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Oregon Department of Transportation

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Summary of Changes

Section	Summary of changes made (By)	Date revised
All	All Section Content (Shawn Rapp)	June 2020
All 4.1, 4.2	Removed Hazmat Coordinator Role Added reference to Form 734-5389	May 2024

HazMat Quality Control/Quality Assurance

1 General

The Oregon Department of Transportation recognizes that its success will be determined, in part, by the quality of services and products that it provides for its customers. Assuring quality requires not only a commitment but also a consistent systematic approach. The ODOT HazMat Program Quality Control/Quality Assurance Program endeavors to go beyond the review of work products to result in a continuous improvement of the processes and products associated with HazMat Program services.

The ultimate goal of quality control is to achieve an overall quality of work in all endeavors that meets or exceeds the goals of the agency. Within that context, the intent of implementing this quality control program includes the following:

- To identify and address mistakes, oversights, and logic errors and to compensate for inexperience. All people can and do make mistakes despite their knowledge, experience, or level of effort. A collaborative approach to work and the involvement of independent reviewers will nearly always result in the elimination of mistakes or errors of logic that would not be identified by a single dedicated individual.
- To assist in leveraging the highest levels of experience and technical expertise available, with respect to all projects, not just those projects that are large or complicated.
- To assure and document compliance of HazMat Program reporting documents with design codes, standards of practice, legal requirements, and organizational policy.
- To allow for an analysis of the strengths and weaknesses of completed projects in order to develop a process of continual improvement.
- To provide support to individual project designers. Collaborating with other experienced individuals helps the Professional of Record be more confident in their work and surer about the outcome.
- To provide mentoring for workers trying to develop experience and expand their abilities. Often, the best training comes from working on a project with a reviewer who has more experience. Similarly, experienced staff often learns from recent graduates and young staff that have been exposed to recent advances in the profession through their educational experience and offer a fresh perspective uncolored by institutional inertia.

The QC process is not intended to relieve Professionals of Record (POR)s from responsibility for their work products. Ultimately, the POR is responsible for self-checking their work and maintaining compliance with applicable manuals, standards of practice, errors, and omissions.

This manual uses the term HazMat Program Reporting Documents (HPRD) which is derived from the FHWA document, *Assuring Quality in Geotechnical Reporting Documents* (GRDs), and is adapted in this document to describe the range of deliverables associated with HazMat Program work. The FHWA report describes GRDs as “....documents used to communicate geotechnical site conditions, design and construction recommendations to bridge and roadway design and construction engineers and contractors bidding projects, are geotechnical reporting documents. These documents take many forms, including: Geotechnical Data Reports, Geotechnical Engineering Reports, Foundation Investigation Reports, Geotechnical Baseline Reports, Foundation Reports and Geotechnical Design Memos, emails, among others.” This Appendix to the HazMat Program Manual adapts this approach, and applies it to the ODOT HazMat Program and its HPRDs described below and in the HazMat Program Manual.

1.1 Consultant Work Products

When HPRDs are developed by consultants for ODOT projects, those documents will be completed under the requirements of this Appendix or under a consultant-specific quality control plan, reviewed and approved by ODOT (often part of the bid review process), which is functionally consistent with the requirements of this Appendix. The responsibility for Quality Control and Quality Assurance rests with the Consultant. ODOT responsibilities with respect to consultant work consist of Quality Verification (QV). A QV review is not intended to replace or supplant the Quality Control and Quality Assurance responsibilities of the Consultant. Work products that contain demonstrable errors at the time of submission to ODOT will not only need correction but are indicative of a failure in the consultant’s QC and QA processes and may require deeper, programmatic review and action.

1.2 Products Generated on Spill Cleanups and Maintenance Work

This Appendix was primarily developed for Project Delivery when HazMat HPRDs are being generated. This review process also applies to documents generated for other types of applicable HazMat projects, including but not limited to: some Maintenance yard or ODOT property cleanup projects; projects with federal funding; and some emergency response/spill cleanups (e.g., incident reports, spills on ODOT property, etc.). The threshold for use of this Appendix is that it will be used when HazMat professionals generate a final product where professional opinions or conclusions are made.

2 HazMat Program Quality Standards

A variety of guidance documents exist with respect to HazMat Program work completed by and for ODOT. The predominant guidance document is the ODOT HazMat Program Manual. Additional guidance from ODOT, AASHTO, FHWA, ASTM, and others are referenced within the relevant sections of this manual.

2.1 Roles in HazMat Program Quality Control

The roles and responsibilities for implementing HazMat Program quality are described in this section.

A variety of HazMat Geologists as well as HGPORs, Specialists, technicians and office staff will be involved in the development of HPRDs. However, the responsibility for those documents rests, by law, with professionals certified in the field of Geology in the State of Oregon. The Professionals of Record (Geologists) are responsible for acting within their own level of competence and knowledge. A professional agreeing to work outside of their competence and training is potentially endangering the public and is violating state law.

For each project, the QC Team shall consist of three individuals, the HazMat Geologist Professional of Record as well as the HazMat Geology Reviewer and the Unit Manager (or Region equivalent supervisor). Additional persons with QC Team responsibility may include the Region Management, and Headquarters Staff. The nature and responsibility of the HazMat staff involved is described below. The QC roles of other staff that may review HPRDs or provide corporate reviews will have additional responsibilities described in other ODOT policies and other QC plans (e.g., region or other Program QC Plans).

- **HazMat Geologist Professional of Record (HGPOR).** The HGPOR on ODOT projects shall be the person in responsible charge for HazMat interpretations and decisions made on the project. The HGPOR will be a Registered Geologist with the State of Oregon. The HGPOR will have experience in environmental geology, waste characterization, asbestos characterization, an understanding of contaminant fate and transport principles, decommissioning of Underground Storage Tanks (USTs), and soil and/or groundwater characterization, cleanup, and data evaluation as required by any specific project. The HGPOR will also be familiar with applicable permit requirements, and relevant state and federal laws, regulations, applicable guidance, and applicable ODOT policies and procedures. In the event an HGPOR is the reviewer/POR work and/or work product (see below), the HGPOR must have at least as much experience as the HGPOR who's work they are reviewing.
- **HazMat Geology Reviewer.** The HazMat Geology Reviewer will provide primary technical review for HazMat aspects of the project. HazMat Geology Reviewers will be licensed as Registered Geologists with the State of Oregon, and must have relevant experience with the work and rules that govern the work products which they are reviewing. A reviewer in responsible charge of the work would sign as a co-author and not as a reviewer. In this case, when the reviewer is in effect the HGPOR signing as a co-author, there must be an additional qualified HazMat Geology Reviewer for the document.
- **Unit Manager (or Region equivalent).** Each region has a supervisor who has direct personnel responsibility over the HazMat Geologists that work within the Geo-

Environmental section (or equivalent) of that Region. Where such individuals are not geo-professionals, they may make use of a lead worker who has the expertise and assists in addressing technical issues or conducting “Corporate” reviews of documents.

- **Region Management.** The management team of each region is ultimately responsible for the management of staff and resources within the region.
- **Headquarters Staff.** The Statewide HazMat Geologist is staffed through the Technical Services Center in Salem. This lead professional is responsible for standards and practices, including the development of this manual, for HazMat Program work throughout ODOT as well as for agency wide Quality Assurance reviews.

2.2 Project Stages

The ODOT project delivery process, as it relates to HazMat Program services (HGPRDs), is generally summarized in Table 1.1, below. The timeline shows the interrelationships of the responsible parties as well as the typical deadlines for deliverables.

For clarity, the ODOT project delivery process has been broken down into a series of milestones or stages. The following table lists each of these stages, the documents that should be produced during each stage, and indicates when the review of the entire HazMat QC Team is warranted for each document. This table generally corresponds to the Class 2 Project Schedule outlined in Section 5.0 of the Project Manual. Documents for Class 1 and 3 Projects may require a different schedule to the one below.

Table 2-1 HPRDs and QC Review

Phase	Document	QC Team Review (Y/N) ¹	HMC/Tech Review Only ²
Scoping	Project HazMat Scoping Notes	N	Y
Advanced Investigations	Varies ³	Y	-
Project Development			
Phase 2: Design Acceptance	HazMat Corridor Survey	Y	N
	Phase I Site Assessment	Y	N
	Minimal Assessment Memo	Y	N
	Sample and Analysis Plan	N	Y
	Clean Fill Determination Memo	Y	N
	Laboratory Reports	N	Y
	HASP (and related products)	N	Y

	Phase 3: Permits and Clearances	Phase II Preliminary Site Investigation	Y	N
	Phase 4: ROW Engineering and Acquisition	Asbestos Survey	N	Y
		Paint Survey	N	Y
		Laboratory Reports	N	Y
	Phase 5: Preliminary Plans, Specs, Estimates	Draft plans, Special Provisions, and estimates	N	Y
	Phase 6: Advance Plans	Finalize Special Provisions with Reviewers	N	Y
		HazMat HMCS/Report/Memo Addenda (i.e., if additional sampling is required)	Y	N
	Phase 7: Final Plans	HazMat HMCS/Report/Memo Addenda (i.e., if additional sampling is required)	Y	N
		Cost Recovery Agreements	Y ³	N
		Solid Waste Management Documentation (SWLA and/or pre-approval, Site Specific BUDs, permits and disposal clearances)	N	Y
		Final Plans, Specifications, and Estimates	Y ⁴	N

1. Full QC Team Review includes the document author/HGPOR, the qualified HazMat Geology Reviewer, and the Unit Manager or Region equivalent (“Corporate Review”).
2. The HMC/Tech review is intended as a simple technical check on reports from others (e.g., laboratory reports), or for draft documents that will have additional review under this Appendix or other Program or Section reviews (e.g., draft plans, special provisions, etc.)
3. This review will likely also include a Region Right of Way (ROW) Manager/Corporate level review.
4. Final Plan, Specifications, and Estimate reviews and approvals follow standard ODOT Policies and Procedures beyond the scope of this document.

The ODOT Policy that implements the “design acceptance package (DAP) Phase Gate”, requires as much information as practical be gathered on the project for each technical program. This effort is to develop an understanding of the project scope so that a project will not likely incur unanticipated increases in investigation scope, design requirements, or costs. For the HazMat Program, that goal requires the evaluation of hazardous materials (hazardous construction materials, waste management, soil and/or groundwater contamination, etc.), using the majority of the deliverables listed under DAP in Table 1. The need for follow-up reports, memos, addenda, or permits, etc. may be produced later in the project development schedule, but they need to be identified and accounted for during the DAP Phase.

3 HPRD Quality Control

This section will cover the elements of the HPRDs listed in Table 1, and the responsibilities of the HGPOR and QC Team Reviewers. Unless otherwise indicated, the term “QC Team Reviewers” refers to the HazMat Geology Reviewer (“Tech” or “Technical Review”) and the Unit Manager (or Region equivalent) Reviewer (“Corporate Review”). Likewise, the term “Technical Reviewer” will primarily include the project HGPOR or a HazMat Geology Reviewer, as appropriate. Common to both of these topics is the qualifications and level of experience of the POR and reviewers for each document.

3.1 Document Standards

There are a wide variety of HPRDs that can be generated on any particular project. As stated above, the majority of those cost or scope-critical documents should be completed by the end of DAP. However, at times, additional investigation and/or sampling may be required. These are generally addressed in documents, memos and addenda indicated in the Preliminary Plan or later phases of project development.

Based on the variables and unknowns inherent in assessing hazardous materials and conducting environmental geology work, it is difficult for ODOT to be explicitly prescriptive in how each field activity or investigation be conducted by HazMat staff. By extension, it is equally difficult to be prescriptive in what each document must include within it for purposes of Quality Control. The standards for these investigations and documents are not driven by design or engineering, but by Federal, State, and Local regulations, rules, permits, other guidance (e.g., AASHTO, ASTM, etc.), and standard industry practice.

The standards for each type of work and/or document are detailed in the HazMat Program Manual, to which this document is an Appendix.

3.2 Responsibilities

All of the HazMat related field activities, plan development, and reports require the collaborative involvement of HazMat Geologists. For that reason, the typical roles of the project professionals are described below. The HGPOR is ultimately responsible for characterizing the

hazardous construction materials, wastes, and contaminated media pertinent to the project. That person is responsible for ensuring the field exploration to obtain sample data needed to complete that characterization and to support the project design has been completed. Therefore, the HGPOR is the owner of the document. The HGPOR will typically be the one to direct changes to the investigation(s), based on observations, while field work is occurring. The HazMat Reviewer is the primary Technical Reviewer for the HGPOR. These respective responsibilities are discussed in more detail below.

3.2.1 The HazMat Geologist POR

The HGPOR is ultimately responsible for characterizing the hazardous construction materials, wastes, and contaminated media pertinent to the project. It is therefore critical that they be fully engaged in project scoping and planning from the beginning and have confidence in the project scope and that the proposed assessments and investigations will provide the required information. Each document a HGPOR drafts as part of any project will generally conform to the standards of practice outlined in Section 5 of the ODOT HazMat Program Manual.

Regarding field explorations, the HGPOR are responsible for anticipating needs for analysis and design prior to field explorations and will typically provide information that helps determine the location, depth, and spacing of drill holes as well as the specific needs for soil sampling, construction material sampling, groundwater sampling, the laboratory analytical plans, and any monitoring requirements for long term studies. That person is responsible for ensuring sufficient field exploration to obtain sample data needed to complete that characterization and to support the project design. The HGPOR will typically be the one to direct changes to the investigation(s), based on observations, while field work is occurring and ensure that assumptions made during project scoping, design, and planning are correct.

3.2.2 The HazMat Geologist Reviewer

The HazMat Geologist/Technical Reviewer is responsible for understanding the goals of the project and the requirements from the HGPOR. The Scoping Notes/Scope of Work is then reviewed to see if it is likely to deliver the requirements to characterize the HazMat conditions for the project. The HazMat Geologist Reviewer typically discusses the Scoping Notes/Scope of Work with the HGPOR in order to gain good understanding of the goals and objectives of the Scoping Notes/Scope of Work; then documents the review. This initial review is to ensure that the subsequent products or documents reviewed during the QC process fit into the project goals and establishes a baseline for each separate HPRD review. Each document for which a HazMat Geologist Reviewer conducts a QC review as part of any project will have an adequate understanding on the project and confirm that each document generally conforms to the standards of practice outlined in Section 5 of the ODOT HazMat Program Manual.

3.3 Addenda Reports

In general, the final HPRDs should not be edited. Significant changes to the project scope or details may require a reissued report, but for most projects, the addition of new information obtained after the final was issued, or revisions to address project changes subsequent to the completion of a HPRD should be by addenda. Addenda that modify or expand geologic or HazMat recommendations should be treated in the same manner as the final report and should be reviewed by the appropriate HazMat Geologist Reviewer.

3.4 HazMat Contributions to PS&E

During the PS&E phase, the Region HGPOR may be called upon to provide additional recommendations and/or addenda to the HPRD(s) as well as make edits to the plans and special provisions. As with original documentation, modifications to recommendations should be reviewed and documented as outlined in this Appendix.

3.5 Significant Project Changes after PS&E

As previously noted, changes issued after the final report(s) has been sealed should generally be addressed through addenda rather than reissuing the report. Changes that modify or expand the geologic or hazmat recommendations should be treated in the same manner as the final report and should be reviewed by the appropriate professional Reviewer.

4 HazMat Program Quality Control Process

The process described by this section defines the minimum level of communication and collaboration necessary to meet the requirements of this plan. Members of the project team are encouraged to freely communicate throughout the life of the project in order to avoid significant amounts of redone work or missed errors.

4.1 Quality Control Reviews

Quality control reviews are undertaken to assist the HGPOR in developing documents that are free of errors and mistaken assumptions. The reviews are also intended to assure consistency of the documents with applicable standards and guidance and consistency between calculation results and recommendations. Lastly, quality reviews should verify that previous QC review comments have been understood and addressed.

For expediency and consistency, the review of HPRDs is assisted by a variety standard templates and form 734-5389, The HPRD Quality Control checklist. The development and implementation of these templates and checklist is intended to assist PORs and reviewers in completing their mission and to provide reminders of applicable guidance and standards. It is important to note that the use of these tools is not intended to replace sound professional judgement or to relieve the Professionals of Record from their personal responsibilities.

Reviewer Authority. Most often, the HazMat Geologist Reviewer and HGPOR will address recommendations and changes in a collaborative manner and create a work product that satisfies both parties. However, situations may arise where that is not tenable. For those cases, guidance is needed to address the authority of Reviewers to require changes in the work products or tasks. The relationship between a reviewer and the licensed professional in responsible charge is also a part of that discussion.

The following points should be considered guiding principles for all parties when revising documents and addressing technical review comments.

- ODOT has the right, responsibility, and authority to establish the procedures, policies, codes, standards of practice and level of quality under which work products and tasks will be conducted. The only limitation is that practice standards should be no less than the standard of care in the industry.
- All workers, especially licensed professionals, have a duty to complete assigned work in a manner that meets the policies and procedures of their employer. Licensed professionals also have a duty to always protect the safety of the public and to practice within their level of competence and according to the standard of care in the industry. There is no conflict between these duties unless an employer tries to require a licensed professional to do something that exceeds their professional competence and/or endangers the public.
- Recommended changes to the work will generally fall into three categories, those that represent different ways to analyze or view the work that are suggested or advisory, those that represent serious differences of opinion but do not violate the Standard of Care or impact the safety of the public, and those that do violate the Standard of Care or impact the safety of the public.
- Compromise and open-minded communication is crucial. Further, it is the HGPOR first duty to try and solve the matter with the reviewer. The reviewer should make every possible effort to explain their position to the HGPOR and listen to feedback. Failing resolution between the parties, the resolution will vary depending on the nature of the dispute.
- For changes requested by the Reviewer that would fall into the first category and would be considered suggestions of feedback, the HGPOR should respond to the reviewer but does not need to document their choice to not incorporate the suggested changes.
- For the second category, serious differences, not violating the Standard of Care or impacting the safety of the public, the HGPOR should respond to each item individually and document why they are not implementing the recommendation. It may be necessary for the reviewer to permanently document their dissent from the decision made.
- For differences that either party (HGPOR or Reviewer) considers to violate the Standard of Care or impact safety of the public and that cannot be resolved, the professional shall next work with the Unit Manager and then the Technical Center section Manager prior to seeking other ways of resolving the problem.

- Reviewers cannot require licensed professionals to change work in a way that would endanger the public or violate the Standard of Care.
- Licensed professionals will still be expected to seal work products and accept technical responsibility for projects to which mandatory changes have been made by reviewers. Only if the changes jeopardize the safety of the public or violate the Standard of Care would the licensed professional have an argument for not being responsible for sealing the work.

Disputes. Differences in opinion regarding environmental geology, hazardous materials, and waste management exist and it is likely that Reviewers and HGPORs will find areas of disagreement. On first identifying areas of disagreement, it is incumbent upon the parties to discuss the issue and attempt to come to a solution that is satisfactory to both parties. If necessary, the Unit Manager should be the first person brought in to discuss the disagreement and potential solutions in order to assist in a resolution.

When an impasse has been reached, the issue will be reviewed by the HazMat Program Coordinator, and potentially the State Geotechnical Engineer, who will be made available to both parties. Ultimately, it may be necessary for one of the parties to recuse themselves from the project.

4.2 HazMat Program Quality Control Documentation

Documentation of the quality control process is necessary to allow for assurance that the QC process was completed per the requirements, and to allow for the subsequent completion of Quality Assurance. Feedback with respect to the ability of this plan to meet the needs of the Agency can only be received if the process is documented.

Documentation needs to be contemporaneous to the work being completed and must not be postponed to the end of the project. Each stage of documentation should be completed and saved in such a manner as to assure subsequent reviewers that the Quality Control process was completed in a timely manner and was being implemented throughout the project life rather than hastily assembled at close-out.

The advent of electronic file saving allows for significant time and effort savings with respect to documentation. ODOT will rely heavily on ProjectWise to document the QC process. The Professional of Record is responsible for verifying that all required HazMat Program QC documentation is stored in appropriate locations in ProjectWise.

The reviewer signing the work product will be the one who conducted the review to catch and correct mistakes, oversights or logic errors. The reviewer would typically not stamp the work unless he or she was also in responsible charge of the project. A reviewer in responsible charge of the work would sign as a co-author and not as a reviewer.

All other reviewed work products or tasks will be documented in the project file. A separate sheet attached to the file will list the items for review and provide for recording an initial and a date from the reviewer indicating that the review has been accomplished.

Review comments and notes should be in writing to the greatest extent possible to promote good communication and minimize misunderstandings. However, to the maximum extent possible, all reviews should be presented verbally to the reviewed. This establishes a personal relationship that helps to blunt possible conflicts of ego. It will generally not be necessary to retain copies of reports or memos with the reviewer's comments.

Table 4-1 HPRD Documentation Requirements

Phase	Document	Guidance	Documentation Type
Scoping	HazMat Scoping Notes		Initialed Checklist form 734-5389
Advanced Investigations	Varies	Varies (use available elements below)	
Phase 2: Design Acceptance	HazMat Corridor Survey	ODOT Template	Initialed Checklist form 734-5389
	Phase I ESA	AASHTO, ASTM, ODOT Template	Initialed Checklist form 734-5389
	Minimal Assessment Memo	-	Initialed Checklist form 734-5389
	Sample and Analysis Plan	DEQ, AHERA, EPA, ASTM Guidance	Initialed Checklist form 734-5389
	Clean Fill Determination	ODOT Template	Initialed Checklist form 734-5389
	Laboratory Reports	EPA Guidance	Initialed Checklist form 734-5389
Phase 3: Permits and Clearances	HASP (and related products)	Templates, Checklists	Initialed Checklist form 734-5389
	Phase II Preliminary Site Investigation	Template, DEQ/EPA Guidance	Initialed Checklist form 734-5389
	Laboratory Reports	EPA Guidance	Initialed Checklist form 734-5389
Phase 4: ROW Engineering and Acquisition	Asbestos Survey	Template, AHERA and DEQ Guidance	Initialed Checklist form 734-5389

Phase	Document	Guidance	Documentation Type
	Paint Survey	Template	Initialed Checklist form 734-5389
	Laboratory Reports	EPA Guidance	Initialed Checklist form 734-5389
Phase 5: Preliminary Plans	Draft Plans Estimates, and Special Provisions	ODOT	Initialed Checklist form 734-5389
Phase 6: Advance Plans	Finalize Special Provisions with Reviewers	ODOT	Initialed Checklist form 734-5389
	HPRD/Memo Addenda	-	Initialed Checklist form 734-5389
Phase 7: Final Plans	HPRD/Memo Addenda	-	Initialed Checklist form 734-5389
	Cost Recovery Agreements	DOJ	Initialed Checklist form 734-5389
	Waste Management Documentation (SWLA and/or pre-approval, BUDs, permits and disposal clearances)	Varies	Initialed Checklist form 734-5389
	Final Plans, Specifications, Estimates	-	Region and Standard Specifications Approval Process
Construction	Significant Project Changes		Varies

Regardless of the documentation type, each deliverable will be stored in ProjectWise with digitally signed electronic documentation confirming appropriate QC review has been completed at the time of production. Each digital signature or initial should be considered a valid secure signature with no errors. The digital signatures will include at least the name and title of the reviewer as well as date and time signed. A hard copy with wet signature may be used to provide additional information, but at least an electronic document with digital signature should be included in the project file in order to track time lines.

In the event of a minor or moderate technical disagreement between reviewer and HGPOR, the parties may select to write a short justification and include with the digital documentation. If there is a major technical disagreement, the issue should be elevated to appropriate staff consistent with the previously stated policies. Stylistic differences do not need to be officially documented.

To the extent reasonable, unsealed drafts of professional deliverables should be retained within the project file. Electronic version control should be in accordance with file naming convention per ODOT Policy. Drafts should be retained for significant projects with multiple iterations.

5 Quality Assurance

Quality Assurance (QA) is a system undertaken to maximize the effectiveness of the Quality Control program. The QA process will assist in measuring the effectiveness of the QC efforts in order to provide input into continuous improvement of the work and assist in identifying technical development needs.

5.1 Quality Assurance Goals

Verification. A primary purpose of the ODOT Quality Assurance program is to ensure that all of the elements of the QC process took place at the right time and that the applicable standards were applied effectively. By collecting and processing information relative to the connection between quality processes and outcomes. It should be noted that it is the intent that the QA process will not impact the delivery of individual projects.

Competency Building. The QA process will assist in developing an agency-wide vision of the current needs with respect to technical knowledge and competence. The evaluation of where projects succeed or fail, and the role of the QC program in assuring success will provide data to be used in identifying gaps or weaknesses within the current knowledge base.

Continuous Improvement. Beyond the above described project specific compliance, the QA process is intended to enable continuous improvement within both the QC program as well as within the practice community providing HazMat Program services for ODOT projects.

5.2 Quality Assurance Process

In order to achieve the goals stated above, the QA process will need to be objective, transparent, and effectively communicated.

The QA Team will consist of the State Geotechnical Engineer, the State HazMat Program Coordinator along with one regional representative. The regional representative will rotate and will consist of a Regional HGPOR or Staff from a different Region. The participants will be selected by the two permanent members (listed above) although each person acting as a Professional of Record within the regions will participate a minimum of once every four years. Practitioners will recuse themselves from their own projects, as necessary.

Projects are candidates for review after project completion. Projects that have problems in construction are likely candidates for selection. In general, projects selected for review will be selected by one of the three following ways:

- By request from the Regions. A region may request a QA review on any project based on concerns or known project issues.
- Randomly. Projects from throughout the regions will be selected randomly for QA review.
- By size. Any project with over \$200,000 in total HazMat costs, or in excess of \$50,000 in unanticipated costs will be subject to QA review.

Completeness Review. Initial information on completed projects will be gathered from ProjectWise and Douc-share (Construction database). The QA Team will complete an initial review and evaluation, focused on the completeness and timeliness of the QC documentation and will write up their findings and recommendations in a draft version of a short, project-specific report. The draft report will be provided to the POR and their direct supervisor. The POR will provide the QA Team with any applicable clarification or additional information available, which will be incorporated in the final completeness review.

Project Review. An in-depth review of the project documentation will address how well the project met standards and the extent to which the QC process contributed to the success of the project. The results of the in-depth reviews will be collected and evaluated for inclusion in an annual summary report.

Summary Report. The results from both the Completeness and Project Reviews will be collected and summarized in an annual report. That report will not present specific projects but rather an analysis of issues and trends with respect to quality control and project success. The report will contain generalized findings and recommendations to share with the agency. The report will be presented to both the State Geotechnical Engineer and the affected Region Management.

