

300's – Roadwork

Section 00305 – Construction Survey Work

See the Special Provisions and *Construction Surveying Manual for Contractors* for all Survey Requirements. The *Construction Surveying Manual for Contractors* can be found on the ODOT, Technical Services webpage under Geometronics.

Quality

No quality documentation is needed for this item. The Inspector must record pertinent information in the [Daily Progress Report \(form 734-3474\)](#).

Construction

- If the Contractor is performing the survey work, ensure that both the Contractor and Inspector understand the staking and marks left by the survey. A general guide to reading slope stakes is presented in appendix.
- If ODOT is performing the survey work, ensure that the survey work is performed when needed and that both the Contractor and Inspector understand the staking and marks left by the survey.
- If the Inspector uses some of the Contractor's survey information to calculate quantities of work to be paid, perform cursory validation of the survey information to check for reasonable accuracy. Also refer to the [Quantities chapter \(12-D\) of the Construction Manual](#).
- If ODOT requires the Contractor to perform additional survey work, check that a change order is issued, if needed, and record the information needed to justify payment for the additional work.
- Ensure that the Contractor's surveyor provides required information to ODOT and files records of its surveys with the County Surveyor, if needed.

Measurement

Unless specified otherwise there will be no measurement of quantities for Construction Survey Work. As work is performed document the work with an [Installation Sheet \(form 734-2605\)](#) as a source document to justify payment.

If additional survey work is ordered and performed, record information on an [Installation Sheet \(form 734-2605\)](#) as work is performed as a source document to justify payment.

Section 00310 – Removal of Structures and Obstructions

This work consists of removing and disposing of man-made materials, and cleaning up areas they occupy.

Quality

No quality documentation is needed for this item. The Inspector must record pertinent information in the [Daily Progress Report \(form 734-3474\)](#).

Ensure that Removal of Structures and Obstructions does not include the following items:

- Those items designated to remain in place per specifications or plans.
- Items specifically designated in the specifications or plans to be removed incidental to other items of work.
- Items that are owned or controlled by third parties (i.e. city structures, utility structures.)

Construction

Observe the Contractors work to ensure that:

- When guardrail, median rail, and concrete barriers have been removed, that during the same work shift new or salvaged units are installed, otherwise the Contractor must protect the area with temporary barrier units until the new or salvaged units are installed.
- The Contractor protects and maintains all milepost markers. This includes making sure that the markers remain visible to the traveling public.
- The Contractor does not damage any abutting structures. If damage does occur, the Contractor repairs or replaces the damaged structure as required.
- The Contractor removes, scarifies, or breaks down all material to the specified elevation.
- The Contractor may salvage metal grates, frames, rings, covers, or other metal fixtures or fittings if they are determined to be reusable per specifications.
- The Contractor disposes of all materials in accordance with the specifications.

Measurement

Unless specified otherwise, measurement will be on a lump sum, or separate item basis (by length, area or each). As work is performed take measurements, or ensure that they

are taken, and prepare and submit the measurements on an [Installation Sheet \(form 734-2605\)](#) as a source document to justify payment.

Review the Contractor's approved Lump-Sum breakdown so that this work can be tracked for progress payment (lump-sum pay item). Check to see if there are any items that are paid for on a separate unit basis. Sometimes the specials will give a list of anticipated items and their estimated quantities.

Section 00320 – Clearing and Grubbing

Clearing and Grubbing is the removal and disposal of vegetation and similar buried matter. **Clearing** involves **Preserving** trees and vegetation designated to remain in place, along with cutting and removing weeds, grasses, crops, brush, and trees. **Grubbing** involves **Removing** tree stumps, tree roots, and other vegetation found below the ground surface.

Quality

No quality documentation is needed for this item. The Inspector must record pertinent information in the [General Daily Progress Report \(form 734-3474\)](#).

Ensure that disposal operations do not violate permit requirements or local ordinances. If some of the material will be left on the project, ensure that the material is broken down or processed and its placement does not jeopardize contract work or future work, as specified.

Surveying and Layout

Ensure that:

- Clearing and removal limits have been located as specified, and do not include inappropriate areas.
- If the Specification requires specific areas to remain undisturbed, those areas are properly located and marked.
- Locations of Right of Way obligations have been located, marked, and protected or identified for needed work.
- Survey markers have been located and protected.
- Underground utilities have been located and marked.
- If items are to be salvaged and left or transferred to others, they are clearly marked and procedures are in place for transferring possession.
- Both the Contractor and Inspector understand the survey markings.

Construction

Review the Specification and project information to be aware of any restrictions on use or disposition of property involved in or to be salvaged from the work.

Observe the Contractor's operations to ensure that the work is completed as specified. Ensure that:

- The erosion control perimeter is set before beginning work.
- The Contractor is aware of any time period restrictions for removal.
- The Contractor is aware of areas where the Specification does not allow any disturbance. Areas designated for preserving vegetation, are protected from equipment and materials around the critical root zone.
- If the Contractor will dispose of material on private property, it has a written agreement with the property owner. If there is any question, request to see the agreement and obtain a copy of it. Attach the agreement to the General Daily Progress Report.
- The Contractor's operations do not involve obvious safety issues.
- The Contractor will use acceptable disposal methods, including:
 - If debris will be burned, the Contractor has a valid burning permit and the operation does not create a hazard (smoke, heat) to traffic or adjacent property.
 - If debris is to be chipped or ground and will remain on the project, acceptable areas and procedures have been identified or developed.
 - The Contractor restores affected areas or leaves them in a condition conducive for the succeeding construction operation.
- For clearing areas, tree stumps not required to be grubbed are cut flush with the ground within the clear zone. The stumps cannot be higher than 4 inches above the ground between the clear zone and clearing line.

Measurement

Unless specified otherwise, measurement will be on a lump sum or area basis. As work is performed take measurements, or ensure that they are taken, and prepare and submit the measurements on an [Installation Sheet \(form 734-2605\)](#) as a source document to justify payment.

Section 00330 – Earthwork

This work consists of excavation, ditching, backfilling, embankment construction, grading, leveling, borrow, and other earth-moving work.

Quality

Refer to the discussion of Quality and the Quality Assurance Program in the *ODOT Construction Manual*, [Chapter 12B – Quality](#), Section 00165 of the Contract, and the [Quality Assurance Program](#) in the *Manual of Field Test Procedures* for discussion and guidance for testing and other documentation required to ensure quality of the materials and work. Unless required differently in the Specification, the Contractor is responsible for all quality control, including testing, and ODOT must perform verification testing. Also refer to the requirements for materials and workmanship that are included in the specifications for each work item.

Ensure that the Contractor is aware of testing and documentation requirements, performs required testing with certified technicians, and check that required quality documentation and test results are provided. Also ensure that the ODOT QCCS is aware of scheduled work so he/she can arrange with the ODOT QAC for required verification testing.

If there is any question about the quality of any material or work procedure, require the Contractor to demonstrate, or perform further testing to ensure, that the material or procedure is acceptable or produces specified results. If additional testing is requested, inform the Project Manager to authorize extra payment, if applicable. If additional testing is required, record reasons and results on the [General Daily Progress Report \(form 734-3474\)](#).

Gather and submit required quality documentation. Record other pertinent information on the [General Daily Progress Report \(form 734-3474\)](#).

Construction

Complete the Earthwork Checklist in the checklists section for information.

Before work begins, review the geology or geotechnical report for the project to learn of the concerns during design. Also, ensure that:

- The Contractor is aware of restrictions on use of property.
- Fences have been moved and temporary fences have been installed, where necessary.
- The Contractor maintains access for affected properties and businesses.
- Utilities have been located, marked, and protected.
- If the work will involve blasting, check that an acceptable blasting plan has been submitted and the Contractor has performed a pre-blast survey of adjacent buildings and wells. Also refer to discussion in Section 00335 of this Training Manual.
- Clearing and grubbing have been acceptably completed.

Observe the earthwork as it is conducted to identify areas that deflect under loaded haul vehicle wheels. Note or mark suspect areas for testing.

Check the terrain on and adjacent to the project for possible problem areas such as:

- Springs
- Slides
- Unstable materials

If springs, slides and unstable materials exist, assist the Project Manager and Contractor to develop plans for handling them.

Embankment foundations that will not support the hauling or compaction equipment and **ONLY** if directed, place an initial layer of selected material. This layer will not be greater than necessary to support the equipment and not greater than 3 feet thick unless authorized.

Foundation benching is required when the slope is steeper than 1V:5H. The bottom bench should be at least 10 feet wide and each succeeding bench should be in the slope at least 3 feet beyond the vertical face of the previous bench. The bench should be wide enough to operate the placing and compaction equipment.

When building embankments **DO NOT** let the trucks herd (travel in the same path). Truck drivers seem to always want to herd like cattle. If one driver is on a certain path the rest will always try to follow that path.

During earthwork operations, ensure that:

- The Contractor is fulfilling its responsibilities under the Quality Assurance Program, including ensuring that only acceptable materials are incorporated and are properly placed, compacted, and tested as required.
- ODOT should only have to perform verification testing as required and cursorily review the earthwork process to ensure that the work complies with Specification requirements unless the Contractor fails to fulfill its responsibilities.
- The Contractor disposes of excess materials in an approved disposal area.

Measurement

A project usually has a bid item for Excavation or Embankment which will be indicated in the Special Provisions and Schedule of Items. If the largest quantity is excavation, embankment construction is incidental to the excavation work. In special situations, a project may have both excavation and embankment pay items.

Measurement of earthwork will be as specified. If items will be calculated using the digital terrain model method, check that ODOT has obtained information on the original ground and has analyzed confidence points to verify the validity of the model. Assist the Project Manager, as needed, to calculate quantities from the digital terrain model.

If ODOT orders over-excavation, excavation below subgrade, or other work beyond the original typical section and that work is not addressed in Section 00331, identify or mark the limits and record measurements, or ensure that measurements are taken, so that pay quantities can be calculated. If over-excavation was not anticipated, daily over-excavation quantities should be noted in the Daily to keep the PM aware of an over-run item.

If the Inspector uses information provided by the Contractor to calculate quantities, perform cursory validation with that information.

As work is performed take measurements, or ensure that measurements are taken, and prepare and submit the measurements, and supporting calculations, on an [Installation Sheet \(form 734-2605\)](#) as a source document to justify payment.

Section 00331 – Subgrade Stabilization

This work consists of excavating and disposing of unstable materials in **excavation areas only** and placing geotextiles, stone embankment, and aggregate backfill as required.

Quality

Quality requirements are specified in the *Manual of Field Test Procedures*.

Ensure that the Contractor is aware of those requirements, performs required testing, and provides acceptable quality documentation before the material is incorporated. Also ensure that the ODOT QCCS is aware of scheduled work so he/she can arrange with the ODOT QAC for required verification testing.

Gather and submit required quality documentation. Record other pertinent information on the [General Daily Progress Report \(form 734-3474\)](#).

Construction

Ensure that:

- The surveyor has marked the limits of the material to be excavated and replaced, and the Contractor understands the markings and depths required. If the limits for the work are specified in the plans, verify that the limits, as marked by the Contractor, are as specified, and both the Contractor and Inspector understand the markings.
- The excavation leaves smooth, firm surrounding soil.
- The excavated surfaces are prepared and replacement material is placed and constructed as specified.
- Placement of replacement material does not damage additional subgrade area or the excavated area.
- The replacement material is compacted and finished to specified finish grade and tolerances.
- Excess or unneeded materials are removed and affected areas are cleaned and restored.

The Engineer, with input from the Contractor, decides what areas get stabilization. This can be problematic when a Contractor starts work early in the year when subgrade materials are saturated. Once the stone embankment backfill is placed, there should be no deflection, pumping and/or yielding when the backfill material is proof rolled. Note that stone embankment is from a quarry, angular in nature, makes excellent stabilization material. It interlocks well and will tend to bridge soft areas better than smaller materials such as aggregate base.

Verify that the Contractor is using the correct geotextile and complete an FIR. Make sure that the Contractor overlaps the geotextile according to Section 00350.41(a-2). Place geotextile parallel to the roadway centerline. Lap the uphill sheets over the lower sheets so that sub-surface water doesn't flow under the fabric.

Measurement

Unless specified otherwise, measurement is on the area basis to the specified depth.

If the Inspector uses information provided by the Contractor to calculate quantities, perform cursory validation with that information.

As work is performed, note the location of the excavation (station and offset), measure all of the dimensions (length, width, and depth). If depths of stabilization are different than specified, record that information and calculate a proportional factor for payment

(actual excavated depth/the assumed plan depth), and prepare and submit the measurements, and supporting calculations, on an [Installation Sheet \(form 734-2605\)](#) as a source document to justify payment.

An example of this is as follows:

- Depth per plans: 18 inches
- Depth authorized to dig: 36 inches
- Length: 10 feet
- Width: 5 feet
- Calculations:
 - Area: Length times width = 10 feet x 5 feet = 50 square feet
 - Proportionate number for excavated area: 36" (actually dug)/18" (per plans) = 2 (the excavated section is 2X deeper than that specified)
 - True area for subgrade stabilization: 50 square feet x 2 = 100 square feet

Section 00335 – Blasting Methods and Protection of Excavation Backslopes

This work consists of excavating in rock using controlled blasting methods.

Some blasting may be required, under Section 00330, to loosen rock material for excavation. The Contractor must perform that work according to Section 00335, except that the work will be incidental unless a pay item is included in the Specification.

Quality

No quality documentation is needed for this work. If the material is to be utilized in project work, ensure that the size and gradation is acceptable. Record pertinent information on the [General Daily Progress Report \(form 734-3474\)](#).

Surveying and Layout

Generally, surveying will be needed to establish the top of rock cut slopes after the Contractor has removed overburden.

Ensure that:

- The surveyor has marked the slope, corresponding to the plan section, both the Contractor and Inspector understand the markings, and there are no apparent mistakes in locating the outside (top) of the slope

- If information from this layout will be used to calculate pay quantities, the information is recorded and accurately depicts the work

Safety

Ensure that the Contractor follows safe practices, including:

- Review the job hazard assessment prior to beginning blasting operations.
- Work is accomplished according to the acceptable blasting plan. The Contractor cannot deviate from the blasting plan without re-submitting it.
- Inspect nearby structures, wells, etc. for existing damage before blasting starts. Ensure the features are adequately protected during blasting.
- Effectively protect traffic, properties, and the public during blasting.
- Warn personnel to be sure they are safely removed from the blast area.
- Scale slopes to remove loose debris before allowing work to resume on the next blasting lift.

Construction

Duties of the Inspector include:

- Ensure that the blasting operation follows the safe practices described above.
- Ensure that loose material is removed from the excavated slopes.
- If motorists or adjacent property owners complain about damage, ensure that the Contractor takes action on the complaints and modifies practices, as needed, to minimize complaints and damage. Note any complaints or damage on the [General Daily Progress Report \(form 734-3474\)](#).
- If the Contractor delays traffic movement beyond the provisions of Section 00220, record appropriate information so that liquidated damages can be assessed, if specified.
- Ensure that excess material is removed and affected areas are treated, finished, or restored, as specified.

Measurement

Measurement will be as specified. Ensure that ODOT has recorded sufficient information before work starts, if needed, to calculate pay quantities.

If the Inspector uses information provided by the Contractor to calculate quantities, perform cursory validation of that information.

As work is performed, measure, and prepare and submit the measurements, and supporting calculations, on an [Installation Sheet \(form 734-2605\)](#) as a source document to justify payment.

If the Contractor violates the requirements of Section 00220 Accommodations for Public Traffic, notify the Project Manager and record the appropriate information, and prepare and submit a source document to justify assessment of liquidated damages.

Section 00340 – Watering

This work consists of furnishing and applying water, with additives if required, to prepare and compact earthwork, bases, and surfacings, and to control dust within the project

Quality

No quality documentation is needed for this item. The Inspector must record pertinent information in the [General Daily Progress Report \(form 734-3474\)](#).

Construction

The Inspector must:

- Check that the Contractor has a legal right to the source of water and that it has acquired the right to use the water from that source.
- Ensure that the watering operations are performed such that water is:
 - Not wasted or causing soft spots from a leaking truck.
 - Applied in a uniform manner, as specified.
 - Mixed with the specified additives when required. QPL approved additives can be used if called for in the Special Provisions.
- Ensure that the Contractor is recording watering work on [Sprinkling Tally Sheet \(form 734-3427\)](#).
- Ensure that the Contractor restores or repairs all damaged, or affected areas.

Water can cause compaction problems if lots of fine silt is introduced to base rock or other materials during compaction. The water shall contain no oils, sewage or contaminants that may cause harm to health, the environment, or the project. Watering can be used for other items such as seeding and mulching or other needs as directed by the Engineer.

Measurement

Unless specified otherwise, measurement will be by weight, volume, known capacity tanks, or approved meters. Ensure that volumes are entered on a [Sprinkling Tally Sheet \(form 734-3427\)](#), as watering is performed. Agree with Contractor daily on watering quantities since there will be no way to go back and verify the quantities later.

If the Contractor enters the volumes on the Sprinkling Tally Sheet, the Inspector must:

- Ensure that payment is only made for watering done as directed or ordered, and not for watering done for the Contractor's responsibility or for other pay items.
- Perform cursory validation that the volumes on the Sprinkling Tally Sheet are appropriate.
- Additives are measured and paid for by the gallon for each separate additive.

Submit the Sprinkling Tally Sheet with an [Installation Sheet \(form 734-2605\)](#) as a source document to justify payment.

Section 00344 – Treated Subgrade

This work consists of treating the upper layer of subgrade with water and either lime, chloride, or portland cement to form a stabilized course of material. Treating subgrade is done in lieu of installing subgrade stabilization. In this application the native material does not need to be excavated and hauled away and new material hauled in and placed.

Quality

Quality requirements are specified in the *Manual of Field Test Procedures*. Provide only materials that are specified in the Specifications. Provide water that meets the requirements of Section 00340.

Ensure that the Contractor is aware of those requirements, performs required testing, and provides acceptable quality documentation before the material is incorporated. Also, ensure that the ODOT QCCS is aware of scheduled work so he/she can arrange with the ODOT QAC for required verification testing.

Gather and submit required quality documentation. Record other pertinent information on the [General Daily Progress Report \(form 734-3474\)](#).

Construction

Ensure that:

- All underground work in the treated subgrade area will be completed prior to treatment.
- All depressions or ruts which contain water are drained.
- The materials are applied at a uniform rate with specified equipment.
- Equipment does not pass over the stabilizing material until it has been mixed into the soil. Water, applying, and mixing equipment are allowed to pass over the material.
- Mixing operations are performed until the material is uniformly mixed with no streaks or pockets.
- Immediately after treating the subgrade, grade the mixture to specified line, grade and cross section and compact to specified density.
- The Contractor limits the traffic over treated subgrade to equipment which will not cause damage and will not visibly deflect, ravel or wear the surface.
- Specified density of treated subgrade is achieved.
- The Contractor compacts the subgrade until firm and unyielding. Test and proof roll within 24 hours prior to placing base material on subgrade.

Measurement

Unless specified otherwise, measurement for treated subgrade will be on the area basis, and for soil stabilizing materials will be measured on the dry weight basis.

As work is performed, measure, and prepare and submit the measurements, and supporting calculations, on an [Installation Sheet \(form 734-2605\)](#) as a source document to justify payment.

Section 00350 – Geosynthetic Installation

This work consists of furnishing, and placing geotextile in drains, under embankments, for embankment reinforcement, under riprap, buttresses, inlays, shear keys, over roadbed subgrades, and beneath pavement overlays.

Quality

Quality requirements are specified in the Specification, in the Non-Field Tested Materials Acceptance Guide, and the Qualified Products List.

Ensure that the Contractor complies with those requirements, protects the materials, and provides acceptable quality documentation before the material is incorporated.

If the Contractor supplies material that does not conform to Specification requirements, contact the Project Manager

Gather and submit required quality documentation. Record other pertinent information on the [General Daily Progress Report \(form 734-3474\)](#).

Construction

Ensure that:

- The limits of the application, as marked, comply with Specification requirements, or the limits ordered by the Project Manager or Inspector, and both the Contractor and Inspector understand the markings.
- The geosynthetic materials have been stored and protected from damage as specified.
- Damage and/or defects are repaired, if the material is suitable to use.
- The surface, under or behind the geosynthetic, has been prepared as specified.
- The installation is performed as specified and in accordance with the manufacturer requirements.
- Specified overlap is acquired to ensure closure.
- There is no traffic or construction equipment allowed directly on the geotextile.
- The covering material type and depth is placed according to the specifications.
- The Contractor disposes of unwanted materials.
- Affected areas are smoothed and finished.

DO NOT place the geotextile too tightly because the overlying material will tear it.

Measurement

Unless specified otherwise, measurement is on the area basis. As work is performed, measure all of the dimensions, and prepare and submit the measurements, and supporting calculations, on an [Installation Sheet \(form 734-2605\)](#) as a source document to justify payment.

For trench applications, measurement is computed by multiplying the length of the trench where the geotextile is used by the perimeter. Since the geotextile will be buried it is very important to get the measurements in a timely manner. As a general rule, take

width and depth measurements every 50' on tangent sections and every 25' in radius. Use the area formula of common shapes to break the section down into manageable pieces. No measurement is made for laps, seams, join, or repair patches. Make sure the geotextile isn't incidental to another bid item like subgrade stabilization before payment.

Section 00360 – Drainage Blankets

This work consists of furnishing and placing drainage blanket materials.

Quality

Refer to the *Manual of Field Test Procedures* for testing and other documentation required to ensure quality of the materials and work. Unless required differently in the Specification, the Contractor is responsible for all quality control, including testing, and ODOT must perform verification testing. Refer to the discussion of Quality and the Quality Assurance Program in Section 00100 of this Manual.

Ensure that the Contractor is aware of those requirements, performs required testing with certified technicians, and check that it provides required quality documentation and test results. Also ensure that the ODOT QCCS is aware of scheduled work so he/she can arrange with the ODOT QAC for required verification testing.

If there is any question about the quality of any material or work procedure, require the Contractor to demonstrate, or perform further testing to ensure, that the material or procedure is acceptable or produces specified results. If additional testing is requested, inform Project Manager to authorize extra payment, if applicable. If additional testing is required, record reasons and results General Daily Progress Report.

Gather and submit required quality documentation. Record other pertinent information on the [General Daily Progress Report \(form 734-3474\)](#).

Construction

Ensure that the limits for the work are properly located and marked and both the Contractor and Inspector understand the markings.

Ensure that the material:

- Underlying the drainage blanket is prepared, compacted, and is finished to the appropriate line and grade, as specified.
- Does not become segregated during hauling, placing, or compacting.
- Is not contaminated by underlying or other material.

- Is compacted as specified.

Measurement

Unless specified otherwise, measurement is on the volume basis. As work is performed, measure all of the specified neat line dimensions, and prepare and submit the measurements, and supporting calculations, on an [Installation Sheet \(form 734-2605\)](#) as a source document to justify payment.

Section 00370 – Finishing Roadbeds

This work involves trimming, shaping and finishing the subgrade, ditches, slopes, and other graded surfaces to the shape and condition specified, as well as blending obliterated elements into the adjacent terrain.

Quality

No quality documentation is needed for this item. The Inspector must record pertinent information in the [Daily Progress Report \(form 734-3474\)](#).

Construction

Most of this work occurs at or near the end of the earthwork operations. Ensure that:

- Subgrade is shaped and trimmed to grades as specified.
- Perform or observe testing to ensure that the subgrade meets the specified smoothness.
- The Contractor's surveyor submits elevation data to be verified to ensure tolerances.
- The subgrade has been compacted, and compaction testing has been performed with acceptable test results provided, as specified.
- Slopes have been trimmed and shaped as specified.
- Sewers, culverts, and drains have been cleaned as specified.
- Ditches have been cleaned, trimmed, and shaped as specified.
- The Contractor disposes of all unused/unwanted materials.

Measurement

Unless specified otherwise there will be no measurement of quantities for Finishing Roadbeds. Ensure that an acceptable breakdown of the lump sum is developed. As

work is performed document the work with an [Installation Sheet \(form 734-2605\)](#) as a source document to justify payment.

Section 00390 – Riprap Protection

This work consists of placing an erosion resistant covering for protecting slopes, trenches, basins, bridge abutments and piers.

Quality

Quality requirements are in the Specification, the *Manual of Field Test Procedures*, and the Non-Field Tested Materials Acceptance Guide. Ensure that the Contractor is aware of those requirements.

Visually inspect the riprap material, as it is delivered, to ensure that it meets Specification requirements, is not contaminated, and does not contain unacceptable materials.

If there is any question about the quality of any material or work procedure, require the Contractor to demonstrate, or perform further testing to ensure, that the material or procedure is acceptable or produces specified results. If additional testing is requested, inform Project Manager to authorize extra payment, if applicable. If additional testing is required, record reasons and results General Daily Progress Report.

Gather and submit required quality documentation. Record other pertinent information on the [General Daily Progress Report \(form 734-3474\)](#).

Construction

Ensure that:

- The location has been marked and both the Contractor and Inspector understand the markings.
- The layout of the installation complies with the plans.
- Vegetation has been removed, and slopes have been excavated to required dimensions and properly finished, as specified.
- Underlying materials have been compacted as specified.
- When allowed, the backing material has been properly supplied and installed.
- Riprap material has the specified gradation and is not segregated.
- The riprap is placed to the full course thickness in one operation.

- The underlying material, filter blanket, or geotextile is not displaced during riprap placement. Note that the geotextile or filter blankets prevent underlying soils from migrating up beneath the riprap.
- If specified, the riprap is keyed and grouted.

Rules of thumb:

- Class 50 includes the largest rock at 50 lbs at approximately 0.5 feet in diameter.
- Class 2000 includes the largest rock at 2000 lbs at approximately 5 feet in diameter.

Measurement

Measure the work as specified to calculate quantities. If the Inspector uses information provided by the Contractor to calculate quantities, perform cursory validation with that information. As work is performed, measure all of the specified neat line dimensions, and prepare and submit the measurements, and supporting calculations, on an [Installation Sheet \(form 734-2605\)](#) as a source document to justify payment.

Section 00396 – Shotcrete Slope Stabilization

This work consists of constructing pneumatically applied shotcrete (concrete mortar) stabilization blankets onto slope surfaces.

Quality

Quality requirements are specified in the *Manual of Field Test Procedures* and *Non-Field Tested Materials Acceptance Guide*.

Ensure that the Contractor is aware of those requirements, performs required testing, and provides acceptable quality documentation before the material is incorporated. Also, ensure that the ODOT QCCS is aware of scheduled work so he/she can arrange with the ODOT QAC for required verification testing.

Gather and submit required quality documentation. Record other pertinent information on the [General Daily Progress Report \(form 734-3474\)](#).

Construction

Ensure that:

- The Contractor performs Preproduction and daily Production Testing.
- The limits of the application, as marked, comply with the Specification, and both the Contractor and Inspector understand the markings.
- The surface to be treated is prepared as specified.
- The prepared surface is damp prior to application of shotcrete.
- Devices to control thickness of application have been installed.
- Anchors have been installed as specified.
- Reinforcement is positioned as specified.
- Piping for weep holes is in place.
- Weather conditions are as specified for shotcrete application, including required curing.
- Shotcrete has been batched and mixed (including steel or other fibers when required) as specified.
- The application is finished and cured as specified.
- The work is protected as specified during the cure period.
- The Contractor disposes of unwanted material.

Measurement

Unless specified otherwise, measurement is on the area basis. As work is performed, measure all of the dimensions, and prepare and submit the measurements, and supporting calculations, on an [Installation Sheet \(form 734-2605\)](#) as a source document to justify payment.

Section 00398 – Rock Slope Stabilization and Reinforcement

This work consists of furnishing and installing rock slope stabilization and reinforcement as shown or specified.

Quality

Quality requirements are in the Specification, the Non-Field Tested Materials Acceptance Guide, and the Qualified Products List.

Ensure that the Contractor complies with those requirements, protects the materials, and provides acceptable quality documentation before the material is incorporated.

Gather and submit required quality documentation. Record other pertinent information on the [General Daily Progress Report \(form 734-3474\)](#).

Construction

Ensure that:

- The Inspector has the most current version of the working drawings.
- The Inspector has a copy of the Field Construction Manual that is provided from the manufacturer of the proprietary rock fall net system.
- The Contractor is following the approved Work Plan.
- The Contractor has prepared the area for protection as specified, and has disposed of all excess/unwanted materials.
- The Contractor follows the installation instructions in the manufacturer's Field Construction Manual.

Measurement

Measure the work as specified to calculate quantities. If the Inspector uses information provided by the Contractor to calculate quantities, perform cursory validation of that information. As work is performed, measure, and prepare and submit the measurements, and supporting calculations, on an [Installation Sheet \(form 734-2605\)](#) as a source document to justify payment.