (1-1.5')_Prepared (A6K0215-27)			**Matrix: Soil**					
Batch: 6120661								
Lead	**0.593**	0.112	0.223	mg/kg dry	10	12/21/16 23:12	EPA 6020A	
BM-20->30' (0-0.5')_Prepared (A6K0215-28)			**Matrix: Soil**					
Batch: 6120661								
Lead	**1.48**	0.111	0.221	mg/kg dry	10	12/21/16 23:16	EPA 6020A	
BM-20->30' (0.5-1')_Prepared (A6K0215-29)			**Matrix: Soil**					
Batch: 6120661								
Lead	**0.729**	0.111	0.221	mg/kg dry	10	12/21/16 23:20	EPA 6020A	
BM-20->30' (1-1.5')_Prepared (A6K0215-30)			**Matrix: Soil**					
Batch: 6120661								
Lead	**0.825**	0.105	0.211	mg/kg dry	10	12/21/16 23:46	EPA 6020A	
BM-21-15-30' (0-0.5')_Prepared (A6K0215-31)			**Matrix: Soil**					
Batch: 6120661								
Lead	**4.75**	0.115	0.231	mg/kg dry	10	12/21/16 23:50	EPA 6020A	
BM-21-15-30' (0.5-1')_Prepared (A6K0215-32)			**Matrix: Soil**					
Batch: 6120661								
Lead	**2.19**	0.114	0.227	mg/kg dry	10	12/21/16 23:54	EPA 6020A	
BM-21-15-30' (1-1.5')_Prepared (A6K0215-33)			**Matrix: Soil**					
Batch: 6120661								
Lead	**2.43**	0.113	0.225	mg/kg dry	10	12/21/16 23:57	EPA 6020A	
BM-21->30' (0-0.5')_Prepared (A6K0215-34)			**Matrix: Soil**					
Batch: 6120661								
Lead	**4.43**	0.116	0.231	mg/kg dry	10	12/22/16 00:01	EPA 6020A	
BM-21->30' (0.5-1')_Prepared (A6K0215-35)			**Matrix: Soil**					

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-21->30' (0.5-1')_Prepared (A6K0215-35)			**Matrix: Soil**					
Batch: 6120661								
Lead	**3.86**	0.112	0.225	mg/kg dry	10	12/22/16 00:05	EPA 6020A	
BM-21->30' (1-1.5')_Prepared (A6K0215-36)			**Matrix: Soil**					
Batch: 6120661								
Lead	**3.15**	0.108	0.217	mg/kg dry	10	12/22/16 00:09	EPA 6020A	
BM-22->30' (0-0.5')_Prepared (A6K0215-37)			**Matrix: Soil**					
Batch: 6120661								
Lead	**3.14**	0.104	0.208	mg/kg dry	10	12/22/16 00:13	EPA 6020A	
BM-22->30' (0-0.5') DUP_Prepared (A6K0215-38)			**Matrix: Soil**					
Batch: 6120661								
Lead	**2.92**	0.111	0.221	mg/kg dry	10	12/22/16 00:17	EPA 6020A	
BM-22->30' (0.5-1')_Prepared (A6K0215-39)			**Matrix: Soil**					
Batch: 6120661								
Lead	**1.42**	0.107	0.214	mg/kg dry	10	12/22/16 00:32	EPA 6020A	
BM-22->30' (1-1.5')_Prepared (A6K0215-40)			**Matrix: Soil**					
Batch: 6120689								
Lead	**1.31**	0.110	0.220	mg/kg dry	10	12/22/16 00:50	EPA 6020A	
Grind Blank (A6K0215-41)			**Matrix: Solid**					
Batch: 6120695								
Lead	ND	0.105	0.210	mg/kg	10	12/21/16 21:43	EPA 6020A	
BM-23-15-30' (0-0.5')_Prepared (A6K0216-16)			**Matrix: Soil**					
Batch: 6120689								
Lead	**5.37**	0.105	0.210	mg/kg dry	10	12/22/16 00:54	EPA 6020A	
BM-23-15-30' (0.5-1')_Prepared (A6K0216-17)			**Matrix: Soil**					
Batch: 6120689								
Lead	**2.01**	0.104	0.207	mg/kg dry	10	12/22/16 00:58	EPA 6020A	
BM-23-15-30' (1-1.5')_Prepared (A6K0216-18)			**Matrix: Soil**					
Batch: 6120689								
Lead	**1.26**	0.113	0.226	mg/kg dry	10	12/22/16 01:02	EPA 6020A	
BM-23->30' (0-0.5')_Prepared (A6K0216-19)			**Matrix: Soil**					
Batch: 6120689								
Lead	**1.99**	0.113	0.227	mg/kg dry	10	12/22/16 01:28	EPA 6020A	
BM-23->30' (0.5-1')_Prepared (A6K0216-20)			**Matrix: Soil**					

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6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-23->30' (0.5-1')_Prepared (A6K0216-20)			**Matrix: Soil**					
Batch: 6120689								
Lead	**3.02**	0.113	0.227	mg/kg dry	10	12/22/16 01:32	EPA 6020A	
BM-23->30' (1-1.5')_Prepared (A6K0216-21)			**Matrix: Soil**					
Batch: 6120689								
Lead	**3.01**	0.102	0.204	mg/kg dry	10	12/22/16 01:36	EPA 6020A	
BM-24->30' (0-0.5')_Prepared (A6K0216-22)			**Matrix: Soil**					
Batch: 6120689								
Lead	**5.65**	0.111	0.221	mg/kg dry	10	12/22/16 01:40	EPA 6020A	
BM-24->30' (0.5-1')_Prepared (A6K0216-23)			**Matrix: Soil**					
Batch: 6120689								
Lead	**3.05**	0.112	0.224	mg/kg dry	10	12/22/16 01:43	EPA 6020A	
BM-24->30' (1-1.5')_Prepared (A6K0216-24)			**Matrix: Soil**					
Batch: 6120689								
Lead	**3.48**	0.114	0.228	mg/kg dry	10	12/22/16 01:47	EPA 6020A	
BM-24-15-30' (0-0.5')_Prepared (A6K0216-25)			**Matrix: Soil**					
Batch: 6120689								
Lead	**14.9**	0.112	0.224	mg/kg dry	10	12/22/16 01:51	EPA 6020A	
BM-24-15-30' (0.5-1')_Prepared (A6K0216-26)			**Matrix: Soil**					
Batch: 6120689								
Lead	**4.34**	0.110	0.220	mg/kg dry	10	12/22/16 01:55	EPA 6020A	
BM-24-15-30' (1-1.5')_Prepared (A6K0216-27)			**Matrix: Soil**					
Batch: 6120689								
Lead	**4.24**	0.104	0.209	mg/kg dry	10	12/22/16 02:09	EPA 6020A	
BM-25->30' (0-0.5')_Prepared (A6K0216-28)			**Matrix: Soil**					
Batch: 6120689								
Lead	**15.7**	0.108	0.216	mg/kg dry	10	12/22/16 02:13	EPA 6020A	
BM-25->30' (0.5-1')_Prepared (A6K0216-29)			**Matrix: Soil**					
Batch: 6120689								
Lead	**7.22**	0.111	0.223	mg/kg dry	10	12/22/16 02:17	EPA 6020A	
BM-25->30' (1-1.5')_Prepared (A6K0216-30)			**Matrix: Soil**					
Batch: 6120689								
Lead	**5.71**	0.108	0.215	mg/kg dry	10	12/22/16 02:21	EPA 6020A	
Grind Blank (A6K0216-31)			**Matrix: Solid**					

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Grind Blank (A6K0216-31)			**Matrix: Solid**					
Batch: 6120695								
Lead	**0.105**	0.104	0.208	mg/kg	10	12/21/16 21:46	EPA 6020A	J

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-04-15-30' (0-0.5')_Prepared (A6K0211-22)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**98.0**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-04-15-30' (0.5-1')_Prepared (A6K0211-23)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**97.2**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-04-15-30' (1-1.5')_Prepared (A6K0211-24)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**97.8**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-04-15-30' (1-1.5') DUP_Prepared (A6K0211-25)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**97.5**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-04->30' (0-0.5')_Prepared (A6K0211-26)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**96.3**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-04->30' (0.5-1')_Prepared (A6K0211-27)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**90.2**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-04->30' (1-1.5')_Prepared (A6K0211-28)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**90.7**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-05->30' (0-0.5')_Prepared (A6K0211-29)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**93.5**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-05->30' (0.5-1')_Prepared (A6K0211-30)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**97.8**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-05->30' (1-1.5')_Prepared (A6K0211-31)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**97.0**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-06-15-30' (0-0.5')_Prepared (A6K0211-32)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**99.4**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-06-15-30' (0.5-1')_Prepared (A6K0211-33)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**101**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	DW>100
BM-06-15-30' (0.5-1') DUP_Prepared (A6K0211-34)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**97.2**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-06-15-30' (1-1.5')_Prepared (A6K0211-35)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**100**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	DW>100
BM-06->30' (0-0.5')_Prepared (A6K0211-36)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**97.5**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-06->30' (0.5-1')_Prepared (A6K0211-37)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**97.5**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	

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AMENDED REPORT

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-06->30' (1-1.5')_Prepared (A6K0211-38)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**96.8**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-07-15-30' (0-0.5')_Prepared (A6K0211-39)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**92.9**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-07-15-30' (0.5-1')_Prepared (A6K0211-40)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**96.9**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-07-15-30' (1-1.5')_Prepared (A6K0211-41)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**96.1**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-07->30' (0-0.5')_Prepared (A6K0211-42)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**96.5**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-07->30' (0.5-1')_Prepared (A6K0212-21)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**96.0**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-07->30' (1-1.5')_Prepared (A6K0212-22)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**96.0**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-08-15-30' (0-0.5')_Prepared (A6K0212-23)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**98.5**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-08-15-30' (0.5-1')_Prepared (A6K0212-24)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**98.4**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-08-15-30' (1-1.5')_Prepared (A6K0212-25)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**98.0**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-08->30' (0-0.5')_Prepared (A6K0212-26)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**96.0**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-08->30' (0.5-1')_Prepared (A6K0212-27)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**96.0**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-08->30' (1-1.5')_Prepared (A6K0212-28)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**96.1**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-09->30' (0-0.5')_Prepared (A6K0212-29)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**96.8**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-09->30' (0.5-1')_Prepared (A6K0212-30)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**97.6**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-09->30' (1-1.5')_Prepared (A6K0212-31)			**Matrix: Soil**		**Batch: 6110719**			

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-09->30' (1-1.5')_Prepared (A6K0212-31)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**97.7**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-10-15-30' (0-0.5')_Prepared (A6K0212-32)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**95.6**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-10-15-30' (0.5-1')_Prepared (A6K0212-33)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**95.5**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-10-15-30' (1-1.5')_Prepared (A6K0212-34)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**97.9**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-10->30' (0-0.5')_Prepared (A6K0212-35)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**94.0**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-10->30' (0.5-1')_Prepared (A6K0212-36)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**94.3**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-10->30' (1-1.5')_Prepared (A6K0212-37)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**92.3**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-11-15-30' (0-0.5')_Prepared (A6K0212-38)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**96.1**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-11-15-30' (0.5-1')_Prepared (A6K0212-39)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**97.4**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-11-15-30' (1-1.5')_Prepared (A6K0212-40)			**Matrix: Soil**		**Batch: 6110719**			
% Solids	**98.4**	---	1.00	% by Weight	1	11/21/16 09:19	EPA 8000C	
BM-11->30' (0-0.5')_Prepared (A6K0213-21)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**95.9**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-11->30' (0.5-1')_Prepared (A6K0213-22)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**95.7**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-11->30' (1-1.5')_Prepared (A6K0213-23)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**95.6**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-12-15-30' (0-0.5')_Prepared (A6K0213-24)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.6**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-12-15-30' (0-0.5') DUP_Prepared (A6K0213-25)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.7**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-12-15-30' (0.5-1')_Prepared (A6K0213-26)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.1**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-12-15-30' (1-1.5')_Prepared (A6K0213-27)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.5**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-12->30' (0-0.5')_Prepared (A6K0213-28)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.7**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-12->30' (0.5-1')_Prepared (A6K0213-29)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.7**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-12->30' (1-1.5')_Prepared (A6K0213-30)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.7**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-13-15-30' (0-0.5')_Prepared (A6K0213-31)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**94.7**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-13-15-30' (0.5-1')_Prepared (A6K0213-32)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**95.0**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-13-15-30' (1-1.5')_Prepared (A6K0213-33)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**95.7**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-13->30' (0-0.5')_Prepared (A6K0213-34)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.0**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-13->30' (0.5-1')_Prepared (A6K0213-35)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**95.5**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-13->30' (1-1.5')_Prepared (A6K0213-36)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**95.2**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-14->30' (0-0.5')_Prepared (A6K0213-37)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**96.6**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-14->30' (0.5-1')_Prepared (A6K0213-38)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.0**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-14->30' (1-1.5')_Prepared (A6K0213-39)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.4**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-15->30' (0-0.5')_Prepared (A6K0213-40)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**92.2**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-15->30' (0.5-1')_Prepared (A6K0214-21)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**91.7**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-15->30' (1-1.5')_Prepared (A6K0214-22)			**Matrix: Soil**		**Batch: 6110829**			

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-15->30' (1-1.5')_Prepared (A6K0214-22)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**91.3**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-16-15-30' (0-0.5')_Prepared (A6K0214-23)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**96.8**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-16-15-30' (0.5-1')_Prepared (A6K0214-24)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**96.7**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-16-15-30' (1-1.5')_Prepared (A6K0214-25)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**96.9**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-16->30' (0-0.5')_Prepared (A6K0214-26)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.1**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-16->30' (0.5-1')_Prepared (A6K0214-27)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.0**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-16->30' (1-1.5')_Prepared (A6K0214-28)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**96.6**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-17->30' (0-0.5')_Prepared (A6K0214-29)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.6**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-17->30' (0.5-1')_Prepared (A6K0214-30)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.6**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-17->30' (1-1.5')_Prepared (A6K0214-31)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**98.3**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-17->30' (1-1.5') DUP_Prepared (A6K0214-32)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**98.3**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-18-15-30' (0-0.5')_Prepared (A6K0214-33)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.2**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-18-15-30' (0.5-1')_Prepared (A6K0214-34)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.1**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-18-15-30' (1-1.5')_Prepared (A6K0214-35)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**96.9**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-18->30' (0-0.5')_Prepared (A6K0214-36)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**96.6**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-18->30' (0.5-1')_Prepared (A6K0214-37)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**95.6**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	

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Lisa Domenighini, Client Services Manager

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-18->30' (1-1.5')_Prepared (A6K0214-38)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**96.7**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-19-15-30' (0-0.5')_Prepared (A6K0214-39)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**94.8**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-19-15-30' (0.5-1')_Prepared (A6K0214-40)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**93.9**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-19-15-30' (1-1.5')_Prepared (A6K0215-21)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**95.5**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-19->30' (0-0.5')_Prepared (A6K0215-22)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**98.4**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-19->30' (0.5-1')_Prepared (A6K0215-23)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.5**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-19->30' (1-1.5')_Prepared (A6K0215-24)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.5**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-20-15-30' (0-0.5')_Prepared (A6K0215-25)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.9**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-20-15-30' (0.5-1')_Prepared (A6K0215-26)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.9**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-20-15-30' (1-1.5')_Prepared (A6K0215-27)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**98.1**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-20->30' (0-0.5')_Prepared (A6K0215-28)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.9**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-20->30' (0.5-1')_Prepared (A6K0215-29)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.9**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-20->30' (1-1.5')_Prepared (A6K0215-30)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**98.0**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-21-15-30' (0-0.5')_Prepared (A6K0215-31)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**95.3**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-21-15-30' (0.5-1')_Prepared (A6K0215-32)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**96.4**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-21-15-30' (1-1.5')_Prepared (A6K0215-33)			**Matrix: Soil**		**Batch: 6110829**			

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-21-15-30' (1-1.5')_Prepared (A6K0215-33)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**96.8**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-21->30' (0-0.5')_Prepared (A6K0215-34)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**93.3**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-21->30' (0.5-1')_Prepared (A6K0215-35)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**94.7**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-21->30' (1-1.5')_Prepared (A6K0215-36)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**95.2**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-22->30' (0-0.5')_Prepared (A6K0215-37)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.6**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-22->30' (0-0.5') DUP_Prepared (A6K0215-38)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.7**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-22->30' (0.5-1')_Prepared (A6K0215-39)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**97.8**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-22->30' (1-1.5')_Prepared (A6K0215-40)			**Matrix: Soil**		**Batch: 6110829**			
% Solids	**98.0**	---	1.00	% by Weight	1	11/28/16 09:50	EPA 8000C	
BM-23-15-30' (0-0.5')_Prepared (A6K0216-16)			**Matrix: Soil**		**Batch: 6110913**			
% Solids	**97.4**	---	1.00	% by Weight	1	11/30/16 09:25	EPA 8000C	
BM-23-15-30' (0.5-1')_Prepared (A6K0216-17)			**Matrix: Soil**		**Batch: 6110913**			
% Solids	**97.3**	---	1.00	% by Weight	1	11/30/16 09:25	EPA 8000C	
BM-23-15-30' (1-1.5')_Prepared (A6K0216-18)			**Matrix: Soil**		**Batch: 6110913**			
% Solids	**96.6**	---	1.00	% by Weight	1	11/30/16 09:25	EPA 8000C	
BM-23->30' (0-0.5')_Prepared (A6K0216-19)			**Matrix: Soil**		**Batch: 6110913**			
% Solids	**97.4**	---	1.00	% by Weight	1	11/30/16 09:25	EPA 8000C	
BM-23->30' (0.5-1')_Prepared (A6K0216-20)			**Matrix: Soil**		**Batch: 6110913**			
% Solids	**96.8**	---	1.00	% by Weight	1	11/30/16 09:25	EPA 8000C	
BM-23->30' (1-1.5')_Prepared (A6K0216-21)			**Matrix: Soil**		**Batch: 6110913**			
% Solids	**97.2**	---	1.00	% by Weight	1	11/30/16 09:25	EPA 8000C	
BM-24->30' (0-0.5')_Prepared (A6K0216-22)			**Matrix: Soil**		**Batch: 6110913**			
% Solids	**96.8**	---	1.00	% by Weight	1	11/30/16 09:25	EPA 8000C	
BM-24->30' (0.5-1')_Prepared (A6K0216-23)			**Matrix: Soil**		**Batch: 6110913**			
% Solids	**96.7**	---	1.00	% by Weight	1	11/30/16 09:25	EPA 8000C	

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BM-24->30' (1-1.5')_Prepared (A6K0216-24)			**Matrix: Soil**		**Batch: 6110913**			
% Solids	**97.3**	---	1.00	% by Weight	1	11/30/16 09:25	EPA 8000C	
BM-24-15-30' (0-0.5')_Prepared (A6K0216-25)			**Matrix: Soil**		**Batch: 6110913**			
% Solids	**97.0**	---	1.00	% by Weight	1	11/30/16 09:25	EPA 8000C	
BM-24-15-30' (0.5-1')_Prepared (A6K0216-26)			**Matrix: Soil**		**Batch: 6110913**			
% Solids	**96.8**	---	1.00	% by Weight	1	11/30/16 09:25	EPA 8000C	
BM-24-15-30' (1-1.5')_Prepared (A6K0216-27)			**Matrix: Soil**		**Batch: 6110913**			
% Solids	**97.3**	---	1.00	% by Weight	1	11/30/16 09:25	EPA 8000C	
BM-25->30' (0-0.5')_Prepared (A6K0216-28)			**Matrix: Soil**		**Batch: 6110913**			
% Solids	**97.2**	---	1.00	% by Weight	1	11/30/16 09:25	EPA 8000C	
BM-25->30' (0.5-1')_Prepared (A6K0216-29)			**Matrix: Soil**		**Batch: 6110913**			
% Solids	**97.7**	---	1.00	% by Weight	1	11/30/16 09:25	EPA 8000C	
BM-25->30' (1-1.5')_Prepared (A6K0216-30)			**Matrix: Soil**		**Batch: 6110913**			
% Solids	**97.5**	---	1.00	% by Weight	1	11/30/16 09:25	EPA 8000C	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120155 - EPA 3546							Soil					
Blank (6120155-BLK1)					Prepared: 12/02/16 07:12 Analyzed: 12/05/16 16:23							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 85 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*99 %*	*54-127 %*			*"*					
LCS (6120155-BS1)					Prepared: 12/02/16 07:12 Analyzed: 12/05/16 16:48							
EPA 8270D (SIM)												
Acenaphthene	629	2.00	4.00	ug/kg wet	1	800	---	79	40-122%	---	---	
Acenaphthylene	660	2.00	4.00	"	"	"	---	83	32-132%	---	---	
Anthracene	718	2.00	4.00	"	"	"	---	90	47-123%	---	---	
Benz(a)anthracene	782	2.00	4.00	"	"	"	---	98	49-126%	---	---	
Benzo(a)pyrene	731	2.00	4.00	"	"	"	---	91	45-129%	---	---	
Benzo(b)fluoranthene	718	2.00	4.00	"	"	"	---	90	45-132%	---	---	
Benzo(k)fluoranthene	709	2.00	4.00	"	"	"	---	89	47-132%	---	---	
Benzo(g,h,i)perylene	723	2.00	4.00	"	"	"	---	90	43-134%	---	---	
Chrysene	624	2.00	4.00	"	"	"	---	78	50-124%	---	---	
Dibenz(a,h)anthracene	710	2.00	4.00	"	"	"	---	89	45-134%	---	---	
Dibenzofuran	637	2.00	4.00	"	"	"	---	80	44-120%	---	---	

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120155 - EPA 3546									Soil			
LCS (6120155-BS1)					Prepared: 12/02/16 07:12 Analyzed: 12/05/16 16:48							
EPA 8270D (SIM)												
Fluoranthene	688	2.00	4.00	ug/kg wet	"	"	---	86	50-127%	---	---	
Fluorene	656	2.00	4.00	"	"	"	---	82	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	726	2.00	4.00	"	"	"	---	91	45-133%	---	---	
1-Methylnaphthalene	611	4.00	8.00	"	"	"	---	76	40-120%	---	---	
2-Methylnaphthalene	649	4.00	8.00	"	"	"	---	81	38-122%	---	---	
Naphthalene	596	4.00	8.00	"	"	"	---	75	35-123%	---	---	
Phenanthrene	636	2.00	4.00	"	"	"	---	79	50-121%	---	---	
Pyrene	654	2.00	4.00	"	"	"	---	82	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 77 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*84 %*	*54-127 %*			*"*					
Duplicate (6120155-DUP1)					Prepared: 12/02/16 07:12 Analyzed: 12/06/16 02:15							H-08
QC Source Sample: BM-04-15-30' (0-0.5')_Prepared (A6K0211-22)												
EPA 8270D (SIM)												
Acenaphthene	ND	1.94	3.88	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	1.94	3.88	"	"	---	ND	---	---	---	30%	
Anthracene	ND	1.94	3.88	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	3.88	3.88	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	1.94	3.88	"	"	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	1.94	3.88	"	"	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	1.94	3.88	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	1.94	3.88	"	"	---	ND	---	---	---	30%	
Chrysene	ND	3.88	3.88	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	1.94	3.88	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	1.94	3.88	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	1.94	3.88	"	"	---	ND	---	---	---	30%	
Fluorene	ND	1.94	3.88	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	1.94	3.88	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	3.88	7.77	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	3.88	7.77	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	3.88	7.77	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	1.94	3.88	"	"	---	ND	---	---	---	30%	
Pyrene	ND	1.94	3.88	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 44-115 %*			*Dilution: 1x*					

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AMENDED REPORT

12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120155 - EPA 3546												**Soil**
Duplicate (6120155-DUP1)					Prepared: 12/02/16 07:12		Analyzed: 12/06/16 02:15					H-08
QC Source Sample: BM-04-15-30' (0-0.5')_Prepared (A6K0211-22)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 91 %*	*Limits: 54-127 %*			*Dilution: 1x*					
Matrix Spike (6120155-MS2)					Prepared: 12/02/16 07:12		Analyzed: 12/06/16 02:40					H-08
QC Source Sample: BM-04-15-30' (0-0.5')_Prepared (A6K0211-22)												
EPA 8270D (SIM)												
Acenaphthene	587	1.97	3.93	ug/kg dry	1	786	ND	75	40-122%	---	---	
Acenaphthylene	618	1.97	3.93	"	"	"	ND	79	32-132%	---	---	
Anthracene	785	1.97	3.93	"	"	"	ND	100	47-123%	---	---	
Benz(a)anthracene	891	1.97	3.93	"	"	"	ND	113	49-126%	---	---	
Benzo(a)pyrene	814	1.97	3.93	"	"	"	ND	104	45-129%	---	---	
Benzo(b)fluoranthene	821	1.97	3.93	"	"	"	ND	104	45-132%	---	---	
Benzo(k)fluoranthene	775	1.97	3.93	"	"	"	ND	99	47-132%	---	---	
Benzo(g,h,i)perylene	758	1.97	3.93	"	"	"	ND	96	43-134%	---	---	
Chrysene	713	1.97	3.93	"	"	"	ND	90	50-124%	---	---	
Dibenz(a,h)anthracene	797	1.97	3.93	"	"	"	ND	101	45-134%	---	---	
Dibenzofuran	625	1.97	3.93	"	"	"	ND	80	44-120%	---	---	
Fluoranthene	766	1.97	3.93	"	"	"	ND	97	50-127%	---	---	
Fluorene	667	1.97	3.93	"	"	"	ND	85	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	793	1.97	3.93	"	"	"	ND	101	45-133%	---	---	
1-Methylnaphthalene	542	3.93	7.86	"	"	"	ND	69	40-120%	---	---	
2-Methylnaphthalene	574	3.93	7.86	"	"	"	ND	73	38-122%	---	---	
Naphthalene	510	3.93	7.86	"	"	"	ND	65	35-123%	---	---	
Phenanthrene	690	1.97	3.93	"	"	"	ND	88	50-121%	---	---	
Pyrene	729	1.97	3.93	"	"	"	ND	93	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*102 %*	*54-127 %*			*"*					
Matrix Spike Dup (6120155-MSD2)					Prepared: 12/02/16 07:12		Analyzed: 12/08/16 10:12					H-08
QC Source Sample: BM-04-15-30' (0-0.5')_Prepared (A6K0211-22)												
EPA 8270D (SIM)												
Acenaphthene	581	1.98	3.95	ug/kg dry	1	790	ND	73	40-122%	1	30%	
Acenaphthylene	607	1.98	3.95	"	"	"	ND	77	32-132%	2	30%	
Anthracene	706	1.98	3.95	"	"	"	ND	89	47-123%	11	30%	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120155 - EPA 3546							**Soil**					
Matrix Spike Dup (6120155-MSD2)					Prepared: 12/02/16 07:12		Analyzed: 12/08/16 10:12					H-08
QC Source Sample: BM-04-15-30' (0-0.5')_Prepared (A6K0211-22)												
EPA 8270D (SIM)												
Benz(a)anthracene	750	1.98	3.95	ug/kg dry	"	"	ND	95	49-126%	17	30%	
Benzo(a)pyrene	696	1.98	3.95	"	"	"	ND	88	45-129%	16	30%	
Benzo(b)fluoranthene	722	1.98	3.95	"	"	"	ND	91	45-132%	13	30%	
Benzo(k)fluoranthene	674	1.98	3.95	"	"	"	ND	85	47-132%	14	30%	
Benzo(g,h,i)perylene	690	1.98	3.95	"	"	"	ND	87	43-134%	9	30%	
Chrysene	603	1.98	3.95	"	"	"	ND	76	50-124%	17	30%	
Dibenz(a,h)anthracene	707	1.98	3.95	"	"	"	ND	89	45-134%	12	30%	
Dibenzofuran	584	1.98	3.95	"	"	"	ND	74	44-120%	7	30%	
Fluoranthene	656	1.98	3.95	"	"	"	ND	83	50-127%	16	30%	
Fluorene	619	1.98	3.95	"	"	"	ND	78	43-125%	7	30%	
Indeno(1,2,3-cd)pyrene	717	1.98	3.95	"	"	"	ND	91	45-133%	10	30%	
1-Methylnaphthalene	566	3.95	7.90	"	"	"	ND	72	40-120%	4	30%	
2-Methylnaphthalene	604	3.95	7.90	"	"	"	ND	76	38-122%	5	30%	
Naphthalene	537	3.95	7.90	"	"	"	ND	68	35-123%	5	30%	
Phenanthrene	608	1.98	3.95	"	"	"	ND	77	50-121%	13	30%	
Pyrene	622	1.98	3.95	"	"	"	ND	79	47-127%	16	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*		*Limits: 44-115 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*78 %*		*54-127 %*			*"*				

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120166 - EPA 3546							**Soil**					
Blank (6120166-BLK1)					Prepared: 12/02/16 09:17 Analyzed: 12/06/16 10:11							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 90 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*98 %*	*54-127 %*			*"*					
LCS (6120166-BS1)					Prepared: 12/02/16 09:17 Analyzed: 12/06/16 10:37							
EPA 8270D (SIM)												
Acenaphthene	826	2.00	4.00	ug/kg wet	1	800	---	103	40-122%	---	---	
Acenaphthylene	807	2.00	4.00	"	"	"	---	101	32-132%	---	---	
Anthracene	820	2.00	4.00	"	"	"	---	103	47-123%	---	---	
Benz(a)anthracene	826	2.00	4.00	"	"	"	---	103	49-126%	---	---	
Benzo(a)pyrene	924	2.00	4.00	"	"	"	---	116	45-129%	---	---	
Benzo(b)fluoranthene	876	2.00	4.00	"	"	"	---	110	45-132%	---	---	
Benzo(k)fluoranthene	888	2.00	4.00	"	"	"	---	111	47-132%	---	---	
Benzo(g,h,i)perylene	778	2.00	4.00	"	"	"	---	97	43-134%	---	---	
Chrysene	808	2.00	4.00	"	"	"	---	101	50-124%	---	---	
Dibenz(a,h)anthracene	907	2.00	4.00	"	"	"	---	113	45-134%	---	---	
Dibenzofuran	797	2.00	4.00	"	"	"	---	100	44-120%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120166 - EPA 3546							**Soil**					
LCS (6120166-BS1)					Prepared: 12/02/16 09:17 Analyzed: 12/06/16 10:37							
EPA 8270D (SIM)												
Fluoranthene	840	2.00	4.00	ug/kg wet	"	"	---	105	50-127%	---	---	
Fluorene	781	2.00	4.00	"	"	"	---	98	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	1000	2.00	4.00	"	"	"	---	125	45-133%	---	---	
1-Methylnaphthalene	794	4.00	8.00	"	"	"	---	99	40-120%	---	---	
2-Methylnaphthalene	795	4.00	8.00	"	"	"	---	99	38-122%	---	---	
Naphthalene	726	4.00	8.00	"	"	"	---	91	35-123%	---	---	
Phenanthrene	749	2.00	4.00	"	"	"	---	94	50-121%	---	---	
Pyrene	834	2.00	4.00	"	"	"	---	104	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 103 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*102 %*	*54-127 %*			*"*					
LCS Dup (6120166-BSD1)					Prepared: 12/02/16 09:18 Analyzed: 12/06/16 11:03							Q-19
EPA 8270D (SIM)												
Acenaphthene	678	2.00	4.00	ug/kg wet	1	800	---	85	40-122%	20	30%	
Acenaphthylene	671	2.00	4.00	"	"	"	---	84	32-132%	18	30%	
Anthracene	659	2.00	4.00	"	"	"	---	82	47-123%	22	30%	
Benz(a)anthracene	689	2.00	4.00	"	"	"	---	86	49-126%	18	30%	
Benzo(a)pyrene	762	2.00	4.00	"	"	"	---	95	45-129%	19	30%	
Benzo(b)fluoranthene	757	2.00	4.00	"	"	"	---	95	45-132%	15	30%	
Benzo(k)fluoranthene	743	2.00	4.00	"	"	"	---	93	47-132%	18	30%	
Benzo(g,h,i)perylene	646	2.00	4.00	"	"	"	---	81	43-134%	19	30%	
Chrysene	661	2.00	4.00	"	"	"	---	83	50-124%	20	30%	
Dibenz(a,h)anthracene	756	2.00	4.00	"	"	"	---	94	45-134%	18	30%	
Dibenzofuran	665	2.00	4.00	"	"	"	---	83	44-120%	18	30%	
Fluoranthene	683	2.00	4.00	"	"	"	---	85	50-127%	21	30%	
Fluorene	652	2.00	4.00	"	"	"	---	81	43-125%	18	30%	
Indeno(1,2,3-cd)pyrene	697	2.00	4.00	"	"	"	---	87	45-133%	36	30%	Q-24
1-Methylnaphthalene	671	4.00	8.00	"	"	"	---	84	40-120%	17	30%	
2-Methylnaphthalene	664	4.00	8.00	"	"	"	---	83	38-122%	18	30%	
Naphthalene	613	4.00	8.00	"	"	"	---	77	35-123%	17	30%	
Phenanthrene	613	2.00	4.00	"	"	"	---	77	50-121%	20	30%	
Pyrene	666	2.00	4.00	"	"	"	---	83	47-127%	23	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*86 %*	*54-127 %*			*"*					

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AMENDED REPORT

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120172 - EPA 3546							**Soil**					
Blank (6120172-BLK1)					Prepared: 12/02/16 10:37 Analyzed: 12/06/16 11:55							
EPA 8270D (SIM)												
Acenaphthene	ND	1.67	3.33	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Anthracene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Chrysene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Fluorene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.33	6.67	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.33	6.67	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.33	6.67	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Pyrene	ND	1.67	3.33	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*82 %*	*54-127 %*			*"*					
LCS (6120172-BS1)					Prepared: 12/02/16 10:37 Analyzed: 12/06/16 12:21							
EPA 8270D (SIM)												
Acenaphthene	701	2.00	4.00	ug/kg wet	1	800	---	88	40-122%	---	---	
Acenaphthylene	687	2.00	4.00	"	"	"	---	86	32-132%	---	---	
Anthracene	663	2.00	4.00	"	"	"	---	83	47-123%	---	---	
Benz(a)anthracene	675	2.00	4.00	"	"	"	---	84	49-126%	---	---	
Benzo(a)pyrene	741	2.00	4.00	"	"	"	---	93	45-129%	---	---	
Benzo(b)fluoranthene	724	2.00	4.00	"	"	"	---	91	45-132%	---	---	
Benzo(k)fluoranthene	719	2.00	4.00	"	"	"	---	90	47-132%	---	---	
Benzo(g,h,i)perylene	626	2.00	4.00	"	"	"	---	78	43-134%	---	---	
Chrysene	669	2.00	4.00	"	"	"	---	84	50-124%	---	---	
Dibenz(a,h)anthracene	733	2.00	4.00	"	"	"	---	92	45-134%	---	---	
Dibenzofuran	676	2.00	4.00	"	"	"	---	84	44-120%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120172 - EPA 3546									Soil			
LCS (6120172-BS1)					Prepared: 12/02/16 10:37 Analyzed: 12/06/16 12:21							
EPA 8270D (SIM)												
Fluoranthene	702	2.00	4.00	ug/kg wet	"	"	---	88	50-127%	---	---	
Fluorene	661	2.00	4.00	"	"	"	---	83	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	678	2.00	4.00	"	"	"	---	85	45-133%	---	---	
1-Methylnaphthalene	692	4.00	8.00	"	"	"	---	86	40-120%	---	---	
2-Methylnaphthalene	687	4.00	8.00	"	"	"	---	86	38-122%	---	---	
Naphthalene	630	4.00	8.00	"	"	"	---	79	35-123%	---	---	
Phenanthrene	609	2.00	4.00	"	"	"	---	76	50-121%	---	---	
Pyrene	698	2.00	4.00	"	"	"	---	87	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 83 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*83 %*	*54-127 %*			*"*					
Duplicate (6120172-DUP1)					Prepared: 12/02/16 10:38 Analyzed: 12/06/16 14:05							H-08
QC Source Sample: BM-08-15-30' (0-0.5')_Prepared (A6K0212-23)												
EPA 8270D (SIM)												
Acenaphthene	ND	4.86	9.71	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	4.86	9.71	"	"	---	ND	---	---	---	30%	
Anthracene	ND	4.86	9.71	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	4.86	9.71	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	4.86	9.71	"	"	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	4.86	9.71	"	"	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	4.86	9.71	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	**4.95**	4.86	9.71	"	"	---	5.22	---	---	5	30%	J
Chrysene	ND	4.86	9.71	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	4.86	9.71	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	4.86	9.71	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	4.86	9.71	"	"	---	ND	---	---	---	30%	
Fluorene	ND	4.86	9.71	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	4.86	9.71	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	9.71	19.4	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	9.71	19.4	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	9.71	19.4	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	4.86	9.71	"	"	---	ND	---	---	---	30%	
Pyrene	ND	4.86	9.71	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 44-115 %*			*Dilution: 1x*					

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AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120172 - EPA 3546							**Soil**					
Duplicate (6120172-DUP1)				Prepared: 12/02/16 10:38 Analyzed: 12/06/16 14:05								H-08
QC Source Sample: BM-08-15-30' (0-0.5')_Prepared (A6K0212-23)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)				*Recovery: 75 %*	*Limits: 54-127 %*		*Dilution: 1x*					
Matrix Spike (6120172-MS1)				Prepared: 12/02/16 10:37 Analyzed: 12/06/16 14:31								H-08
QC Source Sample: BM-08-15-30' (0-0.5')_Prepared (A6K0212-23)												
EPA 8270D (SIM)												
Acenaphthene	540	4.88	9.76	ug/kg dry	1	781	ND	69	40-122%	---	---	
Acenaphthylene	534	4.88	9.76	"	"	"	ND	68	32-132%	---	---	
Anthracene	602	4.88	9.76	"	"	"	ND	77	47-123%	---	---	
Benz(a)anthracene	617	4.88	9.76	"	"	"	ND	79	49-126%	---	---	
Benzo(a)pyrene	663	4.88	9.76	"	"	"	ND	85	45-129%	---	---	
Benzo(b)fluoranthene	677	4.88	9.76	"	"	"	ND	87	45-132%	---	---	
Benzo(k)fluoranthene	670	4.88	9.76	"	"	"	ND	86	47-132%	---	---	
Benzo(g,h,i)perylene	553	4.88	9.76	"	"	"	5.22	70	43-134%	---	---	
Chrysene	599	4.88	9.76	"	"	"	ND	77	50-124%	---	---	
Dibenz(a,h)anthracene	655	4.88	9.76	"	"	"	ND	84	45-134%	---	---	
Dibenzofuran	560	4.88	9.76	"	"	"	ND	72	44-120%	---	---	
Fluoranthene	653	4.88	9.76	"	"	"	ND	84	50-127%	---	---	
Fluorene	566	4.88	9.76	"	"	"	ND	73	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	718	4.88	9.76	"	"	"	ND	92	45-133%	---	---	
1-Methylnaphthalene	496	9.76	19.5	"	"	"	ND	64	40-120%	---	---	
2-Methylnaphthalene	488	9.76	19.5	"	"	"	ND	63	38-122%	---	---	
Naphthalene	450	9.76	19.5	"	"	"	ND	58	35-123%	---	---	
Phenanthrene	548	4.88	9.76	"	"	"	ND	70	50-121%	---	---	
Pyrene	649	4.88	9.76	"	"	"	ND	83	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)				*Recovery: 66 %*	*Limits: 44-115 %*		*Dilution: 1x*					
p-Terphenyl-d14 (Surr)				*81 %*	*54-127 %*		*"*					
Matrix Spike Dup (6120172-MSD1)				Prepared: 12/02/16 10:38 Analyzed: 12/06/16 14:57								H-08
QC Source Sample: BM-08-15-30' (0-0.5')_Prepared (A6K0212-23)												
EPA 8270D (SIM)												
Acenaphthene	533	4.84	9.68	ug/kg dry	1	775	ND	69	40-122%	1	30%	
Acenaphthylene	517	4.84	9.68	"	"	"	ND	67	32-132%	3	30%	
Anthracene	564	4.84	9.68	"	"	"	ND	73	47-123%	7	30%	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120172 - EPA 3546							Soil					
Matrix Spike Dup (6120172-MSD1)					Prepared: 12/02/16 10:38		Analyzed: 12/06/16 14:57					H-08
QC Source Sample: BM-08-15-30' (0-0.5')_Prepared (A6K0212-23)												
EPA 8270D (SIM)												
Benz(a)anthracene	589	4.84	9.68	ug/kg dry	"	"	ND	76	49-126%	5	30%	
Benzo(a)pyrene	631	4.84	9.68	"	"	"	ND	81	45-129%	5	30%	
Benzo(b)fluoranthene	624	4.84	9.68	"	"	"	ND	81	45-132%	8	30%	
Benzo(k)fluoranthene	650	4.84	9.68	"	"	"	ND	84	47-132%	3	30%	
Benzo(g,h,i)perylene	506	4.84	9.68	"	"	"	5.22	65	43-134%	9	30%	
Chrysene	574	4.84	9.68	"	"	"	ND	74	50-124%	4	30%	
Dibenz(a,h)anthracene	607	4.84	9.68	"	"	"	ND	78	45-134%	8	30%	
Dibenzofuran	529	4.84	9.68	"	"	"	ND	68	44-120%	6	30%	
Fluoranthene	637	4.84	9.68	"	"	"	ND	82	50-127%	2	30%	
Fluorene	537	4.84	9.68	"	"	"	ND	69	43-125%	5	30%	
Indeno(1,2,3-cd)pyrene	669	4.84	9.68	"	"	"	ND	86	45-133%	7	30%	
1-Methylnaphthalene	520	9.68	19.4	"	"	"	ND	67	40-120%	5	30%	
2-Methylnaphthalene	508	9.68	19.4	"	"	"	ND	66	38-122%	4	30%	
Naphthalene	485	9.68	19.4	"	"	"	ND	63	35-123%	7	30%	
Phenanthrene	516	4.84	9.68	"	"	"	ND	67	50-121%	6	30%	
Pyrene	629	4.84	9.68	"	"	"	ND	81	47-127%	3	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*		*Limits: 44-115 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*77 %*		*54-127 %*			*"*				

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120211 - EPA 3546							**Soil**					
Blank (6120211-BLK1)					Prepared: 12/05/16 10:02 Analyzed: 12/07/16 18:40							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*79 %*	*54-127 %*			*"*					
LCS (6120211-BS1)					Prepared: 12/05/16 10:02 Analyzed: 12/07/16 19:06							
EPA 8270D (SIM)												
Acenaphthene	652	2.00	4.00	ug/kg wet	1	800	---	81	40-122%	---	---	
Acenaphthylene	641	2.00	4.00	"	"	"	---	80	32-132%	---	---	
Anthracene	633	2.00	4.00	"	"	"	---	79	47-123%	---	---	
Benz(a)anthracene	649	2.00	4.00	"	"	"	---	81	49-126%	---	---	
Benzo(a)pyrene	706	2.00	4.00	"	"	"	---	88	45-129%	---	---	
Benzo(b)fluoranthene	729	2.00	4.00	"	"	"	---	91	45-132%	---	---	
Benzo(k)fluoranthene	721	2.00	4.00	"	"	"	---	90	47-132%	---	---	
Benzo(g,h,i)perylene	521	2.00	4.00	"	"	"	---	65	43-134%	---	---	
Chrysene	632	2.00	4.00	"	"	"	---	79	50-124%	---	---	
Dibenz(a,h)anthracene	697	2.00	4.00	"	"	"	---	87	45-134%	---	---	
Dibenzofuran	646	2.00	4.00	"	"	"	---	81	44-120%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120211 - EPA 3546							**Soil**					
LCS (6120211-BS1)					Prepared: 12/05/16 10:02 Analyzed: 12/07/16 19:06							
EPA 8270D (SIM)												
Fluoranthene	679	2.00	4.00	ug/kg wet	"	"	---	85	50-127%	---	---	
Fluorene	627	2.00	4.00	"	"	"	---	78	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	617	2.00	4.00	"	"	"	---	77	45-133%	---	---	
1-Methylnaphthalene	645	4.00	8.00	"	"	"	---	81	40-120%	---	---	
2-Methylnaphthalene	640	4.00	8.00	"	"	"	---	80	38-122%	---	---	
Naphthalene	584	4.00	8.00	"	"	"	---	73	35-123%	---	---	
Phenanthrene	567	2.00	4.00	"	"	"	---	71	50-121%	---	---	
Pyrene	671	2.00	4.00	"	"	"	---	84	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*80 %*	*54-127 %*			*"*					
Duplicate (6120211-DUP1)					Prepared: 12/05/16 10:03 Analyzed: 12/07/16 19:58							H-08
QC Source Sample: Other (A6K0213-25)												
EPA 8270D (SIM)												
Acenaphthene	ND	2.04	4.08	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Anthracene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Chrysene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Fluorene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	4.08	8.17	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	4.08	8.17	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	4.08	8.17	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Pyrene	ND	2.04	4.08	"	"	---	2.24	---	---		30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 44-115 %*			*Dilution: 1x*					

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120211 - EPA 3546							**Soil**					
Duplicate (6120211-DUP1)					Prepared: 12/05/16 10:03		Analyzed: 12/07/16 19:58					H-08
QC Source Sample: Other (A6K0213-25)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 67 %*	*Limits: 54-127 %*			*Dilution: 1x*					
Matrix Spike (6120211-MS1)					Prepared: 12/05/16 10:02		Analyzed: 12/07/16 20:24					H-08
QC Source Sample: Other (A6K0213-25)												
EPA 8270D (SIM)												
Acenaphthene	616	2.04	4.07	ug/kg dry	1	815	ND	76	40-122%	---	---	
Acenaphthylene	597	2.04	4.07	"	"	"	ND	73	32-132%	---	---	
Anthracene	597	2.04	4.07	"	"	"	ND	73	47-123%	---	---	
Benz(a)anthracene	617	2.04	4.07	"	"	"	ND	76	49-126%	---	---	
Benzo(a)pyrene	682	2.04	4.07	"	"	"	ND	84	45-129%	---	---	
Benzo(b)fluoranthene	705	2.04	4.07	"	"	"	ND	86	45-132%	---	---	
Benzo(k)fluoranthene	684	2.04	4.07	"	"	"	ND	84	47-132%	---	---	
Benzo(g,h,i)perylene	492	2.04	4.07	"	"	"	ND	60	43-134%	---	---	
Chrysene	608	2.04	4.07	"	"	"	ND	75	50-124%	---	---	
Dibenz(a,h)anthracene	645	2.04	4.07	"	"	"	ND	79	45-134%	---	---	
Dibenzofuran	602	2.04	4.07	"	"	"	ND	74	44-120%	---	---	
Fluoranthene	645	2.04	4.07	"	"	"	ND	79	50-127%	---	---	
Fluorene	590	2.04	4.07	"	"	"	ND	72	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	694	2.04	4.07	"	"	"	ND	85	45-133%	---	---	
1-Methylnaphthalene	600	4.07	8.15	"	"	"	ND	74	40-120%	---	---	
2-Methylnaphthalene	587	4.07	8.15	"	"	"	ND	72	38-122%	---	---	
Naphthalene	528	4.07	8.15	"	"	"	ND	65	35-123%	---	---	
Phenanthrene	547	2.04	4.07	"	"	"	ND	67	50-121%	---	---	
Pyrene	639	2.04	4.07	"	"	"	2.24	78	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*77 %*	*54-127 %*			*"*					
Matrix Spike Dup (6120211-MSD1)					Prepared: 12/05/16 10:19		Analyzed: 12/07/16 20:50					H-08
QC Source Sample: Other (A6K0213-25)												
EPA 8270D (SIM)												
Acenaphthene	613	2.04	4.07	ug/kg dry	1	815	ND	75	40-122%	0.5	30%	
Acenaphthylene	601	2.04	4.07	"	"	"	ND	74	32-132%	0.8	30%	
Anthracene	582	2.04	4.07	"	"	"	ND	71	47-123%	3	30%	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120211 - EPA 3546							Soil					
Matrix Spike Dup (6120211-MSD1)					Prepared: 12/05/16 10:19 Analyzed: 12/07/16 20:50							H-08
QC Source Sample: Other (A6K0213-25)												
EPA 8270D (SIM)												
Benz(a)anthracene	595	2.04	4.07	ug/kg dry	"	"	ND	73	49-126%	4	30%	
Benzo(a)pyrene	668	2.04	4.07	"	"	"	ND	82	45-129%	2	30%	
Benzo(b)fluoranthene	693	2.04	4.07	"	"	"	ND	85	45-132%	2	30%	
Benzo(k)fluoranthene	666	2.04	4.07	"	"	"	ND	82	47-132%	3	30%	
Benzo(g,h,i)perylene	479	2.04	4.07	"	"	"	ND	59	43-134%	3	30%	
Chrysene	585	2.04	4.07	"	"	"	ND	72	50-124%	4	30%	
Dibenz(a,h)anthracene	634	2.04	4.07	"	"	"	ND	78	45-134%	2	30%	
Dibenzofuran	604	2.04	4.07	"	"	"	ND	74	44-120%	0.3	30%	
Fluoranthene	619	2.04	4.07	"	"	"	ND	76	50-127%	4	30%	
Fluorene	590	2.04	4.07	"	"	"	ND	72	43-125%	0.008	30%	
Indeno(1,2,3-cd)pyrene	564	2.04	4.07	"	"	"	ND	69	45-133%	21	30%	
1-Methylnaphthalene	593	4.07	8.15	"	"	"	ND	73	40-120%	1	30%	
2-Methylnaphthalene	586	4.07	8.15	"	"	"	ND	72	38-122%	0.06	30%	
Naphthalene	528	4.07	8.15	"	"	"	ND	65	35-123%	0.1	30%	
Phenanthrene	529	2.04	4.07	"	"	"	ND	65	50-121%	3	30%	
Pyrene	608	2.04	4.07	"	"	"	2.24	74	47-127%	5	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 73 %*		*Limits: 44-115 %*				*Dilution: 1x*			
p-Terphenyl-d14 (Surr)			*76 %*		*54-127 %*				*"*			

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120232 - EPA 3546							Soil					
Blank (6120232-BLK1)					Prepared: 12/05/16 15:35 Analyzed: 12/09/16 14:22							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*73 %*	*54-127 %*			*"*					
LCS (6120232-BS1)					Prepared: 12/05/16 15:35 Analyzed: 12/09/16 14:48							
EPA 8270D (SIM)												
Acenaphthene	603	2.00	4.00	ug/kg wet	1	800	---	75	40-122%	---	---	
Acenaphthylene	632	2.00	4.00	"	"	"	---	79	32-132%	---	---	
Anthracene	694	2.00	4.00	"	"	"	---	87	47-123%	---	---	
Benz(a)anthracene	761	2.00	4.00	"	"	"	---	95	49-126%	---	---	
Benzo(a)pyrene	718	2.00	4.00	"	"	"	---	90	45-129%	---	---	
Benzo(b)fluoranthene	704	2.00	4.00	"	"	"	---	88	45-132%	---	---	
Benzo(k)fluoranthene	665	2.00	4.00	"	"	"	---	83	47-132%	---	---	
Benzo(g,h,i)perylene	654	2.00	4.00	"	"	"	---	82	43-134%	---	---	
Chrysene	606	2.00	4.00	"	"	"	---	76	50-124%	---	---	
Dibenz(a,h)anthracene	694	2.00	4.00	"	"	"	---	87	45-134%	---	---	
Dibenzofuran	613	2.00	4.00	"	"	"	---	77	44-120%	---	---	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120232 - EPA 3546							**Soil**					
LCS (6120232-BS1)					Prepared: 12/05/16 15:35 Analyzed: 12/09/16 14:48							
EPA 8270D (SIM)												
Fluoranthene	675	2.00	4.00	ug/kg wet	"	"	---	84	50-127%	---	---	
Fluorene	633	2.00	4.00	"	"	"	---	79	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	698	2.00	4.00	"	"	"	---	87	45-133%	---	---	
1-Methylnaphthalene	590	4.00	8.00	"	"	"	---	74	40-120%	---	---	
2-Methylnaphthalene	634	4.00	8.00	"	"	"	---	79	38-122%	---	---	
Naphthalene	567	4.00	8.00	"	"	"	---	71	35-123%	---	---	
Phenanthrene	605	2.00	4.00	"	"	"	---	76	50-121%	---	---	
Pyrene	647	2.00	4.00	"	"	"	---	81	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*70 %*	*54-127 %*			*"*					
Duplicate (6120232-DUP1)					Prepared: 12/05/16 15:35 Analyzed: 12/09/16 23:03							H-08
QC Source Sample: BM-18->30' (1-1.5')_Prepared (A6K0214-38)												
EPA 8270D (SIM)												
Acenaphthene	ND	2.05	4.10	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	2.05	4.10	"	"	---	ND	---	---	---	30%	
Anthracene	ND	2.05	4.10	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	2.05	4.10	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	2.05	4.10	"	"	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	2.05	4.10	"	"	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	2.05	4.10	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	2.05	4.10	"	"	---	ND	---	---	---	30%	
Chrysene	ND	2.05	4.10	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	2.05	4.10	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	2.05	4.10	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	2.05	4.10	"	"	---	ND	---	---	---	30%	
Fluorene	ND	2.05	4.10	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	2.05	4.10	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	4.10	8.21	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	4.10	8.21	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	4.10	8.21	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	2.05	4.10	"	"	---	ND	---	---	---	30%	
Pyrene	ND	2.05	4.10	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 55 %*	*Limits: 44-115 %*			*Dilution: 1x*					

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120232 - EPA 3546							**Soil**					
Duplicate (6120232-DUP1)					Prepared: 12/05/16 15:35		Analyzed: 12/09/16 23:03					H-08
QC Source Sample: BM-18->30' (1-1.5')_Prepared (A6K0214-38)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 56 %*	*Limits: 54-127 %*			*Dilution: 1x*					
Matrix Spike (6120232-MS1)					Prepared: 12/05/16 15:35		Analyzed: 12/09/16 23:29					H-08
QC Source Sample: BM-18->30' (1-1.5')_Prepared (A6K0214-38)												
EPA 8270D (SIM)												
Acenaphthene	491	2.05	4.10	ug/kg dry	1	821	ND	60	40-122%	---	---	
Acenaphthylene	515	2.05	4.10	"	"	"	ND	63	32-132%	---	---	
Anthracene	577	2.05	4.10	"	"	"	ND	70	47-123%	---	---	
Benz(a)anthracene	628	2.05	4.10	"	"	"	ND	76	49-126%	---	---	
Benzo(a)pyrene	497	2.05	4.10	"	"	"	ND	61	45-129%	---	---	
Benzo(b)fluoranthene	590	2.05	4.10	"	"	"	ND	72	45-132%	---	---	
Benzo(k)fluoranthene	559	2.05	4.10	"	"	"	ND	68	47-132%	---	---	
Benzo(g,h,i)perylene	543	2.05	4.10	"	"	"	ND	66	43-134%	---	---	
Chrysene	504	2.05	4.10	"	"	"	ND	61	50-124%	---	---	
Dibenz(a,h)anthracene	580	2.05	4.10	"	"	"	ND	71	45-134%	---	---	
Dibenzofuran	504	2.05	4.10	"	"	"	ND	61	44-120%	---	---	
Fluoranthene	570	2.05	4.10	"	"	"	ND	70	50-127%	---	---	
Fluorene	522	2.05	4.10	"	"	"	ND	64	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	572	2.05	4.10	"	"	"	ND	70	45-133%	---	---	
1-Methylnaphthalene	475	4.10	8.21	"	"	"	ND	58	40-120%	---	---	
2-Methylnaphthalene	508	4.10	8.21	"	"	"	ND	62	38-122%	---	---	
Naphthalene	456	4.10	8.21	"	"	"	ND	56	35-123%	---	---	
Phenanthrene	509	2.05	4.10	"	"	"	ND	62	50-121%	---	---	
Pyrene	543	2.05	4.10	"	"	"	ND	66	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 55 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*55 %*	*54-127 %*			*"*					
Matrix Spike Dup (6120232-MSD1)					Prepared: 12/05/16 15:35		Analyzed: 12/09/16 23:55					H-08
QC Source Sample: BM-18->30' (1-1.5')_Prepared (A6K0214-38)												
EPA 8270D (SIM)												
Acenaphthene	501	2.06	4.11	ug/kg dry	1	823	ND	61	40-122%	2	30%	
Acenaphthylene	517	2.06	4.11	"	"	"	ND	63	32-132%	0.4	30%	
Anthracene	568	2.06	4.11	"	"	"	ND	69	47-123%	1	30%	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120232 - EPA 3546							Soil					
Matrix Spike Dup (6120232-MSD1)					Prepared: 12/05/16 15:35 Analyzed: 12/09/16 23:55							H-08
QC Source Sample: BM-18->30' (1-1.5')_Prepared (A6K0214-38)												
EPA 8270D (SIM)												
Benz(a)anthracene	620	2.06	4.11	ug/kg dry	"	"	ND	75	49-126%	1	30%	
Benzo(a)pyrene	472	2.06	4.11	"	"	"	ND	57	45-129%	5	30%	
Benzo(b)fluoranthene	585	2.06	4.11	"	"	"	ND	71	45-132%	0.9	30%	
Benzo(k)fluoranthene	558	2.06	4.11	"	"	"	ND	68	47-132%	0.1	30%	
Benzo(g,h,i)perylene	546	2.06	4.11	"	"	"	ND	66	43-134%	0.6	30%	
Chrysene	502	2.06	4.11	"	"	"	ND	61	50-124%	0.4	30%	
Dibenz(a,h)anthracene	580	2.06	4.11	"	"	"	ND	71	45-134%	0.06	30%	
Dibenzofuran	513	2.06	4.11	"	"	"	ND	62	44-120%	2	30%	
Fluoranthene	559	2.06	4.11	"	"	"	ND	68	50-127%	2	30%	
Fluorene	527	2.06	4.11	"	"	"	ND	64	43-125%	0.9	30%	
Indeno(1,2,3-cd)pyrene	577	2.06	4.11	"	"	"	ND	70	45-133%	0.9	30%	
1-Methylnaphthalene	493	4.11	8.23	"	"	"	ND	60	40-120%	4	30%	
2-Methylnaphthalene	524	4.11	8.23	"	"	"	ND	64	38-122%	3	30%	
Naphthalene	472	4.11	8.23	"	"	"	ND	57	35-123%	3	30%	
Phenanthrene	502	2.06	4.11	"	"	"	ND	61	50-121%	1	30%	
Pyrene	539	2.06	4.11	"	"	"	ND	65	47-127%	0.8	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 53 %*		*Limits: 44-115 %*				*Dilution: 1x*			
p-Terphenyl-d14 (Surr)			*54 %*		*54-127 %*				*"*			

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AMENDED REPORT

12232 S.W. Garden Place
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120304 - EPA 3546							**Soil**					
Blank (6120304-BLK1)					Prepared: 12/07/16 10:03 Analyzed: 12/08/16 17:06							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*				*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*80 %*	*54-127 %*				*"*				
LCS (6120304-BS1)					Prepared: 12/07/16 10:03 Analyzed: 12/08/16 17:32							
EPA 8270D (SIM)												
Acenaphthene	589	2.00	4.00	ug/kg wet	1	800	---	74	40-122%	---	---	
Acenaphthylene	614	2.00	4.00	"	"	"	---	77	32-132%	---	---	
Anthracene	675	2.00	4.00	"	"	"	---	84	47-123%	---	---	
Benz(a)anthracene	744	2.00	4.00	"	"	"	---	93	49-126%	---	---	
Benzo(a)pyrene	706	2.00	4.00	"	"	"	---	88	45-129%	---	---	
Benzo(b)fluoranthene	708	2.00	4.00	"	"	"	---	88	45-132%	---	---	
Benzo(k)fluoranthene	687	2.00	4.00	"	"	"	---	86	47-132%	---	---	
Benzo(g,h,i)perylene	638	2.00	4.00	"	"	"	---	80	43-134%	---	---	
Chrysene	590	2.00	4.00	"	"	"	---	74	50-124%	---	---	
Dibenz(a,h)anthracene	716	2.00	4.00	"	"	"	---	89	45-134%	---	---	
Dibenzofuran	595	2.00	4.00	"	"	"	---	74	44-120%	---	---	

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AMENDED REPORT

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Tigard, OR 97223
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120304 - EPA 3546							**Soil**					
LCS (6120304-BS1)					Prepared: 12/07/16 10:03 Analyzed: 12/08/16 17:32							
EPA 8270D (SIM)												
Fluoranthene	640	2.00	4.00	ug/kg wet	"	"	---	80	50-127%	---	---	
Fluorene	620	2.00	4.00	"	"	"	---	77	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	703	2.00	4.00	"	"	"	---	88	45-133%	---	---	
1-Methylnaphthalene	557	4.00	8.00	"	"	"	---	70	40-120%	---	---	
2-Methylnaphthalene	593	4.00	8.00	"	"	"	---	74	38-122%	---	---	
Naphthalene	543	4.00	8.00	"	"	"	---	68	35-123%	---	---	
Phenanthrene	595	2.00	4.00	"	"	"	---	74	50-121%	---	---	
Pyrene	611	2.00	4.00	"	"	"	---	76	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*72 %*	*54-127 %*			*"*					
Duplicate (6120304-DUP1)					Prepared: 12/07/16 10:03 Analyzed: 12/08/16 18:50							H-08
QC Source Sample: BM-08->30' (1-1.5')_Prepared (A6K0212-28RE1)												
EPA 8270D (SIM)												
Acenaphthene	ND	2.08	4.15	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	2.08	4.15	"	"	---	ND	---	---	---	30%	
Anthracene	ND	2.08	4.15	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	2.08	4.15	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	2.08	4.15	"	"	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	2.08	4.15	"	"	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	2.08	4.15	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	2.08	4.15	"	"	---	ND	---	---	---	30%	
Chrysene	ND	2.08	4.15	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	2.08	4.15	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	2.08	4.15	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	2.08	4.15	"	"	---	ND	---	---	---	30%	
Fluorene	ND	2.08	4.15	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	2.08	4.15	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	4.15	8.30	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	4.15	8.30	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	4.15	8.30	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	2.08	4.15	"	"	---	ND	---	---	---	30%	
Pyrene	ND	2.08	4.15	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 59 %*	*Limits: 44-115 %*			*Dilution: 1x*					

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120304 - EPA 3546							**Soil**					
Duplicate (6120304-DUP1)				Prepared: 12/07/16 10:03		Analyzed: 12/08/16 18:50						H-08
QC Source Sample: BM-08->30' (1-1.5')_Prepared (A6K0212-28RE1)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 63 %*	*Limits: 54-127 %*		*Dilution: 1x*						
Matrix Spike (6120304-MS1)				Prepared: 12/07/16 10:03		Analyzed: 12/08/16 19:41						H-08
QC Source Sample: BM-10->30' (0.5-1')_Prepared (A6K0212-36RE1)												
EPA 8270D (SIM)												
Acenaphthene	477	2.11	4.21	ug/kg dry	1	843	ND	57	40-122%	---	---	
Acenaphthylene	500	2.11	4.21	"	"	"	ND	59	32-132%	---	---	
Anthracene	548	2.11	4.21	"	"	"	ND	65	47-123%	---	---	
Benz(a)anthracene	597	2.11	4.21	"	"	"	ND	71	49-126%	---	---	
Benzo(a)pyrene	551	2.11	4.21	"	"	"	ND	65	45-129%	---	---	
Benzo(b)fluoranthene	567	2.11	4.21	"	"	"	ND	67	45-132%	---	---	
Benzo(k)fluoranthene	526	2.11	4.21	"	"	"	ND	62	47-132%	---	---	
Benzo(g,h,i)perylene	495	2.11	4.21	"	"	"	ND	59	43-134%	---	---	
Chrysene	486	2.11	4.21	"	"	"	ND	58	50-124%	---	---	
Dibenz(a,h)anthracene	544	2.11	4.21	"	"	"	ND	65	45-134%	---	---	
Dibenzofuran	486	2.11	4.21	"	"	"	ND	58	44-120%	---	---	
Fluoranthene	525	2.11	4.21	"	"	"	ND	62	50-127%	---	---	
Fluorene	500	2.11	4.21	"	"	"	ND	59	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	537	2.11	4.21	"	"	"	ND	64	45-133%	---	---	
1-Methylnaphthalene	461	4.21	8.43	"	"	"	ND	55	40-120%	---	---	
2-Methylnaphthalene	494	4.21	8.43	"	"	"	ND	59	38-122%	---	---	
Naphthalene	455	4.21	8.43	"	"	"	ND	54	35-123%	---	---	
Phenanthrene	483	2.11	4.21	"	"	"	ND	57	50-121%	---	---	
Pyrene	498	2.11	4.21	"	"	"	ND	59	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 55 %*	*Limits: 44-115 %*		*Dilution: 1x*						
p-Terphenyl-d14 (Surr)			*53 %*	*54-127 %*		*"*						*S-03*

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AMENDED REPORT

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Tigard, OR 97223
503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120306 - EPA 3546							**Soil**					
Blank (6120306-BLK1)					Prepared: 12/07/16 10:04 Analyzed: 12/12/16 16:39							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*66 %*	*54-127 %*			*"*					
LCS (6120306-BS1)					Prepared: 12/07/16 10:04 Analyzed: 12/12/16 17:05							
EPA 8270D (SIM)												
Acenaphthene	567	2.00	4.00	ug/kg wet	1	800	---	71	40-122%	---	---	
Acenaphthylene	594	2.00	4.00	"	"	"	---	74	32-132%	---	---	
Anthracene	639	2.00	4.00	"	"	"	---	80	47-123%	---	---	
Benz(a)anthracene	696	2.00	4.00	"	"	"	---	87	49-126%	---	---	
Benzo(a)pyrene	666	2.00	4.00	"	"	"	---	83	45-129%	---	---	
Benzo(b)fluoranthene	660	2.00	4.00	"	"	"	---	83	45-132%	---	---	
Benzo(k)fluoranthene	635	2.00	4.00	"	"	"	---	79	47-132%	---	---	
Benzo(g,h,i)perylene	599	2.00	4.00	"	"	"	---	75	43-134%	---	---	
Chrysene	553	2.00	4.00	"	"	"	---	69	50-124%	---	---	
Dibenz(a,h)anthracene	642	2.00	4.00	"	"	"	---	80	45-134%	---	---	
Dibenzofuran	575	2.00	4.00	"	"	"	---	72	44-120%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120306 - EPA 3546							**Soil**					
LCS (6120306-BS1)					Prepared: 12/07/16 10:04 Analyzed: 12/12/16 17:05							
EPA 8270D (SIM)												
Fluoranthene	629	2.00	4.00	ug/kg wet	"	"	---	79	50-127%	---	---	
Fluorene	608	2.00	4.00	"	"	"	---	76	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	635	2.00	4.00	"	"	"	---	79	45-133%	---	---	
1-Methylnaphthalene	554	4.00	8.00	"	"	"	---	69	40-120%	---	---	
2-Methylnaphthalene	587	4.00	8.00	"	"	"	---	73	38-122%	---	---	
Naphthalene	534	4.00	8.00	"	"	"	---	67	35-123%	---	---	
Phenanthrene	563	2.00	4.00	"	"	"	---	70	50-121%	---	---	
Pyrene	606	2.00	4.00	"	"	"	---	76	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*70 %*	*54-127 %*			*"*					
Duplicate (6120306-DUP1)					Prepared: 12/07/16 10:05 Analyzed: 12/12/16 21:24							H-08
QC Source Sample: BM-20->30' (0.5-1')_Prepared (A6K0215-29)												
EPA 8270D (SIM)												
Acenaphthene	ND	2.04	4.08	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Anthracene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Chrysene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Fluorene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	4.08	8.15	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	4.08	8.15	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	4.08	8.15	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Pyrene	ND	2.04	4.08	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 63 %*	*Limits: 44-115 %*			*Dilution: 1x*					

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120306 - EPA 3546							**Soil**					
Duplicate (6120306-DUP1)				Prepared: 12/07/16 10:05		Analyzed: 12/12/16 21:24						H-08
QC Source Sample: BM-20->30' (0.5-1')_Prepared (A6K0215-29)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)				*Recovery: 68 %*		*Limits: 54-127 %*			*Dilution: 1x*			
Matrix Spike (6120306-MS1)				Prepared: 12/07/16 10:04		Analyzed: 12/12/16 21:50						H-08
QC Source Sample: BM-20->30' (0.5-1')_Prepared (A6K0215-29)												
EPA 8270D (SIM)												
Acenaphthene	554	2.03	4.06	ug/kg dry	1	813	ND	68	40-122%	---	---	
Acenaphthylene	578	2.03	4.06	"	"	"	ND	71	32-132%	---	---	
Anthracene	579	2.03	4.06	"	"	"	ND	71	47-123%	---	---	
Benz(a)anthracene	674	2.03	4.06	"	"	"	ND	83	49-126%	---	---	
Benzo(a)pyrene	659	2.03	4.06	"	"	"	ND	81	45-129%	---	---	
Benzo(b)fluoranthene	657	2.03	4.06	"	"	"	ND	81	45-132%	---	---	
Benzo(k)fluoranthene	632	2.03	4.06	"	"	"	ND	78	47-132%	---	---	
Benzo(g,h,i)perylene	591	2.03	4.06	"	"	"	ND	73	43-134%	---	---	
Chrysene	566	2.03	4.06	"	"	"	ND	70	50-124%	---	---	
Dibenz(a,h)anthracene	618	2.03	4.06	"	"	"	ND	76	45-134%	---	---	
Dibenzofuran	553	2.03	4.06	"	"	"	ND	68	44-120%	---	---	
Fluoranthene	575	2.03	4.06	"	"	"	ND	71	50-127%	---	---	
Fluorene	584	2.03	4.06	"	"	"	ND	72	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	625	2.03	4.06	"	"	"	ND	77	45-133%	---	---	
1-Methylnaphthalene	526	4.06	8.13	"	"	"	ND	65	40-120%	---	---	
2-Methylnaphthalene	561	4.06	8.13	"	"	"	ND	69	38-122%	---	---	
Naphthalene	513	4.06	8.13	"	"	"	ND	63	35-123%	---	---	
Phenanthrene	553	2.03	4.06	"	"	"	ND	68	50-121%	---	---	
Pyrene	551	2.03	4.06	"	"	"	ND	68	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)				*Recovery: 64 %*		*Limits: 44-115 %*			*Dilution: 1x*			
p-Terphenyl-d14 (Surr)				*64 %*		*54-127 %*			*"*			
Matrix Spike Dup (6120306-MSD1)				Prepared: 12/07/16 10:05		Analyzed: 12/12/16 22:16						H-08
QC Source Sample: BM-20->30' (0.5-1')_Prepared (A6K0215-29)												
EPA 8270D (SIM)												
Acenaphthene	520	2.03	4.06	ug/kg dry	1	813	ND	64	40-122%	6	30%	
Acenaphthylene	560	2.03	4.06	"	"	"	ND	69	32-132%	3	30%	
Anthracene	596	2.03	4.06	"	"	"	ND	73	47-123%	3	30%	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120306 - EPA 3546							**Soil**					
Matrix Spike Dup (6120306-MSD1)					Prepared: 12/07/16 10:05		Analyzed: 12/12/16 22:16					H-08
QC Source Sample: BM-20->30' (0.5-1')_Prepared (A6K0215-29)												
EPA 8270D (SIM)												
Benz(a)anthracene	651	2.03	4.06	ug/kg dry	"	"	ND	80	49-126%	3	30%	
Benzo(a)pyrene	627	2.03	4.06	"	"	"	ND	77	45-129%	5	30%	
Benzo(b)fluoranthene	617	2.03	4.06	"	"	"	ND	76	45-132%	6	30%	
Benzo(k)fluoranthene	600	2.03	4.06	"	"	"	ND	74	47-132%	5	30%	
Benzo(g,h,i)perylene	553	2.03	4.06	"	"	"	ND	68	43-134%	7	30%	
Chrysene	533	2.03	4.06	"	"	"	ND	66	50-124%	6	30%	
Dibenz(a,h)anthracene	594	2.03	4.06	"	"	"	ND	73	45-134%	4	30%	
Dibenzofuran	531	2.03	4.06	"	"	"	ND	65	44-120%	4	30%	
Fluoranthene	590	2.03	4.06	"	"	"	ND	73	50-127%	3	30%	
Fluorene	570	2.03	4.06	"	"	"	ND	70	43-125%	2	30%	
Indeno(1,2,3-cd)pyrene	580	2.03	4.06	"	"	"	ND	71	45-133%	7	30%	
1-Methylnaphthalene	511	4.06	8.13	"	"	"	ND	63	40-120%	3	30%	
2-Methylnaphthalene	541	4.06	8.13	"	"	"	ND	67	38-122%	4	30%	
Naphthalene	499	4.06	8.13	"	"	"	ND	61	35-123%	3	30%	
Phenanthrene	531	2.03	4.06	"	"	"	ND	65	50-121%	4	30%	
Pyrene	562	2.03	4.06	"	"	"	ND	69	47-127%	2	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 60 %*		*Limits: 44-115 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*64 %*		*54-127 %*			*"*				

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503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120350 - EPA 3546							**Soil**					
Blank (6120350-BLK1)					Prepared: 12/09/16 07:23 Analyzed: 12/13/16 11:46							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 70 %*	*Limits: 44-115 %*				*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*82 %*	*54-127 %*				*"*				
LCS (6120350-BS1)					Prepared: 12/09/16 07:23 Analyzed: 12/13/16 12:11							
EPA 8270D (SIM)												
Acenaphthene	582	2.00	4.00	ug/kg wet	1	800	---	73	40-122%	---	---	
Acenaphthylene	606	2.00	4.00	"	"	"	---	76	32-132%	---	---	
Anthracene	656	2.00	4.00	"	"	"	---	82	47-123%	---	---	
Benz(a)anthracene	711	2.00	4.00	"	"	"	---	89	49-126%	---	---	
Benzo(a)pyrene	652	2.00	4.00	"	"	"	---	82	45-129%	---	---	
Benzo(b)fluoranthene	665	2.00	4.00	"	"	"	---	83	45-132%	---	---	
Benzo(k)fluoranthene	650	2.00	4.00	"	"	"	---	81	47-132%	---	---	
Benzo(g,h,i)perylene	610	2.00	4.00	"	"	"	---	76	43-134%	---	---	
Chrysene	577	2.00	4.00	"	"	"	---	72	50-124%	---	---	
Dibenz(a,h)anthracene	650	2.00	4.00	"	"	"	---	81	45-134%	---	---	
Dibenzofuran	581	2.00	4.00	"	"	"	---	73	44-120%	---	---	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120350 - EPA 3546							**Soil**					
LCS (6120350-BS1)					Prepared: 12/09/16 07:23		Analyzed: 12/13/16 12:11					
EPA 8270D (SIM)												
Fluoranthene	621	2.00	4.00	ug/kg wet	"	"	---	78	50-127%	---	---	
Fluorene	603	2.00	4.00	"	"	"	---	75	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	636	2.00	4.00	"	"	"	---	80	45-133%	---	---	
1-Methylnaphthalene	567	4.00	8.00	"	"	"	---	71	40-120%	---	---	
2-Methylnaphthalene	604	4.00	8.00	"	"	"	---	75	38-122%	---	---	
Naphthalene	551	4.00	8.00	"	"	"	---	69	35-123%	---	---	
Phenanthrene	581	2.00	4.00	"	"	"	---	73	50-121%	---	---	
Pyrene	593	2.00	4.00	"	"	"	---	74	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 72 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*73 %*	*54-127 %*			*"*					
Duplicate (6120350-DUP1)					Prepared: 12/09/16 07:23		Analyzed: 12/13/16 14:20					H-08
QC Source Sample: BM-23-15-30' (1-1.5')_Prepared (A6K0216-18)												
EPA 8270D (SIM)												
Acenaphthene	ND	1.98	3.97	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	1.98	3.97	"	"	---	ND	---	---	---	30%	
Anthracene	ND	1.98	3.97	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	1.98	3.97	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	1.98	3.97	"	"	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	1.98	3.97	"	"	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	1.98	3.97	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	1.98	3.97	"	"	---	ND	---	---	---	30%	
Chrysene	ND	1.98	3.97	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	1.98	3.97	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	1.98	3.97	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	1.98	3.97	"	"	---	ND	---	---	---	30%	
Fluorene	ND	1.98	3.97	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	1.98	3.97	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	3.97	7.93	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	3.97	7.93	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	3.97	7.93	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	1.98	3.97	"	"	---	ND	---	---	---	30%	
Pyrene	ND	1.98	3.97	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 68 %*	*Limits: 44-115 %*			*Dilution: 1x*					

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120350 - EPA 3546							**Soil**					
Duplicate (6120350-DUP1)					Prepared: 12/09/16 07:23		Analyzed: 12/13/16 14:20					H-08
QC Source Sample: BM-23-15-30' (1-1.5')_Prepared (A6K0216-18)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 74 %*	*Limits: 54-127 %*			*Dilution: 1x*					
Matrix Spike (6120350-MS1)					Prepared: 12/09/16 07:23		Analyzed: 12/13/16 14:46					H-08
QC Source Sample: BM-23-15-30' (1-1.5')_Prepared (A6K0216-18)												
EPA 8270D (SIM)												
Acenaphthene	751	2.04	4.08	ug/kg dry	1	816	ND	92	40-122%	---	---	
Acenaphthylene	777	2.04	4.08	"	"	"	ND	95	32-132%	---	---	
Anthracene	855	2.04	4.08	"	"	"	ND	105	47-123%	---	---	
Benz(a)anthracene	945	2.04	4.08	"	"	"	ND	116	49-126%	---	---	
Benzo(a)pyrene	885	2.04	4.08	"	"	"	ND	108	45-129%	---	---	
Benzo(b)fluoranthene	871	2.04	4.08	"	"	"	ND	107	45-132%	---	---	
Benzo(k)fluoranthene	847	2.04	4.08	"	"	"	ND	104	47-132%	---	---	
Benzo(g,h,i)perylene	788	2.04	4.08	"	"	"	ND	97	43-134%	---	---	
Chrysene	755	2.04	4.08	"	"	"	ND	93	50-124%	---	---	
Dibenz(a,h)anthracene	858	2.04	4.08	"	"	"	ND	105	45-134%	---	---	
Dibenzofuran	750	2.04	4.08	"	"	"	ND	92	44-120%	---	---	
Fluoranthene	824	2.04	4.08	"	"	"	ND	101	50-127%	---	---	
Fluorene	792	2.04	4.08	"	"	"	ND	97	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	848	2.04	4.08	"	"	"	ND	104	45-133%	---	---	
1-Methylnaphthalene	716	4.08	8.16	"	"	"	ND	88	40-120%	---	---	
2-Methylnaphthalene	764	4.08	8.16	"	"	"	ND	94	38-122%	---	---	
Naphthalene	683	4.08	8.16	"	"	"	ND	84	35-123%	---	---	
Phenanthrene	756	2.04	4.08	"	"	"	ND	93	50-121%	---	---	
Pyrene	784	2.04	4.08	"	"	"	ND	96	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 90 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*94 %*	*54-127 %*			*"*					
Matrix Spike Dup (6120350-MSD1)					Prepared: 12/09/16 07:23		Analyzed: 12/13/16 15:12					H-08
QC Source Sample: BM-23-15-30' (1-1.5')_Prepared (A6K0216-18)												
EPA 8270D (SIM)												
Acenaphthene	589	1.99	3.99	ug/kg dry	1	798	ND	74	40-122%	24	30%	
Acenaphthylene	616	1.99	3.99	"	"	"	ND	77	32-132%	23	30%	
Anthracene	667	1.99	3.99	"	"	"	ND	84	47-123%	25	30%	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120350 - EPA 3546							**Soil**					
Matrix Spike Dup (6120350-MSD1)					Prepared: 12/09/16 07:23		Analyzed: 12/13/16 15:12					H-08
QC Source Sample: BM-23-15-30' (1-1.5')_Prepared (A6K0216-18)												
EPA 8270D (SIM)												
Benz(a)anthracene	727	1.99	3.99	ug/kg dry	"	"	ND	91	49-126%	26	30%	
Benzo(a)pyrene	687	1.99	3.99	"	"	"	ND	86	45-129%	25	30%	
Benzo(b)fluoranthene	685	1.99	3.99	"	"	"	ND	86	45-132%	24	30%	
Benzo(k)fluoranthene	659	1.99	3.99	"	"	"	ND	83	47-132%	25	30%	
Benzo(g,h,i)perylene	596	1.99	3.99	"	"	"	ND	75	43-134%	28	30%	
Chrysene	586	1.99	3.99	"	"	"	ND	73	50-124%	25	30%	
Dibenz(a,h)anthracene	648	1.99	3.99	"	"	"	ND	81	45-134%	28	30%	
Dibenzofuran	594	1.99	3.99	"	"	"	ND	75	44-120%	23	30%	
Fluoranthene	641	1.99	3.99	"	"	"	ND	80	50-127%	25	30%	
Fluorene	621	1.99	3.99	"	"	"	ND	78	43-125%	24	30%	
Indeno(1,2,3-cd)pyrene	637	1.99	3.99	"	"	"	ND	80	45-133%	28	30%	
1-Methylnaphthalene	566	3.99	7.98	"	"	"	ND	71	40-120%	23	30%	
2-Methylnaphthalene	604	3.99	7.98	"	"	"	ND	76	38-122%	23	30%	
Naphthalene	538	3.99	7.98	"	"	"	ND	67	35-123%	24	30%	
Phenanthrene	585	1.99	3.99	"	"	"	ND	73	50-121%	26	30%	
Pyrene	605	1.99	3.99	"	"	"	ND	76	47-127%	26	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 75 %*		*Limits: 44-115 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*77 %*		*54-127 %*			*"*				

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120419 - EPA 3546							Soil					
Blank (6120419-BLK1)					Prepared: 12/12/16 12:04 Analyzed: 12/13/16 09:58							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 69 %*	*Limits: 44-115 %*				*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*64 %*	*54-127 %*				*"*				
LCS (6120419-BS1)					Prepared: 12/12/16 12:04 Analyzed: 12/13/16 10:23							
EPA 8270D (SIM)												
Acenaphthene	609	2.00	4.00	ug/kg wet	1	800	---	76	40-122%	---	---	
Acenaphthylene	601	2.00	4.00	"	"	"	---	75	32-132%	---	---	
Anthracene	598	2.00	4.00	"	"	"	---	75	47-123%	---	---	
Benz(a)anthracene	610	2.00	4.00	"	"	"	---	76	49-126%	---	---	
Benzo(a)pyrene	681	2.00	4.00	"	"	"	---	85	45-129%	---	---	
Benzo(b)fluoranthene	649	2.00	4.00	"	"	"	---	81	45-132%	---	---	
Benzo(k)fluoranthene	667	2.00	4.00	"	"	"	---	83	47-132%	---	---	
Benzo(g,h,i)perylene	584	2.00	4.00	"	"	"	---	73	43-134%	---	---	
Chrysene	597	2.00	4.00	"	"	"	---	75	50-124%	---	---	
Dibenz(a,h)anthracene	683	2.00	4.00	"	"	"	---	85	45-134%	---	---	
Dibenzofuran	587	2.00	4.00	"	"	"	---	73	44-120%	---	---	

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120419 - EPA 3546							**Soil**					
LCS (6120419-BS1)					Prepared: 12/12/16 12:04 Analyzed: 12/13/16 10:23							
EPA 8270D (SIM)												
Fluoranthene	637	2.00	4.00	ug/kg wet	"	"	---	80	50-127%	---	---	
Fluorene	584	2.00	4.00	"	"	"	---	73	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	612	2.00	4.00	"	"	"	---	77	45-133%	---	---	
1-Methylnaphthalene	583	4.00	8.00	"	"	"	---	73	40-120%	---	---	
2-Methylnaphthalene	575	4.00	8.00	"	"	"	---	72	38-122%	---	---	
Naphthalene	543	4.00	8.00	"	"	"	---	68	35-123%	---	---	
Phenanthrene	542	2.00	4.00	"	"	"	---	68	50-121%	---	---	
Pyrene	638	2.00	4.00	"	"	"	---	80	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*66 %*	*54-127 %*			*"*					
Duplicate (6120419-DUP1)					Prepared: 12/12/16 12:04 Analyzed: 12/13/16 11:15							H-08
QC Source Sample: BM-18->30' (0.5-1')_Prepared (A6K0214-37RE1)												
EPA 8270D (SIM)												
Acenaphthene	ND	2.07	4.15	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	2.07	4.15	"	"	---	ND	---	---	---	30%	
Anthracene	ND	2.07	4.15	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	2.07	4.15	"	"	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	2.07	4.15	"	"	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	2.07	4.15	"	"	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	2.07	4.15	"	"	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	2.07	4.15	"	"	---	ND	---	---	---	30%	
Chrysene	ND	2.07	4.15	"	"	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	2.07	4.15	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	2.07	4.15	"	"	---	ND	---	---	---	30%	
Fluoranthene	ND	2.07	4.15	"	"	---	ND	---	---	---	30%	
Fluorene	ND	2.07	4.15	"	"	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	2.07	4.15	"	"	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	4.15	8.29	"	"	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	4.15	8.29	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	4.15	8.29	"	"	---	ND	---	---	---	30%	
Phenanthrene	ND	2.07	4.15	"	"	---	ND	---	---	---	30%	
Pyrene	ND	2.07	4.15	"	"	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 51 %*	*Limits: 44-115 %*			*Dilution: 1x*					

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120419 - EPA 3546							**Soil**					
Duplicate (6120419-DUP1)					Prepared: 12/12/16 12:04 Analyzed: 12/13/16 11:15							H-08
QC Source Sample: BM-18->30' (0.5-1')_Prepared (A6K0214-37RE1)												
EPA 8270D (SIM)												
Surr: p-Terphenyl-d14 (Surr)			*Recovery: 45 %*	*Limits: 54-127 %*			*Dilution: 1x*					*S-03*
Matrix Spike (6120419-MS1)					Prepared: 12/12/16 12:04 Analyzed: 12/13/16 12:33							H-08
QC Source Sample: BM-19-15-30' (0.5-1')_Prepared (A6K0214-40RE1)												
EPA 8270D (SIM)												
Acenaphthene	417	2.11	4.22	ug/kg dry	1	844	ND	49	40-122%	---	---	
Acenaphthylene	405	2.11	4.22	"	"	"	ND	48	32-132%	---	---	
Anthracene	436	2.11	4.22	"	"	"	ND	52	47-123%	---	---	
Benz(a)anthracene	449	2.11	4.22	"	"	"	ND	53	49-126%	---	---	
Benzo(a)pyrene	417	2.11	4.22	"	"	"	ND	49	45-129%	---	---	
Benzo(b)fluoranthene	475	2.11	4.22	"	"	"	ND	56	45-132%	---	---	
Benzo(k)fluoranthene	480	2.11	4.22	"	"	"	ND	57	47-132%	---	---	
Benzo(g,h,i)perylene	408	2.11	4.22	"	"	"	ND	48	43-134%	---	---	
Chrysene	443	2.11	4.22	"	"	"	ND	52	50-124%	---	---	
Dibenz(a,h)anthracene	481	2.11	4.22	"	"	"	ND	57	45-134%	---	---	
Dibenzofuran	417	2.11	4.22	"	"	"	ND	49	44-120%	---	---	
Fluoranthene	489	2.11	4.22	"	"	"	ND	58	50-127%	---	---	
Fluorene	419	2.11	4.22	"	"	"	ND	50	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	435	2.11	4.22	"	"	"	ND	51	45-133%	---	---	
1-Methylnaphthalene	381	4.22	8.44	"	"	"	ND	45	40-120%	---	---	
2-Methylnaphthalene	371	4.22	8.44	"	"	"	ND	44	38-122%	---	---	
Naphthalene	342	4.22	8.44	"	"	"	ND	40	35-123%	---	---	
Phenanthrene	399	2.11	4.22	"	"	"	ND	47	50-121%	---	---	Q-01
Pyrene	485	2.11	4.22	"	"	"	ND	57	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 45 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*45 %*	*54-127 %*			*"*					*S-03*

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Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120471 - EPA 3546							**Soil**					
Blank (6120471-BLK1)					Prepared: 12/13/16 13:12 Analyzed: 12/13/16 17:43							
EPA 8270D (SIM)												
Acenaphthene	ND	1.82	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Chrysene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluoranthene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Fluorene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	"	"	---	---	---	---	---	---	
Phenanthrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Pyrene	ND	1.82	3.64	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 92 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*84 %*	*54-127 %*			*"*					
LCS (6120471-BS1)					Prepared: 12/13/16 13:12 Analyzed: 12/13/16 18:09							
EPA 8270D (SIM)												
Acenaphthene	807	2.00	4.00	ug/kg wet	1	800	---	101	40-122%	---	---	
Acenaphthylene	785	2.00	4.00	"	"	"	---	98	32-132%	---	---	
Anthracene	789	2.00	4.00	"	"	"	---	99	47-123%	---	---	
Benz(a)anthracene	789	2.00	4.00	"	"	"	---	99	49-126%	---	---	
Benzo(a)pyrene	886	2.00	4.00	"	"	"	---	111	45-129%	---	---	
Benzo(b)fluoranthene	845	2.00	4.00	"	"	"	---	106	45-132%	---	---	
Benzo(k)fluoranthene	858	2.00	4.00	"	"	"	---	107	47-132%	---	---	
Benzo(g,h,i)perylene	729	2.00	4.00	"	"	"	---	91	43-134%	---	---	
Chrysene	786	2.00	4.00	"	"	"	---	98	50-124%	---	---	
Dibenz(a,h)anthracene	857	2.00	4.00	"	"	"	---	107	45-134%	---	---	
Dibenzofuran	778	2.00	4.00	"	"	"	---	97	44-120%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120471 - EPA 3546							Soil					
LCS (6120471-BS1)					Prepared: 12/13/16 13:12 Analyzed: 12/13/16 18:09							
EPA 8270D (SIM)												
Fluoranthene	851	2.00	4.00	ug/kg wet	"	"	---	106	50-127%	---	---	
Fluorene	764	2.00	4.00	"	"	"	---	96	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	773	2.00	4.00	"	"	"	---	97	45-133%	---	---	
1-Methylnaphthalene	779	4.00	8.00	"	"	"	---	97	40-120%	---	---	
2-Methylnaphthalene	771	4.00	8.00	"	"	"	---	96	38-122%	---	---	
Naphthalene	703	4.00	8.00	"	"	"	---	88	35-123%	---	---	
Phenanthrene	719	2.00	4.00	"	"	"	---	90	50-121%	---	---	
Pyrene	851	2.00	4.00	"	"	"	---	106	47-127%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 96 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*87 %*	*54-127 %*			*"*					
LCS Dup (6120471-BSD1)					Prepared: 12/13/16 13:12 Analyzed: 12/13/16 18:35							Q-19
EPA 8270D (SIM)												
Acenaphthene	833	2.00	4.00	ug/kg wet	1	800	---	104	40-122%	3	30%	
Acenaphthylene	808	2.00	4.00	"	"	"	---	101	32-132%	3	30%	
Anthracene	801	2.00	4.00	"	"	"	---	100	47-123%	1	30%	
Benz(a)anthracene	802	2.00	4.00	"	"	"	---	100	49-126%	2	30%	
Benzo(a)pyrene	893	2.00	4.00	"	"	"	---	112	45-129%	0.7	30%	
Benzo(b)fluoranthene	847	2.00	4.00	"	"	"	---	106	45-132%	0.2	30%	
Benzo(k)fluoranthene	876	2.00	4.00	"	"	"	---	109	47-132%	2	30%	
Benzo(g,h,i)perylene	747	2.00	4.00	"	"	"	---	93	43-134%	3	30%	
Chrysene	790	2.00	4.00	"	"	"	---	99	50-124%	0.4	30%	
Dibenz(a,h)anthracene	882	2.00	4.00	"	"	"	---	110	45-134%	3	30%	
Dibenzofuran	795	2.00	4.00	"	"	"	---	99	44-120%	2	30%	
Fluoranthene	871	2.00	4.00	"	"	"	---	109	50-127%	2	30%	
Fluorene	771	2.00	4.00	"	"	"	---	96	43-125%	0.9	30%	
Indeno(1,2,3-cd)pyrene	793	2.00	4.00	"	"	"	---	99	45-133%	3	30%	
1-Methylnaphthalene	791	4.00	8.00	"	"	"	---	99	40-120%	2	30%	
2-Methylnaphthalene	774	4.00	8.00	"	"	"	---	97	38-122%	0.4	30%	
Naphthalene	721	4.00	8.00	"	"	"	---	90	35-123%	3	30%	
Phenanthrene	728	2.00	4.00	"	"	"	---	91	50-121%	1	30%	
Pyrene	876	2.00	4.00	"	"	"	---	110	47-127%	3	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 95 %*	*Limits: 44-115 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*86 %*	*54-127 %*			*"*					

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120380 - EPA 3051A							**Soil**					
Blank (6120380-BLK1)					Prepared: 12/09/16 14:57		Analyzed: 12/12/16 15:33					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6120380-BS1)					Prepared: 12/09/16 14:57		Analyzed: 12/12/16 15:36					
EPA 6020A												
Lead	54.5	0.100	0.200	mg/kg wet	10	50.0	---	109	80-120%	---	---	
Matrix Spike (6120380-MS2)					Prepared: 12/09/16 14:57		Analyzed: 12/12/16 17:11					
QC Source Sample: BM-08->30' (0-0.5')_Prepared (A6K0212-26)												
EPA 6020A												
Lead	68.0	0.114	0.228	mg/kg dry	10	57.2	11.6	99	75-125%	---	---	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120469 - EPA 3051A									Soil			
Blank (6120469-BLK1)					Prepared: 12/13/16 12:48		Analyzed: 12/13/16 21:51					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6120469-BS1)					Prepared: 12/13/16 12:48		Analyzed: 12/13/16 21:54					
EPA 6020A												
Lead	52.6	0.100	0.200	mg/kg wet	10	50.0	---	105	80-120%	---	---	
Duplicate (6120469-DUP1)					Prepared: 12/13/16 12:48		Analyzed: 12/14/16 16:27					
QC Source Sample: BM-04-15-30' (0-0.5')_Prepared (A6K0211-22)												
EPA 6020A												
Lead	**6.58**	0.109	0.218	mg/kg dry	10	---	6.46	---	---	2	40%	
Duplicate (6120469-DUP2)					Prepared: 12/13/16 12:48		Analyzed: 12/14/16 16:30					
QC Source Sample: BM-04-15-30' (0-0.5')_Prepared (A6K0211-22)												
EPA 6020A												
Lead	**6.65**	0.110	0.220	mg/kg dry	10	---	6.46	---	---	3	40%	
Matrix Spike (6120469-MS1)					Prepared: 12/13/16 12:48		Analyzed: 12/14/16 16:42					
QC Source Sample: BM-04-15-30' (0-0.5')_Prepared (A6K0211-22)												
EPA 6020A												
Lead	57.5	0.106	0.213	mg/kg dry	10	53.2	6.46	96	75-125%	---	---	
Matrix Spike (6120469-MS2)					Prepared: 12/13/16 12:48		Analyzed: 12/14/16 17:48					
QC Source Sample: BM-07-15-30' (0.5-1')_Prepared (A6K0211-40)												
EPA 6020A												
Lead	79.0	0.112	0.223	mg/kg dry	10	55.9	23.8	99	75-125%	---	---	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120628 - EPA 3051A									Soil			
Blank (6120628-BLK1)					Prepared: 12/20/16 10:05		Analyzed: 12/20/16 21:11					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6120628-BS1)					Prepared: 12/20/16 10:05		Analyzed: 12/20/16 21:14					
EPA 6020A												
Lead	48.0	0.100	0.200	mg/kg wet	10	50.0	---	96	80-120%	---	---	
Duplicate (6120628-DUP1)					Prepared: 12/20/16 10:05		Analyzed: 12/20/16 21:26					
QC Source Sample: BM-08-15-30' (0-0.5')_Prepared (A6K0212-23)												
EPA 6020A												
Lead	**9.59**	0.110	0.221	mg/kg dry	10	---	8.68	---	---	10	40%	
Duplicate (6120628-DUP2)					Prepared: 12/20/16 10:05		Analyzed: 12/20/16 21:30					
QC Source Sample: BM-08-15-30' (0-0.5')_Prepared (A6K0212-23)												
EPA 6020A												
Lead	**8.08**	0.107	0.214	mg/kg dry	10	---	8.68	---	---	7	40%	
Matrix Spike (6120628-MS1)					Prepared: 12/20/16 10:05		Analyzed: 12/20/16 21:33					
QC Source Sample: BM-08-15-30' (0-0.5')_Prepared (A6K0212-23)												
EPA 6020A												
Lead	55.2	0.109	0.218	mg/kg dry	10	54.6	8.68	85	75-125%	---	---	
Matrix Spike (6120628-MS2)					Prepared: 12/20/16 10:05		Analyzed: 12/21/16 17:49					
QC Source Sample: BM-11->30' (0.5-1')_Prepared (A6K0213-22)												
EPA 6020A												
Lead	62.2	0.109	0.218	mg/kg dry	10	54.5	8.36	99	75-125%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120634 - EPA 3051A									Soil			
Blank (6120634-BLK1)					Prepared: 12/20/16 11:14		Analyzed: 12/21/16 13:09					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6120634-BS1)					Prepared: 12/20/16 11:14		Analyzed: 12/21/16 13:13					
EPA 6020A												
Lead	47.3	0.100	0.200	mg/kg wet	10	50.0	---	95	80-120%	---	---	
Duplicate (6120634-DUP1)					Prepared: 12/20/16 11:14		Analyzed: 12/21/16 13:28					
QC Source Sample: Other (A6K0213-25)												
EPA 6020A												
Lead	**11.6**	0.107	0.214	mg/kg dry	10	---	11.0	---	---	5	40%	
Duplicate (6120634-DUP2)					Prepared: 12/20/16 11:14		Analyzed: 12/21/16 13:32					
QC Source Sample: Other (A6K0213-25)												
EPA 6020A												
Lead	**10.6**	0.112	0.223	mg/kg dry	10	---	11.0	---	---	4	40%	
Matrix Spike (6120634-MS1)					Prepared: 12/20/16 11:14		Analyzed: 12/21/16 13:36					
QC Source Sample: Other (A6K0213-25)												
EPA 6020A												
Lead	62.2	0.109	0.218	mg/kg dry	10	54.5	11.0	94	75-125%	---	---	
Matrix Spike (6120634-MS2)					Prepared: 12/20/16 11:14		Analyzed: 12/21/16 18:16					
QC Source Sample: BM-15->30' (0.5-1')_Prepared (A6K0214-21)												
EPA 6020A												
Lead	66.2	0.115	0.230	mg/kg dry	10	57.4	10.3	97	75-125%	---	---	

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503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120654 - EPA 3051A									Soil			
Blank (6120654-BLK1)					Prepared: 12/20/16 15:12		Analyzed: 12/21/16 18:23					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6120654-BS1)					Prepared: 12/20/16 15:12		Analyzed: 12/21/16 18:38					
EPA 6020A												
Lead	46.7	0.100	0.200	mg/kg wet	10	50.0	---	93	80-120%	---	---	
Duplicate (6120654-DUP1)					Prepared: 12/20/16 15:12		Analyzed: 12/21/16 22:09					
QC Source Sample: BM-18->30' (1-1.5')_Prepared (A6K0214-38)												
EPA 6020A												
Lead	**4.96**	0.111	0.222	mg/kg dry	10	---	4.48	---	---	10	40%	
Duplicate (6120654-DUP2)					Prepared: 12/20/16 15:12		Analyzed: 12/21/16 22:12					
QC Source Sample: BM-18->30' (1-1.5')_Prepared (A6K0214-38)												
EPA 6020A												
Lead	**4.03**	0.105	0.210	mg/kg dry	10	---	4.48	---	---	11	40%	
Matrix Spike (6120654-MS1)					Prepared: 12/20/16 15:12		Analyzed: 12/21/16 22:16					
QC Source Sample: BM-18->30' (1-1.5')_Prepared (A6K0214-38)												
EPA 6020A												
Lead	53.2	0.107	0.215	mg/kg dry	10	53.8	4.48	91	75-125%	---	---	
Matrix Spike (6120654-MS2)					Prepared: 12/20/16 15:12		Analyzed: 12/21/16 19:01					
QC Source Sample: BM-16->30' (0-0.5')_Prepared (A6K0214-26)												
EPA 6020A												
Lead	52.9	0.106	0.212	mg/kg dry	10	53.1	5.57	89	75-125%	---	---	

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120661 - EPA 3051A									Soil			
Blank (6120661-BLK1)					Prepared: 12/20/16 17:22		Analyzed: 12/21/16 22:31					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6120661-BS1)					Prepared: 12/20/16 17:22		Analyzed: 12/21/16 22:35					
EPA 6020A												
Lead	48.4	0.100	0.200	mg/kg wet	10	50.0	---	97	80-120%	---	---	
Duplicate (6120661-DUP1)					Prepared: 12/20/16 17:22		Analyzed: 12/21/16 23:23					
QC Source Sample: BM-20->30' (0.5-1')_Prepared (A6K0215-29)												
EPA 6020A												
Lead	**0.891**	0.104	0.209	mg/kg dry	10	---	0.729	---	---	20	40%	
Duplicate (6120661-DUP2)					Prepared: 12/20/16 17:22		Analyzed: 12/21/16 23:27					
QC Source Sample: BM-20->30' (0.5-1')_Prepared (A6K0215-29)												
EPA 6020A												
Lead	**0.762**	0.109	0.218	mg/kg dry	10	---	0.729	---	---	4	40%	
Matrix Spike (6120661-MS1)					Prepared: 12/20/16 17:22		Analyzed: 12/21/16 23:42					
QC Source Sample: BM-20->30' (0.5-1')_Prepared (A6K0215-29)												
EPA 6020A												
Lead	48.2	0.113	0.225	mg/kg dry	10	56.3	0.729	84	75-125%	---	---	
Matrix Spike (6120661-MS2)					Prepared: 12/20/16 17:22		Analyzed: 12/22/16 00:35					
QC Source Sample: BM-22->30' (0.5-1')_Prepared (A6K0215-39)												
EPA 6020A												
Lead	51.8	0.103	0.206	mg/kg dry	10	51.6	1.42	98	75-125%	---	---	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120689 - EPA 3051A									Soil			
Blank (6120689-BLK1)					Prepared: 12/21/16 12:12		Analyzed: 12/22/16 00:43					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (6120689-BS1)					Prepared: 12/21/16 12:12		Analyzed: 12/22/16 00:47					
EPA 6020A												
Lead	46.9	0.100	0.200	mg/kg wet	10	50.0	---	94	80-120%	---	---	
Duplicate (6120689-DUP1)					Prepared: 12/21/16 12:12		Analyzed: 12/22/16 01:06					
QC Source Sample: BM-23-15-30' (1-1.5')_Prepared (A6K0216-18)												
EPA 6020A												
Lead	**1.22**	0.105	0.210	mg/kg dry	10	---	1.26	---	---	3	40%	
Duplicate (6120689-DUP2)					Prepared: 12/21/16 12:12		Analyzed: 12/22/16 01:20					
QC Source Sample: BM-23-15-30' (1-1.5')_Prepared (A6K0216-18)												
EPA 6020A												
Lead	**1.26**	0.115	0.230	mg/kg dry	10	---	1.26	---	---	0.1	40%	
Matrix Spike (6120689-MS1)					Prepared: 12/21/16 12:12		Analyzed: 12/22/16 01:24					
QC Source Sample: BM-23-15-30' (1-1.5')_Prepared (A6K0216-18)												
EPA 6020A												
Lead	56.6	0.113	0.226	mg/kg dry	10	56.4	1.26	98	75-125%	---	---	
Matrix Spike (6120689-MS2)					Prepared: 12/21/16 12:12		Analyzed: 12/22/16 02:24					
QC Source Sample: BM-25->30' (1-1.5')_Prepared (A6K0216-30)												
EPA 6020A												
Lead	55.5	0.109	0.218	mg/kg dry	10	54.6	5.71	91	75-125%	---	---	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120695 - EPA 3051A							**Solid**					
Blank (6120695-BLK1)					Prepared: 12/21/16 13:31		Analyzed: 12/21/16 20:17					
EPA 6020A												
Lead	ND	0.100	0.200	mg/kg	10	---	---	---	---	---	---	
LCS (6120695-BS1)					Prepared: 12/21/16 13:31		Analyzed: 12/21/16 20:20					
EPA 6020A												
Lead	48.3	0.100	0.200	mg/kg	10	50.0	---	97	80-120%	---	---	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110719 - Total Solids (Dry Weight)											**Soil**	
Duplicate (6110719-DUP1)					Prepared: 11/18/16 10:20		Analyzed: 11/21/16 09:19					
QC Source Sample: BM-04-15-30' (0-0.5')_Prepared (A6K0211-22)												
EPA 8000C												
% Solids	**95.9**	---	1.00	% by Weight	1	---	98.0	---	---	2	10%	
Duplicate (6110719-DUP2)					Prepared: 11/18/16 10:20		Analyzed: 11/21/16 09:19					
QC Source Sample: BM-05->30' (1-1.5')_Prepared (A6K0211-31)												
EPA 8000C												
% Solids	**98.1**	---	1.00	% by Weight	1	---	97.0	---	---	1	10%	
Duplicate (6110719-DUP3)					Prepared: 11/18/16 10:20		Analyzed: 11/21/16 09:19					
QC Source Sample: BM-07-15-30' (1-1.5')_Prepared (A6K0211-41)												
EPA 8000C												
% Solids	**95.5**	---	1.00	% by Weight	1	---	96.1	---	---	0.6	10%	
Duplicate (6110719-DUP4)					Prepared: 11/18/16 10:20		Analyzed: 11/21/16 09:19					
QC Source Sample: BM-09->30' (0-0.5')_Prepared (A6K0212-29)												
EPA 8000C												
% Solids	**96.8**	---	1.00	% by Weight	1	---	96.8	---	---	0.04	10%	
Duplicate (6110719-DUP5)					Prepared: 11/18/16 10:20		Analyzed: 11/21/16 09:19					
QC Source Sample: BM-11-15-30' (0.5-1')_Prepared (A6K0212-39)												
EPA 8000C												
% Solids	**97.2**	---	1.00	% by Weight	1	---	97.4	---	---	0.3	10%	
Batch 6110829 - Total Solids (Dry Weight)											**Soil**	
Duplicate (6110829-DUP1)					Prepared: 11/23/16 09:21		Analyzed: 11/28/16 09:50					
QC Source Sample: BM-12->30' (1-1.5')_Prepared (A6K0213-30)												
EPA 8000C												
% Solids	**97.9**	---	1.00	% by Weight	1	---	97.7	---	---	0.2	10%	
Duplicate (6110829-DUP2)					Prepared: 11/23/16 09:21		Analyzed: 11/28/16 09:50					
QC Source Sample: BM-15->30' (0-0.5')_Prepared (A6K0213-40)												
EPA 8000C												

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110829 - Total Solids (Dry Weight)									**Soil**			
Duplicate (6110829-DUP2)					Prepared: 11/23/16 09:21		Analyzed: 11/28/16 09:50					
QC Source Sample: BM-15->30' (0-0.5')_Prepared (A6K0213-40)												
EPA 8000C												
% Solids	**92.0**	---	1.00	% by Weight	1	---	92.2	---	---	0.1	10%	
Duplicate (6110829-DUP3)					Prepared: 11/23/16 09:21		Analyzed: 11/28/16 09:50					
QC Source Sample: BM-17->30' (0.5-1')_Prepared (A6K0214-30)												
EPA 8000C												
% Solids	**97.6**	---	1.00	% by Weight	1	---	97.6	---	---	0.05	10%	
Duplicate (6110829-DUP4)					Prepared: 11/23/16 09:23		Analyzed: 11/28/16 09:50					
QC Source Sample: BM-19-15-30' (0.5-1')_Prepared (A6K0214-40)												
EPA 8000C												
% Solids	**93.9**	---	1.00	% by Weight	1	---	93.9	---	---	0.03	10%	
Duplicate (6110829-DUP5)					Prepared: 11/23/16 09:23		Analyzed: 11/28/16 09:50					
QC Source Sample: BM-20->30' (1-1.5')_Prepared (A6K0215-30)												
EPA 8000C												
% Solids	**97.9**	---	1.00	% by Weight	1	---	98.0	---	---	0.05	10%	
Duplicate (6110829-DUP6)					Prepared: 11/23/16 09:23		Analyzed: 11/28/16 09:50					
QC Source Sample: BM-22->30' (1-1.5')_Prepared (A6K0215-40)												
EPA 8000C												
% Solids	**97.9**	---	1.00	% by Weight	1	---	98.0	---	---	0.09	10%	
Batch 6110913 - Total Solids (Dry Weight)									**Soil**			
Duplicate (6110913-DUP1)					Prepared: 11/29/16 10:39		Analyzed: 11/30/16 09:25					
QC Source Sample: BM-24-15-30' (0.5-1')_Prepared (A6K0216-26)												
EPA 8000C												
% Solids	**96.7**	---	1.00	% by Weight	1	---	96.8	---	---	0.07	10%	

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

SAMPLE PREPARATION INFORMATION

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6120155							
A6K0211-22	Soil	EPA 8270D (SIM)	10/24/16 08:42	12/02/16 07:12	10.59g/2mL	10g/2mL	0.94
A6K0211-23	Soil	EPA 8270D (SIM)	10/24/16 08:53	12/02/16 07:12	10.27g/2mL	10g/2mL	0.97
A6K0211-24	Soil	EPA 8270D (SIM)	10/24/16 09:05	12/02/16 07:12	10.55g/2mL	10g/2mL	0.95
A6K0211-25	Soil	EPA 8270D (SIM)	10/24/16 09:05	12/02/16 07:12	10.28g/2mL	10g/2mL	0.97
A6K0211-26	Soil	EPA 8270D (SIM)	10/24/16 09:11	12/02/16 07:12	10.42g/2mL	10g/2mL	0.96
A6K0211-27	Soil	EPA 8270D (SIM)	10/24/16 09:20	12/02/16 07:12	10.49g/2mL	10g/2mL	0.95
A6K0211-28	Soil	EPA 8270D (SIM)	10/24/16 09:28	12/02/16 07:12	10.32g/2mL	10g/2mL	0.97
A6K0211-29	Soil	EPA 8270D (SIM)	10/24/16 10:30	12/02/16 07:12	10.22g/2mL	10g/2mL	0.98
A6K0211-30	Soil	EPA 8270D (SIM)	10/24/16 10:36	12/02/16 07:12	10.55g/2mL	10g/2mL	0.95
A6K0211-31	Soil	EPA 8270D (SIM)	10/24/16 10:43	12/02/16 07:12	10.23g/2mL	10g/2mL	0.98
A6K0211-32	Soil	EPA 8270D (SIM)	10/24/16 11:02	12/02/16 07:12	10.13g/2mL	10g/2mL	0.99
A6K0211-33	Soil	EPA 8270D (SIM)	10/24/16 11:10	12/02/16 07:12	10.52g/2mL	10g/2mL	0.95
A6K0211-34	Soil	EPA 8270D (SIM)	10/24/16 11:10	12/02/16 07:12	10.22g/2mL	10g/2mL	0.98
A6K0211-35	Soil	EPA 8270D (SIM)	10/24/16 11:19	12/02/16 07:12	10.28g/2mL	10g/2mL	0.97
A6K0211-36	Soil	EPA 8270D (SIM)	10/24/16 11:31	12/02/16 07:12	10.73g/2mL	10g/2mL	0.93
A6K0211-37	Soil	EPA 8270D (SIM)	10/24/16 11:43	12/02/16 07:12	10.3g/2mL	10g/2mL	0.97
A6K0211-38	Soil	EPA 8270D (SIM)	10/24/16 11:55	12/02/16 07:12	10.46g/2mL	10g/2mL	0.96
A6K0211-39	Soil	EPA 8270D (SIM)	10/24/16 12:35	12/02/16 07:12	10.5g/2mL	10g/2mL	0.95
A6K0211-40	Soil	EPA 8270D (SIM)	10/24/16 12:44	12/02/16 07:12	10.46g/2mL	10g/2mL	0.96
A6K0211-41	Soil	EPA 8270D (SIM)	10/24/16 12:54	12/02/16 07:12	10.89g/2mL	10g/2mL	0.92
A6K0211-43	Solid	EPA 8270D (SIM)	10/24/16 00:00	12/02/16 07:12	10.33g/2mL	10g/2mL	0.97
Batch: 6120166							
A6K0211-42	Soil	EPA 8270D (SIM)	10/24/16 13:05	12/02/16 09:17	10.19g/2mL	10g/2mL	0.98
Batch: 6120172							
A6K0212-21	Soil	EPA 8270D (SIM)	10/24/16 13:13	12/02/16 10:37	11.59g/2mL	10g/2mL	0.86
A6K0212-23	Soil	EPA 8270D (SIM)	10/24/16 13:55	12/02/16 10:37	10.4g/5mL	10g/2mL	2.40
A6K0212-24	Soil	EPA 8270D (SIM)	10/24/16 14:09	12/02/16 10:37	10.35g/2mL	10g/2mL	0.97
A6K0212-25	Soil	EPA 8270D (SIM)	10/24/16 14:20	12/02/16 10:37	10.32g/2mL	10g/2mL	0.97
A6K0212-26	Soil	EPA 8270D (SIM)	10/24/16 14:31	12/02/16 10:37	10.24g/2mL	10g/2mL	0.98
A6K0212-27	Soil	EPA 8270D (SIM)	10/24/16 14:40	12/02/16 10:37	10.04g/2mL	10g/2mL	1.00
A6K0212-29	Soil	EPA 8270D (SIM)	10/24/16 15:15	12/02/16 10:37	10.38g/2mL	10g/2mL	0.96
A6K0212-30	Soil	EPA 8270D (SIM)	10/24/16 15:27	12/02/16 10:37	10.63g/2mL	10g/2mL	0.94
A6K0212-31	Soil	EPA 8270D (SIM)	10/24/16 15:27	12/02/16 10:37	10.74g/2mL	10g/2mL	0.93

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

SAMPLE PREPARATION INFORMATION

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6K0212-33	Soil	EPA 8270D (SIM)	10/25/16 10:18	12/02/16 10:37	10.57g/2mL	10g/2mL	0.95
A6K0212-34	Soil	EPA 8270D (SIM)	10/25/16 10:30	12/02/16 10:37	10.38g/2mL	10g/2mL	0.96
A6K0212-35	Soil	EPA 8270D (SIM)	10/25/16 10:39	12/02/16 10:37	10.04g/2mL	10g/2mL	1.00
A6K0212-37	Soil	EPA 8270D (SIM)	10/25/16 10:55	12/02/16 10:37	10.18g/2mL	10g/2mL	0.98
A6K0212-39	Soil	EPA 8270D (SIM)	10/25/16 11:19	12/02/16 10:37	10.73g/2mL	10g/2mL	0.93
A6K0212-40	Soil	EPA 8270D (SIM)	10/25/16 11:32	12/02/16 10:37	10.56g/2mL	10g/2mL	0.95
A6K0212-41	Solid	EPA 8270D (SIM)	10/24/16 00:00	12/02/16 10:37	10.71g/2mL	10g/2mL	0.93
Batch: 6120211							
A6K0213-21RE1	Soil	EPA 8270D (SIM)	10/25/16 11:40	12/05/16 10:02	10.04g/2mL	10g/2mL	1.00
A6K0213-22RE1	Soil	EPA 8270D (SIM)	10/25/16 11:51	12/05/16 10:02	10.04g/2mL	10g/2mL	1.00
A6K0213-23RE1	Soil	EPA 8270D (SIM)	10/25/16 11:59	12/05/16 10:02	10.05g/2mL	10g/2mL	1.00
A6K0213-24RE1	Soil	EPA 8270D (SIM)	10/25/16 12:10	12/05/16 10:02	10.04g/2mL	10g/2mL	1.00
A6K0213-25	Soil	EPA 8270D (SIM)	10/25/16 12:10	12/05/16 10:02	10.04g/2mL	10g/2mL	1.00
A6K0213-26	Soil	EPA 8270D (SIM)	10/25/16 12:19	12/05/16 10:02	10.06g/2mL	10g/2mL	0.99
A6K0213-27	Soil	EPA 8270D (SIM)	10/25/16 12:27	12/05/16 10:02	10.05g/2mL	10g/2mL	1.00
A6K0213-28	Soil	EPA 8270D (SIM)	10/25/16 12:37	12/05/16 10:02	10.04g/2mL	10g/2mL	1.00
A6K0213-29	Soil	EPA 8270D (SIM)	10/25/16 12:46	12/05/16 10:02	10.06g/2mL	10g/2mL	0.99
A6K0213-30	Soil	EPA 8270D (SIM)	10/25/16 12:54	12/05/16 10:02	10.04g/2mL	10g/2mL	1.00
A6K0213-31	Soil	EPA 8270D (SIM)	10/25/16 13:07	12/05/16 10:02	10.04g/2mL	10g/2mL	1.00
A6K0213-32	Soil	EPA 8270D (SIM)	10/25/16 13:15	12/05/16 10:02	10.02g/2mL	10g/2mL	1.00
A6K0213-33	Soil	EPA 8270D (SIM)	10/25/16 13:23	12/05/16 10:02	10.06g/2mL	10g/2mL	0.99
A6K0213-34	Soil	EPA 8270D (SIM)	10/25/16 13:31	12/05/16 10:02	10.07g/2mL	10g/2mL	0.99
A6K0213-35	Soil	EPA 8270D (SIM)	10/25/16 13:40	12/05/16 10:02	10.07g/2mL	10g/2mL	0.99
A6K0213-36	Soil	EPA 8270D (SIM)	10/25/16 13:49	12/05/16 10:02	10.05g/2mL	10g/2mL	1.00
A6K0213-37	Soil	EPA 8270D (SIM)	10/25/16 14:03	12/05/16 10:02	10.06g/2mL	10g/2mL	0.99
A6K0213-38	Soil	EPA 8270D (SIM)	10/25/16 14:11	12/05/16 10:02	10.04g/2mL	10g/2mL	1.00
A6K0213-39	Soil	EPA 8270D (SIM)	10/25/16 14:21	12/05/16 10:02	10.05g/2mL	10g/2mL	1.00
A6K0213-40	Soil	EPA 8270D (SIM)	10/25/16 15:14	12/05/16 10:02	10.05g/2mL	10g/2mL	1.00
A6K0213-41	Solid	EPA 8270D (SIM)	10/25/16 00:00	12/05/16 10:02	10.03g/2mL	10g/2mL	1.00
Batch: 6120232							
A6K0214-21	Soil	EPA 8270D (SIM)	10/25/16 15:28	12/05/16 15:35	10.05g/2mL	10g/2mL	1.00
A6K0214-22	Soil	EPA 8270D (SIM)	10/25/16 15:37	12/05/16 15:35	10.05g/2mL	10g/2mL	1.00
A6K0214-23	Soil	EPA 8270D (SIM)	10/25/16 16:19	12/05/16 15:35	10.02g/2mL	10g/2mL	1.00
A6K0214-24	Soil	EPA 8270D (SIM)	10/25/16 16:30	12/05/16 15:35	10.02g/2mL	10g/2mL	1.00

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

SAMPLE PREPARATION INFORMATION

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6K0214-25	Soil	EPA 8270D (SIM)	10/25/16 16:39	12/05/16 15:35	10.02g/2mL	10g/2mL	1.00
A6K0214-26	Soil	EPA 8270D (SIM)	10/25/16 16:51	12/05/16 15:35	10.03g/2mL	10g/2mL	1.00
A6K0214-27	Soil	EPA 8270D (SIM)	10/25/16 16:59	12/05/16 15:35	10.03g/2mL	10g/2mL	1.00
A6K0214-28	Soil	EPA 8270D (SIM)	10/25/16 17:10	12/05/16 15:35	10.02g/2mL	10g/2mL	1.00
A6K0214-29	Soil	EPA 8270D (SIM)	10/26/16 10:02	12/05/16 15:35	10.07g/2mL	10g/2mL	0.99
A6K0214-30	Soil	EPA 8270D (SIM)	10/26/16 10:11	12/05/16 15:35	10.05g/2mL	10g/2mL	1.00
A6K0214-31	Soil	EPA 8270D (SIM)	10/26/16 10:24	12/05/16 15:35	10.05g/2mL	10g/2mL	1.00
A6K0214-32	Soil	EPA 8270D (SIM)	10/26/16 10:24	12/05/16 15:35	10.04g/2mL	10g/2mL	1.00
A6K0214-33	Soil	EPA 8270D (SIM)	10/26/16 10:59	12/05/16 15:35	10.07g/2mL	10g/2mL	0.99
A6K0214-34	Soil	EPA 8270D (SIM)	10/26/16 11:14	12/05/16 15:35	10.06g/2mL	10g/2mL	0.99
A6K0214-35	Soil	EPA 8270D (SIM)	10/26/16 11:28	12/05/16 15:35	10.04g/2mL	10g/2mL	1.00
A6K0214-36	Soil	EPA 8270D (SIM)	10/26/16 11:40	12/05/16 15:35	10.07g/2mL	10g/2mL	0.99
A6K0214-38	Soil	EPA 8270D (SIM)	10/26/16 12:05	12/05/16 15:35	10.04g/2mL	10g/2mL	1.00
Batch: 6120304							
A6K0212-22RE1	Soil	EPA 8270D (SIM)	10/24/16 13:43	12/07/16 16:14	10.03g/2mL	10g/2mL	1.00
A6K0212-28RE1	Soil	EPA 8270D (SIM)	10/24/16 15:03	12/07/16 10:03	10.08g/2mL	10g/2mL	0.99
A6K0212-32RE1	Soil	EPA 8270D (SIM)	10/25/16 10:07	12/07/16 10:03	10.08g/2mL	10g/2mL	0.99
A6K0212-36RE1	Soil	EPA 8270D (SIM)	10/25/16 10:46	12/07/16 10:03	10.02g/2mL	10g/2mL	1.00
Batch: 6120306							
A6K0215-22	Soil	EPA 8270D (SIM)	10/26/16 13:24	12/07/16 10:04	10.06g/2mL	10g/2mL	0.99
A6K0215-23	Soil	EPA 8270D (SIM)	10/26/16 13:37	12/07/16 10:04	10.05g/2mL	10g/2mL	1.00
A6K0215-24	Soil	EPA 8270D (SIM)	10/26/16 13:51	12/07/16 10:04	10.04g/2mL	10g/2mL	1.00
A6K0215-25	Soil	EPA 8270D (SIM)	10/26/16 15:32	12/07/16 10:04	10.05g/2mL	10g/2mL	1.00
A6K0215-26	Soil	EPA 8270D (SIM)	10/26/16 15:39	12/07/16 10:04	10.06g/2mL	10g/2mL	0.99
A6K0215-27	Soil	EPA 8270D (SIM)	10/26/16 15:48	12/07/16 10:04	10.06g/2mL	10g/2mL	0.99
A6K0215-28	Soil	EPA 8270D (SIM)	10/26/16 15:58	12/07/16 10:04	10.05g/2mL	10g/2mL	1.00
A6K0215-29	Soil	EPA 8270D (SIM)	10/26/16 16:07	12/07/16 10:04	10.06g/2mL	10g/2mL	0.99
A6K0215-30	Soil	EPA 8270D (SIM)	10/26/16 16:15	12/07/16 10:04	10.08g/2mL	10g/2mL	0.99
A6K0215-32	Soil	EPA 8270D (SIM)	10/26/16 16:39	12/07/16 10:04	10.06g/2mL	10g/2mL	0.99
A6K0215-33	Soil	EPA 8270D (SIM)	10/26/16 16:50	12/07/16 10:04	10.05g/2mL	10g/2mL	1.00
A6K0215-34	Soil	EPA 8270D (SIM)	10/26/16 16:59	12/07/16 10:04	10.06g/2mL	10g/2mL	0.99
A6K0215-36	Soil	EPA 8270D (SIM)	10/26/16 17:25	12/07/16 10:04	10.09g/2mL	10g/2mL	0.99
A6K0215-37	Soil	EPA 8270D (SIM)	10/27/16 09:12	12/07/16 10:04	10.04g/2mL	10g/2mL	1.00
A6K0215-38	Soil	EPA 8270D (SIM)	10/27/16 09:12	12/07/16 10:04	10.04g/2mL	10g/2mL	1.00

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

SAMPLE PREPARATION INFORMATION

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6K0215-39	Soil	EPA 8270D (SIM)	10/27/16 09:25	12/07/16 10:04	10.07g/2mL	10g/2mL	0.99
A6K0215-40	Soil	EPA 8270D (SIM)	10/27/16 09:34	12/07/16 10:04	10.03g/2mL	10g/2mL	1.00
A6K0215-41	Solid	EPA 8270D (SIM)	10/26/16 00:00	12/07/16 10:04	10.03g/2mL	10g/2mL	1.00
Batch: 6120350							
A6K0212-38RE1	Soil	EPA 8270D (SIM)	10/25/16 11:07	12/09/16 07:23	10.66g/2mL	10g/2mL	0.94
A6K0216-16	Soil	EPA 8270D (SIM)	10/27/16 09:57	12/09/16 07:23	10.3g/2mL	10g/2mL	0.97
A6K0216-17	Soil	EPA 8270D (SIM)	10/27/16 10:09	12/09/16 07:23	10.54g/2mL	10g/2mL	0.95
A6K0216-18	Soil	EPA 8270D (SIM)	10/27/16 10:20	12/09/16 07:23	10.12g/2mL	10g/2mL	0.99
A6K0216-19	Soil	EPA 8270D (SIM)	10/27/16 10:29	12/09/16 07:23	10.81g/2mL	10g/2mL	0.93
A6K0216-20	Soil	EPA 8270D (SIM)	10/27/16 10:41	12/09/16 07:23	10.51g/2mL	10g/2mL	0.95
A6K0216-21	Soil	EPA 8270D (SIM)	10/27/16 10:53	12/09/16 07:23	10.73g/2mL	10g/2mL	0.93
A6K0216-22	Soil	EPA 8270D (SIM)	10/27/16 13:10	12/09/16 07:23	10.11g/2mL	10g/2mL	0.99
A6K0216-23	Soil	EPA 8270D (SIM)	10/27/16 13:19	12/09/16 07:23	10.2g/2mL	10g/2mL	0.98
A6K0216-24	Soil	EPA 8270D (SIM)	10/27/16 13:31	12/09/16 07:23	10.54g/2mL	10g/2mL	0.95
A6K0216-25	Soil	EPA 8270D (SIM)	10/27/16 12:38	12/09/16 07:23	10.5g/2mL	10g/2mL	0.95
A6K0216-26	Soil	EPA 8270D (SIM)	10/27/16 12:49	12/09/16 07:23	10.77g/2mL	10g/2mL	0.93
A6K0216-27	Soil	EPA 8270D (SIM)	10/27/16 13:01	12/09/16 07:23	10.13g/2mL	10g/2mL	0.99
A6K0216-28	Soil	EPA 8270D (SIM)	10/27/16 13:47	12/09/16 07:23	10.65g/2mL	10g/2mL	0.94
A6K0216-29	Soil	EPA 8270D (SIM)	10/27/16 14:02	12/09/16 07:23	10.4g/2mL	10g/2mL	0.96
A6K0216-30	Soil	EPA 8270D (SIM)	10/27/16 14:18	12/09/16 07:23	10.82g/2mL	10g/2mL	0.92
A6K0216-31	Solid	EPA 8270D (SIM)	10/27/16 00:00	12/09/16 07:23	10.1g/2mL	10g/2mL	0.99
Batch: 6120419							
A6K0214-37RE1	Soil	EPA 8270D (SIM)	10/26/16 11:53	12/12/16 12:04	10.51g/2mL	10g/2mL	0.95
A6K0214-39RE1	Soil	EPA 8270D (SIM)	10/26/16 12:43	12/12/16 12:04	10.08g/2mL	10g/2mL	0.99
A6K0214-40RE1	Soil	EPA 8270D (SIM)	10/26/16 12:55	12/12/16 12:04	10.04g/2mL	10g/2mL	1.00
A6K0214-41RE1	Solid	EPA 8270D (SIM)	10/26/16 00:00	12/12/16 17:00	10.04g/2mL	10g/2mL	1.00
Batch: 6120471							
A6K0215-21RE1	Soil	EPA 8270D (SIM)	10/26/16 13:11	12/13/16 13:12	10.37g/2mL	10g/2mL	0.96
A6K0215-31RE1	Soil	EPA 8270D (SIM)	10/26/16 16:26	12/13/16 13:12	10.55g/2mL	10g/2mL	0.95
A6K0215-35RE1	Soil	EPA 8270D (SIM)	10/26/16 17:12	12/13/16 13:12	10.55g/2mL	10g/2mL	0.95

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6120380							
A6K0212-21	Soil	EPA 6020A	10/24/16 13:13	12/09/16 14:57	0.473g/50mL	0.5g/50mL	1.06
A6K0212-22	Soil	EPA 6020A	10/24/16 13:43	12/09/16 14:57	0.48g/50mL	0.5g/50mL	1.04
A6K0212-24	Soil	EPA 6020A	10/24/16 14:09	12/09/16 14:57	0.492g/50mL	0.5g/50mL	1.02
A6K0212-25	Soil	EPA 6020A	10/24/16 14:20	12/09/16 14:57	0.478g/50mL	0.5g/50mL	1.05
A6K0212-26	Soil	EPA 6020A	10/24/16 14:31	12/09/16 14:57	0.499g/50mL	0.5g/50mL	1.00
Batch: 6120469							
A6K0211-22	Soil	EPA 6020A	10/24/16 08:42	12/13/16 12:48	0.476g/50mL	0.5g/50mL	1.05
A6K0211-23	Soil	EPA 6020A	10/24/16 08:53	12/13/16 12:48	0.513g/50mL	0.5g/50mL	0.98
A6K0211-24	Soil	EPA 6020A	10/24/16 09:05	12/13/16 12:48	0.456g/50mL	0.5g/50mL	1.10
A6K0211-25	Soil	EPA 6020A	10/24/16 09:05	12/13/16 12:48	0.467g/50mL	0.5g/50mL	1.07
A6K0211-26	Soil	EPA 6020A	10/24/16 09:11	12/13/16 12:48	0.463g/50mL	0.5g/50mL	1.08
A6K0211-27	Soil	EPA 6020A	10/24/16 09:20	12/13/16 12:48	0.455g/50mL	0.5g/50mL	1.10
A6K0211-28	Soil	EPA 6020A	10/24/16 09:28	12/13/16 12:48	0.458g/50mL	0.5g/50mL	1.09
A6K0211-29	Soil	EPA 6020A	10/24/16 10:30	12/13/16 12:48	0.457g/50mL	0.5g/50mL	1.09
A6K0211-30	Soil	EPA 6020A	10/24/16 10:36	12/13/16 12:48	0.467g/50mL	0.5g/50mL	1.07
A6K0211-31	Soil	EPA 6020A	10/24/16 10:43	12/13/16 12:48	0.462g/50mL	0.5g/50mL	1.08
A6K0211-32	Soil	EPA 6020A	10/24/16 11:02	12/13/16 12:48	0.464g/50mL	0.5g/50mL	1.08
A6K0211-33	Soil	EPA 6020A	10/24/16 11:10	12/13/16 12:48	0.466g/50mL	0.5g/50mL	1.07
A6K0211-34	Soil	EPA 6020A	10/24/16 11:10	12/13/16 12:48	0.456g/50mL	0.5g/50mL	1.10
A6K0211-35	Soil	EPA 6020A	10/24/16 11:19	12/13/16 12:48	0.5g/50mL	0.5g/50mL	1.00
A6K0211-36	Soil	EPA 6020A	10/24/16 11:31	12/13/16 12:48	0.453g/50mL	0.5g/50mL	1.10
A6K0211-37	Soil	EPA 6020A	10/24/16 11:43	12/13/16 12:48	0.486g/50mL	0.5g/50mL	1.03
A6K0211-38	Soil	EPA 6020A	10/24/16 11:55	12/13/16 12:48	0.491g/50mL	0.5g/50mL	1.02
A6K0211-39	Soil	EPA 6020A	10/24/16 12:35	12/13/16 12:48	0.471g/50mL	0.5g/50mL	1.06
A6K0211-40	Soil	EPA 6020A	10/24/16 12:44	12/13/16 12:48	0.453g/50mL	0.5g/50mL	1.10
Batch: 6120628							
A6K0211-41	Soil	EPA 6020A	10/24/16 12:54	12/20/16 10:05	0.473g/50mL	0.5g/50mL	1.06
A6K0211-42	Soil	EPA 6020A	10/24/16 13:05	12/20/16 10:05	0.481g/50mL	0.5g/50mL	1.04
A6K0212-23	Soil	EPA 6020A	10/24/16 13:55	12/20/16 10:05	0.506g/50mL	0.5g/50mL	0.99
A6K0212-27	Soil	EPA 6020A	10/24/16 14:40	12/20/16 10:05	0.452g/50mL	0.5g/50mL	1.11
A6K0212-28	Soil	EPA 6020A	10/24/16 15:03	12/20/16 10:05	0.465g/50mL	0.5g/50mL	1.08
A6K0212-29	Soil	EPA 6020A	10/24/16 15:15	12/20/16 10:05	0.457g/50mL	0.5g/50mL	1.09
A6K0212-30	Soil	EPA 6020A	10/24/16 15:27	12/20/16 10:05	0.466g/50mL	0.5g/50mL	1.07

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6K0212-31	Soil	EPA 6020A	10/24/16 15:27	12/20/16 10:05	0.453g/50mL	0.5g/50mL	1.10
A6K0212-32	Soil	EPA 6020A	10/25/16 10:07	12/20/16 10:05	0.463g/50mL	0.5g/50mL	1.08
A6K0212-33	Soil	EPA 6020A	10/25/16 10:18	12/20/16 10:05	0.452g/50mL	0.5g/50mL	1.11
A6K0212-34	Soil	EPA 6020A	10/25/16 10:30	12/20/16 10:05	0.487g/50mL	0.5g/50mL	1.03
A6K0212-35	Soil	EPA 6020A	10/25/16 10:39	12/20/16 10:05	0.462g/50mL	0.5g/50mL	1.08
A6K0212-36	Soil	EPA 6020A	10/25/16 10:46	12/20/16 10:05	0.474g/50mL	0.5g/50mL	1.05
A6K0212-37	Soil	EPA 6020A	10/25/16 10:55	12/20/16 10:05	0.464g/50mL	0.5g/50mL	1.08
A6K0212-38	Soil	EPA 6020A	10/25/16 11:07	12/20/16 10:05	0.46g/50mL	0.5g/50mL	1.09
A6K0212-39	Soil	EPA 6020A	10/25/16 11:19	12/20/16 10:05	0.481g/50mL	0.5g/50mL	1.04
A6K0212-40	Soil	EPA 6020A	10/25/16 11:32	12/20/16 10:05	0.474g/50mL	0.5g/50mL	1.05
A6K0213-21	Soil	EPA 6020A	10/25/16 11:40	12/20/16 10:05	0.482g/50mL	0.5g/50mL	1.04
A6K0213-22	Soil	EPA 6020A	10/25/16 11:51	12/20/16 10:05	0.461g/50mL	0.5g/50mL	1.08
Batch: 6120634							
A6K0213-23	Soil	EPA 6020A	10/25/16 11:59	12/20/16 11:14	0.481g/50mL	0.5g/50mL	1.04
A6K0213-24	Soil	EPA 6020A	10/25/16 12:10	12/20/16 11:14	0.455g/50mL	0.5g/50mL	1.10
A6K0213-25	Soil	EPA 6020A	10/25/16 12:10	12/20/16 11:14	0.462g/50mL	0.5g/50mL	1.08
A6K0213-26	Soil	EPA 6020A	10/25/16 12:19	12/20/16 11:14	0.505g/50mL	0.5g/50mL	0.99
A6K0213-27	Soil	EPA 6020A	10/25/16 12:27	12/20/16 11:14	0.454g/50mL	0.5g/50mL	1.10
A6K0213-28	Soil	EPA 6020A	10/25/16 12:37	12/20/16 11:14	0.47g/50mL	0.5g/50mL	1.06
A6K0213-29	Soil	EPA 6020A	10/25/16 12:46	12/20/16 11:14	0.467g/50mL	0.5g/50mL	1.07
A6K0213-30	Soil	EPA 6020A	10/25/16 12:54	12/20/16 11:14	0.477g/50mL	0.5g/50mL	1.05
A6K0213-31	Soil	EPA 6020A	10/25/16 13:07	12/20/16 11:14	0.456g/50mL	0.5g/50mL	1.10
A6K0213-32	Soil	EPA 6020A	10/25/16 13:15	12/20/16 11:14	0.454g/50mL	0.5g/50mL	1.10
A6K0213-33	Soil	EPA 6020A	10/25/16 13:23	12/20/16 11:14	0.471g/50mL	0.5g/50mL	1.06
A6K0213-34	Soil	EPA 6020A	10/25/16 13:31	12/20/16 11:14	0.499g/50mL	0.5g/50mL	1.00
A6K0213-35	Soil	EPA 6020A	10/25/16 13:40	12/20/16 11:14	0.492g/50mL	0.5g/50mL	1.02
A6K0213-36	Soil	EPA 6020A	10/25/16 13:49	12/20/16 11:14	0.48g/50mL	0.5g/50mL	1.04
A6K0213-37	Soil	EPA 6020A	10/25/16 14:03	12/20/16 11:14	0.463g/50mL	0.5g/50mL	1.08
A6K0213-38	Soil	EPA 6020A	10/25/16 14:11	12/20/16 11:14	0.461g/50mL	0.5g/50mL	1.08
A6K0213-39	Soil	EPA 6020A	10/25/16 14:21	12/20/16 11:14	0.483g/50mL	0.5g/50mL	1.04
A6K0213-40	Soil	EPA 6020A	10/25/16 15:14	12/20/16 11:14	0.469g/50mL	0.5g/50mL	1.07
A6K0214-21	Soil	EPA 6020A	10/25/16 15:28	12/20/16 11:14	0.452g/50mL	0.5g/50mL	1.11
Batch: 6120654							
A6K0214-22	Soil	EPA 6020A	10/25/16 15:37	12/20/16 15:12	0.453g/50mL	0.5g/50mL	1.10

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6K0214-23	Soil	EPA 6020A	10/25/16 16:19	12/20/16 15:12	0.49g/50mL	0.5g/50mL	1.02
A6K0214-24	Soil	EPA 6020A	10/25/16 16:30	12/20/16 15:12	0.484g/50mL	0.5g/50mL	1.03
A6K0214-25	Soil	EPA 6020A	10/25/16 16:39	12/20/16 15:12	0.472g/50mL	0.5g/50mL	1.06
A6K0214-26	Soil	EPA 6020A	10/25/16 16:51	12/20/16 15:12	0.452g/50mL	0.5g/50mL	1.11
A6K0214-27	Soil	EPA 6020A	10/25/16 16:59	12/20/16 15:12	0.5g/50mL	0.5g/50mL	1.00
A6K0214-28	Soil	EPA 6020A	10/25/16 17:10	12/20/16 15:12	0.468g/50mL	0.5g/50mL	1.07
A6K0214-29	Soil	EPA 6020A	10/26/16 10:02	12/20/16 15:12	0.513g/50mL	0.5g/50mL	0.98
A6K0214-30	Soil	EPA 6020A	10/26/16 10:11	12/20/16 15:12	0.469g/50mL	0.5g/50mL	1.07
A6K0214-31	Soil	EPA 6020A	10/26/16 10:24	12/20/16 15:12	0.48g/50mL	0.5g/50mL	1.04
A6K0214-32	Soil	EPA 6020A	10/26/16 10:24	12/20/16 15:12	0.458g/50mL	0.5g/50mL	1.09
A6K0214-33	Soil	EPA 6020A	10/26/16 10:59	12/20/16 15:12	0.48g/50mL	0.5g/50mL	1.04
A6K0214-34	Soil	EPA 6020A	10/26/16 11:14	12/20/16 15:12	0.453g/50mL	0.5g/50mL	1.10
A6K0214-35	Soil	EPA 6020A	10/26/16 11:28	12/20/16 15:12	0.512g/50mL	0.5g/50mL	0.98
A6K0214-36	Soil	EPA 6020A	10/26/16 11:40	12/20/16 15:12	0.471g/50mL	0.5g/50mL	1.06
A6K0214-37	Soil	EPA 6020A	10/26/16 11:53	12/20/16 15:12	0.473g/50mL	0.5g/50mL	1.06
A6K0214-38	Soil	EPA 6020A	10/26/16 12:05	12/20/16 15:12	0.503g/50mL	0.5g/50mL	0.99
A6K0214-39	Soil	EPA 6020A	10/26/16 12:43	12/20/16 15:12	0.479g/50mL	0.5g/50mL	1.04
A6K0214-40	Soil	EPA 6020A	10/26/16 12:55	12/20/16 15:12	0.472g/50mL	0.5g/50mL	1.06
Batch: 6120661							
A6K0215-21	Soil	EPA 6020A	10/26/16 13:11	12/20/16 17:22	0.458g/50mL	0.5g/50mL	1.09
A6K0215-22	Soil	EPA 6020A	10/26/16 13:24	12/20/16 17:22	0.461g/50mL	0.5g/50mL	1.08
A6K0215-23	Soil	EPA 6020A	10/26/16 13:37	12/20/16 17:22	0.461g/50mL	0.5g/50mL	1.08
A6K0215-24	Soil	EPA 6020A	10/26/16 13:51	12/20/16 17:22	0.472g/50mL	0.5g/50mL	1.06
A6K0215-25	Soil	EPA 6020A	10/26/16 15:32	12/20/16 17:22	0.472g/50mL	0.5g/50mL	1.06
A6K0215-26	Soil	EPA 6020A	10/26/16 15:39	12/20/16 17:22	0.502g/50mL	0.5g/50mL	1.00
A6K0215-27	Soil	EPA 6020A	10/26/16 15:48	12/20/16 17:22	0.457g/50mL	0.5g/50mL	1.09
A6K0215-28	Soil	EPA 6020A	10/26/16 15:58	12/20/16 17:22	0.461g/50mL	0.5g/50mL	1.08
A6K0215-29	Soil	EPA 6020A	10/26/16 16:07	12/20/16 17:22	0.462g/50mL	0.5g/50mL	1.08
A6K0215-30	Soil	EPA 6020A	10/26/16 16:15	12/20/16 17:22	0.484g/50mL	0.5g/50mL	1.03
A6K0215-31	Soil	EPA 6020A	10/26/16 16:26	12/20/16 17:22	0.455g/50mL	0.5g/50mL	1.10
A6K0215-32	Soil	EPA 6020A	10/26/16 16:39	12/20/16 17:22	0.456g/50mL	0.5g/50mL	1.10
A6K0215-33	Soil	EPA 6020A	10/26/16 16:50	12/20/16 17:22	0.459g/50mL	0.5g/50mL	1.09
A6K0215-34	Soil	EPA 6020A	10/26/16 16:59	12/20/16 17:22	0.463g/50mL	0.5g/50mL	1.08
A6K0215-35	Soil	EPA 6020A	10/26/16 17:12	12/20/16 17:22	0.47g/50mL	0.5g/50mL	1.06

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6K0215-36	Soil	EPA 6020A	10/26/16 17:25	12/20/16 17:22	0.484g/50mL	0.5g/50mL	1.03
A6K0215-37	Soil	EPA 6020A	10/27/16 09:12	12/20/16 17:22	0.492g/50mL	0.5g/50mL	1.02
A6K0215-38	Soil	EPA 6020A	10/27/16 09:12	12/20/16 17:22	0.462g/50mL	0.5g/50mL	1.08
A6K0215-39	Soil	EPA 6020A	10/27/16 09:25	12/20/16 17:22	0.477g/50mL	0.5g/50mL	1.05
Batch: 6120689							
A6K0215-40	Soil	EPA 6020A	10/27/16 09:34	12/21/16 12:12	0.464g/50mL	0.5g/50mL	1.08
A6K0216-16	Soil	EPA 6020A	10/27/16 09:57	12/21/16 12:12	0.488g/50mL	0.5g/50mL	1.02
A6K0216-17	Soil	EPA 6020A	10/27/16 10:09	12/21/16 12:12	0.496g/50mL	0.5g/50mL	1.01
A6K0216-18	Soil	EPA 6020A	10/27/16 10:20	12/21/16 12:12	0.458g/50mL	0.5g/50mL	1.09
A6K0216-19	Soil	EPA 6020A	10/27/16 10:29	12/21/16 12:12	0.453g/50mL	0.5g/50mL	1.10
A6K0216-20	Soil	EPA 6020A	10/27/16 10:41	12/21/16 12:12	0.456g/50mL	0.5g/50mL	1.10
A6K0216-21	Soil	EPA 6020A	10/27/16 10:53	12/21/16 12:12	0.505g/50mL	0.5g/50mL	0.99
A6K0216-22	Soil	EPA 6020A	10/27/16 13:10	12/21/16 12:12	0.467g/50mL	0.5g/50mL	1.07
A6K0216-23	Soil	EPA 6020A	10/27/16 13:19	12/21/16 12:12	0.461g/50mL	0.5g/50mL	1.08
A6K0216-24	Soil	EPA 6020A	10/27/16 13:31	12/21/16 12:12	0.451g/50mL	0.5g/50mL	1.11
A6K0216-25	Soil	EPA 6020A	10/27/16 12:38	12/21/16 12:12	0.461g/50mL	0.5g/50mL	1.08
A6K0216-26	Soil	EPA 6020A	10/27/16 12:49	12/21/16 12:12	0.47g/50mL	0.5g/50mL	1.06
A6K0216-27	Soil	EPA 6020A	10/27/16 13:01	12/21/16 12:12	0.493g/50mL	0.5g/50mL	1.01
A6K0216-28	Soil	EPA 6020A	10/27/16 13:47	12/21/16 12:12	0.475g/50mL	0.5g/50mL	1.05
A6K0216-29	Soil	EPA 6020A	10/27/16 14:02	12/21/16 12:12	0.46g/50mL	0.5g/50mL	1.09
A6K0216-30	Soil	EPA 6020A	10/27/16 14:18	12/21/16 12:12	0.476g/50mL	0.5g/50mL	1.05
Batch: 6120695							
A6K0211-43	Solid	EPA 6020A	10/24/16 00:00	12/21/16 13:31	0.471g/50mL	0.5g/50mL	1.06
A6K0212-41	Solid	EPA 6020A	10/24/16 00:00	12/21/16 13:31	0.456g/50mL	0.5g/50mL	1.10
A6K0213-41	Solid	EPA 6020A	10/25/16 00:00	12/21/16 13:31	0.453g/50mL	0.5g/50mL	1.10
A6K0214-41	Solid	EPA 6020A	10/26/16 00:00	12/21/16 13:31	0.461g/50mL	0.5g/50mL	1.08
A6K0215-41	Solid	EPA 6020A	10/26/16 00:00	12/21/16 13:31	0.476g/50mL	0.5g/50mL	1.05
A6K0216-31	Solid	EPA 6020A	10/27/16 00:00	12/21/16 13:31	0.48g/50mL	0.5g/50mL	1.04

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6110719							
A6K0211-22	Soil	EPA 8000C	10/24/16 08:42	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

SAMPLE PREPARATION INFORMATION

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6K0211-23	Soil	EPA 8000C	10/24/16 08:53	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0211-24	Soil	EPA 8000C	10/24/16 09:05	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0211-25	Soil	EPA 8000C	10/24/16 09:05	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0211-26	Soil	EPA 8000C	10/24/16 09:11	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0211-27	Soil	EPA 8000C	10/24/16 09:20	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0211-28	Soil	EPA 8000C	10/24/16 09:28	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0211-29	Soil	EPA 8000C	10/24/16 10:30	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0211-30	Soil	EPA 8000C	10/24/16 10:36	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0211-31	Soil	EPA 8000C	10/24/16 10:43	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0211-32	Soil	EPA 8000C	10/24/16 11:02	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0211-33	Soil	EPA 8000C	10/24/16 11:10	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0211-34	Soil	EPA 8000C	10/24/16 11:10	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0211-35	Soil	EPA 8000C	10/24/16 11:19	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0211-36	Soil	EPA 8000C	10/24/16 11:31	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0211-37	Soil	EPA 8000C	10/24/16 11:43	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0211-38	Soil	EPA 8000C	10/24/16 11:55	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0211-39	Soil	EPA 8000C	10/24/16 12:35	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0211-40	Soil	EPA 8000C	10/24/16 12:44	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0211-41	Soil	EPA 8000C	10/24/16 12:54	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0211-42	Soil	EPA 8000C	10/24/16 13:05	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0212-21	Soil	EPA 8000C	10/24/16 13:13	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0212-22	Soil	EPA 8000C	10/24/16 13:43	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0212-23	Soil	EPA 8000C	10/24/16 13:55	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0212-24	Soil	EPA 8000C	10/24/16 14:09	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0212-25	Soil	EPA 8000C	10/24/16 14:20	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0212-26	Soil	EPA 8000C	10/24/16 14:31	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0212-27	Soil	EPA 8000C	10/24/16 14:40	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0212-28	Soil	EPA 8000C	10/24/16 15:03	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0212-29	Soil	EPA 8000C	10/24/16 15:15	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0212-30	Soil	EPA 8000C	10/24/16 15:27	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0212-31	Soil	EPA 8000C	10/24/16 15:27	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0212-32	Soil	EPA 8000C	10/25/16 10:07	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0212-33	Soil	EPA 8000C	10/25/16 10:18	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0212-34	Soil	EPA 8000C	10/25/16 10:30	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

SAMPLE PREPARATION INFORMATION

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6K0212-35	Soil	EPA 8000C	10/25/16 10:39	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0212-36	Soil	EPA 8000C	10/25/16 10:46	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0212-37	Soil	EPA 8000C	10/25/16 10:55	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0212-38	Soil	EPA 8000C	10/25/16 11:07	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0212-39	Soil	EPA 8000C	10/25/16 11:19	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
A6K0212-40	Soil	EPA 8000C	10/25/16 11:32	11/18/16 10:20	1N/A/1N/A	1N/A/1N/A	NA
Batch: 6110829							
A6K0213-21	Soil	EPA 8000C	10/25/16 11:40	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0213-22	Soil	EPA 8000C	10/25/16 11:51	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0213-23	Soil	EPA 8000C	10/25/16 11:59	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0213-24	Soil	EPA 8000C	10/25/16 12:10	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0213-25	Soil	EPA 8000C	10/25/16 12:10	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0213-26	Soil	EPA 8000C	10/25/16 12:19	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0213-27	Soil	EPA 8000C	10/25/16 12:27	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0213-28	Soil	EPA 8000C	10/25/16 12:37	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0213-29	Soil	EPA 8000C	10/25/16 12:46	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0213-30	Soil	EPA 8000C	10/25/16 12:54	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0213-31	Soil	EPA 8000C	10/25/16 13:07	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0213-32	Soil	EPA 8000C	10/25/16 13:15	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0213-33	Soil	EPA 8000C	10/25/16 13:23	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0213-34	Soil	EPA 8000C	10/25/16 13:31	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0213-35	Soil	EPA 8000C	10/25/16 13:40	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0213-36	Soil	EPA 8000C	10/25/16 13:49	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0213-37	Soil	EPA 8000C	10/25/16 14:03	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0213-38	Soil	EPA 8000C	10/25/16 14:11	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0213-39	Soil	EPA 8000C	10/25/16 14:21	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0213-40	Soil	EPA 8000C	10/25/16 15:14	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0214-21	Soil	EPA 8000C	10/25/16 15:28	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0214-22	Soil	EPA 8000C	10/25/16 15:37	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0214-23	Soil	EPA 8000C	10/25/16 16:19	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0214-24	Soil	EPA 8000C	10/25/16 16:30	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0214-25	Soil	EPA 8000C	10/25/16 16:39	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0214-26	Soil	EPA 8000C	10/25/16 16:51	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0214-27	Soil	EPA 8000C	10/25/16 16:59	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA

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Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

SAMPLE PREPARATION INFORMATION

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6K0214-28	Soil	EPA 8000C	10/25/16 17:10	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0214-29	Soil	EPA 8000C	10/26/16 10:02	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0214-30	Soil	EPA 8000C	10/26/16 10:11	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0214-31	Soil	EPA 8000C	10/26/16 10:24	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0214-32	Soil	EPA 8000C	10/26/16 10:24	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0214-33	Soil	EPA 8000C	10/26/16 10:59	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0214-34	Soil	EPA 8000C	10/26/16 11:14	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0214-35	Soil	EPA 8000C	10/26/16 11:28	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0214-36	Soil	EPA 8000C	10/26/16 11:40	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0214-37	Soil	EPA 8000C	10/26/16 11:53	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0214-38	Soil	EPA 8000C	10/26/16 12:05	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0214-39	Soil	EPA 8000C	10/26/16 12:43	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0214-40	Soil	EPA 8000C	10/26/16 12:55	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-21	Soil	EPA 8000C	10/26/16 13:11	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-22	Soil	EPA 8000C	10/26/16 13:24	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-23	Soil	EPA 8000C	10/26/16 13:37	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-24	Soil	EPA 8000C	10/26/16 13:51	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-25	Soil	EPA 8000C	10/26/16 15:32	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-26	Soil	EPA 8000C	10/26/16 15:39	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-27	Soil	EPA 8000C	10/26/16 15:48	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-28	Soil	EPA 8000C	10/26/16 15:58	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-29	Soil	EPA 8000C	10/26/16 16:07	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-30	Soil	EPA 8000C	10/26/16 16:15	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-31	Soil	EPA 8000C	10/26/16 16:26	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-32	Soil	EPA 8000C	10/26/16 16:39	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-33	Soil	EPA 8000C	10/26/16 16:50	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-34	Soil	EPA 8000C	10/26/16 16:59	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-35	Soil	EPA 8000C	10/26/16 17:12	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-36	Soil	EPA 8000C	10/26/16 17:25	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-37	Soil	EPA 8000C	10/27/16 09:12	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-38	Soil	EPA 8000C	10/27/16 09:12	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-39	Soil	EPA 8000C	10/27/16 09:25	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA
A6K0215-40	Soil	EPA 8000C	10/27/16 09:34	11/23/16 09:23	1N/A/1N/A	1N/A/1N/A	NA

Batch: 6110913

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

SAMPLE PREPARATION INFORMATION

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6K0216-16	Soil	EPA 8000C	10/27/16 09:57	11/29/16 10:39	1N/A/1N/A	1N/A/1N/A	NA
A6K0216-17	Soil	EPA 8000C	10/27/16 10:09	11/29/16 10:39	1N/A/1N/A	1N/A/1N/A	NA
A6K0216-18	Soil	EPA 8000C	10/27/16 10:20	11/29/16 10:39	1N/A/1N/A	1N/A/1N/A	NA
A6K0216-19	Soil	EPA 8000C	10/27/16 10:29	11/29/16 10:39	1N/A/1N/A	1N/A/1N/A	NA
A6K0216-20	Soil	EPA 8000C	10/27/16 10:41	11/29/16 10:39	1N/A/1N/A	1N/A/1N/A	NA
A6K0216-21	Soil	EPA 8000C	10/27/16 10:53	11/29/16 10:39	1N/A/1N/A	1N/A/1N/A	NA
A6K0216-22	Soil	EPA 8000C	10/27/16 13:10	11/29/16 10:39	1N/A/1N/A	1N/A/1N/A	NA
A6K0216-23	Soil	EPA 8000C	10/27/16 13:19	11/29/16 10:39	1N/A/1N/A	1N/A/1N/A	NA
A6K0216-24	Soil	EPA 8000C	10/27/16 13:31	11/29/16 10:39	1N/A/1N/A	1N/A/1N/A	NA
A6K0216-25	Soil	EPA 8000C	10/27/16 12:38	11/29/16 10:39	1N/A/1N/A	1N/A/1N/A	NA
A6K0216-26	Soil	EPA 8000C	10/27/16 12:49	11/29/16 10:39	1N/A/1N/A	1N/A/1N/A	NA
A6K0216-27	Soil	EPA 8000C	10/27/16 13:01	11/29/16 10:39	1N/A/1N/A	1N/A/1N/A	NA
A6K0216-28	Soil	EPA 8000C	10/27/16 13:47	11/29/16 10:39	1N/A/1N/A	1N/A/1N/A	NA
A6K0216-29	Soil	EPA 8000C	10/27/16 14:02	11/29/16 10:39	1N/A/1N/A	1N/A/1N/A	NA
A6K0216-30	Soil	EPA 8000C	10/27/16 14:18	11/29/16 10:39	1N/A/1N/A	1N/A/1N/A	NA

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

Notes and Definitions

Qualifiers:

A-01	Sample is blank QC for the RSM grinding process and does not count toward the 20 client sample batch limit.
DW>100	Calculated Dry Weight for this sample was slightly greater than 100%, due to limitations of the method with extremely dry samples. Result was set to 100% for calculation purposes.
H-08	Sample hold time extended by freezing at -18 degrees C. Total time at 4 degrees C was less than the standard hold time.
J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
M-02	Due to matrix interference, this analyte cannot be accurately quantified. The reported result is estimated.
Q-01	Spike recovery and/or RPD is outside acceptance limits.
Q-19	Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
Q-24	RPD for spike and spike duplicate is above established control limit. Recoveries for both spike and spike duplicate are within control limits.
Q-42	Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)
R-02	The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
R-04	Reporting levels elevated due to dilution necessary for analysis.
S-03	Reextraction and analysis, or analysis of laboratory duplicate, confirms surrogate failure due to sample matrix effect.

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.

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Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.

Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.

--- QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

*** Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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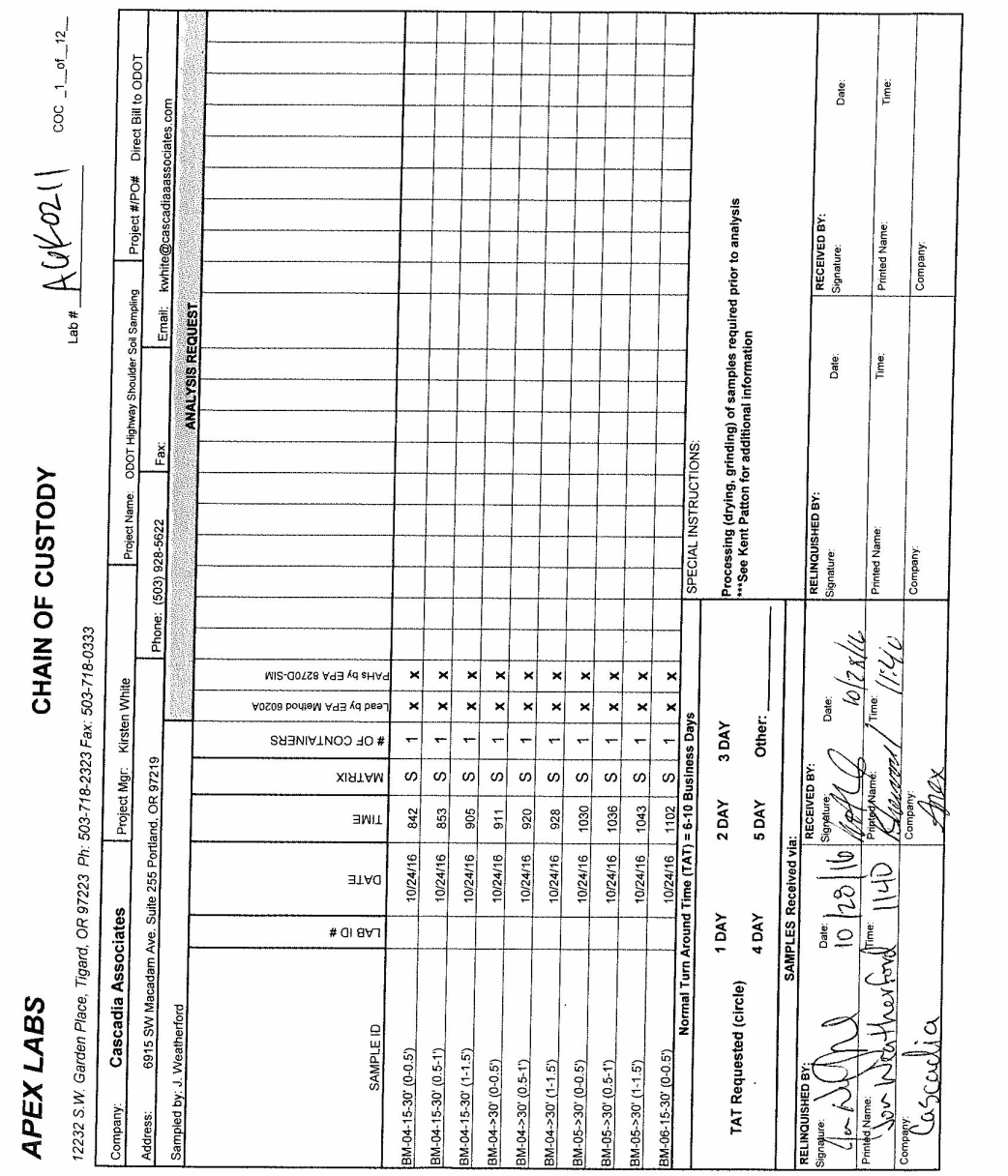
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27



APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # A1K0211 COC _1_of_12_

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BM-04-15-30' (0-0.5)		10/24/16	842	S	1	x	x
BM-04-15-30' (0.5-1')		10/24/16	853	S	1	x	x
BM-04-15-30' (1-1.5')		10/24/16	905	S	1	x	x
BM-04->30' (0-0.5')		10/24/16	911	S	1	x	x
BM-04->30' (0.5-1')		10/24/16	920	S	1	x	x
BM-04->30' (1-1.5')		10/24/16	928	S	1	x	x
BM-05->30' (0-0.5')		10/24/16	1030	S	1	x	x
BM-05->30' (0.5-1')		10/24/16	1036	S	1	x	x
BM-05->30' (1-1.5')		10/24/16	1043	S	1	x	x
BM-06-15-30' (0-0.5)		10/24/16	1102	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/28/16 Printed Name: Time: 1140 Company: Cascadia

RECEIVED BY: Signature: Date: 10/28/16 Printed Name: Time: 1140 Company: Apex

RELINQUISHED BY: Signature: Date: Printed Name: Time: Company:

RECEIVED BY: Signature: Date: Printed Name: Time: Company:

Apex Laboratories

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AMENDED REPORT

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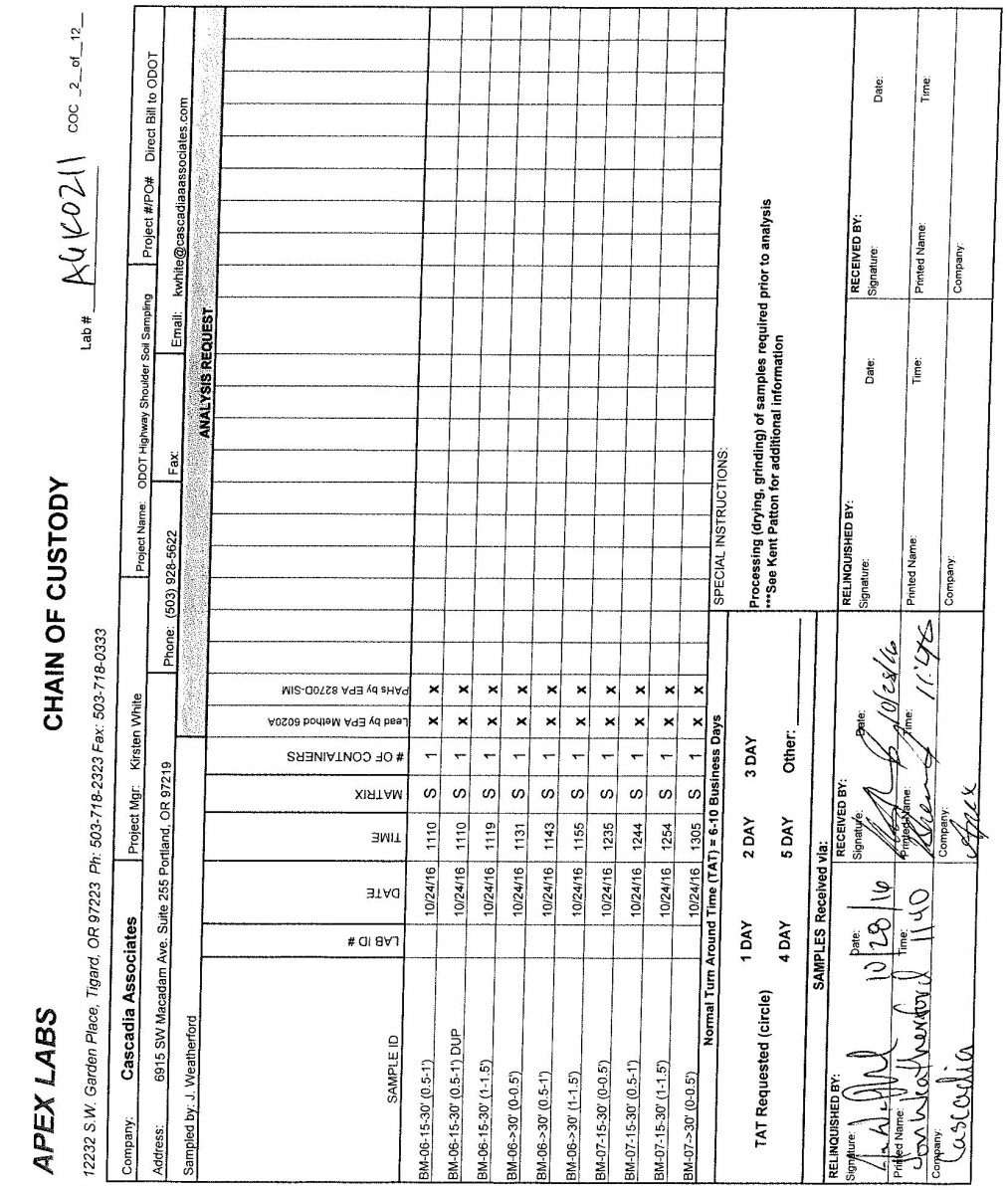
Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27



APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # AQ10211 COC 2 of 12

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BM-06-15-30' (0.5-1)		10/24/16	1110	S	1	x	x
BM-06-15-30' (0.5-1) DUP		10/24/16	1110	S	1	x	x
BM-06-15-30' (1-1.5)		10/24/16	1119	S	1	x	x
BM-06->30' (0-0.5)		10/24/16	1131	S	1	x	x
BM-06->30' (0.5-1)		10/24/16	1143	S	1	x	x
BM-06->30' (1-1.5)		10/24/16	1155	S	1	x	x
BM-07-15-30' (0-0.5)		10/24/16	1235	S	1	x	x
BM-07-15-30' (0.5-1)		10/24/16	1244	S	1	x	x
BM-07-15-30' (1-1.5)		10/24/16	1254	S	1	x	x
BM-07->30' (0-0.5)		10/24/16	1305	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/28/16 Printed Name: Time: 11:40 Company: Cascadia

RECEIVED BY: Signature: Date: 10/28/16 Printed Name: Time: 11:40 Company:

RELINQUISHED BY: Signature: Date: Printed Name: Time: Company:

RECEIVED BY: Signature: Date: Printed Name: Time: Company:

RELINQUISHED BY: Signature: Date: Printed Name: Time: Company:

RECEIVED BY: Signature: Date: Printed Name: Time: Company:

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

APEX LABS COOLER RECEIPT FORM

Client: Cascadia Element WO#: A6 K0211

Project/Project #: ODOT - Highway Shoulder Soil Sampling

Delivery info:

Date/Time Received: 10/25/16 @ 11:40 By: [illegible]

Delivered by: Apex ___ Client X ESS ___ FedEx ___ UPS ___ Swift ___ Senvoy ___ SDS ___ Other ___

Cooler Inspection Inspected by: [illegible] : 10/25/16 @ 11:41

Chain of Custody Included? Yes X No ___ Custody Seals? Yes ___ No X

Signed/Dated by Client? Yes X No ___

Signed/Dated by Apex? Yes X No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	4.9	5.6	5.9				
Received on Ice? (Y/N)	(Y)						
Temp. Blanks? (Y/N)	(N)						
Ice Type: (Gel/Real/Other)	(Real)						
Condition:	good						

Cooler out of temp? (Y/(N)) Possible reason why: ___

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/(NA)

Samples Inspection: Inspected by: [illegible] : 10/5/16 @ 1430

All Samples Intact? Yes X No ___ Comments: ___

Bottle Labels/COCs agree? Yes ___ No X Comments: BM-04-15-30' (1-1.5') Dup noted not listed on COC/spreadsheet

Containers/Volumes Received Appropriate for Analysis? Yes X No ___ Comments: ___

Do VOA Vials have Visible Headspace? Yes ___ No ___ NA X

Comments ___

Water Samples: pH Checked and Appropriate (except VOAs): Yes ___ No ___ NA X

Comments: ___

Additional Information: BM-04-15-30'(0-0.5') time on cont. reads 8:46

Labeled by: [illegible] Witness: [illegible] Cooler Inspected by: [illegible] See Project Contact Form: Y

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Lisa A Domenighini

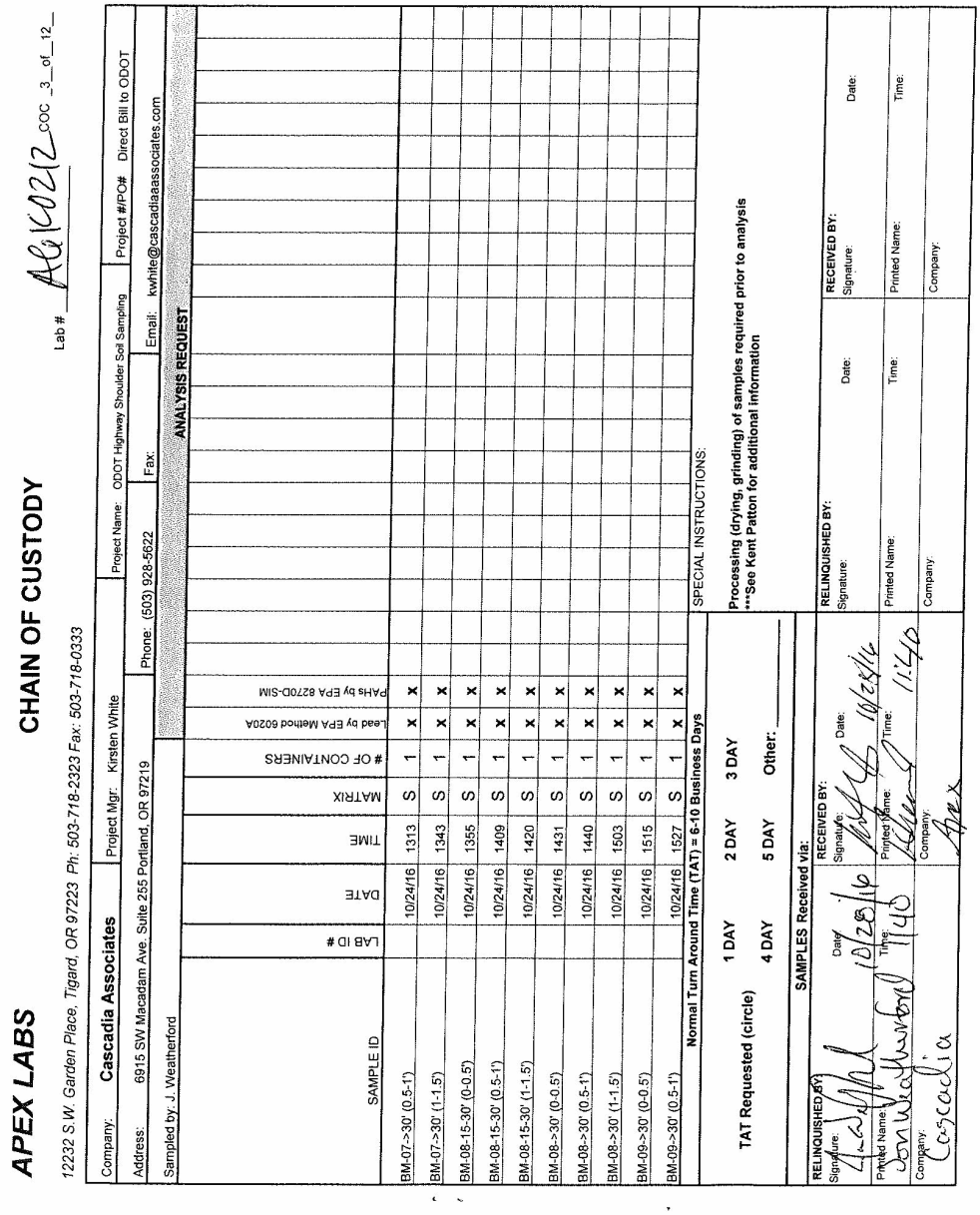
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27



APEX LABS **CHAIN OF CUSTODY** Lab # AG1C0212 COC 3 of 12

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: **Cascadia Associates** Project Mgr: Kirsten White Project Name: ODOT Highway Shoulder Soil Sampling Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 Phone: (503) 928-5622 Fax: Email: kwhite@cascadiaaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BM-07->30' (0.5-1')		10/24/16	1313	S	1	x	x
BM-07->30' (1-1.5')		10/24/16	1343	S	1	x	x
BM-08-15-30' (0-0.5')		10/24/16	1355	S	1	x	x
BM-08-15-30' (0.5-1')		10/24/16	1409	S	1	x	x
BM-08-15-30' (1-1.5')		10/24/16	1420	S	1	x	x
BM-08->30' (0-0.5')		10/24/16	1431	S	1	x	x
BM-08->30' (0.5-1')		10/24/16	1440	S	1	x	x
BM-08->30' (1-1.5')		10/24/16	1503	S	1	x	x
BM-09->30' (0-0.5')		10/24/16	1515	S	1	x	x
BM-09->30' (0.5-1')		10/24/16	1527	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

SPECIAL INSTRUCTIONS:

Processing (drying, grinding) of samples required prior to analysis
*****See Kent Patton for additional information**

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date: 10/28/16	Signature: [signature] Date: 10/28/16	Signature: Date:	Signature: Date:
Printed Name: Jon Weatherford Time: 1140	Printed Name: [signature] Time: 11:40	Printed Name: Time:	Printed Name: Time:
Company: Cascadia	Company: Apex	Company:	Company:

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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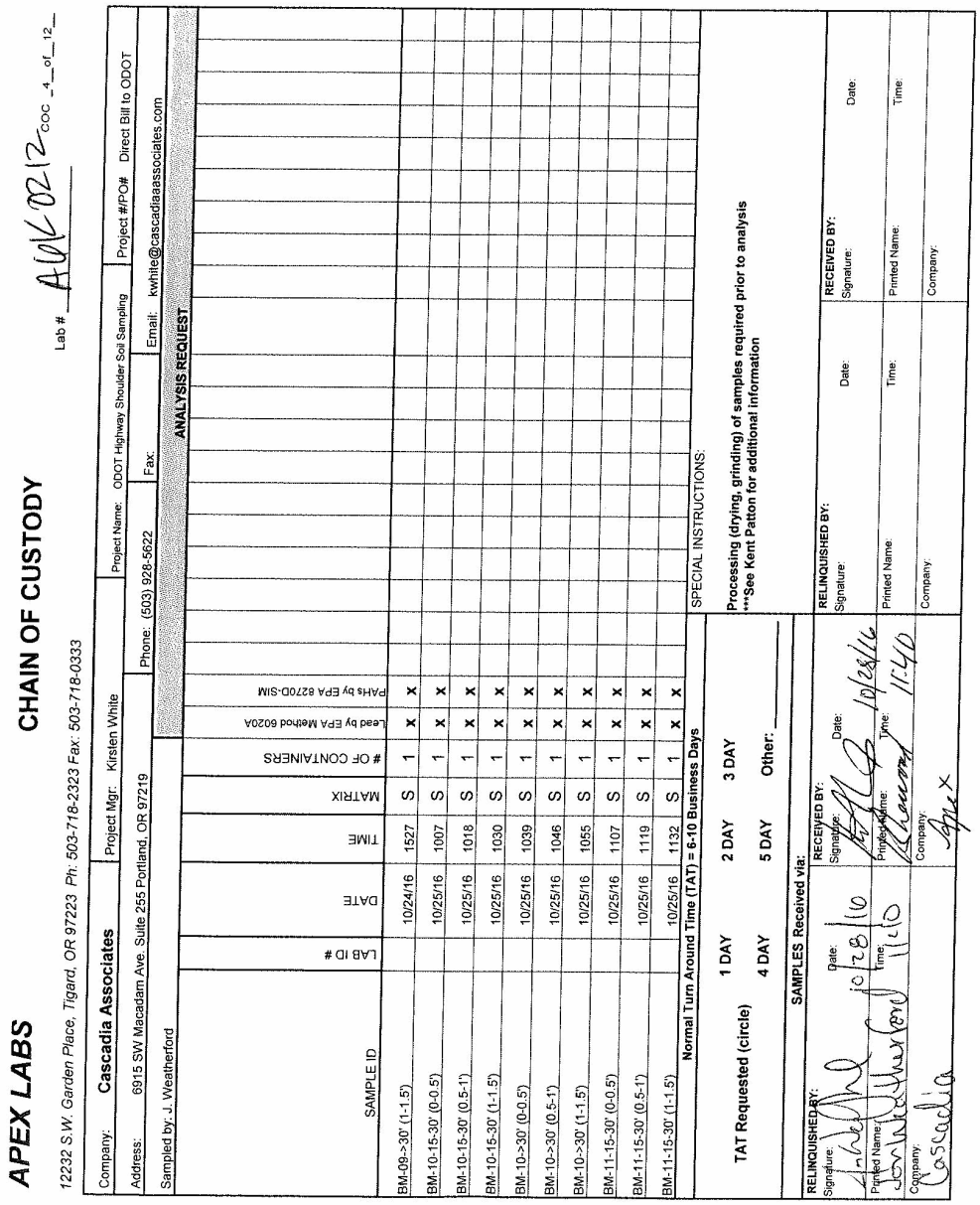
Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27



APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # AQK 02 12 COC -1- of -12-

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BM-09->30' (1-1.5')		10/24/16	1527	S	1	X	X
BM-10-15-30' (0-0.5)		10/25/16	1007	S	1	X	X
BM-10-15-30' (0.5-1')		10/25/16	1018	S	1	X	X
BM-10-15-30' (1-1.5')		10/25/16	1030	S	1	X	X
BM-10->30' (0-0.5')		10/25/16	1039	S	1	X	X
BM-10->30' (0.5-1')		10/25/16	1046	S	1	X	X
BM-10->30' (1-1.5')		10/25/16	1055	S	1	X	X
BM-11-15-30' (0-0.5)		10/25/16	1107	S	1	X	X
BM-11-15-30' (0.5-1')		10/25/16	1119	S	1	X	X
BM-11-15-30' (1-1.5')		10/25/16	1132	S	1	X	X

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/28/16 Time: 1140 Printed Name: Company: Cascadia

RECEIVED BY: Signature: Date: 10/28/16 Time: 1140 Printed Name: Company:

RELINQUISHED BY: Signature: Date: Time: Printed Name: Company:

RECEIVED BY: Signature: Date: Time: Printed Name: Company:

Apex Laboratories

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Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

APEX LABS COOLER RECEIPT FORM

Client: Cascadia Element WO#: A610212

Project/Project #: ODOT - Highway Shoulder Soil Sampling

Delivery info:

Date/Time Received: 10/28/16 @ 11:40 By: VMS

Delivered by: Apex ___ Client X ESS ___ FedEx ___ UPS ___ Swift ___ Senvoy ___ SDS ___ Other ___

Cooler Inspection Inspected by: VMS : 10/28/16 @ 11:41

Chain of Custody Included? Yes X No ___ Custody Seals? Yes ___ No X

Signed/Dated by Client? Yes X No ___

Signed/Dated by Apex? Yes X No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	4.9	5.6	5.9				
Received on Ice? (Y/N)	Y						
Temp. Blanks? (Y/N)	N						
Ice Type: (Gel/Real/Other)	Real						
Condition:	good						

Cooler out of temp? (Y/N) Possible reason why: ___

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CMS : 10/31/16 @ 1430

All Samples Intact? Yes X No ___ Comments: ___

Bottle Labels/COCs agree? Yes ___ No X Comments: BM-07->30' (1-1.5') time on cont. reads 13:24. BM-08-15-30' (0-0.5') time

Containers/Volumes Received Appropriate for Analysis? Yes X No ___ Comments:

Do VOA Vials have Visible Headspace? Yes ___ No ___ NA X

Comments ___

Water Samples: pH Checked and Appropriate (except VOAs): Yes ___ No ___ NA X

Comments: ___

Additional Information: on cont. reads 1343 BM-08-15-3' (0.5-1') through BM-09->30' (0.5-1') time on cont. reads time for sample following 0.5-1'

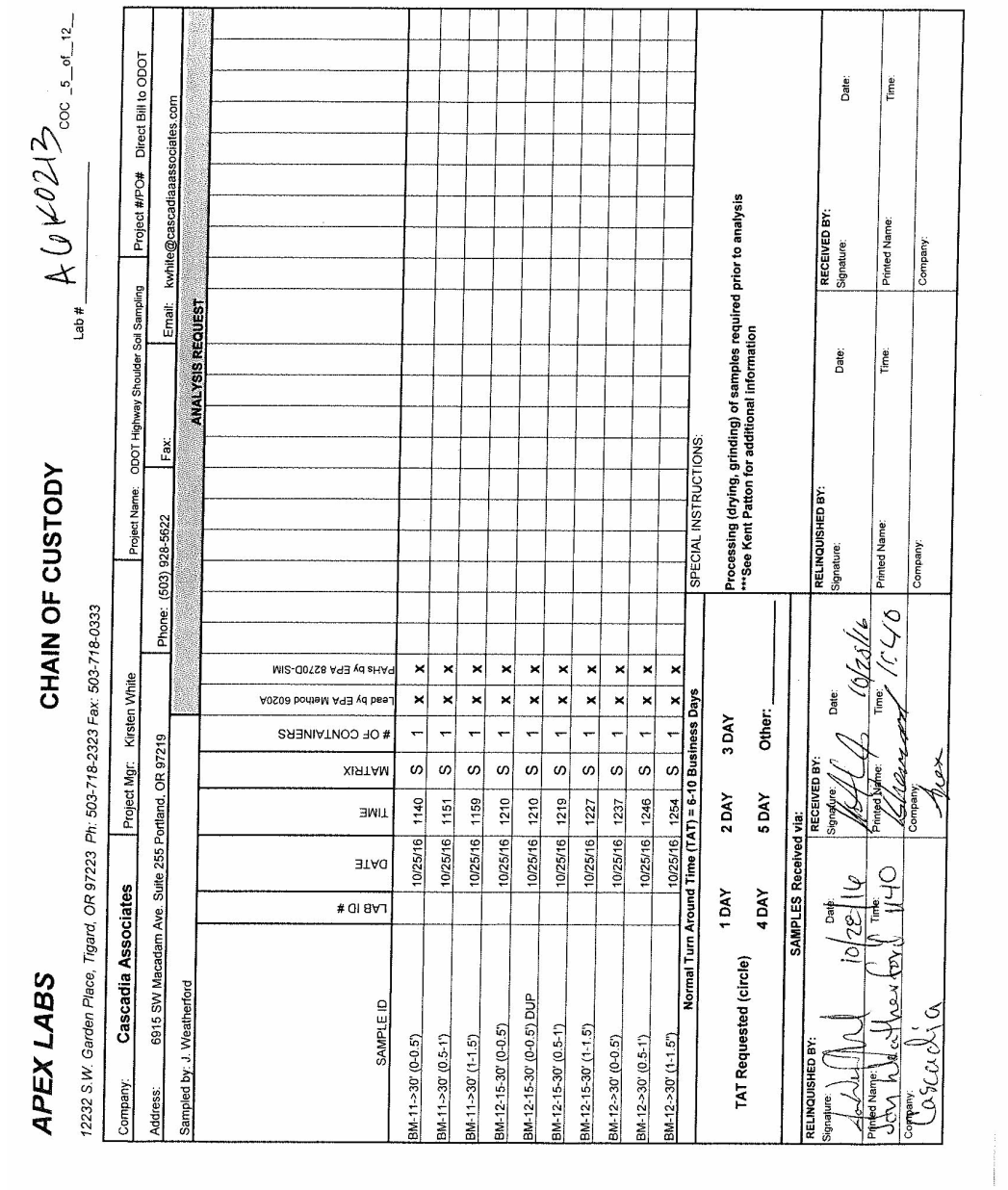
Labeled by: CMS Witness: VMS Cooler Inspected by: CMS See Project Contact Form: Y

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27



APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # A0K0213 COC _5_of_12_

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BM-11->30' (0-0.5')		10/25/16	1140	S	1	X	X
BM-11->30' (0.5-1')		10/25/16	1151	S	1	X	X
BM-11->30' (1-1.5')		10/25/16	1159	S	1	X	X
BM-12-15-30' (0-0.5')		10/25/16	1210	S	1	X	X
BM-12-15-30' (0-0.5') DUP		10/25/16	1210	S	1	X	X
BM-12-15-30' (0.5-1')		10/25/16	1219	S	1	X	X
BM-12-15-30' (1-1.5')		10/25/16	1227	S	1	X	X
BM-12->30' (0-0.5')		10/25/16	1237	S	1	X	X
BM-12->30' (0.5-1')		10/25/16	1246	S	1	X	X
BM-12->30' (1-1.5')		10/25/16	1254	S	1	X	X

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Printed Name: Company: Date: 10/28/16 Time: 1440

RECEIVED BY: Signature: Printed Name: Company: Date: 10/28/16 Time: 1440

RELINQUISHED BY: Signature: Printed Name: Company: Date: Time:

RECEIVED BY: Signature: Printed Name: Company: Date: Time:

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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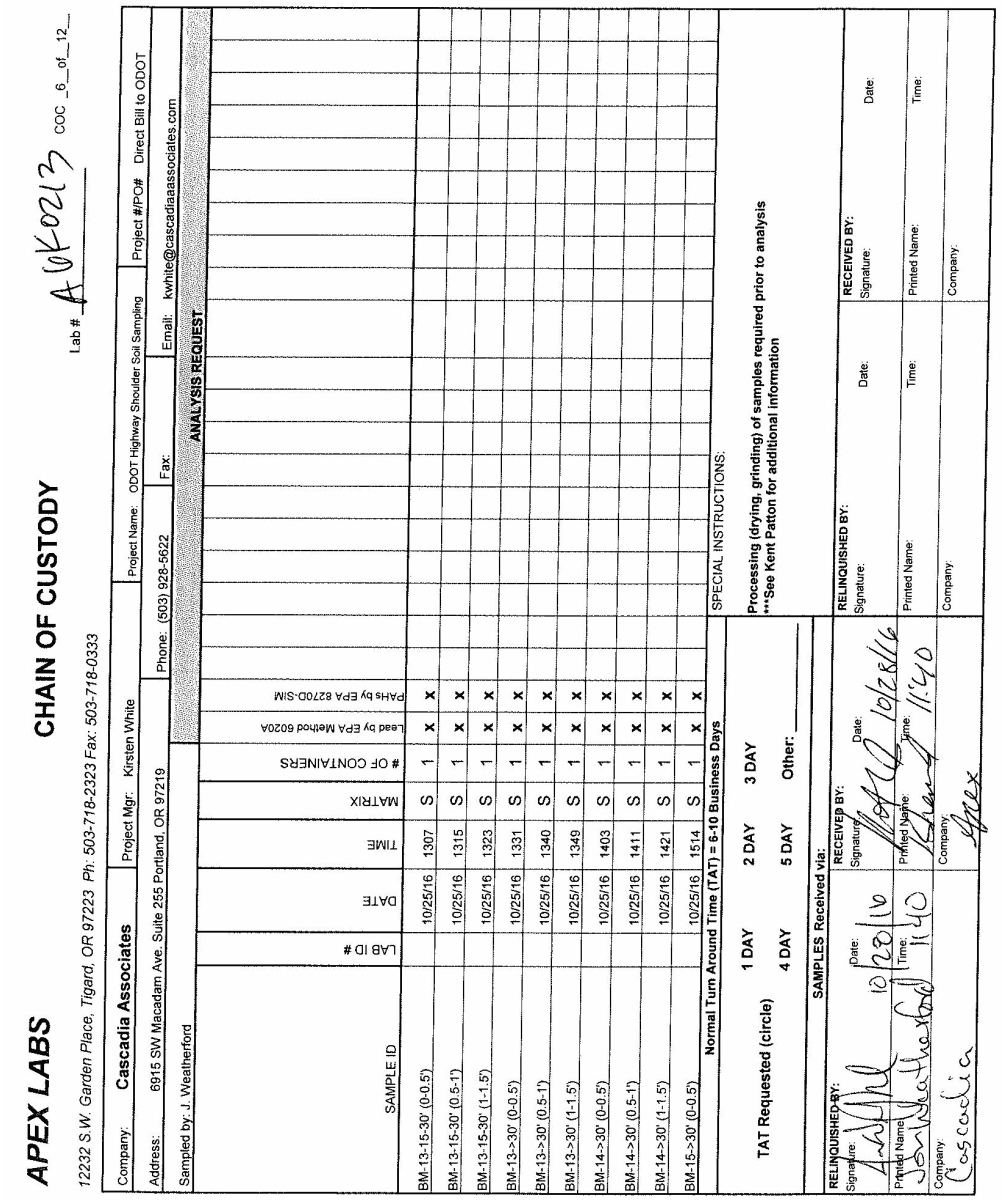
Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27



APEX LABS

CHAIN OF CUSTODY

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # A0K0213 COC _6_ of _12_

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BM-13-15-30' (0-0.5)		10/25/16	1307	S	1	X	X
BM-13-15-30' (0.5-1')		10/25/16	1315	S	1	X	X
BM-13-15-30' (1-1.5')		10/25/16	1323	S	1	X	X
BM-13->30' (0-0.5')		10/25/16	1331	S	1	X	X
BM-13->30' (0.5-1')		10/25/16	1340	S	1	X	X
BM-13->30' (1-1.5')		10/25/16	1349	S	1	X	X
BM-14->30' (0-0.5')		10/25/16	1403	S	1	X	X
BM-14->30' (0.5-1')		10/25/16	1411	S	1	X	X
BM-14->30' (1-1.5')		10/25/16	1421	S	1	X	X
BM-15->30' (0-0.5)		10/25/16	1514	S	1	X	X

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/28/16 Time: 11:40 Printed Name: Jon Weatherford Company: Cascadia

RECEIVED BY: Signature: Date: 10/28/16 Time: 11:40 Printed Name: Kent Patton Company: Apex

RELINQUISHED BY: Signature: Date: Time: Printed Name: Company:

RECEIVED BY: Signature: Date: Time: Printed Name: Company:

Apex Laboratories

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Lisa A Domenighini

Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

APEX LABS COOLER RECEIPT FORM

Client: Cascadia Element WO#: A6K0213

Project/Project #: ODOT - Highway Shoulder Soil Sampling

Delivery info:

Date/Time Received: 10/28/16 @ 11:40 By: KMS

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: KMS : 10/28/16 @ 11:41

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	4.9	5.6	5.9				
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:	good						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CMS : 10/28/16 @ 1430

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes X No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes___ No___ NA X

Comments:

Additional Information:

Labeled by: CMS Witness: KMS Cooler Inspected by: CMS See Project Contact Form: Y

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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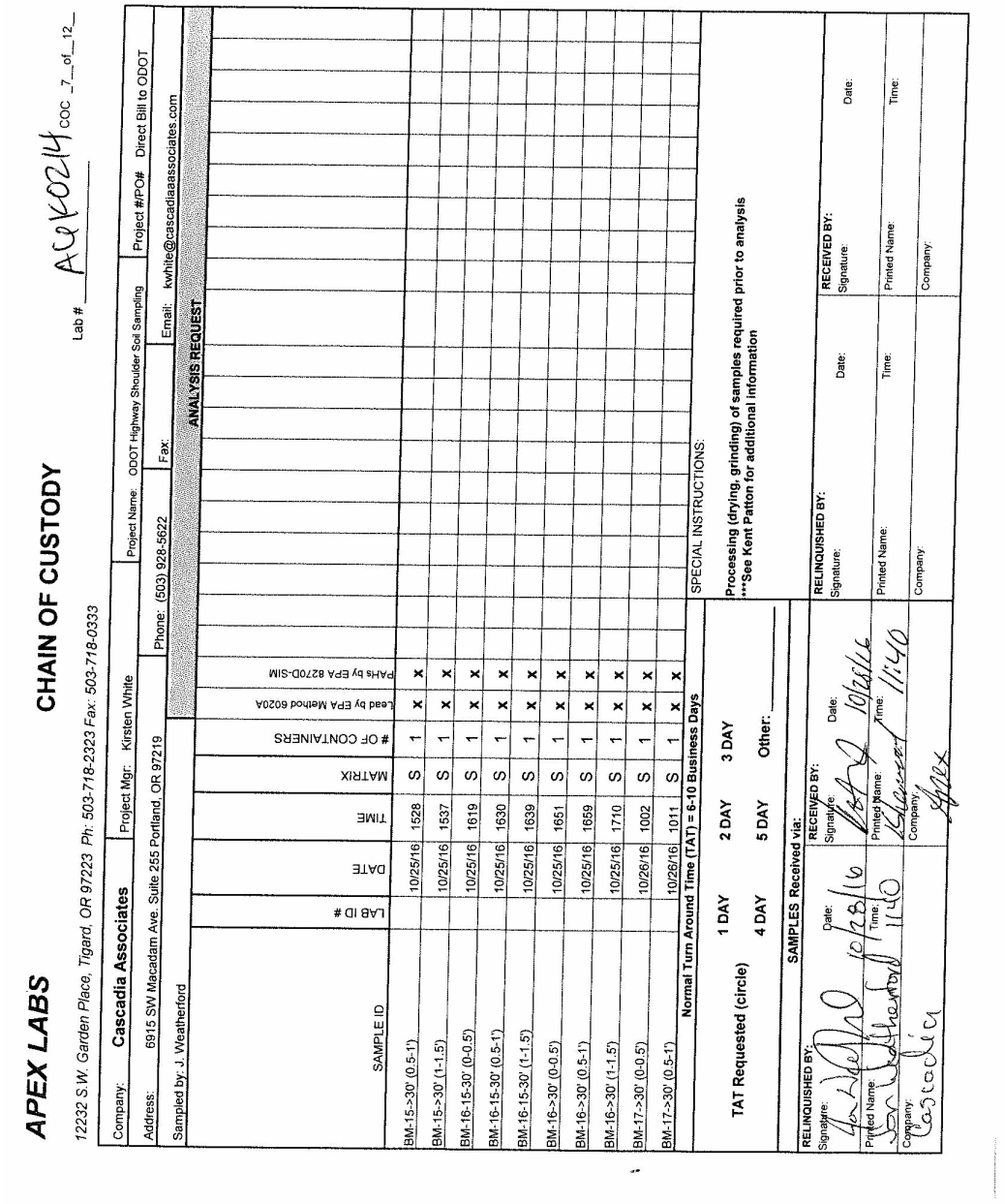
Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27



APEX LABS
12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # AQK0214 COC 7 of 12

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT
Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com
Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BM-15->30' (0.5-1')		10/25/16	1528	S	1	x	x
BM-15->30' (1-1.5')		10/25/16	1537	S	1	x	x
BM-16-15-30' (0-0.5')		10/25/16	1619	S	1	x	x
BM-16-15-30' (0.5-1')		10/25/16	1630	S	1	x	x
BM-16-15-30' (1-1.5')		10/25/16	1639	S	1	x	x
BM-16->30' (0-0.5')		10/25/16	1651	S	1	x	x
BM-16->30' (0.5-1')		10/25/16	1659	S	1	x	x
BM-16->30' (1-1.5')		10/25/16	1710	S	1	x	x
BM-17->30' (0-0.5')		10/26/16	1002	S	1	x	x
BM-17->30' (0.5-1')		10/26/16	1011	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/28/16 Printed Name: Time: 1140 Company: Cascadia

RECEIVED BY: Signature: Date: 10/28/16 Printed Name: Time: 1140 Company: Apex

RELINQUISHED BY: Signature: Date: Printed Name: Time: Company:

RECEIVED BY: Signature: Date: Printed Name: Time: Company:

Apex Laboratories

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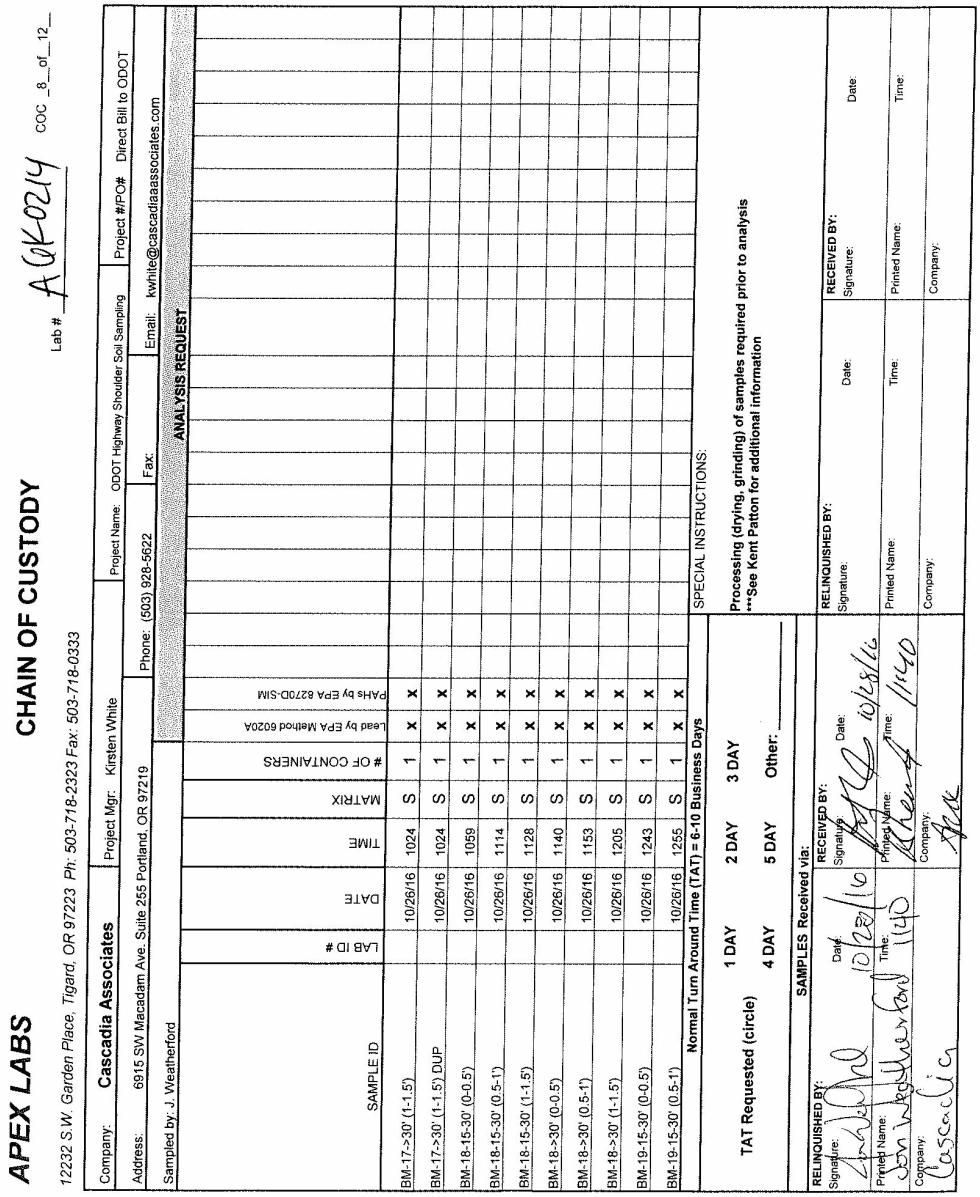
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27



APEX LABS — **CHAIN OF CUSTODY** — COC 8 of 12

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # A0K0214

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BM-17->30' (1-1.5')		10/26/16	1024	S	1	x	x
BM-17->30' (1-1.5') DUP		10/26/16	1024	S	1	x	x
BM-18-15-30' (0-0.5')		10/26/16	1059	S	1	x	x
BM-18-15-30' (0.5-1')		10/26/16	1114	S	1	x	x
BM-18-15-30' (1-1.5')		10/26/16	1128	S	1	x	x
BM-18->30' (0-0.5')		10/26/16	1140	S	1	x	x
BM-18->30' (0.5-1')		10/26/16	1153	S	1	x	x
BM-18->30' (1-1.5')		10/26/16	1205	S	1	x	x
BM-19-15-30' (0-0.5')		10/26/16	1243	S	1	x	x
BM-19-15-30' (0.5-1')		10/26/16	1255	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature: Date:	Signature: Date:	Signature: Date:
Printed Name: Time:	Printed Name: Time:	Printed Name: Time:	Printed Name: Time:
Company:	Company:	Company:	Company:

Apex Laboratories

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Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

APEX LABS COOLER RECEIPT FORM

Client: Cascadia Element WO#: A6K0214

Project/Project #: ODOT - Highway Shoulder Soil Sampling

Delivery info:

Date/Time Received: 10/28/16 @ 11:40 By: MS

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: MS : 10/28/16 @ 11:41

Chain of Custody Included? Yes X No ___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No ___

Signed/Dated by Apex? Yes X No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	4.9	5.6	5.9				
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:	good						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CMB : 10/31/16 @ 1430

All Samples Intact? Yes X No ___ Comments:

Bottle Labels/COCs agree? Yes X No ___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No ___ Comments:

Do VOA Vials have Visible Headspace? Yes ___ No ___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes___No___NA X

Comments:

Additional Information:

Labeled by: CMB Witness: MS Cooler Inspected by: CMB See Project Contact Form: Y

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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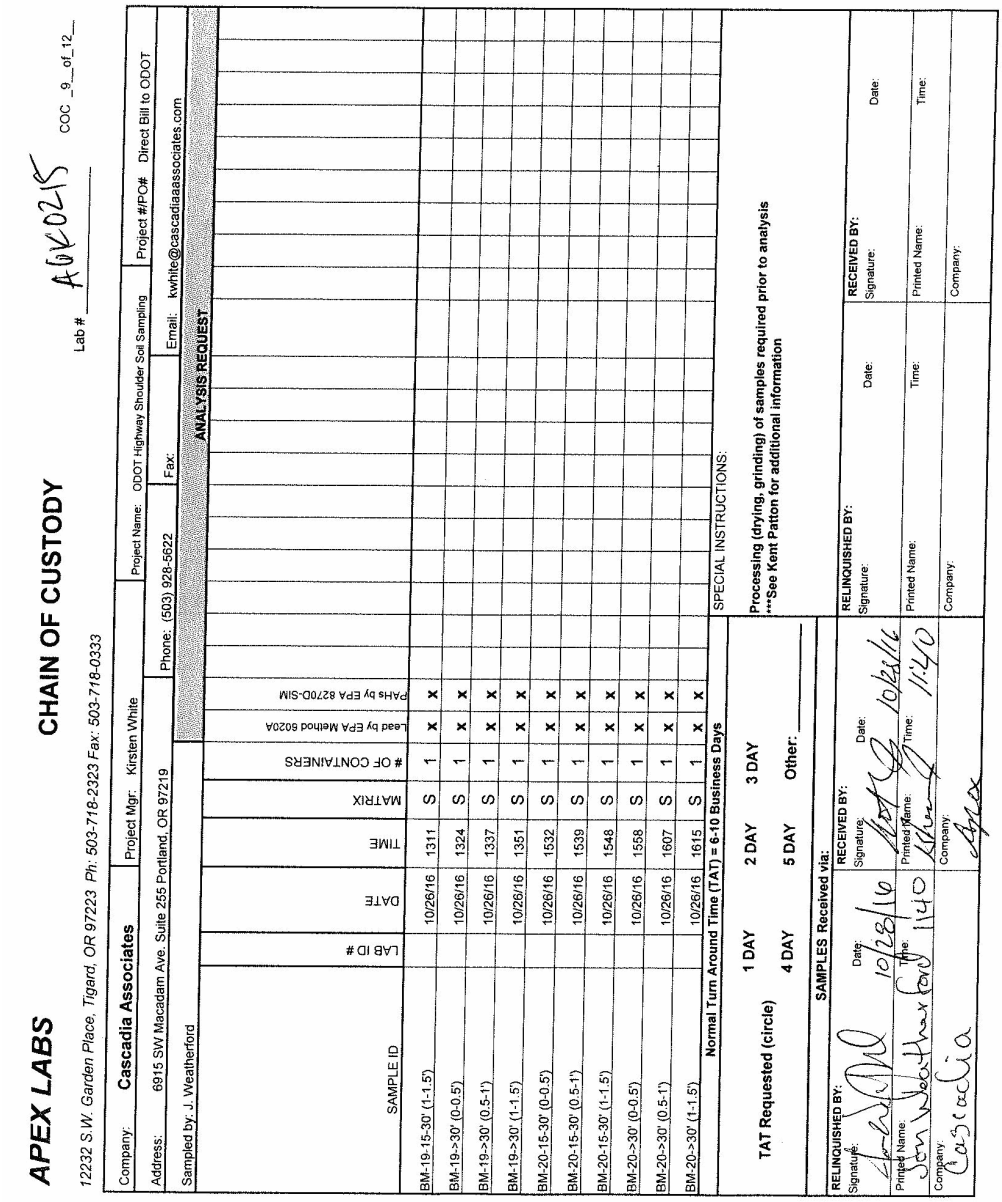
Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27



APEX LABS

CHAIN OF CUSTODY

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # A0K0215 COC _9_of_12_

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-6622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BM-19-15-30' (1-1.5')		10/26/16	1311	S	1	x	x
BM-19->30' (0-0.5')		10/26/16	1324	S	1	x	x
BM-19->30' (0.5-1')		10/26/16	1337	S	1	x	x
BM-19->30' (1-1.5')		10/26/16	1351	S	1	x	x
BM-20-15-30' (0-0.5')		10/26/16	1532	S	1	x	x
BM-20-15-30' (0.5-1')		10/26/16	1539	S	1	x	x
BM-20-15-30' (1-1.5')		10/26/16	1548	S	1	x	x
BM-20->30' (0-0.5')		10/26/16	1558	S	1	x	x
BM-20->30' (0.5-1')		10/26/16	1607	S	1	x	x
BM-20->30' (1-1.5')		10/26/16	1615	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle) 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/28/16 Printed Name: Time: 1140 Company:

RECEIVED BY: Signature: Date: 10/28/16 Printed Name: Time: 1140 Company:

RELINQUISHED BY: Signature: Date: Printed Name: Time: Company:

RECEIVED BY: Signature: Date: Printed Name: Time: Company:

Apex Laboratories

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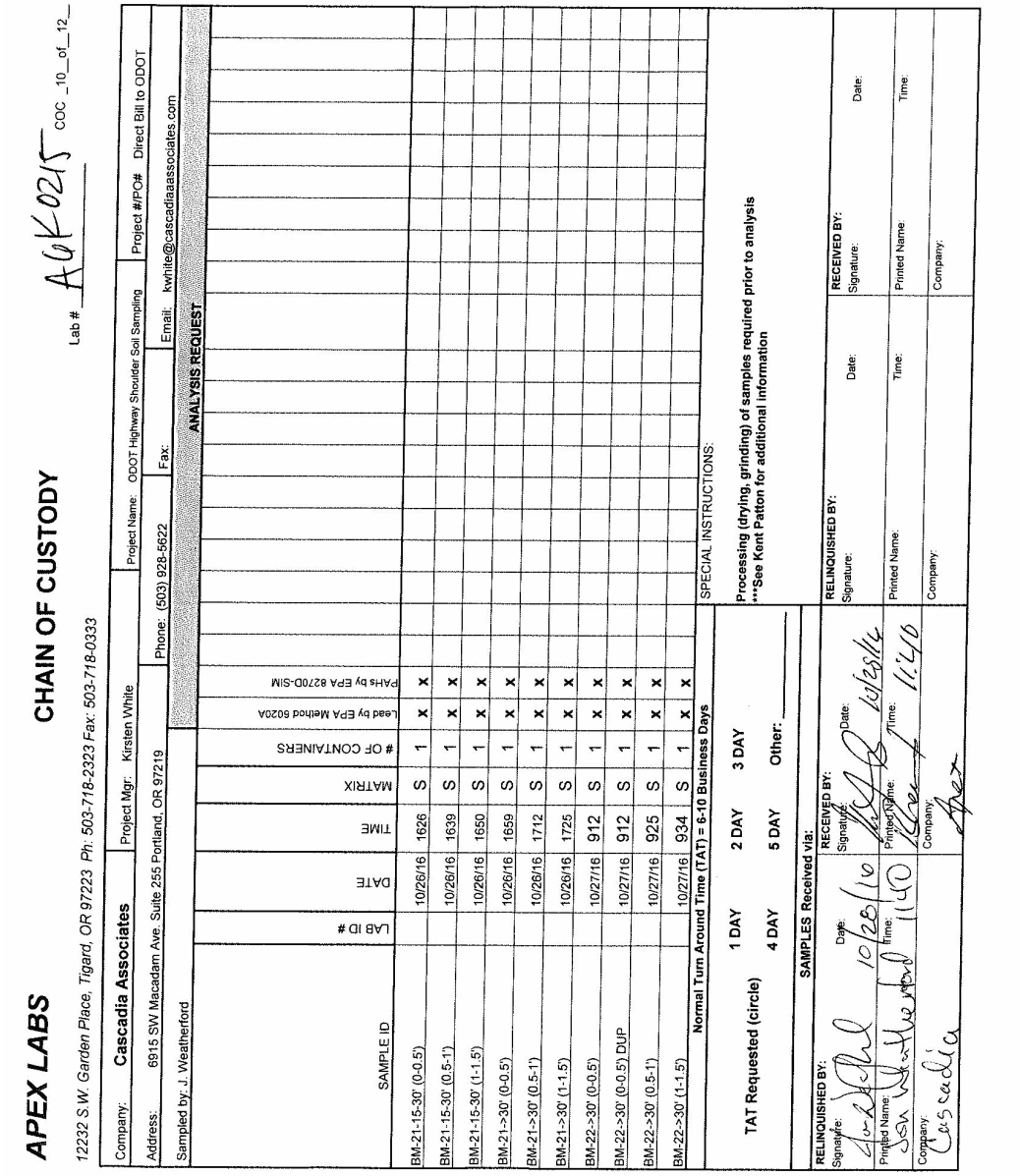
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27



APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # A6K0215 COC _10_ of _12_

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BM-21-15-30' (0-0.5)		10/26/16	1626	S	1	x	x
BM-21-15-30' (0.5-1')		10/26/16	1639	S	1	x	x
BM-21-15-30' (1-1.5')		10/26/16	1650	S	1	x	x
BM-21->30' (0-0.5)		10/26/16	1659	S	1	x	x
BM-21->30' (0.5-1')		10/26/16	1712	S	1	x	x
BM-21->30' (1-1.5')		10/26/16	1725	S	1	x	x
BM-22->30' (0-0.5)		10/27/16	912	S	1	x	x
BM-22->30' (0-0.5) DUP		10/27/16	912	S	1	x	x
BM-22->30' (0.5-1')		10/27/16	925	S	1	x	x
BM-22->30' (1-1.5)		10/27/16	934	S	1	x	x

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/28/16 Printed Name: Time: 1140 Company:

RECEIVED BY: Signature: Date: Printed Name: Time: Company:

RELINQUISHED BY: Signature: Date: Printed Name: Time: Company:

RECEIVED BY: Signature: Date: Printed Name: Time: Company:

RELINQUISHED BY: Signature: Date: 10/28/16 Printed Name: Time: 1140 Company:

RECEIVED BY: Signature: Date: Printed Name: Time: Company:

Apex Laboratories

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Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

APEX LABS COOLER RECEIPT FORM

Client: Cascadia Element WO#: A6K0215

Project/Project #: ODOT - Highway Shoulder Soil Sampling

Delivery info:

Date/Time Received: 10/25/16 @ 11:40 By: WM

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: WM : 10/25/16 @ 11:41

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	4.9	5.6	5.9				
Received on Ice? (Y/N)	Y	Y	Y				
Temp. Blanks? (Y/N)	N	N	N				
Ice Type: (Gel/Real/Other)	Gel	Gel	Gel				
Condition:	good	→	→				

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CMS : 10/25/16 @ 1430

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes X No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes___ No___ NA X

Comments:

Additional Information:

Labeled by: CMS Witness: WM Cooler Inspected by: CMS See Project Contact Form: Y

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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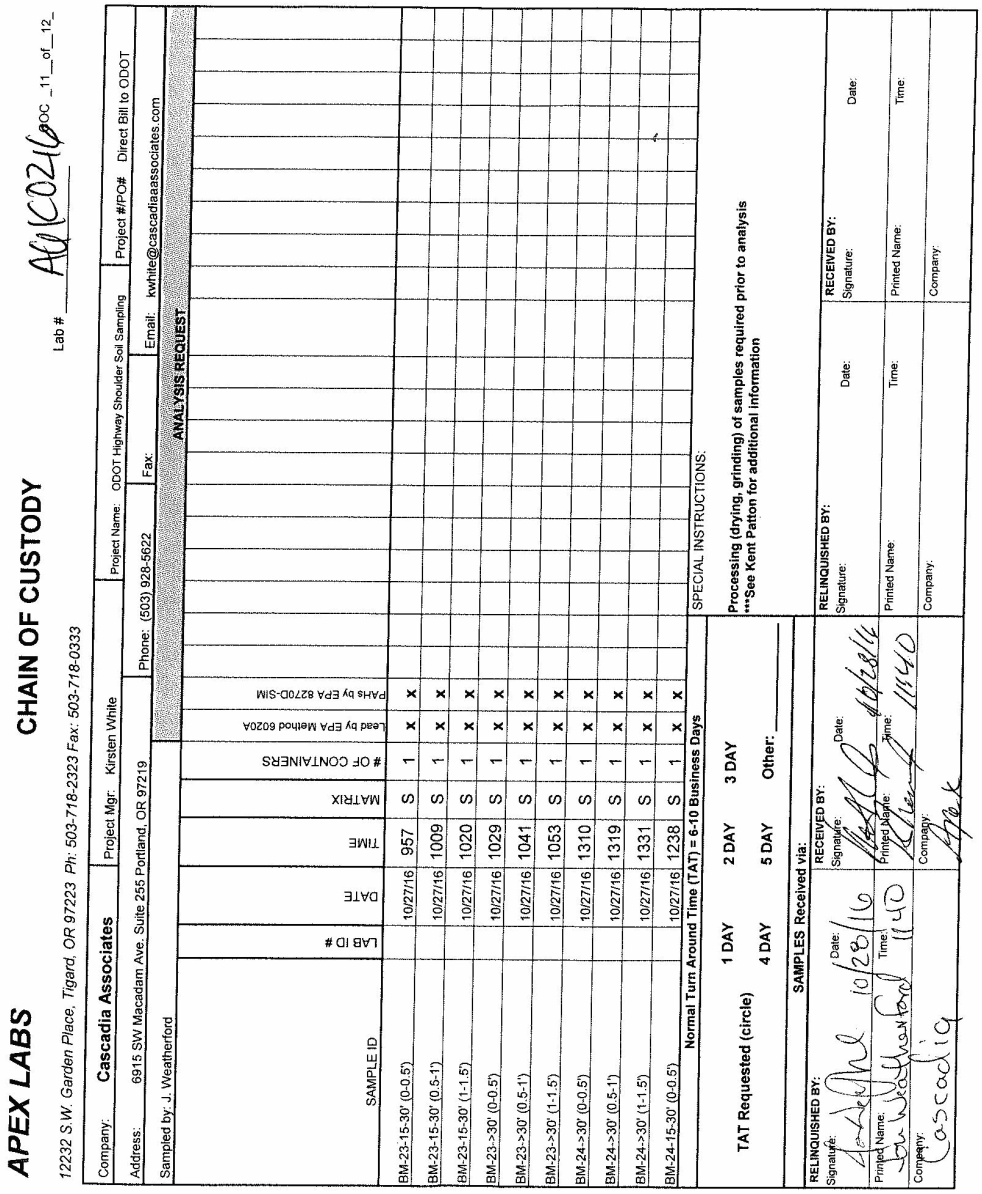
Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27



APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # AQ1602160 COC _11_ of _12_

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM	
BM-23-15-30' (0-0.5')		10/27/16	957	S	1	x	x	
BM-23-15-30' (0.5-1')		10/27/16	1009	S	1	x	x	
BM-23-15-30' (1-1.5')		10/27/16	1020	S	1	x	x	
BM-23->30' (0-0.5')		10/27/16	1029	S	1	x	x	
BM-23->30' (0.5-1')		10/27/16	1041	S	1	x	x	
BM-23->30' (1-1.5')		10/27/16	1053	S	1	x	x	
BM-24->30' (0-0.5')		10/27/16	1310	S	1	x	x	
BM-24->30' (0.5-1')		10/27/16	1319	S	1	x	x	
BM-24->30' (1-1.5')		10/27/16	1331	S	1	x	x	
BM-24-15-30' (0-0.5')		10/27/16	1238	S	1	x	x	

Normal Turn Around Time (TAT) = 6-10 Business Days

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: _____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature: Date:	Signature: Date:	Signature: Date:
Printed Name:	Printed Name: Time:	Printed Name: Time:	Printed Name: Time:
Company:	Company:	Company:	Company:

Apex Laboratories

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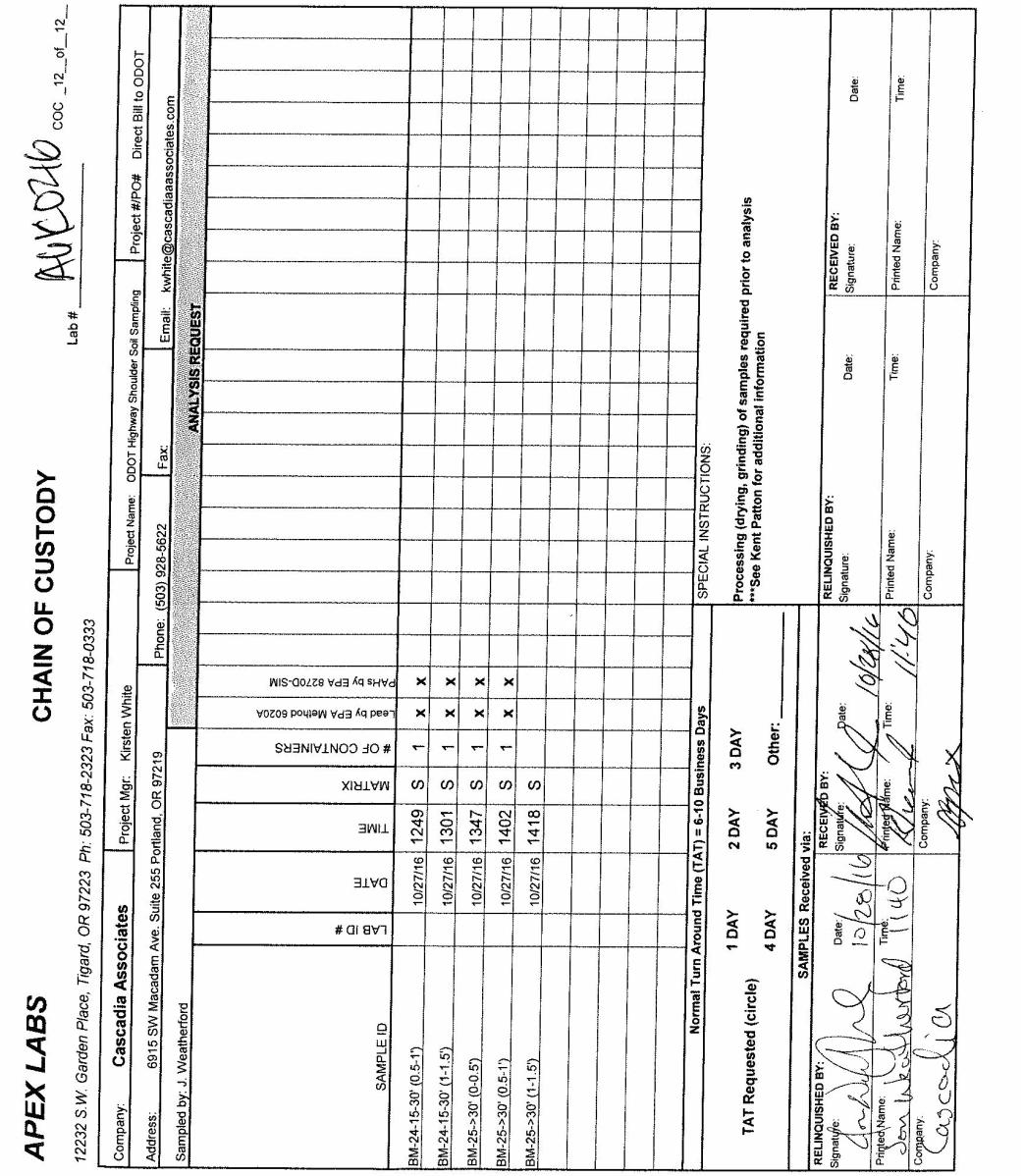
Lisa Domenighini, Client Services Manager

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27



APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

Lab # AUK0210 COC _12_of_12_

Company: Cascadia Associates | Project Mgr: Kirsten White | Project Name: ODOT Highway Shoulder Soil Sampling | Project #/PO# | Direct Bill to ODOT

Address: 6915 SW Macadam Ave. Suite 255 Portland, OR 97219 | Phone: (503) 928-5622 | Fax: | Email: kwhite@cascadiaassociates.com

Sampled by: J. Weatherford

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Lead by EPA Method 6020A	PAHs by EPA 8270D-SIM
BM-24-15-30' (0.5-1')		10/27/16	1249	S	1	x	x
BM-24-15-30' (1-1.5')		10/27/16	1301	S	1	x	x
BM-25->30' (0-0.5')		10/27/16	1347	S	1	x	x
BM-25->30' (0.5-1')		10/27/16	1402	S	1	x	x
BM-25->30' (1-1.5')		10/27/16	1418	S			

SPECIAL INSTRUCTIONS:

Normal Turn Around Time (TAT) = 6-10 Business Days

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: ____

Processing (drying, grinding) of samples required prior to analysis
***See Kent Patton for additional information

SAMPLES Received via:

RELINQUISHED BY: Signature: Date: 10/28/16 Time: 1140 Printed Name: Company: Cascadia

RECEIVED BY: Signature: Date: 10/28/16 Time: 1140 Printed Name: Company:

RELINQUISHED BY: Signature: Date: 10/28/16 Time: 11:40 Printed Name: Company:

RECEIVED BY: Signature: Date: Time: Printed Name: Company:

RELINQUISHED BY: Signature: Date: Time: Printed Name: Company:

RECEIVED BY: Signature: Date: Time: Printed Name: Company:

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Cascadia Associates	Project: **ODOT Clean Fill Project -- RSM**	
6915 SW Macadam, Suite 255	Project Number: ODOT Clean Fill Project	**Reported:**
Portland, OR 97219	Project Manager: Kirsten K. White	01/16/17 15:27

APEX LABS COOLER RECEIPT FORM

Client: Cascadia Element WO#: A6 K0216

Project/Project #: ODOT - Highway Shoulder Soil Sampling

Delivery info:

Date/Time Received: 10/28/16 @ 11:40 By: [illegible]

Delivered by: Apex ___ Client X ESS ___ FedEx ___ UPS ___ Swift ___ Senvoy ___ SDS ___ Other ___

Cooler Inspection Inspected by: [illegible] : 10/28/16 @ 11:41

Chain of Custody Included? Yes X No ___ Custody Seals? Yes ___ No X

Signed/Dated by Client? Yes X No ___

Signed/Dated by Apex? Yes X No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	4.9	5.6	5.4				
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:	good						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No (NA)

Samples Inspection: Inspected by: [illegible] : 10/28/16 @ 1430

All Samples Intact? Yes X No ___ Comments:

Bottle Labels/COCs agree? Yes X No ___ Comments: BM-25 → 30' (1-1.5') not marked for analysis

Containers/Volumes Received Appropriate for Analysis? Yes X No ___ Comments:

Do VOA Vials have Visible Headspace? Yes ___ No ___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes ___ No ___ NA X

Comments:

Additional Information:

Labeled by: [illegible] Witness: [illegible] Cooler Inspected by: [illegible] See Project Contact Form: (Y)

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini, Client Services Manager

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Cascadia Associates, LLC

APPENDIX C

2016 HIGHWAY SHOULDER SOIL STATISTICAL EVALUATION - SUPPORTING INFORMATION

Supporting Information - Shoulder Soil Statistical Evaluation

Lorraine Read, MS
Terrastat Consulting Group

Terrastat Consulting performed a statistical evaluation of soil chemical analytical data for three physiographic provinces in Oregon: the Deschutes Columbia province, the Blue Mountains province, and the Basin and Range province. The evaluation was performed at the request of Cascadia Associates, LLC (Cascadia), on behalf of the Oregon Department of Transportation (ODOT). The statistical evaluation included chemical analytical data for soil samples that were collected in 2016 (Cascadia), 2015 (Apex Companies, LLC), and other samples collected over a range of years by ODOT personnel.

Soil chemical analytical data are available for other physiographic provinces in Oregon; however, those data are not included in this evaluation because, based on a preliminary review of the data (*Sampling and Analysis Plan – Statewide Shoulder Soil Evaluation*, Cascadia, 2016), it was determined the sample populations in other provinces are insufficient for statistical testing and/or previous evaluations of the data were sufficient to characterize the sample populations with respect to State of Oregon clean fill criteria (Oregon Department of Environmental Quality [DEQ], 2014).

Soil samples were collected and analyzed in 2016 to generate a complete data set (when combined with previously collected data), for the three physiographic provinces listed above. These three provinces were previously identified (in the *Sampling and Analysis Plan – Statewide Shoulder Soil Evaluation*) as having roadside soil concentrations of lead and benzo(a)pyrene that were generally below the clean fill criteria. Chemical analytical data collected in 2016 filled in the holes of a crossed two-factor design for the two factors that had the most influence on soil concentrations in the existing data set (i.e., sample depth and distance from pavement).

Following the collection and analysis of soil samples in 2016, Terrastat performed a statistical analysis of roadside soil that meet the following parameters:

- **Three provinces**: Basin and Range, Blue Mountains, and Deschutes-Columbia.
- **Three sample depth intervals**: **1** = 0 – 0 .5 feet; **2** = 0.5 – 1 feet; and **4** = 1 - <2 feet.
- **Three distance from pavement intervals**: **1** = 0 - 15 feet; **2** = 15 - 30 feet; and **3** = 30+ feet.

Cross-tabulations of the sample counts in the updated 2016 database for lead and benzo(a)pyrene indicate a balanced design within each combination of distance and depth in each of the three provinces (Table C-1).

Traffic volume, or Average Annual Daily Traffic (AADT), was not a controlled variable in the 2016 survey primarily because not all AADT categories were represented in the test provinces. Instead, sampling locations sought to capture a range of geographic locations and AADT classifications in the test provinces (Table C-2). Most of these data were collected in 2016 (i.e., out of a total sample size of 698, 462 were from the 2016 sampling event and 236 were from previous sampling efforts).

Table C-1. Cross-tab of sample counts for each of lead and benzo(a)pyrene[1] by Distance from Pavement Interval x Sample Depth Interval, for the three provinces evaluated in this appendix.

Distance from Pavement (ft)	Basin and Range Sample Depth Interval			Blue Mountains Sample Depth Interval			Deschutes Columbia Sample Depth Interval		
	1 (0-0.5')	2 (0.5-1')	4 (1-1.5')	1 (0-0.5')	2 (0.5-1')	4 (1-1.5')	1 (0-0.5')	2 (0.5-1')	4 (1-1.5')
0-15	31	26	22	24	24	29	24	24	33
15-30	26	24	25	24	24	28	26	25	26
>30	28	25	25	26	25	26	25	27	26
Total:	85	75	72	74	73	83	75	76	85

Table C-2. Cross-tab of sample counts for each of lead and benzo(a)pyrene[1] by AADT category x Sample Depth Interval, for the three provinces evaluated in this appendix.

AADT category	Basin and Range Sample Depth Interval			Blue Mountains Sample Depth Interval			Deschutes Columbia Sample Depth Interval		
	1 (0-0.5')	2 (0.5-1')	4 (1-1.5')	1 (0-0.5')	2 (0.5-1')	4 (1-1.5')	1 (0-0.5')	2 (0.5-1')	4 (1-1.5')
0 - 1000	39	31	28	22	21	23	14	14	21
1001-2500	14	12	12	15	15	19	13	14	14
2501-5000	20	20	20	12	13	12	20	20	20
5001 - 10000	12	12	12	25	24	29	7	6	6
10001 - 15000							13	13	16
15001 - 20000							4	4	4
20001 - 30000							4	5	4
Total:	85	75	72	74	73	83	75	76	85
Grand Total =	698								

The number of samples that passed the DEQ clean fill criteria (that is, a concentration less than the criteria, or screening level [≤ SL]), failed (concentration result > SL), or were uncertain (not detected, with a detection limit greater than the SL [DL > SL]) with respect to the province-appropriate screening levels, by analyte, are shown in Table C-3.

[1] Includes non-detected sample results with detection limits that exceeded the clean fill criteria ("uncertain" samples, described below).

Table C-3. Sample count of Pass/Fail/Uncertain results for soils compared to province-appropriate screening levels (SL).

Analyte	Pass (result ≤ SL)	Fail (result > SL)	Uncertain (ND > SL)	Total
Benzo(a)pyrene	599	41	58	698
Lead	585	113	0	698

As shown on Table C-3, relatively few samples exhibited chemical concentrations that exceed the screening criteria. Benzo(a)pyrene concentrations in 6.4% of the samples (41/640) and lead concentrations in 16% of the samples (113/698) exceeded screening criteria.

To aid in the visualization of chemical concentrations in soil, relative to screening criteria for multiple provinces (with different screening criteria), the Elevation Above the Screening Level (EASL) was calculated for each concentration of lead and benzo(a)pyrene. EASL is defined as the concentration results divided by the corresponding screening criterion.

EASL values were calculated for values below detection limit (DL) only when the DL was less than the screening level (as DL/SL). Sample concentrations that were reported as non-detect by the laboratory were labeled as "uncertain" when the DL was greater than the SL. There were no non-detectable concentrations in the lead dataset. A total of 547 benzo(a)pyrene results were reported as non-detectable. Of those 547 results, 58 were labeled 'uncertain' because of elevated DLs. The distribution of EASL values are shown for lead, distinguishing between the previous ODOT dataset (referred to as the '2015' dataset) and the 2016 survey (Figure C-1), and for the complete 2016 data base (Figure C-2). Similar results for benzo(a)pyrene, excluding the uncertain outcomes, are shown in Figures C-3 and C-4.

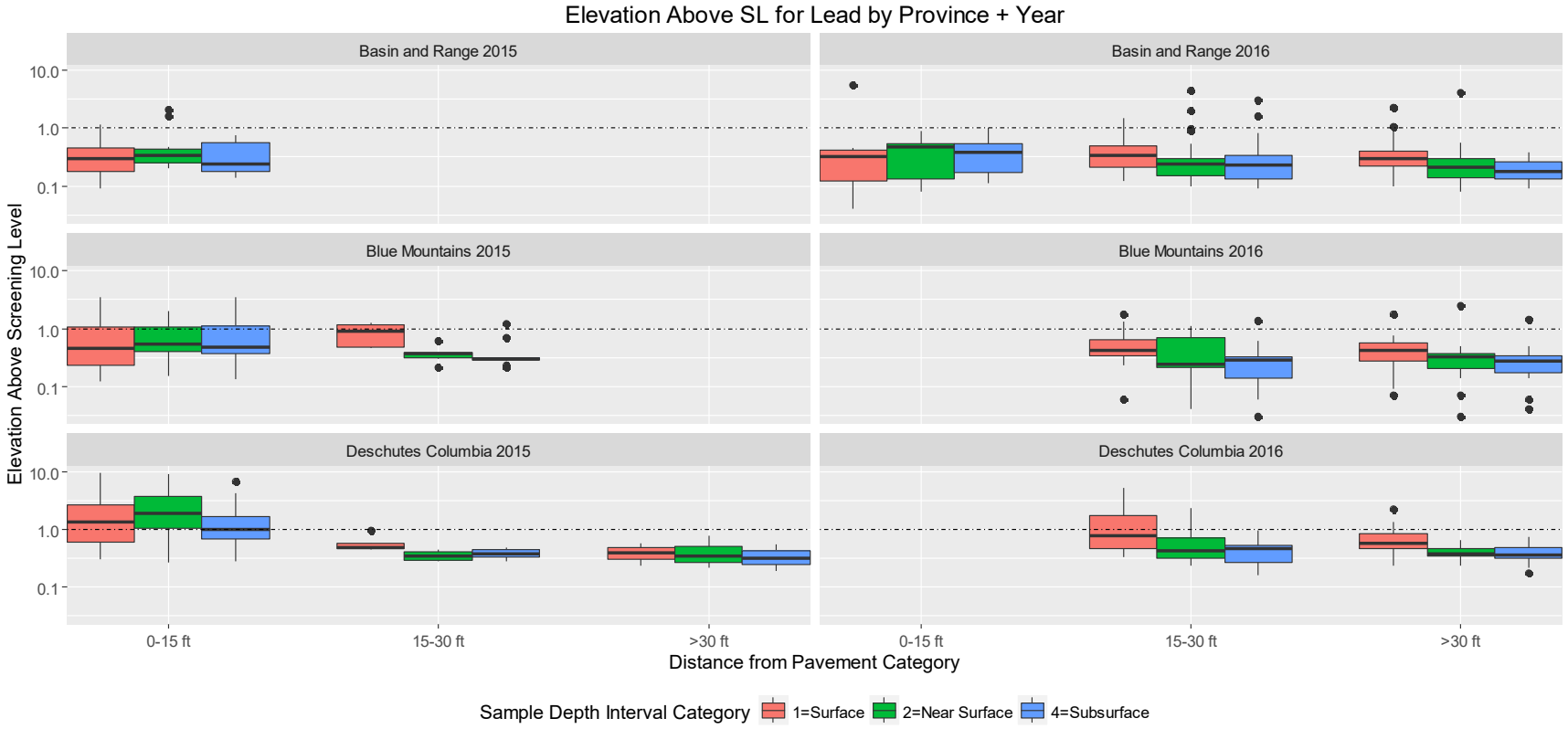

Figure C-1. Distribution of lead EASL results, by distance from pavement and sample depth interval, for each province and year. Note that the y-axes are log10 scaled. Each row represents the data for a different physiographic province with the previous data set results that motivated the 2016 survey in the left column, and the data collected in 2016 in the right column; the sample depth interval categories are color coded; and the distance from pavement category is indicated on the x-axes. The dashed line on each plot is at 1.0, (i.e., values above this line exceeded the SL and failed the DEQ clean fill criteria for lead).

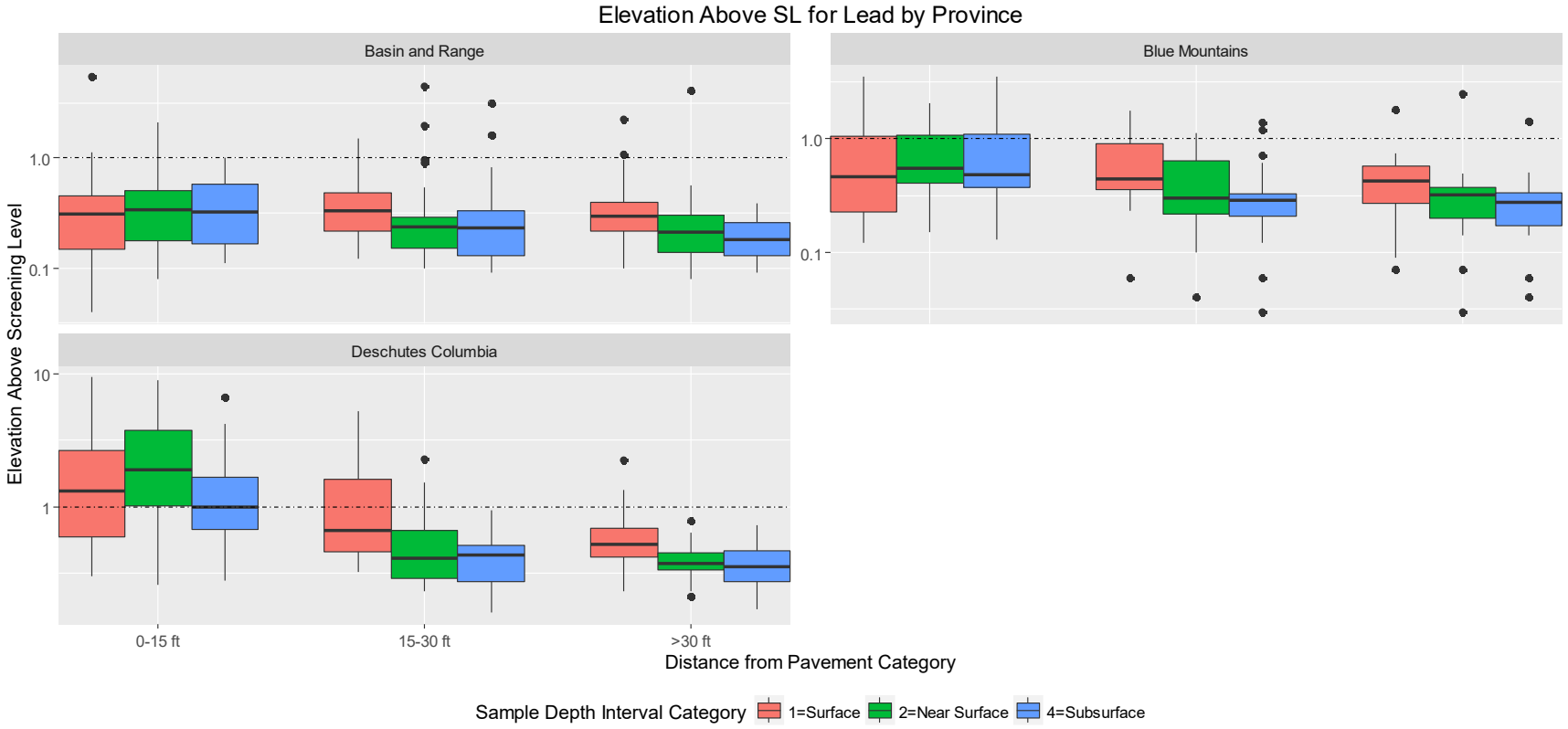

Figure C-2. Distribution of lead EASL results, by distance from pavement and sample depth interval, for each province using the updated 2016 data base. Note that the y-axes are log10 scaled. Each panel represents the data for a different physiographic province (a combination of the '2015' and '2016' data shown in Figure C-1); the sample depth interval categories are color coded; and the distance from pavement category is indicated on the x-axes. The dashed line on each plot is at 1.0, (i.e., values above this line exceeded the SL and failed the DEQ clean fill criteria for lead).

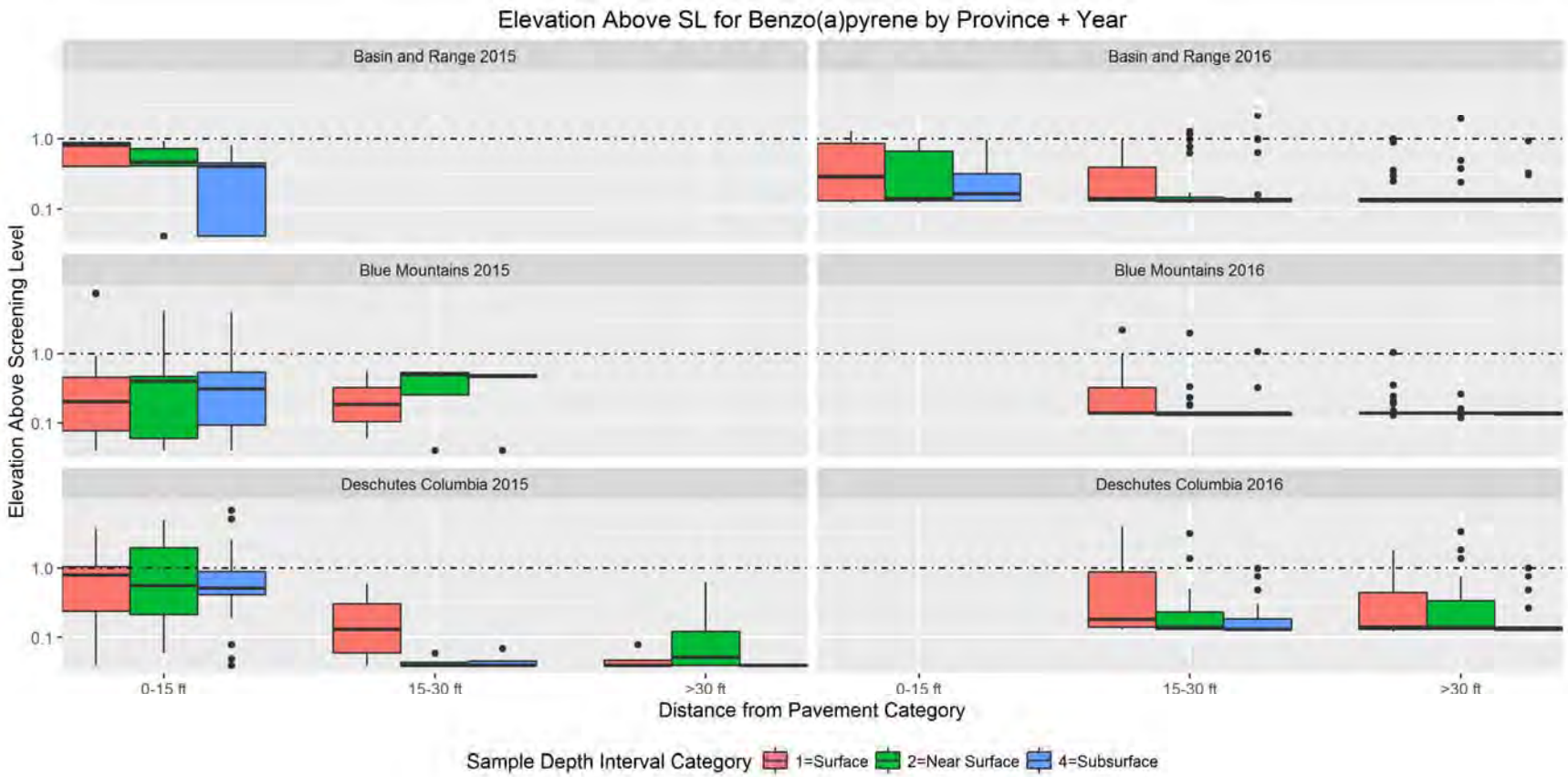

Figure C-3. Distribution of benzo(a)pyrene EASL results, by distance from pavement and sample depth interval, for each province and year. Note that the y-axes are log10 scaled. Each row represents the data for a different physiographic province with the previous data set results that motivated the 2016 survey in the left column, and the data collected in 2016 in the right column; the sample depth interval categories are color coded; and the distance from pavement category is indicated on the x-axes. The dashed line on each plot is at 1.0, (i.e., values above this line exceeded the SL and failed the DEQ clean fill criteria for benzo(a)pyrene). Non-detected concentrations with DLs below the SL were included in this figure using the reported DL/SL ratio; however, non-detected concentrations with DLs greater than the SL, were excluded.

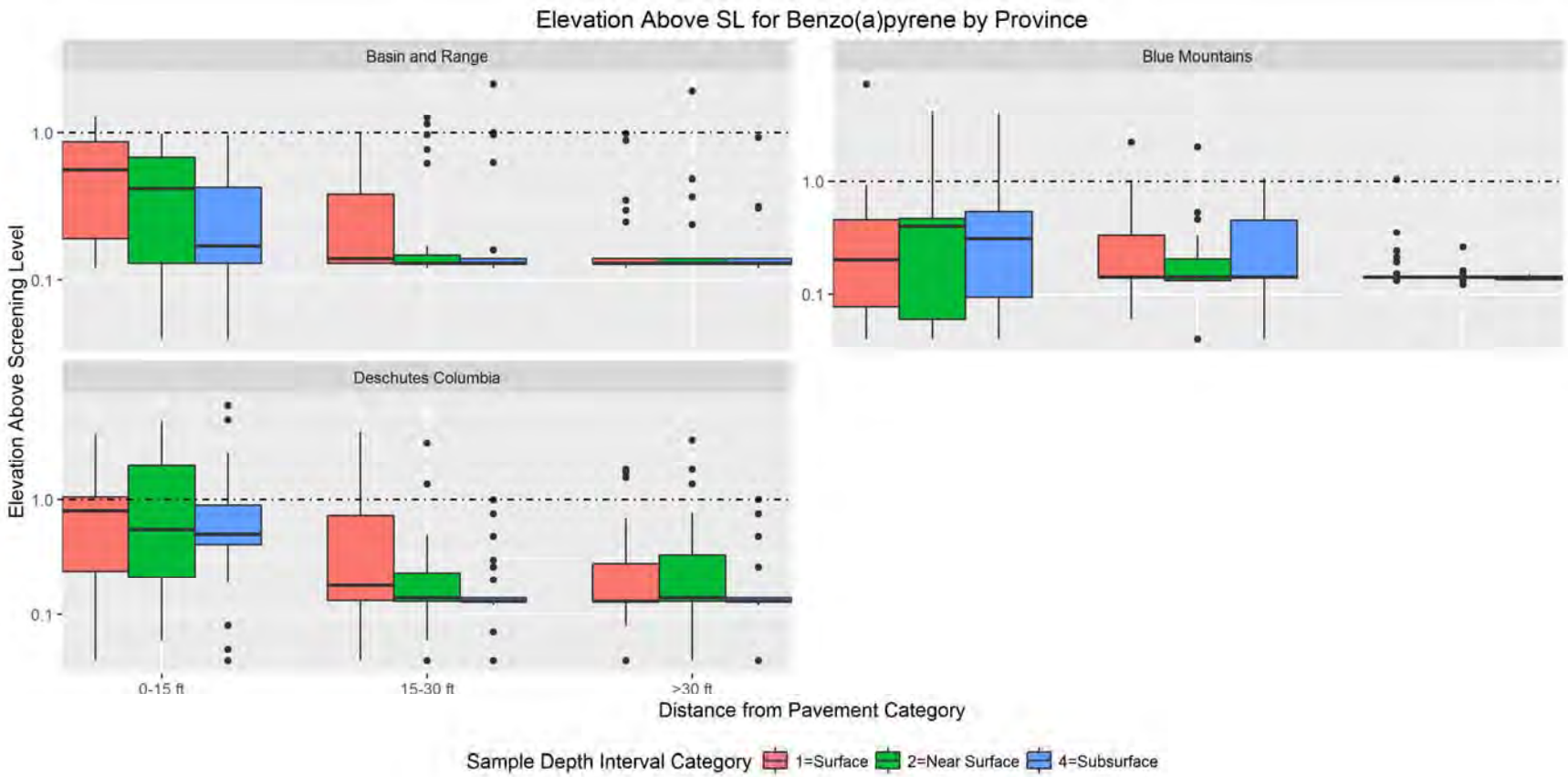

Figure C-4. Distribution of Benzo(a)pyrene EASL results, by distance from pavement and sample depth interval, for each province using the updated 2016 data base. Note that the y-axes are log10 scaled. Each panel represents the data for a different physiographic province (a combination of the '2015' and '2016' data shown in Figure C-3); the sample depth interval categories are color coded; and the distance from pavement category is indicated on the x-axes. The dashed line on each plot is at 1.0 (i.e., values above this line exceeded the SL and failed the DEQ clean fill criteria for benzo(a)pyrene). Non-detected concentrations with DLs below the SL were included in this figure using the reported DL/SL ratio; however, non-detected concentrations with DLs greater than the SL, were excluded.

To assess the factors (e.g., distance from pavement, depth, AADT, and province) that affect lead and benzo(a)pyrene concentrations in soil, non-parametric random decision forests were run on the lead and benzo(a)pyrene datasets separately. Decision forests (e.g., Ho 1995, Breiman 2001) are an ensemble learning method used for classification and regression. Decision forests use randomization and bootstrapping and a recursive partitioning framework to identify the best predictors of the categorical outcome (i.e., the sample passes or fails the clean fill screening criterion).

The decision forest algorithm (*cforest*{party}, Hothorn et al. 2006, Strobl et al. 2007, and Strobl et al. 2008) was used to generate 10,000 trees (allowing up to three variables within each tree) for predicting pass or fail relative to the screening criterion. For each tree, two-thirds of the data were randomly selected for use as the training dataset to establish the decision rules for predicting the pass/fail response. The remaining one-third of the data was used as independent verification to measure the predictive accuracy of the tree fit during that iteration of the forest algorithm. This approach allowed computation of the relative "importance" of each variable, with a higher importance value indicative of a better predictor of pass/fail response, aggregated over all trees in the forest. The variable importance was measured by the decrease in prediction accuracy on the observations left out of the training dataset using the real data versus a random re-shuffling of the data. Thus, a small decrease in prediction accuracy indicated that the observed relationship was no better than a random permutation of the data, whereas a large decrease indicated that the variable was a good predictor.

Using the updated 2016 data base, the plots of the importance values (Figure C-5) indicate that distance from pavement category was the most important variable associated with soil concentrations of lead and benzo(a)pyrene that exceeded the screening level, followed by province, AADT, and sample depth interval. Classification trees for lead (Figure C-6) and benzo(a)pyrene (Figure C-7) were created for the complete data base that included all three provinces. Individual classification trees for lead by province are shown in Figures C-8 through C-10, and for benzo(a)pyrene in Figures C-11 through C-13

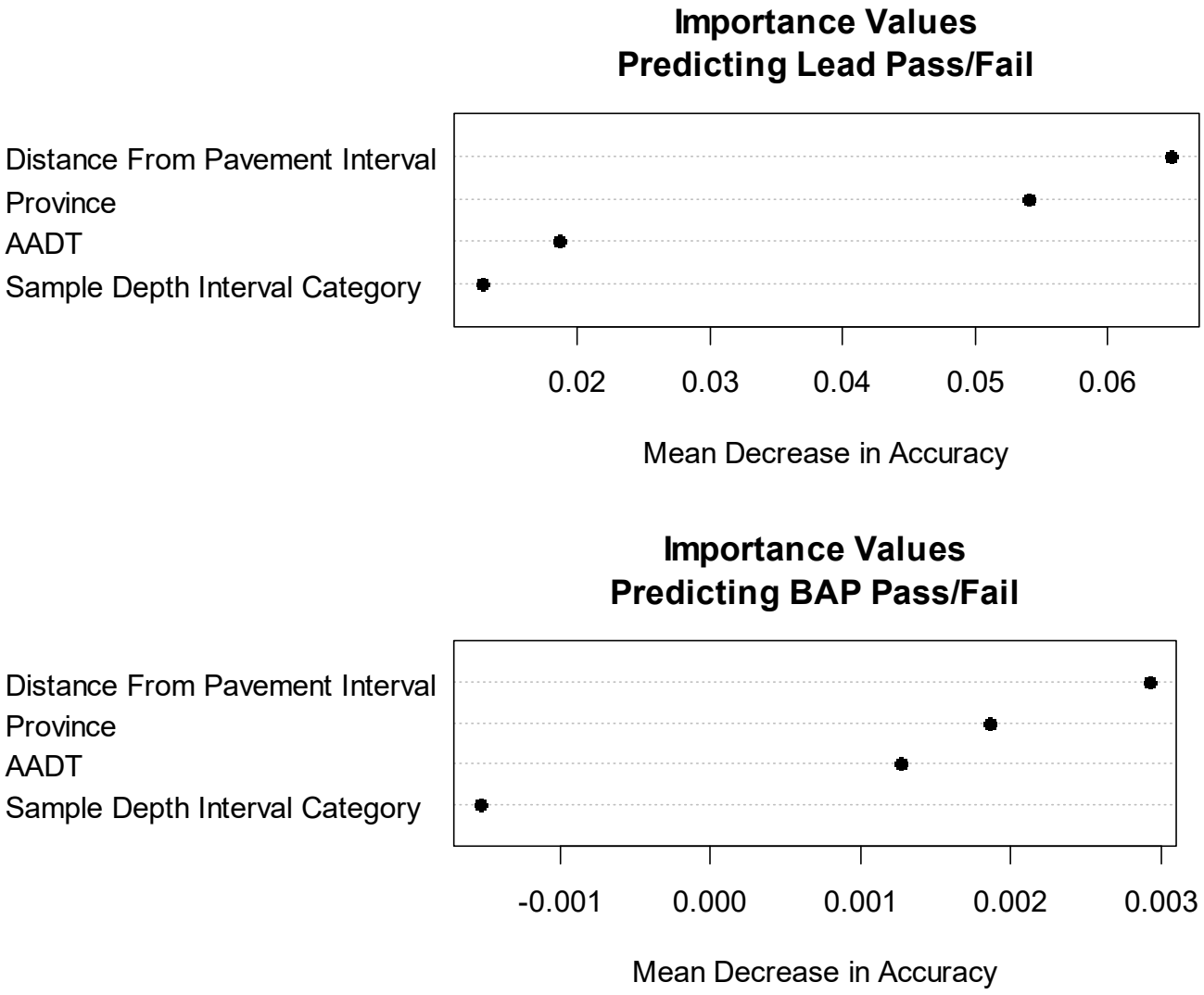

Figure C-5. Variable importance plots for random forests, using only the four variables listed, for Lead (top) and Benzo(a)pyrene (bottom).

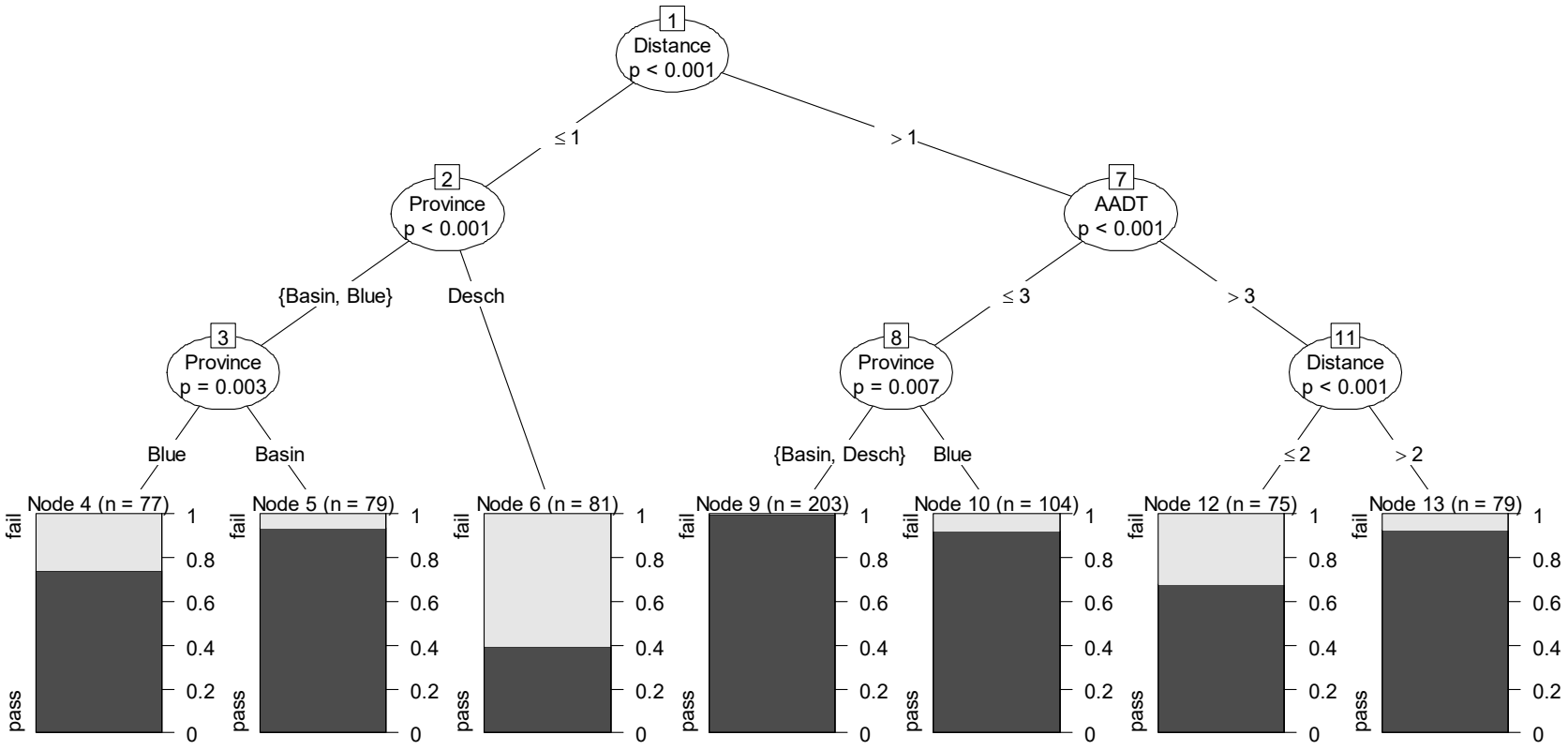

Figure C-6. Classification tree predicting lead pass/fail relative to the province-specific lead screening levels. Total sample size is 698 (uses only samples with known AADT classification, known distance from pavement intervals: 1 (0-15'), 2 (15-30'), or 3 (>30'), and sample depth intervals: 1 (surface 0-0.5'), 2 (near surface 0.5-1'), or 4 (subsurface 1-2') were used). Data are in three provinces: Basin and Range, Blue Mountains, and Deschutes-Columbia.

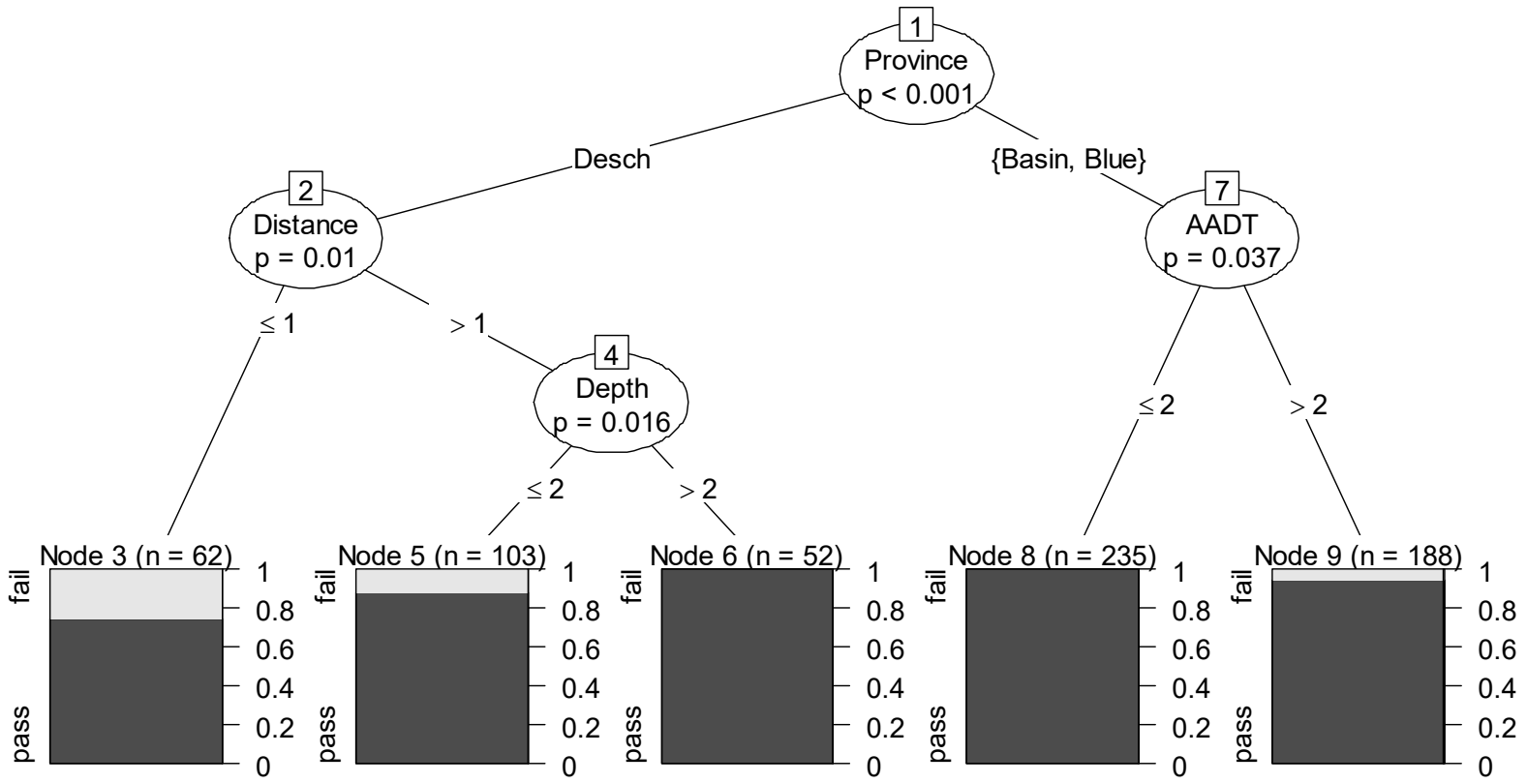

Figure C-7. Classification tree predicting Benzo(a)pyrene pass/fail relative to the screening level. Total sample size is 640 (58 uncertain results with DL > SL were dropped; only samples with known AADT classification, known distance from pavement intervals: 1 (0-15'), 2 (15-30'), or 3 (>30'), and sample depth intervals: 1 (surface 0-0.5'), 2 (near surface 0.5-1'), or 4 (subsurface 1-2') were used). Data are in three provinces: Basin and Range, Blue Mountains, and Deschutes-Columbia.

Province specific classification trees are shown below for lead (Figures C-8 through C-10), and for benzo(a)pyrene (Figures C-11 through C-13).

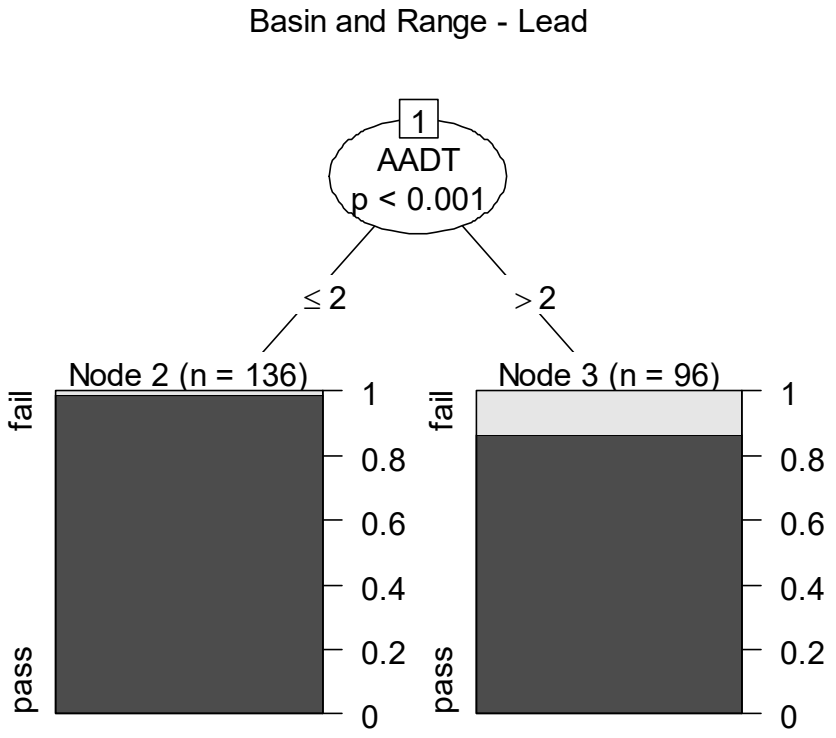

Figure C-8. Classification tree predicting Lead pass/fail relative to the screening level. Total sample size is 232. Data restricted to Basin and Range province, only.

A summary of the data that follows the breakdown indicated in this classification tree (Figure C-8) indicate that a dominant proportion of failures occurs in AADT category 4 (5,001 – 10,000 trips per day; Table 4). However, within this category, more of the samples passed than failed (72% passed, 28% failed), so this AADT category is not an indicator of likely failure, only of a higher proportion of failures.

Table C-4. Summary of outcomes in Basin and Range Province for Lead

Record counts:

	AADT Category				
EASL ≤ 1?	**1 0-1000**	**2 1001-2500**	**3 2501-5000**	**4 5001-10000**	**Grand Total**
Failed	2		3	10	15
Passed	96	38	57	26	217
Total	98	38	60	36	232

Proportions:

	AADT Category			
1	**2**	**3**	**4**
2%	0%	5%	28%
98%	100%	95%	72%
100%	100%	100%	100%

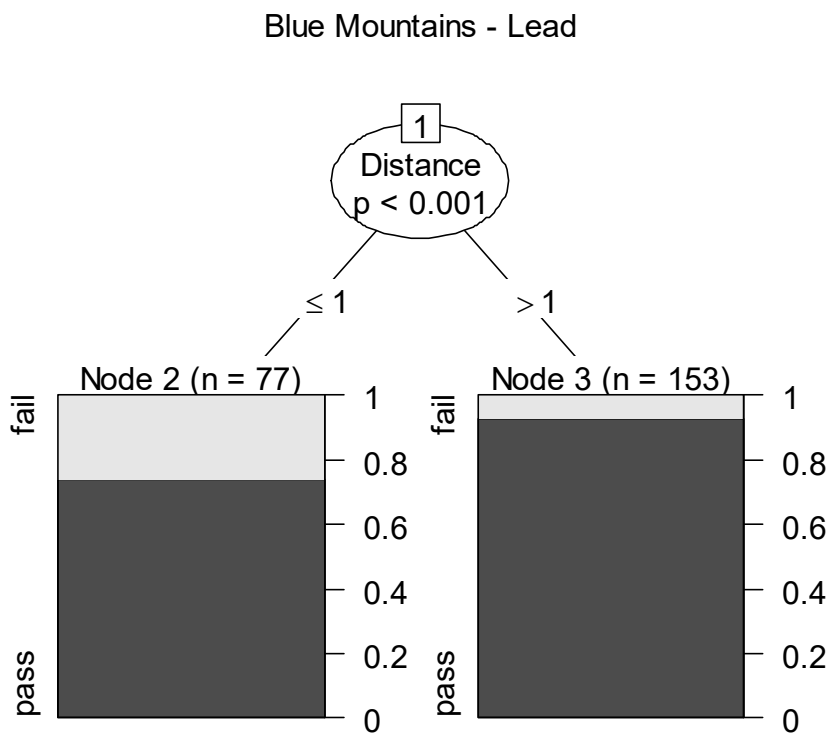

Figure C-9. Classification tree predicting Lead pass/fail relative to the screening level. Total sample size is 232. Data restricted to Blue Mountains province, only.

A summary of the data that follows the breakdown indicated in this classification tree (Figure C-9) indicate that a dominant proportion of failures occurs closest to the pavement (< 15'), although overall there was a high proportion of passing than failing observations in all categories (Table C-5).

Table C-5. Summary of outcomes in Blue Mountains Province for Lead

	Record counts:				Proportions:			
	Distance from Pavement				Distance from Pavement			
EASL ≤ 1?	**1 (<15')**	**2 (15-30')**	**3 (>30')**	**Grand Total**	**1 (<15')**	**2 (15-30')**	**3 (>30')**	**Grand Total**
Failed	20	8	3	31	26%	11%	4%	13%
Passed	57	68	74	199	74%	89%	96%	87%
Grand Total	77	76	77	230	100%	100%	100%	

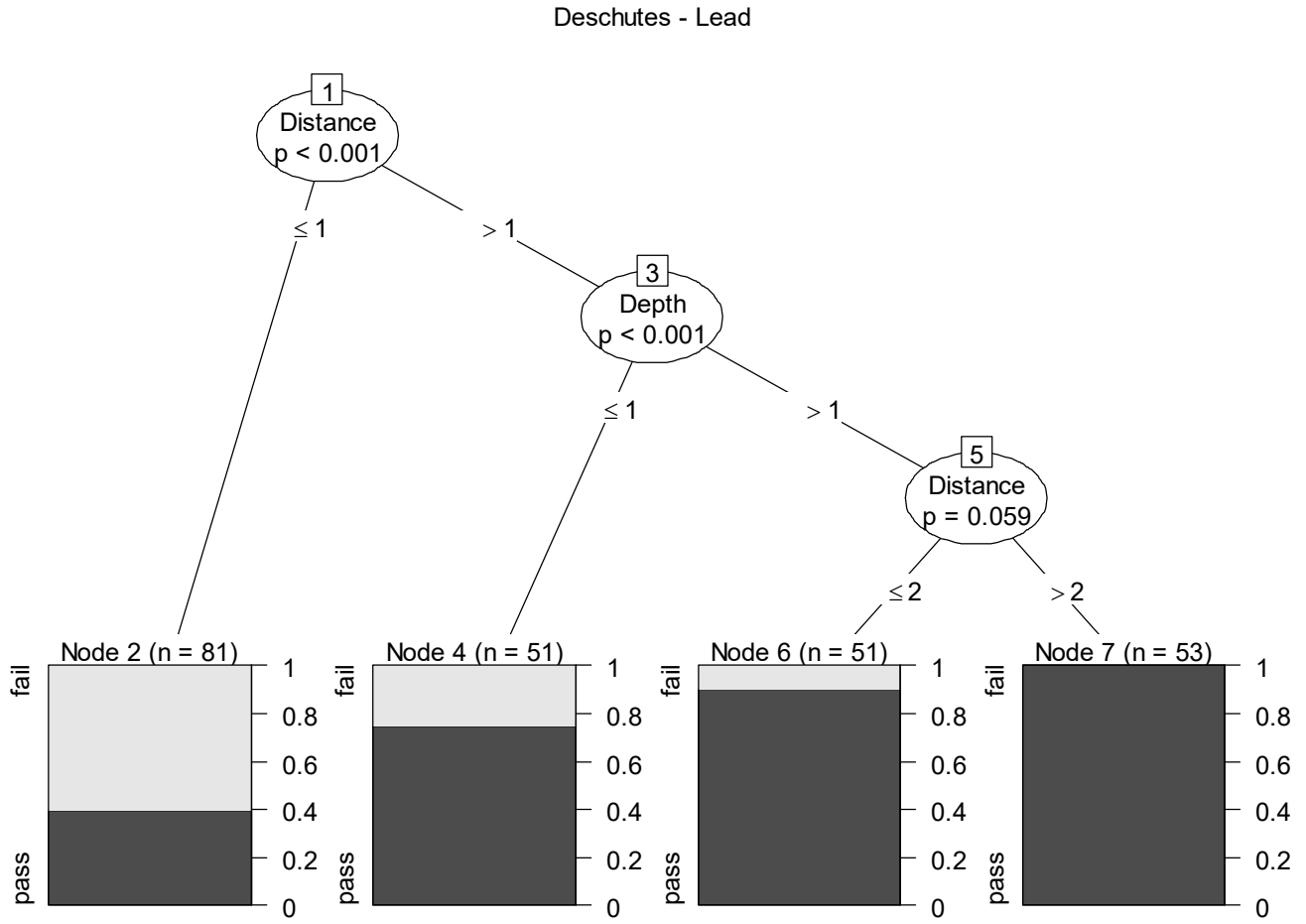

Figure C-10. Classification tree predicting Lead pass/fail relative to the screening level. Total sample size is 236. Data restricted to Deschutes-Columbia province, only.

A summary of the data that follows the breakdown indicated in this classification tree (Figure C-10) indicate that a dominant proportion of failures occurs closest to the pavement (< 15') at all depths (Table C-6).

Table C-6. Summary of outcomes in Deschutes-Columbia Province for Lead

Record counts:

Distance from Pavement:		1 (< 15')			2 (15-30')			3 (> 30')			
EASL ≤ 1?	Sample Depth Interval:	1 (<0.5')	2 (0.5-1')	4 (1-1.5')	1 (<0.5')	2 (0.5-1')	4 (1-1.5')	1 (<0.5')	2 (0.5-1')	4 (1-1.5')	Grand Total
Failed		15	18	16	10	5		3			67
Passed		9	6	17	16	20	26	22	27	26	169
Grand Total		24	24	33	26	25	26	25	27	26	236

Percentages

Distance from Pavement:		1 (< 15')			2 (15-30')			3 (> 30')			
EASL ≤ 1?	Sample Depth Interval:	1 (<0.5')	2 (0.5-1')	4 (1-1.5')	1 (<0.5')	2 (0.5-1')	4 (1-1.5')	1 (<0.5')	2 (0.5-1')	4 (1-1.5')	Grand Total
Failed		63%	75%	48%	38%	20%	0%	12%	0%	0%	28%
Passed		38%	25%	52%	62%	80%	100%	88%	100%	100%	72%
Grand Total		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

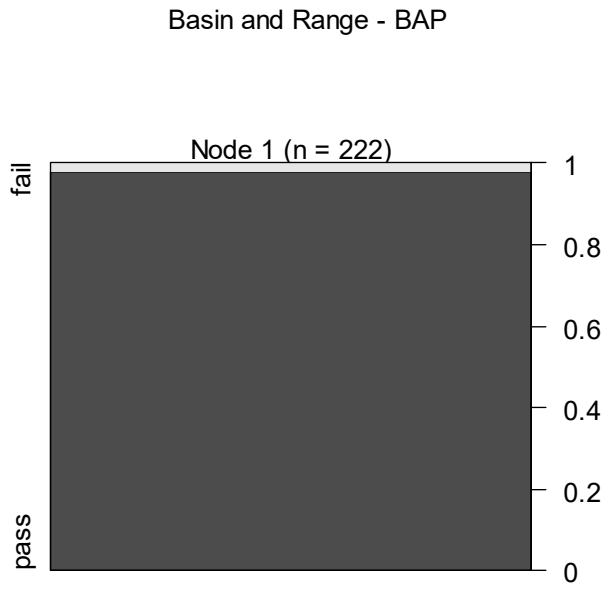

Figure C-11. Classification tree predicting benzo(a)pyrene pass/fail relative to the screening level. Total sample size is 222 (uncertain values with DL > SL were excluded). Data restricted to Basin and Range province only.

The base rate of failure is 5 out of 222 samples (Table C-7). These samples are randomly distributed across levels of the factors considered in the classification tree model, so the tree model produces no splits.

Table C-7. Summary of outcomes in Basin and Range Province for benzo(a)pyrene

EASL ≤ 1?	**Counts**	%
Failed	5	2%
Passed	217	94%
Uncertain	10	4%
Grand Total	232	100%

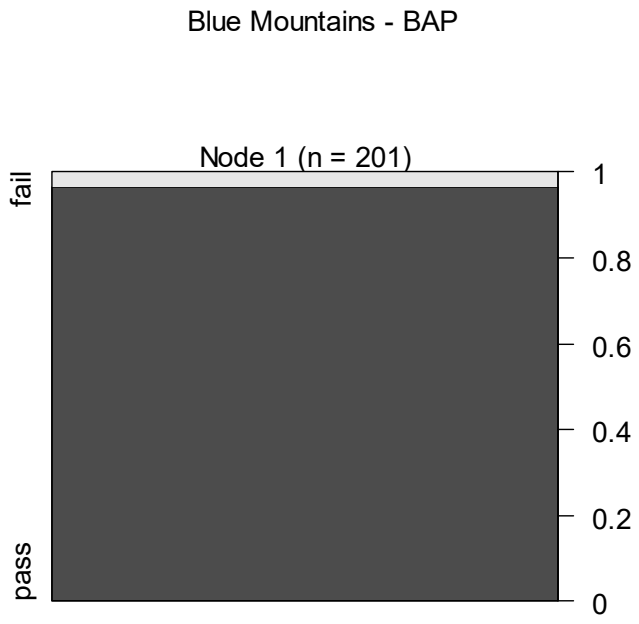

Figure C-12. Classification tree predicting BAP pass/fail relative to the screening level. Total sample size is 232 (uncertain values with DL > SL were excluded). Data restricted to Blue Mountains province only.

The base rate of failure is 7 out of 201 samples (Table C-8). The classification tree model produces no splits because there was no pattern to these failures using the levels of the factors included in the model. Dialing in to where the failures occurred, they may be location specific.

- Three of the failures were from one location (Station K0411- K0411), closest to the pavement, at all three depth intervals.
- Two of the failures were at one location (Station BM-07-15-30'), at 15-30 feet from the pavement, at the top two depth intervals.
- The other two failures were at two different locations (BM-05->30' (0-0.5')_Prepared; and BM-10-15-30' (1-1.5')_Prepared).

Table C-8. Summary of outcomes in Blue Mountains Province for benzo(a)pyrene

EASL ≤ 1?	**Counts**	%
Failed	7	3%
Passed	194	84%
Uncertain	29	13%
Grand Total	230	100%

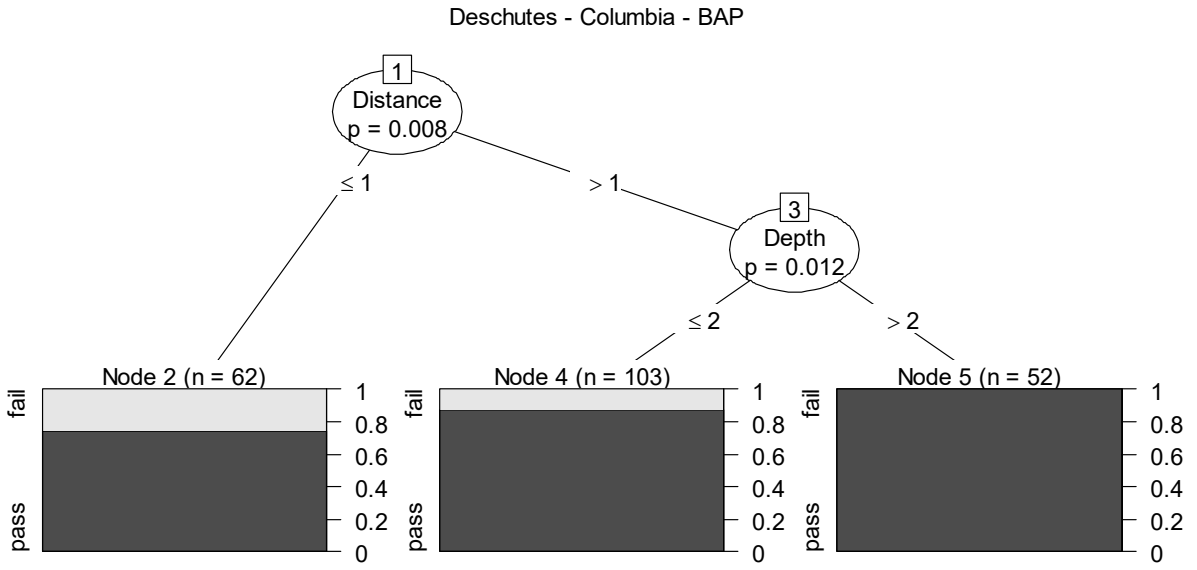

Figure C-13. Classification tree predicting BAP pass/fail relative to the screening level. Total sample size is 222 (uncertain values with DL > SL were dropped). Data restricted to Deschutes-Columbia province only.

A summary of the data that follows the breakdown indicated in this classification tree (Figure C-13) indicate that a dominant proportion of failures occur only at the sampling interval closest to the pavement (< 15') at all depth intervals, and at sampling depths up to 1 foot, at all distance categories (Table C-9). However, within these categories, the failure rate was always less than 25%, so the distance and/or depth categories are not reliable indicators of likely failure, only of a higher proportion of failures.

Table C-9. Summary of outcomes in Deschutes-Columbia Province for benzo(a)pyrene.

Record counts

	Distance from Pavement Category 1 (<15')			**Distance from Pavement Category 2 (15-30')**			**Distance from Pavement Category 3 (> 30')**			
	Sampling Depth Interval			**Sampling Depth Interval**			**Sampling Depth Interval**			
EASL ≤ 1?	**1 (0-0.5')**	**2 (0.5-1')**	**4 (1-1.5')**	**1 (0-0.5')**	**2 (0.5-1')**	**4 (1-1.5')**	**1 (0-0.5')**	**2 (0.5-1')**	**4 (1-1.5')**	**Grand Total**
Failed	5	6	5	5	2		3	3		29
Passed	13	12	21	21	23	26	22	24	26	188
Uncertain	6	6	7							19
Totals:	**24**	**24**	**33**	**26**	**25**	**26**	**25**	**27**	**26**	**236**

Proportions

	Distance from Pavement Category 1 (<15')			Distance from Pavement Category 2 (15-30')			Distance from Pavement Category 3 (> 30')			
	Sampling Depth Interval			Sampling Depth Interval			Sampling Depth Interval			
EASL ≤ 1?	**1 (0-0.5')**	**2 (0.5-1')**	**4 (1-1.5')**	**1 (0-0.5')**	**2 (0.5-1')**	**4 (1-1.5')**	**1 (0-0.5')**	**2 (0.5-1')**	**4 (1-1.5')**	**Grand Total**
Failed	21%	25%	15%	19%	8%		12%	11%		12%
Passed	54%	50%	64%	81%	92%	100%	88%	89%	100%	80%
Uncertain	25%	25%	21%	0%	0%	0%	0%	0%	0%	8%
Totals:	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Cascadia Associates, LLC

APPENDIX D

HIGHWAY SHOULDER SOIL DATABASE