CHAPTER 12-D - QUANTITIES

12D-1 QUANTITY DOCUMENTATION

The written evidence to support progress payments, and eventually final payment, consists of “source documents”, with appropriate signed and dated calculation sheets, showing the quantities of Work completed or accepted. For progress payments on lump sum items, a signed and dated source document must verify the amount of Work completed and corresponding to an appropriate lump sum breakdown, or schedule, approved by the Project Manager (PM) and generally submitted by the Contractor.

Source documents must be prepared in a clear manner such that a person, who has never been on the Project and knows nothing about the Work, should be able to follow on paper what is being paid for and why.

“Source documents” are the field notes, calculations, receipts, invoices, and reports used to determine project pay quantities. Acceptable source documents generally do not exceed a single pay period and shall include the following:

- **PROJECT IDENTIFICATION** - There must be sufficient identification on each document to clearly identify on which Project the Work was done. If the document is large enough, both the Project name and Contract number should appear on each document, including those documents prepared by the Contractor, Supplier, or manufacturer.

- **PAY ITEM IDENTIFICATION** - Project Pay Item number(s) and, if appropriate, the item name. The source document must also indicate the proper Participation Indicator (sub-job) to which the Work is to be charged if more than one Participation Indicator could be used for that Pay Item.

- **VALIDATION** - Verifying statement that the item was actually installed, performed, re-measured, furnished, completed, received, or accepted.

- **SPECIFIC LOCATION OF INSTALLATION** - Project station(s) and, when appropriate to clarify or explain measurements, a sketch of the installation to show measurements or as-constructed details. Include additional information, such as Bridge number or stream, intersection, street, or road names, if applicable.

- **DATE(S) -** Date(s) the source document was prepared, validated, checked, and, when appropriate, the date(s) of the Work.

- **SIGNATURES** - Signatures for each person that prepared, validated, and checked the document. If the checker finds an error in the original information, the checker should have the original preparer review and confirm the correction. A signature is a person’s name written the way that they normally write it. Initials are not acceptable unless the person's signature also appears on or is attached to the document. Source documents shall show the signature of the person making the entries and the names of other members of the crew involved in obtaining the information on the note. Payments should not be posted until the document has been checked by a second person.

Prepare the source document at the time and place of delivery, performance, installation, or measurement of the Pay Item. Line out, rather than erase, incorrect entries on a source document. Validate alteration of data by date and signature. If one person makes all of the changes and the affected documents are bound, a single validation statement is sufficient.

The source document does not necessarily need to be on letter size paper or on pre-printed forms, but it must include all required information.

If it is necessary to copy or combine source documents, identify the original documents as "ORIGINAL" and the copied documents as "COPY". Cross-reference each set to the other, and submit both sets of documents with the Project records. Also, submit the originals, when copies are required for documents that are illegible, that need clarification, or when notes are inserted. A scrap of paper with a note on it is not necessarily a source document.

In order to allow the use of computers by field personnel, the following guidelines also apply to computer-generated source documents:

- A signature tied to each person's initials must appear on the document. On documents with single or multiple installations, the dates may be computer-generated. For multiple installations, initials are not required, but an original handwritten signature and date is required for each document. Electronic signatures are not acceptable, since they are not yet legally valid.
- A source document for a unit price Pay Item normally covers one pay period.
- Calculation methods and input must be checked.
- Formula(s) for calculations must be included and shown on the final quantity source document.
- Summary sheets do not replace final quantity source documents.

Record keeping is extremely important for payment purposes. Accurate records are required to assure proper progress and final payments. The PM must assure that the procedures include the following activities:

- Review Plan quantities to verify their accuracy.
- Establish quantity documentation methods for progress and final payments.
- Organize a user-friendly system for records.
- Use proper validation of source documents.
- Use accurate, easy to follow measurement and calculation methods.

- Assure that each pay quantity is properly charged to the right Participation Indicator (sub-job).
- Have a second person check all formulas and calculations.
- Prepare a summary sheet of pay quantities.
- Assemble documents for final records submittal.

It is important to remember that Section 00190.00 of the Contract specifically states that the Engineer will measure or determine all pay quantities unless otherwise specified. The PM is responsible for measurement and quantity determinations for all Pay Items.

Contractors and Subcontractors are not allowed to document or establish pay quantities. The PM may use some information that is developed by the Contractor or Subcontractor to determine pay quantities, but must perform some sort of validation of the Contractor or Subcontractor's information. For example:

- Although the Contractor is allowed to complete a Sprinkling Tally Sheet, form 734-3427 or a similar format, the Inspector must validate the quantity used.
- Section 12D-2(n) below on Weigh Memos and Scale Diary addresses Materials weighed on Contractor-provided scales.
- If the PM uses information prepared by the Contractor's surveyor to calculate pay quantities, the PM must perform some validation of the surveyor's information.

Each Pay Item must have documentation to support each monthly payment. It is reasonable to expect a reviewer in May to request documentation for a payment made the previous month or many months before. Do not make any payment without the proper quantity calculations and required quality documents.

Organize the documentation for easy review. Submit in pads as discussed in *Chapter 27 - Submittal of Final Project Documentation*.

For reference, the Exhibits at the end of this section show some examples of quantity documentation. The examples in the Exhibits are:

- Exhibit 12D(a) is a simple lump sum schedule of values.
- Exhibit 12D(b) is a source document for a completed lump sum bid item.
- Exhibits 12D(c) and 12D(d) are installation note examples.
- Exhibit 12D(e) is the ODOT Installation Sheet, form 734-2605, which is a good source document template.

12D-2 MEASUREMENT

General measurement guidelines are defined in Section 00190.10. These include the guidelines for measuring Work or Materials on the unit basis, length basis, area basis, weight basis, volume basis, time basis and lump sum basis. Specific measurement requirements may be contained in the individual "Measurement" Subsection of the Standard Specifications or Special Provisions.

Check Contract Change Orders (CCO's), Addenda, Special Provisions, Project-specific Drawings, Standard Drawings, and Standard Specifications to assure that the correct measurement is used for each item.

Guidelines for measurement are:

(a) Area, Linear, and Volume

These measurements should normally be supplemented with a field sketch. Each document must be validated to show that the Work was performed. A validation statement, such as "measured", "re-measured", "installed", or "constructed", validates the source document in addition to a signature and date.

(b) Vehicle Measure

Document each haul vehicle volume with measurements of the hauling portion to support "water level" capacity. Be sure to use the proper mathematical procedure to calculate the volume. If there is doubt, the prismoidal formula works for all cases.

When each load is delivered, verify that the load quantity equals the calculated "water level" quantity. If it is less than the "water level" quantity, deduct the quantity less than "water level". If a load is over the "water level" quantity, make no adjustment for the extra Material. Clearly document this on the tally sheet, if one is used.

If the same number of loader buckets of a Material will be loaded into each haul vehicle, determine the average load volume instead of determining the measured capacity of each haul vehicle. Load the same number of full buckets, not leveled, onto a minimum of two (2) haul vehicles. Level, measure, and calculate the volume of each load. The average of the two (2) loads is the pay volume for all loads delivered and accepted.

Document the quantity of each load on a Weigh Memo - Material Receipt, form 734-3082 (*See* Exhibit 12D(f)), including the following:

- Project identification
- Kind of Material
- Date
- Signature of receiver (ODOT representative)

- Number or specific identification of haul vehicle
- Location of delivered Material (station, mile point, other)
- Date Material received if different
- Time of delivery

Also refer to the discussion of Weigh Memos and Scale Diary in Section 12D-2(n).

Remember that the PM is responsible for measuring and determining quantity for all Pay Items. The Contractor is not allowed to document or establish pay quantities.

(c) Weight/Volume Measurement Method Change

If the PM wishes to change the measurement from weight (Ton) to volume (cubic yards) or wishes to change any of the requirements of Section 00190.20, the PM must execute a CCO to do that. The CCO shall include a credit to the Agency for the Contractor's cost savings related to not providing and operating the scales required by 00190.20.

Determine conversion factors prior to performing the work. Include conversion factor data for each Pay Item as part of the CCO, consisting of:

- For each type of Material, load a minimum of two (2) haul vehicles that can be readily measured.
- Determine the net weight (also gross and tare weights when appropriate) and the volume for each load.
- The average of the loads will establish the conversion factor.

(d) Weighing

See the discussion on Weigh Memos and Scale Diary in Section 12D-2(n).

(e) Lump Sum

At the pre-construction conference, the Contractor should submit a breakdown or schedule for lump sum payments. If the Contractor does not provide the breakdown, the PM should complete one and share it with the Contractor. (*See* Exhibit 12D(a) for an example of a lump sum breakdown completed by the PM).

The PM must review the breakdown and make adjustments, if necessary, after discussion with the Contractor. Each progress payment for the lump sum item must relate to, and be substantiated by, the lump sum breakdown.

(f) Each

These items must be identified by station or location. Items that are installed in groups, such as plants and shrubs are exceptions that may be listed in groups at general locations.

(g) Temporary Striping and Temporary Tape

The bid prices for these items only apply to the bid quantity. Payment for quantities beyond the bid quantity will be made as specified under Section 00225.93(g-j). Address this prior to the quantity of Work performed reaches the bid quantity.

To continue paying at the bid price beyond the bid quantity, the PM must analyze the cost of the Work and justify that the bid price is no more than the cost to perform the Work. If the bid price is no more than the cost to perform the Work, the PM must include a cost analysis with the item documentation and include it with the Project documentation.

If the bid price is more than the cost to perform the Work, the PM must either negotiate a new price to be paid under a CCO or order the Work to be performed on an Order for Extra Work to Be Performed on Force Account Basis. When negotiating a CCO for this, remember that the value paid for the Work cannot exceed that calculated on a force account basis, as stated in Section 00195.20(b).

(h) Flagger and Pilot Car Hours

Refer to the appropriate portions of Section 00225. Record these hours each day on a Flagger and Pilot Car Receipt, form 734-3955, (*See* Exhibit 12D(g)) or a similar format that includes all required information including the location of the flagging station. The Contractor's representative must also sign to show agreement.

The bid prices for these items only apply to the bid quantity. Payment for quantities beyond the bid quantity will be made as specified under Section 00225.97. Address this prior to the quantity of Work performed reaches the bid quantity.

To continue paying at the bid price beyond the bid quantity, the PM must analyze the cost of the Work and justify that the bid price is no more than the cost to perform the Work. If the bid price is no more than the cost to perform the Work, the PM must include a cost analysis with the item documentation and include it with the Project documentation.

If the bid price is more than the cost to perform the Work, the PM must either negotiate a new price to be paid under a CCO or order the Work to be performed on an Order for Extra Work to Be Performed on Force Account Basis. When negotiating a CCO for this, remember that the value paid for the Work cannot exceed that calculated on a force account basis, as stated in Section 00195.20(b).

(i) Temporary Sign Quantities

Temporary signs will be measured on the area basis when the signs are delivered to the project. The quantities will be limited to those in the approved Traffic Control Plan (TCP) including speed zone signage. (*See* Section 00225.81) The cost of installing the signs is included in the Temporary Protection & Direction of Traffic Pay Item.

In summary, ODOT will pay at least for the total quantity of signs shown on the approved TCP, at the bid price, whether or not all of the signs are actually installed.

(j) Earthwork

If the Digital Terrain Model (DTM) is not used to calculate earthwork quantities, field measurements generally consist of field cross sections notes that show both the original ground and the as constructed ground cross section for each section staked.

When earthwork quantities are calculated using the DTM method, the following must be included to support the determined quantities:

- Identification of the electronic file where the field data for the quantity has been stored.
- A copy of the confidence points and the analysis that verifies the validity of the information used to calculate the quantity (that it represents the intended volumes).

The PM must assure that the survey methods, formulas, and methods of calculation are all appropriate and correctly done. The PM should perform some sort of validation to assure that the quantities are correct and complete. That validation could include:

(a) If traditional methods (slope staking, average end areas, etc.) were used, assure that:

1. All appropriate volumes and areas are included;
2. Inappropriate volumes and areas are not included; and
3. The measurements do not include obvious mistakes.

Also compare the quantity to the Bid quantity and resolve significant differences.

(b) If DTM or other electronic methods were used, compare the quantity to the Bid quantity and resolve significant differences. Also perform some validation of the quantity, which may include the following:

1. Review a plot of the horizontal limits of earthwork to determine that all appropriate area is included and inappropriate areas are not.
2. Plot cross-sections at appropriate locations. Review those to assure that only appropriate limits for the earthwork are included and that similar datum planes were used.
3. Have quantities calculated by station or other small unit. Review those quantities to determine and resolve large fluctuations between units.

Contact the Region Assurance Specialist, the Contract Services Group, or Geometronics for additional information.

(k) Watering

When watering is included as a Pay Item in the Contract, the Agency must:

- Pay for watering that is done as directed or ordered, and
- Not pay for watering that is done for the Contractor's convenience, or that is performed and paid under other Pay Items

Assure that the volume of each haul vehicle is properly determined, unless measurement will be by an approved meter.

The source document for watering work is a Sprinkling Tally Sheet, form 734-3427 or a similar record that includes similar information. If the Contractor enters the information on the source document, assure that:

- Payment is only made for watering done as directed or ordered.
- Payment is not made for watering done for the Contractor's convenience or for Work paid under another Pay Item.
- The Inspector performs some cursory validation that the pay volumes on the record are appropriate.

The bid price for this work only applies up to 125% of the bid quantity. Payment for quantities beyond that quantity will be made as specified under Section 00340.91. Address this prior to the quantity of Work performed reaches the bid quantity.

To continue paying at the bid price beyond 125% of the bid quantity, the PM must analyze the cost of the Work and justify that the bid price is no more than the cost to perform the Work. If the bid price is no more than the cost to perform the Work, the PM must include a cost analysis with the item documentation and include it with the Project documentation.

If the bid price is more than the cost to perform the Work, the PM must either negotiate a new price to be paid under a CCO or order the Work to be performed on an Order for Extra Work to Be Performed on Force Account Basis. When negotiating a CCO for this, remember that the value paid for the Work cannot exceed that calculated on a force account basis, as stated in Section 00195.20(b).

(l) Piling

The source document for piling work is a Pile Record Book, form 734-3485, or a similar format that includes all needed information. Refer to the Contract to determine the information that must be recorded for each pile installed on the Project.

(m) Asphalt Cement in Asphalt Concrete Mixture

When asphalt cement is paid separately from the asphalt concrete mixture, the PM must calculate the quantity of asphalt cement to be paid. Use one of the following methods to determine the pay quantity for the asphalt cement in the mixture:

1. Asphalt Inventory (Inventory) Method

Refer to the ODOT Manual of Field Test Procedures for instructions on this method.

Use the Asphalt Inventory Method to compare the asphalt cement quantity determined by tank sticking with the quantity supported by delivery invoices. This method is generally used when all plant production is dedicated to the Project, or a supplier has set aside a storage tank to be used exclusively for the Project. There can be numerous problems with this method when using commercial plants that furnish asphalt cement mixture to both ODOT and other Projects.

Record tank measurement and delivery invoice quantities on the Daily Asphalt Cement Report, form 734-2043 (*See* Exhibit 12D(h)). Weigh and deduct all asphalt cement used for tack or other uses. Also deduct the weight of the asphalt cement in rejected mixture, waste, or Material not incorporated into the Project.

Storage tanks should be level and free of buildups in order to obtain accurate measurements. Check the tank manufacturer's volume conversion charts for accuracy. One method to do that is to compare the invoice quantity to the quantity determined from tank stickings taken before and after delivery.

Check weigh the delivery vehicles occasionally by weighing the delivery vehicle before and after delivery and comparing the delivered quantity to the invoice. Resolve any differences greater than allowed by 00190.20(d). Also refer to the discussion of Check Weighing in Section 12D-2(n-2).

2. Testing Method

Use this method when the inventory method is inappropriate because asphalt mixture is also supplied to others or the mixture contains recycled asphalt pavement (RAP). The following test method is specified for this purpose. Refer to the Manual of Field Test Procedures for the actual test procedure:

- Asphalt Content by Ignition Method (Calibration according to ODOT TM 323 and test according to AASHTO T 308 Method A or Method B with a 60 minute burn time).

Enter the asphalt content test result percentages into the Statistical Testing Input Data sheet in the "Statspec" program. The program uses the asphalt and moisture content means that appear on the bottom of the Price Adjustment Computation sheet to calculate the asphalt cement pay quantity. [*Refer Chapter 12C – Quality Price Adjustments*]

3. Small Quantity Method

When small quantities of mixture are accepted without testing, calculate the quantity of asphalt cement in the mixture by using asphalt cement percentages from one of the following:

- Job Mix Formula
- Batch Weights
- Average as determined from the asphalt inventory or Statspec

Calculate and document quantities on the Daily Asphalt Cement Report, form 734-2043, under "Small Quantity" (*See* Exhibit 12D(h)). Refer to the ODOT Manual of Field Test Procedures for instructions on this calculation.

It is very important to note that, no matter which method is used to determine the asphalt cement quantities, the quantities must be calculated daily during production and paid for on the progress estimate for that month. Some Contracts contain an asphalt escalation/de-escalation Specification (Section 00195.10) which requires the Agency to make an adjustment in payment when the price of asphalt fluctuates significantly. [*Refer to Chapter 12E – Adjustments to Lump Sum and Other Items, Section 12E-2*]

If you have questions about measurement of any item, contact your Region Assurance Specialist or the Contract Administration Unit.

(n) Weigh Memos and Scale Diary

Also refer to above discussion on Vehicle Measure.

When the Contractor provides and uses scales for measuring pay quantities, the scales must meet the requirements of Section 00190.20.

Section 00190.20(d) requires that scales be inspected and tested at various times, but at least every 6 months, by the Department of Agriculture or other appropriate regulatory agency. The PM may request additional inspections if there is any reason to believe that the scales may not be functioning properly. This work determines the weight for pay purposes.

1. Scale Diary

For all Projects that have Material paid on the weight basis, the PM must prepare a Scale Diary and submit it with the Project quantity documentation.

Record the following information in or attached to the scale diary:

- Appropriate dates and signatures of persons making entries.
- For both Project and check weighing scales, include scale location and owner, manufacturer, serial number, type of scale, and maximum capacity.
- Scale inspection reports furnished by the Department of Agriculture or a scale service company. See Section 00190.20(d) for frequency of inspection.
- Results of inspections directed by the PM.
- Corrective measures taken when an inspection or check weight indicates that the scale is not operating within tolerances.
- Dates, hours at the scale, and names of Agency-provided weighers and weigh witnesses.
- Dates and times that the Agency, the Contractor, or others were notified of problems that could cause inaccurate weights, and action taken.
- Tare weights of haul vehicles and time that the weights were obtained. (*See* Exhibit 12D(i)) This information is not needed in the diary if tares are obtained for every load.
- Check weighing required by Section 00190.20(f), including a comparison with the appropriate weigh memo.
- Check weighing of bulk Materials shipped to the Project, such as asphalt cement, lime, or portland cement

2. Check Weighing

Perform check weighing as required, and at the frequency specified, in Section 00190.20(f). Record the results of the check weighing and the comparison in the scale diary, as indicated in the example below:

CHECK WEIGHING EXAMPLE

	Project or Contractor Scale	Check Scale
Gross Weight:	39.69 Tons	39.74 Tons

$$\frac{(39.69) - (39.74) \times 100}{39.69} = 0.1 \text{ percent difference}$$

Check weighing is not necessary when an Agency-provided weigh witness observes or performs the weighing procedure.

If observation, the check weighing, or other concern indicates that the scales are not operating within the tolerances specified in Section 00190.20(f), the PM must:

- Immediately order the scale operation to be corrected, and
- Determine which weigh memos were impacted by the incorrect scale operation and resolve that information.

3. Weigh Memos

The weigher will issue a Weigh Memo for each load of Material shipped or delivered to the project. The weigher may use an ODOT Weigh Memo - Material Receipt, form 734-3082, (Weigh Memo) or may use the Contractor or Supplier-provided format used as a Weigh Memo (*See* Exhibit 12D(f)). Weigh Memos are serially numbered and must contain the following information:

- Project identification
- Material Identification
- Date of weighing
- Net weight (also gross and tare unless Material is weighed separately)
- Identification of haul vehicle
- Name of haul vehicle driver
- Name of weigher

4. Receipt of Material on the Project

The Agency no longer requires either ODOT employees, or the Contractors employees, to verify receipt of each load of Material as it is delivered to the project site. Instead, the Contractor will gather all weigh memos, along with the applicable tare weights and tally sheets, and deliver them to the ODOT Inspector at the end of each day's work. The Inspector will note on the tally sheet or adding machine tape, the location (from station – to station) where the represented Material was placed.

The Contractor must supply the required tare information, either on the ODOT Tare Sheet, form 734-2394 (*See* Exhibit 12D(i)), or similar format, along with the weigh memos for all Materials delivered each day. The Inspector must also sign and date the tally sheet or adding machine tape.

If any Material is rejected on the Project, the word "REJECTED" and the amount rejected must be clearly identified on the Weigh Memo.

12D-3 REVIEW PROCESS FOR QUANTITY DOCUMENTATION

(a) Review by PM

The PM must review each source document as it is prepared to verify that documentation and calculation methods are proper and correct.

If the Contractor requests to the Agency release the retainage of a Subcontractor because the Subcontractor has finished its portion of the Work, the PM must review the documentation related to that Work, and if acceptable, to allow release of the retainage. The PM will need to follow the process shown in *Chapter 37 - Submittal of Final Project Documentation*.

Steps in the review procedure for quantity documentation include:

1. Assure that required dates, signatures, Contract numbers, locations, etc. are included on each original source document. Also assure that the Work has been charged to the proper Participation Indicator (sub-job).

2. Prepare and include two (2) adding machine tapes or alternate summation method for all Weigh Memos, tickets, and Material receipts to verify that all individual quantities are included in the summation. Assure that the required date, signature, and Contract number are included on adding machine tapes and summaries.

3. Assure that a separate person has checked all formulas and calculations and has also signed and dated the documents.

4. When Material is paid for by volume of hauling vehicle, include measurements of the hauling vehicle and calculate the volume for each hauling vehicle. The person measuring the vehicle and calculating the volume must sign and date the document.

5. When conversion factors have been used to compute pay quantities, assure that documentation of the conversion factors is included. The person calculating the conversion must sign and date the document.

6. Verify that proper and correct formulas and procedures were used in each computer-generated source document and spreadsheet to calculate quantities. Computer calculated quantities must be documented with the original field measure notes along with input and output printouts.

7. Compare the calculated quantity of each item to the bid quantity and resolve significant differences.

8. Ask the theoretical question on each item: "Does this quantity seem appropriate for the Work that was actually done on the Project?"

9. Assure that all Work has been included in the calculated quantity and that the calculated quantity does not include inappropriate areas, volumes, or quantities. This may require some independent verification of quantities. For earthwork volumes, refer to the Measurement of Earthwork discussion in Section 12D-2(j).

10. Check all lump sum quantity adjustments and supporting documentation.

11. Verify and submit final quantities on a Quantity Ledger Report.

(b) Review by Region Assurance Specialist

The Region Assurance Specialist (RAS) will periodically review all Project quantity documentation. The frequency of those reviews will be planned and will depend on Project size, duration, complexity, and the PM's experience in administering ODOT construction Contracts.

The RAS will review and provide guidance in quantity documentation procedures used to support payments to the Contractor, including:

- Source document must be on file
- Lump sum schedules for progress payment of lump sum items
- Flagger and Pilot Car Receipts or similar format
- Sprinkling Tally Sheets or similar format
- Accurate, easy to follow measurement and calculation methods
- Calculations and calculation methods checked by a second person
- Proper source document validations
- For quantities paid by weight, padded Material receipts with adding machine tapes, or acceptable alternate method, summarizing the total quantities
- Scale Diary, including scale certification
- Cost justification for overrun of Flagging, Traffic Control Supervisor, Pilot Cars, Temporary Removable Tape, Temporary Non-Removable Tape, Temporary Non-Reflective Tape, Temporary Striping, and Watering

- Quantity price adjustments
- Material on Hand payments

At the time of the periodic Project review, the RAS will review the quantity documentation to determine whether it fulfills the Contract requirements and supports the payments that have been made to the Contractor. The RAS will report any deficiencies to the PM. The RAS will also address the noted deficiencies and their resolution at the next scheduled periodic review.

The RAS will list the following on the Documentation Review Report, form 734-1903 (*Refer to Chapter 12-B – Quality*] regarding quantities:

- Agreement to resolution of calculations that are done in a manner different from that specified by the Contract, or from that normally accepted by ODOT, and
- Calculations for which the PM and RAS are unable to agree on the acceptability of the calculation or method.

For acceptance of final project documentation, refer to *Chapter 37 - Submittal of Final Project Documentation*.

Oregon Department of Transportation

INSTALLATION SHEET

PROJECT: CONSTRUCTION MANUAL FORM EXAMPLE

CONTRACT: **C12345** EA : **CON013456** ITEM NUMBER: 190

ITEM DESCRIPTION: **REINFORCEMENT** GROUP NO.: **011**

LOC. / STA.: RT. / LT.

PLAN SHEET # Erosion Contr NOTE # NOT ON PLANS: ☐

METHOD OF QUALITY ASSURANCE

SUPPORTING DATA

T - TEST CERTS ☐ Q - COMPLIANCE CERTS ☐ QI - COMPL. CERT W/MAT. # ☐

O - CMO ☐ E - EQUIP. LIST & DWG. ☐ L - ODOT LAB. REPORT ☐ #

F - FIR #

VERIFIED MATERIALS BY: ( ) HEAT, LOT BATCH # ( ) AASHTO / ASTM, SPEC. # ( ) ODOT LABEL OR MARK

NO QUALITY DOCUMENTATION REQUIRED ☑

QUANTITY DATA

PREVIOUS QUANTITY: UNIT: LS INSTALLATION COMPLETE:

INSTALLED THIS NOTE: UNIT: LS Yes ☐ No ☐

TOTAL TO DATE: UNIT: LS BID ITEM COMPLETE ☐

AS PER PLAN: YES ☑ NO ☐ IF NO WHY? UPDATED AS CONSTRUCTED PLANS ☐

SKETCH / CALCULATIONS / REMARKS: N/A ☐ DATE:

LUMP SUM BREAKDOWN:

Structure #0945:	25%
Retaining Wall #1234:	25%
Structure #3588:	25%
Bridge End Panels (Reinforced):	10%
Concrete Bridge Rail:	15%
TOTAL:	100%

NOTE: Payment for reinforcement will only be made when the reinforcement has been incorporated into the concrete as specified in 00530.90.

NORTH ARROW

Phil Dirt, Cert #02356 ####

INSPECTOR SIGNATURE DATE SEE BACK ☐

FOR OFFICE USE ONLY

QUANTITY CHECKED ☐ QUALITY CHECKED ☐

CHECKED BY: DATE:

QUANTITY THIS NOTE: UNIT: ESTIMATE # NOTE #

INSTALLATION SHEET

Oregon Department of Transportation

PROJECT: CONSTRUCTION MANUAL FORM EXAMPLE

CONTRACT: **C12345** EA : **CON004321** ITEM NUMBER: 0190

ITEM DESCRIPTION: **EROSION CONTROL** GROUP NO.: **011**

LOC. / STA.: Sta 26+00 to 49+50 Rt & Lt RT. / LT.

PLAN SHEET # Erosion Contr NOTE # NOT ON PLANS: ☐

METHOD OF QUALITY ASSURANCE

SUPPORTING DATA

T - TEST CERTS ☐ Q - COMPLIANCE CERTS ☐ QI - COMPL. CERT W/MAT. # ☐

O - CMO ☐ E - EQUIP. LIST & DWG. ☐ L - ODOT LAB. REPORT ☐ #

F - FIR #

VERIFIED MATERIALS BY:	( ) HEAT, LOT BATCH #	( ) AASHTO / ASTM, SPEC. #	( ) ODOT LABEL OR MARK

NO QUALITY DOCUMENTATION REQUIRED ☑

QUANTITY DATA

PREVIOUS QUANTITY:	75%	UNIT:	LS	INSTALLATION COMPLETE:	
INSTALLED THIS NOTE:	25%	UNIT:	LS	Yes ☑	No ☐
TOTAL TO DATE:	1	UNIT:	LS	BID ITEM COMPLETE ☑	

AS PER PLAN: YES ☑ NO ☐ IF NO WHY? UPDATED AS CONSTRUCTED PLANS ☐

SKETCH / CALCULATIONS / REMARKS: N/A ☐ DATE:

All work under this item has been completed in accordance with the approved Erosion and Sediment Control Plan, Section 00280.00 of the Standard Specifications and the project Special Provisions.

All erosion control devices have been removed from the project as required. The final 25% payment is being made in accordance with Section 00280.90.

NORTH ARROW

Phil Dirt, Cert #02356 9/15/2009 SEE BACK ☐

INSPECTOR SIGNATURE DATE

FOR OFFICE USE ONLY

QUANTITY CHECKED ☐ QUALITY CHECKED ☐

CHECKED BY: DATE:

QUANTITY THIS NOTE: UNIT: ESTIMATE # NOTE #

Oregon Department of Transportation

INSTALLATION SHEET

PROJECT: CONSTRUCTION MANUAL FORM EXAMPLE

CONTRACT: **C12345** EA : **CON004321** ITEM NUMBER: 0310

ITEM DESCRIPTION: **SUBGRADE GEOTEXTILE** GROUP NO.: **011**

LOC. / STA.: STA 37+50 - 39 + 00 RT. / LT.

PLAN SHEET # 2 NOTE # 6 NOT ON PLANS: ☐

METHOD OF QUALITY ASSURANCE

SUPPORTING DATA

T - TEST CERTS	☑	Q - COMPLIANCE CERTS	☑	QI - COMPL. CERT W/MAT. #	☐
O - CMO	☐	E - EQUIP. LIST & DWG.	☐	L - ODOT LAB. REPORT	☐ #

F - FIR # 4

VERIFIED MATERIALS BY: ( ) HEAT, LOT BATCH # ( ) AASHTO / ASTM, SPEC. # ( ) ODOT LABEL OR MARK

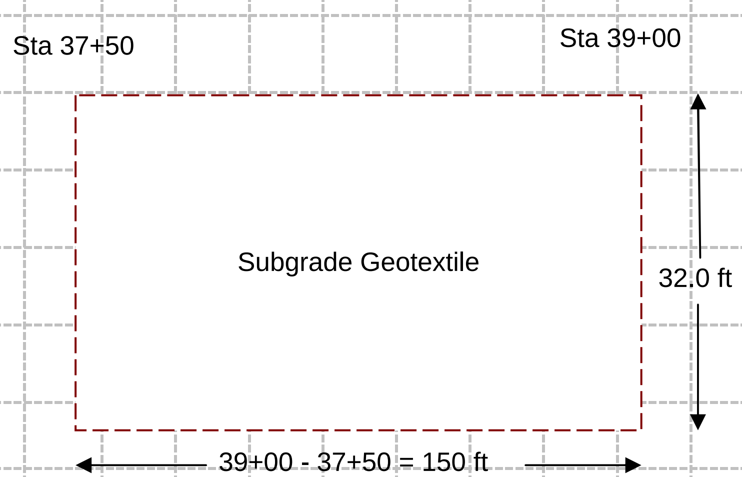
NO QUALITY DOCUMENTATION REQUIRED ☐

QUANTITY DATA

PREVIOUS QUANTITY:	2395	UNIT: SF	INSTALLATION COMPLETE:	
INSTALLED THIS NOTE:	4800	UNIT: SF	Yes ☐	No ☑
TOTAL TO DATE:	7195	UNIT: SF	BID ITEM COMPLETE	☐

AS PER PLAN: YES ☑ NO ☐ IF NO WHY? UPDATED AS CONSTRUCTED PLANS ☐

SKETCH / CALCULATIONS / REMARKS: N/A ☐ DATE:



150 x 32 = 4800 sf subgrade geotextile installed 9-15-09

NORTH ARROW

Phil Dirt, Cert #02356 9/15/2009 SEE BACK ☐

INSPECTOR SIGNATURE DATE

FOR OFFICE USE ONLY

QUANTITY CHECKED ☐ QUALITY CHECKED ☐

CHECKED BY: DATE:

QUANTITY THIS NOTE: UNIT: ESTIMATE # NOTE #

Oregon Department of Transportation

INSTALLATION SHEET

PROJECT: CONSTRUCTION MANUAL FORM EXAMPLE

CONTRACT: **C12345** EA : **CON004321** ITEM NUMBER: 0430

ITEM DESCRIPTION: **12" Culvert Pipe, 5' Depth** GROUP NO.: **011**

LOC. / STA.: STA 45+50 - 45+68 RT. / LT.

PLAN SHEET # 9 NOTE # 6 NOT ON PLANS: ☐

METHOD OF QUALITY ASSURANCE

SUPPORTING DATA

T - TEST CERTS ☑	Q - COMPLIANCE CERTS ☑	QI - COMPL. CERT W/MAT. # ☐
O - CMO ☐	E - EQUIP. LIST & DWG. ☐	L - ODOT LAB. REPORT ☐ #

F - FIR # 4

VERIFIED MATERIALS BY: | ( ) HEAT, LOT BATCH # | ( ) AASHTO / ASTM, SPEC. # | ( ) ODOT LABEL OR MARK

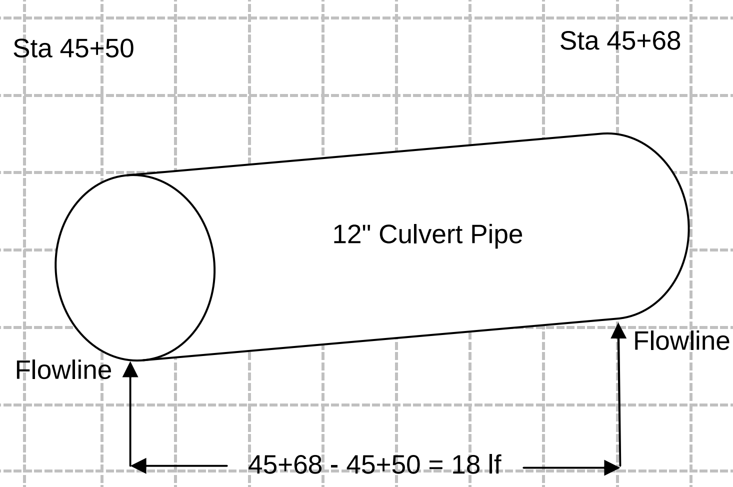
NO QUALITY DOCUMENTATION REQUIRED ☐

QUANTITY DATA

PREVIOUS QUANTITY:	69	UNIT: LF	INSTALLATION COMPLETE:	
INSTALLED THIS NOTE:	18	UNIT: LF	Yes ☐	No ☑
TOTAL TO DATE:	87	UNIT: SF	BID ITEM COMPLETE ☐	

AS PER PLAN: YES ☑ NO ☐ IF NO WHY? UPDATED AS CONSTRUCTED PLANS ☐

SKETCH / CALCULATIONS / REMARKS: N/A ☐ DATE:



18 lf Culvert Pipe, 5' Depth
installed 9-15-09

NORTH ARROW

Phil Dirt, Cert #02356 9/15/2009 SEE BACK ☐

INSPECTOR SIGNATURE DATE

FOR OFFICE USE ONLY

QUANTITY CHECKED ☐ QUALITY CHECKED ☐

CHECKED BY: ______ DATE: ______

QUANTITY THIS NOTE: ______ UNIT: ____ ESTIMATE # ______ NOTE # ______

OREGON DEPARTMENT OF TRANSPORTATION
CONSTRUCTION MANUAL

INSTALLATION SHEET

Oregon Department of Transportation

PROJECT: ______

CONTRACT: ______ EA : ______ ITEM NUMBER: ______

ITEM DESCRIPTION: ______ GROUP NO.: ______ ______

LOC. / STA.: ______ RT. / LT.

PLAN SHEET # ______ NOTE # ______ NOT ON PLANS: ☐

METHOD OF QUALITY ASSURANCE

SUPPORTING DATA

T - TEST CERTS ☐ Q - COMPLIANCE CERTS ☐ QI - COMPL. CERT W/MAT. # ☐

O - CMO ☐ E - EQUIP. LIST & DWG. ☐ L - ODOT LAB. REPORT ☐ #

F - FIR # ______ VERIFIED MATERIALS BY: ( ) HEAT, LOT BATCH # ( ) AASHTO / ASTM, SPEC. # ( ) ODOT LABEL OR MARK

NO QUALITY DOCUMENTATION REQUIRED ☐

QUANTITY DATA

PREVIOUS QUANTITY: ______ UNIT: ______ INSTALLATION COMPLETE:

INSTALLED THIS NOTE: ______ UNIT: ______ Yes ☐ No ☐

TOTAL TO DATE: UNIT: BID ITEM COMPLETE ☐

AS PER PLAN: YES ☐ NO ☐ IF NO WHY? UPDATED AS CONSTRUCTED PLANS ☐

SKETCH / CALCULATIONS / REMARKS: N/A ☐ DATE:

NORTH ARROW

SEE BACK ☐

______ INSPECTOR SIGNATURE ______ DATE

FOR OFFICE USE ONLY

QUANTITY CHECKED ☐ QUALITY CHECKED ☐

CHECKED BY: ______ DATE: ______

QUANTITY THIS NOTE: ______ UNIT: ______ ESTIMATE # ______ NOTE # ______

WEIGH MEMO - MATERIAL RECEIPT
Oregon Department of Transportation

859802

CONTRACT NO. EA OR PROJECT NAME	
SOURCE OF MATERIAL	DATE
KIND OF MATERIAL	B.L NO.
DRIVER	TRUCK NO. / LOAD NO.
WEIGHED BY / TIME	GROSS
STATION PLACED	TARE
RECEIVED BY	NET
REMARKS	UNIT OF MEASURE
	PAY QUANTITY OTHER THAN NET

734-3082(10-96)

ORIGINAL - ODOT RECORD COPY
DUPLICATE - CONTRACTOR COPY
TRIPLICATE - SCALE COPY

For use with Non-automatic weight scales

BAKER ROCK RESOURCES

21880 S.W. Farmington Road
Beaverton, Oregon 97007
PHONE: (503) 642-2531
FAX: (503) 642-2534

Fmgtn A/C

DATE: 3/21/2007 TICKET NO.
TIME: 3:32 pm **4126909**

SOLD TO: CD/ODOT WACO Sidewalk Projects
For Our Use Only

PROJECT: 346.00 Parkway & Butner
SHIP TO: R-Farm,L-Murray,R-Jenkins,L-Cedar
Hills,R-Park Way,to Butner
Weighmaster Don Bowden

ORDER NO: 30457 ACCT. NO: 066171
CUST. P.O. :
ZONE: 98 Gredvig, Inc.
DRIVER: 1345.16A 16A Gredvig George Mac
PRODUCT: 32
OSHD "C" Mix

QTY ORDERED	QTY TO DATE	QTY TODAY
0.00	142.62	142.62

GROSS	TARE	NET
23.83	10.71	13.12

AMOUNT	UNIT	PRICE	TOTAL
13.12	Ton		

OTHER CHARGES:

REC. BY: Sam Jones

OPEN ACCOUNT TERMS: Net 30 days, up to 1 1/2% per month (equal to 18% per annum) service charge will be applied to all past due accounts. In the event of any default in relation to this agreement, purchaser(s) agrees to pay all Baker Rock Resources' attorneys' fees and costs including those on appeal even if no action if filed.

Customer assumes all responsibility for any damages beyond curb line.

Sta 45+18 Rt

Example of weigh ticket printed on automatic weight scale

Oregon Department of Transportation

FLAGGER AND PILOT CAR RECEIPT

PROJECT NAME (SECTION)			CONTRACT NO.	
CONTRACTOR OR SUBCONTRACTOR NAME			DATE OF WORK	
ITEM NO. FLAGGER	ITEM NO PILOT CAR		SHIFT	

FLAGGER NAMES	WORK LOCATION	HOURS

PILOT CAR OPERATOR NAMES	WORK LOCATION	HOURS

CONTRACTOR REPRESENTATIVE (SIGN)	
INSPECTOR (SIGN)	CERT NO.

734-3955(3-05)

DAILY ASPHALT CEMENT REPORT

English (E) or Metric (M)

PROJECT NAME (SECTION)		CONTRACT NUMBER
CONSTRUCTION MANUAL FORM EXAMPLE		C12345
CONTRACTOR: PRIME CONSTRUCTION COMPANY	PROJECT MANAGER: Rhoda Head, PM	REPORT NUMBER: 6
	SUPPLIER: Albina	DATE: 8/15/2009

ASPHALT INVENTORY METHOD

PREVIOUS ENDING TANK STICK	LINE 8 FROM PREVIOUS REPORT				1	
DELIVERIES BEFORE BEGINNING TANK STICK						
INVOICE NO.	Tons(Mg)	INVOICE NO.	Tons(Mg)	INVOICE NO.	Tons(Mg)	
TOTAL DELIVERIES					2	
DEDUCTIONS BEFORE BEGINNING INVENTORY EXPLAIN BELOW OR ON ATTACHMENT						
EXPLANATION					3	
BEGINNING INVENTORY 1 + 2 - 3 (ANY DIFFERENCES WITH LINE 5 OTHER THAN MINOR MEASURING DIFFERENCES, MUST BE RESOLVED)					4	

BEGINNING TANK STICK

TANK NO.	TEMP	TANK STICK	VOLUME IN TANK X	TEMP. CORR. FACTOR X	SPECIFIC GRAVITY	/239.9=Tons /1000=Mg
1						
2						
3						
BEGINNING TANK STICK TOTAL					5	

DELIVERIES AFTER BEGINNING INVENTORY

INVOICE NO.	Tons(Mg)	INVOICE NO.	Tons(Mg)	INVOICE NO.	Tons(Mg)	
TOTAL DELIVERIES					6	
DEDUCTIONS AFTER BEGINNING INVENTORY (TACK, WASTE, REJECT, SOLD TO OTHERS ETC.) EXPLAIN BELOW OR ON ATTACHMENT					7	

ENDING TANK STICK

TANK NO.	TEMP	TANK STICK	VOLUME IN TANK X	TEMP. CORR. FACTOR X	SPECIFIC GRAVITY	/239.9=Tons /1000=Mg
1						
2						
3						
ENDING TANK STICK TOTAL					8	
ASPHALT CEMENT	LINES 4 or 5 + 6 - 7 - 8				9	

SMALL QUANTITY METHOD

ASPHALT TARGET % FROM JOB MIX FORMULA		C	5.2
Tons(Mg) MIX THIS DATE X	C / 100 =		ASPHALT CEMENT INCORPORATED
798.65	0.052	10	41.5298

BATCH MASS METHOD

BATCH TICKET NO.			
ASPHALT CEMENT INCORPORATED		11	

ASPHALT CEMENT SUMMARY

			B.I. NO.
ASPHALT CEMENT IN MIX			0176
PREVIOUS REPORT LINE 14		12	34.25
THIS REPORT	LINE 9, 10, OR 11	13	41.5298
ASPHALT CEMENT IN MIXTURE TO DATE	12 + 13	14	75.7798

ASPHALT MIXTURE SUMMARY

			B.I. NO.
CLASS Level 3, 1/2" Dense	HMAC		0175
PREVIOUS REPORT LINE 17		15	1258.63
MATERIAL RECEIPT TOTAL FOR THIS DATE		16	798.65
ASPHALT MIXTURE TO DATE 15+16		17	2057.28
CLASS	HMAC		B.I. NO.
PREVIOUS REPORT LINE 20		18	
MATERIAL RECEIPT TOTAL FOR THIS DATE		19	
ASPHALT MIXTURE TO DATE 18+19		20	

WASTE DEDUCTION CALCULATION

From Form 2401

TOTAL MIX NOT ACCEPTED	Line "e"	e	
DAILY AVERAGE MIX MOISTURE	Line "g"	g	
TOTAL DRY MIX NOT ACCEPTED (e / 1+(g/100))		TD	
BY TANK % Pb HMAC	Line "Z"	Z	
WASTE ASPHALT for line 7 deductions (TDxZ)/100		7	

Remarks

CERTIFIED TECHNICAN (PLEASE PRINT) AND CARD NUMBER	COMPANY NAME	SIGNATURE	DATE
Samuel Johnson, #01235	ODOT	Samual Johnson	8-19-09

Oregon Department of Transportation

TARE SHEET

PROJECT NAME (SECTION)	CONTRACT NO.
CONSTRUCTION MANUAL FORM EXAMPLE	C12345
MATERIAL	**SOURCE**
Aggregate Base	Barnard Rock Products
PREPARED BY	**DATE**
Stephen Jones, Prime Construction Company	August 24, 2009
PLANT	
Material Source #08-236	

Truck #	Driver's Name	Morning Tare		Afternoon Tare	
		Lightweight	Time	Lightweight	Time
32	Tom Johns	6.95 Ton	6:45 AM	6.82 Ton	12:36 PM
6	Ted James	6.55 Ton	6:48 AM	6.45 Ton	12:40 PM
12	Jack Tucker	7.56 Ton	6:51 AM	7.25 Ton	12:45 PM

Stephen Jones

Signature