Introduction to General Construction

Inspector Manual Tables

The *General Construction Inspector Manual* tables provide guidelines for inspecting and documenting work on ODOT contracts. Currently, only the ODOT Standard Specifications 0200's through 0400's sections are included. Plans are underway to develop tables for the remaining sections at a later date.

This Inspector Training Manual tables refer to the Oregon Standard Specifications (2008 or earlier version), Manual of Field Test Procedures (MFTP), Non-Field Tested Materials Guide (NFTMG), and the Qualified Products List (QPL).

In this table format, you will find the following:

- Important material inspection items,
- Inspection work items,
- Workmanship items,
- Required documentation and forms,
- Measurement and payment items as per Standard Specification (for project specific Measurement and Payment check the Project Special Provisions).

For work items not covered in the table the Inspector should refer to the full version of the *General Construction Inspector Training Manual* and/or work with the Project Manager and others as needed.

This table and the Inspector Training Manual do not take precedence over the Project Special Provisions, Standard Specifications, or the Construction Manual; rather they are an additional tool for the Inspector.

Forms: **D** = Daily 734-3474, **I** = Installation Sheet 734-2605, **T** = Traffic Control Installation Report 734-2474, **F** = Flagger/Pilot Car Receipt 734-3955, **P** = Pile driving Equipment Data 734-2608, **E** = Erosion Control Monitoring form 734-2361, **S**= Sprinkling Tally Sheet 734-3474

Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
220					
Accommodations for Public Traffic	Provide adequate access to businesses, residences, intersections, and connections.				**D**
	Adequately protect adjacent excavations.				**D**
	Record liquidated damages, if applicable, for excess delays to public traffic.				**I,D**
225					
Work Zone Traffic Control	Review Traffic Control Plan (TCP) with Project Manager prior to the commencement of project.				
	Observe traffic conditions during all project work. Notify the TCP of any non-effective traffic control, adverse traffic conditions, or anything that threatens the safety of the workers or traveling public. Notify the PM and require the contractor to revise the TCP.				**D**
	Inspect traffic control measures, traffic control devices and other materials to ensure compliance.		✓	✓	**D**
	When the condition of any TCD falls to "marginal" or "unacceptable condition, ensure the contractor fixes or replaces it with an acceptable TCD.		✓	✓	**D**
Temporary Signing	All temporary signs are in new condition when first installed, unless authorized by the specification to be in like new or other condition.			✓	**D,T**
	All temporary signs are mounted on wood posts, unless allowed by the specifications or as shown on plans.				
	Signs are installed and secured in such a way that they do not blow down and create a traffic hazard.				
	Signs are installed at the proper angle to the roadway to insure visibility and reflectivity.				
	Ensure the contractor has covered or removed the appropriate signs. Covered signs must be completely covered by a sign cover from the QPL.			✓	**D,T**
	Portable Changeable Message Signs (PCMS) are placed according to the standard drawings and serviced to ensure continuous function. Messages displayed are according to specifications and are as shown in plans.			✓	**D,T**
Temporary Barricades, Guardrail, and Barrier	Guardrail and barrier is aligned and constructed or installed per plans, and has the correct end treatment.			✓	**D,T**
225	Sufficient barricades, of the specified type, are used and placed per plans.			✓	**D,T**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
Temporary Traffic Delineation	Ensure the correct number and type of devices are used per the Traffic Control Plan.			✓	**D,T**
	Ensure the spacing and taper lengths are correct for tubular markers and barrels per the Traffic Control Plan.			✓	**I,D,T**
	When contractor removes the appropriate striping, ensure that the method of removal is allowed by specification and that the pavement is not damaged.				**I,D,T**
	Ensure that the contractor replaces pavement markers and worn or faded striping as needed.			✓	**D,T**
Flaggers/Pilot Cars	Ensure Signing is placed and maintained per Traffic Control Plan.				**D,T**
Flaggers/Pilot Cars	Ensure Flaggers and Pilot Car Operators have a valid Flagger Certification card from Oregon, Washington, Idaho, or Montana on their person.				**D,T**
	Ensure Pilot cars have "Pilot Car Follow Me" sign and yellow overhead light.				**D,T**
	Ensure Flaggers have proper attire and safety equipment per specifications.				
Lighting Conditions	Ensure Flaggers are stationed so that motorists and equipment can see them.				
	Ensure flagger stations are properly illuminated for nighttime activities.			✓	
	Ensure work and equipment lighting does not blind or impede traffic.				
	The flagger can be easily seen at the illuminated flagging station.				
	Ensure that the devices are placed to direct traffic, rather than confuse the motorists.				
Measurement	Measure work, as specified, on a unit, lump sum, or incidental basis. As work is performed take measurements, prepare and submit the measurements on an installation sheet as a Source Document to justify payment.				**I,T,F**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
240					
Temporary Drainage Facilities	This work consists of constructing and removing temporary drainage facilities.				
	Ensure that all materials and methods comply with the specifications and plans.				
	Ensure that the location for each temporary facility is located and marked according to the plans.				**D**
	Ensure that drainage will flow through the facility and water does not flow around the installation.				
	Ensure the contractor removes the facility from the project and restores the affected area per specifications.				**D**
Measurement	Unless otherwise specified, no measurement of quantities will be made for this work. As work is performed, prepare and submit an installation sheet as a Source Document to justify payment.				**I**
245					
Temporary Water Management	This section is not a Standard Specification, and will be included in the projects Special Provisions.				
	Ensure that the materials and methods used comply with the Specification under which the material is covered.				
Fish Removal	Ensure the contractor contacts ODOT, ODFW biologists, or the ODOT consultant to remove fish and aquatic life from the isolation work area prior to installation of any temporary facilities.				**D**
Operation of Temporary Water Management Facilities	Ensure the contractor provides safe passage around or through isolated work areas.				**D**
	Maintain and control water flow downstream of isolated work area for the duration of diversion to prevent downstream dewatering.				**D**
	Ensure contractor monitors water turbitidity.				**D**
Measurement	Unless otherwise specified, no measurement of quantities will be made for this work. As work is performed, prepare and submit an installation sheet as a Source Document to justify payment.				**I**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
250					
Temporary Bridges	This section is not a Standard Specification, and is included on projects by Special Provisions. This section consists of designing, constructing, maintaining, and removing temporary detour bridges				
	Ensure that the materials and methods comply with Standard Specification Section 00500 requirements where applicable.				
	Ensure that the Contractor provides stamped working and foundation drawings and calculations that have been "reviewed and accepted" by the Engineer.				
	Ensure that the Pile and Driving Equipment and methods have been approved by the Contractor EOR and has been "reviewed and accepted" by the Engineer.				**P**
Before any welding is permitted	WPS-Welding Procedure				
	PQR-Procedure Qualification Records				
	WQTR-Welder Certification Test Records				
	MTR-Material Test Report				
	CWI-AWS Certificate Welding Inspector				
Prior to opening temporary bridge to traffic	The Contractor's EOR has completed an inspection of the structure to confirm the materials and construction conforms to the plans and specifications (any changes to the plans and specifications need to be approved by the Contractor's EOR and accepted by the Engineer).				
	The Engineer has received a written statement that states the structure will serve the intended use.				
	All concerns have been addressed and the Engineer agrees that the structure will serve the intended use.				
Measurement	Unless specified otherwise there will be no measurement of quantities.				**I**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
280					
Erosion and Sediment Control	This section involves all work, devices, and measures required to control erosion and sediment on the project. For contract administration purposes, "erosion and sediment" also includes any other substance that may be harmful to people or any element of the environment. This includes but is not limited to those elements identified in the project's environmental documents or assessments.				
290					
Environmental Protection					
	It is expected that the inspector be a Certified Environmental Construction Inspector to inspect this work.				
	The Contractor must inspect the project and the erosion and sediment control devices frequently to ensure that they are controlling erosion and sediment. The Contractor, with ODOT concurrence, must modify the ESCP and devices, including replacing devices or utilizing different devices or methods, as needed to ensure proper control.				**I**
When dealing with Erosion and Sediment Control	ensure that the Contractor complies with contract requirements, including: Copies of the approved ESCP are available at the project site. A contingency plan is developed for use in emergencies and the rainy season.				
	The ESCM monitors rainfall, inspects the project and control devices and ensures their effectiveness.				**E**
	The ESCM maintains the control devices.				**E,D**
	The ESCM installs additional or new devices, as approved by ODOT.				**E,D,I**
280/290	The Inspector periodically inspects the project site to evaluate whether the control devices are properly functioning and controlling erosion and sediment			✓	**D,I**
	If the implemented ESCP, PCP, or other submittal does not perform effectively, contact the Project Manager and require the Contractor to modify the submittal, processes, and devices as needed to provide effective performance.			✓	**D**
	As devices are installed or removed, the ESCM records those dates on the ESCP.			✓	**D,I**
When dealing with Water Quality	Ensure that the contractor: Does not discharge contaminated or sediment-laden water directly into any water way until it has been satisfactorily treated.				
280/290	Does not cause turbidity in waters of the State or U.S. greater than 10% above background reading (up to 100 feet upstream of the Project), as measured 100 feet downstream of the Project				**D**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
	If construction discharge water is released using an outfall or diffuser port, do not exceed velocities more than 4 feet per second, and do not exceed an appropriate aperture size.				D
When dealing with Fish and Fish Habitat Regulated Work Areas	Ensure that the contractor: Performs work within the regulated work area only during the in-water work period defined in the Special Provisions or permits; pile driving may have unique in-water work periods.				
	Has a permit to work within a coffer dam outside the designated in-water work window.				
When dealing with Protection of Fish and Fish Habitat	Ensure that the contractor: Performs work within the regulated work area only and during the designated in-water work period. (In-water work period may be different for Pile Driving. Check with the project Special Provisions, REC or Agency Biologist for any Pile Driving restrictions that may apply.)				D
	Contacts the REC or Agency Biologist before working within a coffer dam outside of in-water work period.				
	Monitors hydro acoustic noise levels.				D
	Treated wood used below the ordinary high water elevation (OHW) must be sealed with a sealant that is approved by the Project Special Provisions to prevent leaching of preservative agents into waters of the state.		✓	✓	D,I
When dealing with Wildlife	Ensure that the contractor: Does not handle or hurt birds or their eggs, or destroy or move occupied bird nests unless allowed by permit.				
	Adheres to noise and sight distance restrictions.				D
	Clears vegetation only within contract temporal windows.				D,I
	Does not deviate from wildlife passage plans.				
When dealing with Protected Plants or Habitats	Ensure that the contractor: Installs and maintains "No Work Zone" fencing around sensitive areas denoted on plan sheets. Does not alter or impact fenced areas by any means.				D,I
280/290	Does not alter or impact signed "Special Management Areas."				D

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When dealing with hazardous materials	Ensure that the contractor: Copies of the approved PCP are on-site. At a minimum, hazardous materials and wastes should be contained, clearly labeled and stored in a location that prevents damage.				**D**
	If the project involves demolition or repair of any structure (bridge, building, etc) ensure that there is a copy of the asbestos survey onsite.				
	Provides all disposal receipts, recycling receipts or other documentation for all material that leaves the project site.				**D**
	If unexpected contamination is encountered during excavation work (based on odor, staining, or sheen), stop work in that location and call the region HazMat coordinator to help get a qualified company on-site to ensure all requirements associated with the contamination are met.				
	If a contractor spills any substance that could cause harm to the environment, immediately call ODOT dispatch. Ensure that the contractor follows the Pollution Control Plan for clean up.				**D**
	For 3rd party spills in the construction zone (accidents not related to the contractor), call ODOT Dispatch to get maintenance responders on-site for wreck and material clean up.				**D**
	For petroleum spills over 42 gallons, hazardous waste or materials spill that impact surface water, ask ODOT Dispatch to notify DEQ via Oregon Emergency Response System (OERS @ 1-800-452-0311). If the spill is hazardous material or impacts surface water, also ensure that the National Response Center (NRC @ 1-800-424-8802) is notified. These notifications are required regardless of who causes the spill.				**D**
When dealing with Archaeology	Ensure that the contractor: Maintains No Work Zones and does not impact those protected areas. Stops work and reports inadvertent discoveries if archaeological material is identified during construction activities.				**D**
	Reports violations promptly to the appropriate authorities (REC, State Police, Project Manager, etc.).				**D**
Measurement	For Erosion and Sediment Control, unless specified otherwise, measurement will be on the lump sum, unit or length basis. As work is performed take measurements, or ensure that they are taken.				**I**
	For Environmental Protection, unless specified otherwise, no measurement of quantities will be made for this work				**I**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
305					
Construction Survey	See the Special Provisions and Construction Surveying Manual for Contractors for all Survey Requirements.				
Measurement	Unless specified otherwise there will be no measurement of quantities for Construction Survey Work.				**I**
	If additional survey work is ordered and performed, record all information.				**I**
310					
Removal of Structures and Obstructions	This work consists of removing and disposing of man-made materials, and cleaning up areas they occupy.				
	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.				**D**
	The Contractor does not damage any abutting structures. If damage does occur, the Contractor repairs or replaces the damaged structure as required.				**D**
	The Contractor removes, scarifies, or breaks down all material to the specified elevation.				**D**
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.				**D,I**
320					
Clearing and Grubbing	Clearing and Grubbing is the removal and disposal of vegetation and similar buried matter. It also includes preserving vegetation and objects designated to remain in place.				
	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.				
	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.				**D**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
320	Observe the Contractor's operations to ensure that the work is completed as specified.				**D**
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				**D,I**
330					
Earthwork	This work consists of excavation, ditching, backfilling, embankment construction, grading, leveling, borrow, and other earth-moving 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.	✓			
	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 the reasons and all results.	✓			**D,I**
	Before work begins, review the geology or geotechnical report for the project to learn of the concerns during design.				
	The Contractor maintains access for affected properties and businesses.				**D**
	Utilities have been located, marked, and protected.				**D**
	Observe the earthwork as it is conducted to identify areas that deflect under vehicle wheels. Note or mark suspect areas for testing.				
	During earthwork operations, ensure that: The Contractor is fulfilling its responsibilities under the Quality Assurance Program, including responsibility for assuring 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.	✓			

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
330 **Measurement**	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.				**D,I**
	If ODOT orders overexcavation, 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 the Inspector uses information provided by the Contractor to calculate quantities, perform cursory validation of that information.	✓			**D,I**
	As work is performed take measurements, or ensure that they are taken, and prepare and submit the measurements, and supporting calculations.				**D,I**
331					
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.	✓	✓		
	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.	✓	✓		**D,I**
	Ensure that: Excavation leaves smooth, firm surrounding soil. Placement of replacement material does not damage additional subgrade area or the excavated area. The replacement material is compacted and finished to specified finish and tolerances.	✓			**D,I**
Measurement	Unless specified otherwise, measurement is on the area basis to the specified depth.				**D**
	If the Inspector uses information provided by the Contractor to calculate quantities, perform cursory validation of that information.				**D**
	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.	✓			**D,I**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
335					
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.				
	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 all pertinent information.				**D**
	Ensure that the Contractor follows safe practices.				
	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.				**D**
	If the Contractor delays traffic movement beyond the provisions of Section 00220, record appropriate information so that liquidated damages can be assessed, if specified.				**I,D**
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.				**I,D**
	As work is performed, measure, and prepare and submit the measurements, and supporting calculations.				**I,D**
	If the Contractor violates the requirements of Section 00220 Accommodations for Public Traffic, notify the Project Manager, record and submit all of the appropriate information.				**I,D**
340					
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.				
	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.				

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
340	Ensure that the Contractor is recording watering work.				**S**
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, as watering is performed.				**S,D,I**
	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.				**S,D,I**
	Perform cursory validation that the volumes on the Sprinkling Tally Sheet are appropriate.				**S,D,I**
344					
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.				
	Provide only materials that are specified in the Specification. 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.	✓			**I,D**
	Ensure that: The materials are applied at a uniform rate with specified equipment.				**D**
	Mixing operations are performed until the material is uniformly mixed with no streaks or pockets.				**D**
	Immediately after treating the subgrade, grade the mixture to specified line, grade and cross section and compact to specified density.				**I,D**
	Specified density of treated subgrade is achieved.	✓			**D**
	The Contractor compacts the subgrade until firm and unyielding. Test and proof-roll within 24 hours prior to placing base material on subgrade.	✓			**D**
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.				**I,D**
	As work is performed, measure, and prepare and submit the measurements, and supporting calculations	✓			**I,D**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
350					
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 requirements are specified in the Standard Specifications and Special Provisions.				**D**
	Ensure that the Contractor complies with those requirements, protects the materials, and provides acceptable quality documentation before the material is incorporated.				**D**
	If the Contractor supplies material that does not conform to Specification requirements, contact the Project Manager.				**D**
	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.				**I,D**
	The geosynthetic materials have been stored and protected from damage as specified.				
	Specified overlap is acquired to ensure closure.				**D**
	There is no traffic or construction equipment allowed directly on the geotextile.				
	The covering material type and depth is placed according to the specifications.	✓	✓		**I,D**
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 all supporting calculations.				**I,D**
360					
Drainage Blankets	This work consists of furnishing and placing drainage blanket materials.				
	Unless required differently in the Specification, the Contractor is responsible for all quality control, including testing, and ODOT must perform verification testing.	✓			**D**
	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.	✓			**D**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
360	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.	✓			**D**
	Ensure that the material: Does not become segregated during hauling, placing, or compacting.	✓			
	Is not contaminated by underlying or other material.				
	Is compacted as specified.	✓			**D**
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 all supporting calculations.				**I,D**
370					
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.				
	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.				**D**
	Sewers, culverts, and drains have been cleaned as specified.				**D**
	The Contractor disposes of all unused/unwanted materials.				**D**
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 all work.				**I,D**
390					
Riprap Protection	This work consists of placing an erosion resistant covering for protecting slopes, trenches, and basins.				
	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.	✓			**I,D**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
390	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 the reasons and the results.	✓	✓		**D**
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 all of the specified neat line dimensions, and prepare and submit the measurements, and all supporting calculations.	✓			**I,D**
396					
Shotcrete Slope Stabilization	This work consists of constructing pneumatically applied shotcrete (concrete mortar) stabilization blankets onto slope surfaces.				
	Ensure that the Contractor is aware of the 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.	✓			**D**
	Ensure that: The surface to be treated is prepared as specified.				**D**
	The prepared surface is damp prior to application of shotcrete.				**D**
	Devices to control thickness of application have been installed.		✓	✓	**I,D**
	Reinforcement is positioned as specified.		✓	✓	**I,D**
	The application is finished and cured as specified.	✓	✓	✓	**D**
	The work is protected as specified during the cure period.				**D**
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 all supporting calculations.				**I,D**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
398					
Rock Slope Stabilization and Reinforcement	This work consists of furnishing and installing rock slope stabilization and reinforcement as shown or specified.				
	Ensure that the Contractor complies with the requirements, protects the materials, and provides acceptable quality documentation before the material is incorporated.		✓	✓	**D**
	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 follows the installation instructions in the manufacturer's Field Construction Manual.				**D**
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 all supporting calculations.				**I,D**
405					
Trench Excavation, Bedding, and Backfill	This work consists of excavating trenches, constructing trench foundations, and placing bedding, pipe zone material, and backfill for pipes smaller than 72 inches. Pipes larger than 72 inches follow specification 510.				
	Prior to excavation, verify that existing underground utilities and other facilities have been located and staked.				**D**
	Review the layout and staking of each installation to try and help detect errors.				
	Ensure that: Excavated material, if placed near the excavation, does not create an unsafe condition.				
	The excavation is performed to the dimensions and slope specified in the plans and according to the slope stakes.				**I,D**
	The trench foundation is compacted and tested as specified.	✓			**D**
	The bedding material is placed, compacted and tested as specified.	✓			**D**
	All pipe materials comply with specification requirements.		✓		**D**
405	Randomly check line and grade of pipe installation before backfilling is performed to ensure the construction is as specified.				**I,D**
	For waterlines, ensure thrust blocks are constructed to the size and locations specified.				**D**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
	Ensure the contractor places and compacts the specified pipe zone material around the haunches of the pipe. **Work in this area is difficult**. Poor compaction in this area can cause pipe movement and improper joint connections leading to leaks and unwanted settling.	✓			D
	Ensure the proper placement and compaction requirements to the specified depth before any equipment is allowed to travel on top of pipes.	✓			D
Measurement	Measure the work as specified to calculate the quantities. As work is performed measure all of the specified neat line dimensions and submit the measurements and supporting calculations to justify payment.				I,D
406					
Tunneling, Boring, and Jacking	This work consists of installing pipes, casings, linings, and sleeves by tunneling, boring, and jacking without excavating the overlying material.				
	Ensure that: Utilities have been located and marked prior to contractor beginning any work.				D
	The excavation or installation does not cause or result in voids in the surrounding material, and any voids that have occurred are repaired or grouted as specified.		✓	✓	D,I
	All excavated material and/or water from the work area are disposed of, without impacting or damaging waterways or other environmentally sensitive areas.				D
	If specified, ensure cradles are properly installed to support the pipe casing.				D,I
Measurement	Unless otherwise specified, no measurement of quantities will be made for this work.				D,I
410					
Pipe Lining	This work consists of rehabilitating existing pipe by furnishing and installing pipe liners by bursting and lining, slip lining, and cured-in-place lining.				
	Ensure that: The contractor uses only equipment that is specified or approved by the pipe manufacturer and Engineer.		✓		D
	The contractor uses approved technicians for installing and welding of pipes per specifications.				D
410	The contractor has not damaged the pipe prior to installation.				D
	The contractor cleans all pipes, and disposes of unused and contaminated material as specified.				I,D
	Ensure that the contractor submits all specified documentation.		✓		D

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
Measurement	Unless otherwise specified, measurement is on the length basis, for other than point repairs and service line reconnections which will be measured on the unit basis. As work is performed, measure, prepare, and submit the measurements and all supporting calculations.				**I,D**
420					
Salvaging Pipe	This work consists of removing, cleaning, and either stockpiling or relaying culvert pipe and other pipe.				
	Ensure that materials are properly cleaned and are not damaged or defective.				**I**
	Ensure that: If reinstalled, installed according to appropriate requirements of Section 00445.				**I,D**
	If stockpiled, placed as directed or specified, including protecting the pipe from damage during any part of the operation, including the stockpiling operation.				**D**
Measurement	Unless specified otherwise, measurement is on the length basis. As work is performed, measure, and prepare and submit the measurements, and all supporting calculations.				**I,D**
430					
Subsurface Drains	This work consists of constructing subsurface drains using drain pipe, special filter material or granular drain material, and drainage geotextile.				
	Ensure that the Contractor is aware of the requirements, 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.	✓	✓	✓	**D**
	Ensure that: The drainage material does not get contaminated.				
	No material is damaged or, if damaged, is replaced or acceptably repaired, if allowed.				**D**
	Filter material or geosynthetic and drain backfill material is installed as specified, without contamination.	✓	✓		**I,D**
	Installation is backfilled and compacted to required elevation, as specified.	✓			**I,D**
430	Locations of outlet pipes, other than those connected to inlets or other structures, are properly marked so Maintenance forces can locate them.				**D**
Measurement	Measurement will be as specified. 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 all supporting calculations.				**I,D**
432					

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
Wearing Surface drains	This work consists of constructing wearing surface drains and outlets.				
	Ensure that the Contractor is aware of the requirements, and provides acceptable quality documentation before the material is incorporated. Gather and submit required quality documentation.		✓		
	Ensure that: The Contractor provides equipment that produces a trench with clean and vertical sides.				
	The Contractor compacts as per the specifications.	✓			**D**
	The Contractor hauls, deposits, and places wearing surface drain material that is acceptable to the Engineer.				**I,D**
	The Contractor does not crush the outlet drain pipe during compaction.				**D**
Measurement	Unless specified otherwise, measurement is on the length basis, except for drain outlets which will be measured on the unit basis. As work is performed, measure, and prepare and submit the measurements, and all supporting calculations.				**I,D**
435					
Prefabricated Vertical Drains	This work consists of furnishing and installing prefabricated vertical drains.				
	Ensure that the Contractor is aware of the requirements, and provides acceptable quality documentation before the material is incorporated. Gather and submit required quality documentation.		✓	✓	**D**
	Check that the Contractor submitted proposed installation details for review at least 14 days before beginning the trial installation.				
	Observe the trial installation process to confirm an ability to follow the installation process. Coordinate with the Project Manager.				**D,I**
435	Ensure that: Monitoring equipment, if needed or specified, is installed and protected.		✓	✓	**D,I**
	Drains are installed in the locations and to specified tolerances.				**D,I**
	Drains are not damaged during their installation.				**D**
	If an obstruction is encountered: Coordinate with the Project Manager to order the Contractor to implement obstruction clearance procedures as specified.				**D**
	If the obstruction cannot be cleared, work with the Contractor to install the drain(s) at alternate locations. Coordinate with the Project Manager.				**D**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
Measurement	Unless specified otherwise, measurement is on the length basis. As work is performed, measure, and prepare and submit the measurements, and all supporting calculations.				**D,I**
440					
Commercial Grade Concrete	This work consists of furnishing, placing, and finishing commercial grade concrete.				
	Ensure that the Contractor is aware of the requirements, 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 all of the required quality documentation.	✓			**D,I**
	Do not allow the Contractor to place concrete that is of questionable quality, including concrete that has exceeded the allowed time from mixture until placement.	✓			
	Ensure that: The forms, into which the CGC is to be placed, appear to be constructed according to best common practice, as specified.				
	The CGC has been batched and mixed as specified.	✓			**D**
	The CGC is placed and consolidated as specified.				**D,I**
	The CGC is cured and otherwise protected from unsuitable climatic conditions or damage as per specifications.				**D**
Measurement	Unless specified otherwise there will be no measurement of quantities for Commercial Grade Concrete. As work is performed document all of the work.				**D,I**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
442					
Controlled Low-Strength Materials	This work consists of furnishing and placing controlled low-strength materials (CLSM).				
	Ensure that the Contractor is aware of the requirements, 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 all required quality documentation.	✓			**D**
	Ensure that: The materials are mixed and placed to fill the specified voids, spaces, volumes, or depths, as specified.	✓			**D,I**
	CLSM material does not leak or flow into unwanted areas.				**D**
Measurement	Unless specified otherwise there will be no measurement of quantities for CLSM. As work is performed document all of the work.				**D,I**
445					
Sanitary, Storm, Culvert, Siphon and Irrigation Pipe	This work consists of constructing or reconstructing culvert, siphon, sanitary sewer, storm sewer, and irrigation pipes. This work includes constructing joints and connections to other drainage structures or systems for complete installation.				
	Ensure that the Contractor is aware of the requirements, 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 all of the required quality documentation.	✓	✓	✓	**D**
	Inspect pipe shortly after it is unloaded. Identify sections of pipe or other materials that are unacceptable for use on the project. Items to check include:				
	Concrete pipe				
	Pipe is of the specified class with appropriate identifying markings. Gaskets and other materials conform to requirements.		✓		**D**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
445	Metal pipe				
	Materials are of proper size and type, with appropriate identifying markings. Gaskets, if specified, bands, and hardware are furnished.		✓		**D**
	Plastic or other pipe				
	Materials are of specified size and type, with appropriate identifying markings. Gaskets and other connecting materials are furnished.		✓		**D**
	Have the Contractor separate unacceptable material so it is not used on the project and is not included for payment. Do not use paint or other such marking methods to identify unacceptable material so that the material may be able to be used elsewhere, even though it is unacceptable on this project.		✓	✓	**D,I**
	If material is rejected, describe the reasons and disposition of rejected material.				**D,I**
	For siphon and sanitary sewer installations, obtain a copy of the Contractor's records of the watertightness testing or record the results.				**D**
	Ensure that:				
	For excavation, bedding, and backfill: Work is accomplished as specified.	✓			
	For laying pipe: Pipe is of the specified size and type.		✓		**D,I**
	Laying is started at the downstream end unless conditions specified otherwise.				**D**
	For elliptical pipe, the major axis is placed as specified.				**D**
	Bell or grooved ends are placed upstream.				**D**
	For joining pipe: The specified type of joint is used, including gaskets or other materials.		✓		**D,I**
	Joints are assembled per manufacturer recommendations for the type of joint used.		✓		**D,I**
	Dirt and foreign material is cleaned from the pipe and joint areas as specified.				**D**
	Bands are aligned and installed as specified.		✓		**D,I**
	Bolts are tightened as specified.		✓		**D**
	The Contractor uses and places tracer wire per specifications.		✓		**D,I**
	Ensure that the contractor: Properly places the pipe zone material as specified.	✓			**D**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
445	Performs all compaction of pipe zone material as required.	✓			**D**
	Performs all compaction testing of pipe zone material as required.	✓			**D**
	As the inspector, pay special attention to the compaction of trench backfill. This is the area between the pipe zone and the bottom of the base rock. This is especially important with shallow buried pipes.	✓			
	All damage to coatings is repaired, as specified, or the element is replaced. The Contractor makes any and all necessary repairs that were identified.		✓	✓	**D**
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, prepare and submit all of the the measurements, and all of the supporting calculations.				**D,I**
450					
Structural Plate Pipe, Pipe Arch and Arch	This work involves the construction of structural plate pipe, pipe arches, plate arches, horizontal ellipses, vehicular underpasses, and special shaped structures.				
	Ensure that the Contractor is aware of the requirements, 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 all required quality documentation.	✓	✓		**D,I**
	Inspect the delivered materials for damage shortly after delivery, including damage to shape and coatings.		✓		**D,I**
	Surveying and Layout				
	Ensure that the structure, as located and marked, conforms to the plans and matches the adjacent terrain.				
	Excavation, Bedding, and Backfill				
	Ensure that this work is accomplished as specified.	✓			**D**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
450	Erection				
	Ensure that: The Contractor understands the Specification requirements and the manufacturer's assembly instructions, and performs the work according to those requirements.				
	Bolts are of lengths according to the plans or as specified.		✓		**D,I**
	Bolts are installed and tightened in the sequence as specified.		✓		**D,I**
	Strutting is installed as required by the manufacturer's specifications and as specified.				**D,I**
	Damage to coatings is repaired as specified.		✓		**D**
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, prepare and submit the measurements, and all of the supporting calculations.				**D,I**
460					
Paved Culvert End Slopes	This work consists of constructing portland cement concrete paved culvert end slopes.				
	Refer to Section 00440 of this Manual and the specifications for Commercial Grade Concrete quality requirements.Ensure that the Contractor is aware of the requirements, and provides acceptable quality documentation before the material is incorporated. Gather and submit all of the required quality documentation.	✓	✓		**D,I**
	Ensure that: The underlying material is compacted per specifications.	✓			**D**
	The forms appear to be constructed according to best common practice, as specified, and are of the specified size and shape to match the end of the culvert or other pipe and adjacent finished surface.				**D,I**
	The welded wire fabric is of specified spacing and dimensions, and is supported so that it will be in the specified location in the completed structure.		✓		**D,I**
	The specified concrete has been batched and delivered.				**D**
	Concrete is cured and protected from unsuitable climatic conditions or damage, as specified.			✓	**D**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
460 Measurement	Unless specified otherwise, measurement is on the area basis. Measurement will be based on the paved end slope area table identified on the plans. As work is performed, measurements should be taken to verify and check work.				**D,I**
470					
Manholes, Catch Basins and Inlets	This work involves the construction of cast in place or precast manholes, inlets, and similar structures.				
	Ensure that the Contractor is aware of the requirements, 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.	✓	✓		**D,I**
	Ensure that: The installation, as marked, complies with the Specification documents or modifications ordered by the Project Manager.				**D**
	There are no apparent errors in location or elevations.				
	The delivered materials are inspected for damage.		✓	✓	**D**
	Reinforcement is installed as specified and will have the specified coverage with concrete.		✓		**D,I**
	For precast elements, the underlying material provides full and adequate support for the element and the element is installed to the specified elevation and orientation.	✓			**D,I**
	Grates, frames, and covers are installed to the specified elevation and slope to match the adjacent finished surface. It is generally best for the Contractor to make the final adjustments after the adjacent finished surface is constructed.		✓	✓	**D,I**
	The Contractor performs all tests that are specified and required.				**D**
Measurement	Unless specified otherwise, measurement will be on a unit basis. As work is performed take measurements, or ensure that they are taken, and prepare and submit the measurements.				**D,I**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
475					
Drain Wells	This work consists of drilling 8 inch diameter wells, including furnishing and installing steel well casings, for the purpose of intersecting large voids in underlying rock.				
	Ensure that the Contractor is aware of the requirements, and provides acceptable quality documentation before the material is incorporated. Gather and submit all of the required quality documentation.		✓		
	Ensure that: The drain wells are drilled at the specified locations prior to constructing manholes and inlets.				**D,I**
	Test each drain well per specifications.				**D**
475 Measurement	Unless specified otherwise, measurement will be on a unit basis. As work is performed take measurements, or ensure that they are taken, and prepare and submit the measurements .		✓		**D,I**
480					
Drainage Curbs	This work consists of constructing mechanically extruded curbs using either commercial grade concrete or asphalt concrete.				
	Ensure that the Contractor is aware of the requirements, 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 all required quality documentation.	✓	✓		
	Ensure that: Curb breaks for outlet drainage and other needs are properly located.				**D**
	The area, upon which the curb is to be placed, is clean and free of extraneous matter.				**D**
	A bonding agent has been placed under the curb location and is still in a condition to bond the curb to the underlying material when the curb material is placed, as specified.	✓	✓	✓	**D**
	Placement and finishing results in a well-compacted mass and the surface is smooth.	✓			**D,I**
	Line and grade of the finished product meet Specification requirements.				
	Defective sections are removed and replaced.				**D**
	Portland cement concrete is cured as specified.				**D,I**
480 Measurement	Unless specified otherwise, measurement will be on a length basis. As work is performed take measurements, or ensure that they are taken, and prepare and submit the measurements.				**D,I**

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Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
490					
Work on Existing Sewers and Structures	This section consists of joining new work to existing work, repairing or abandoning of sewer lines and structures, and adjusting existing manholes, sumps, inlets, boxes, and similar structures. Also, removal and disposal of pipe, manholes and catch basins scheduled for removal.				
	Ensure that the Contractor is aware of the requirements, 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 all required quality documentation.	✓	✓		
	Inspect the delivered materials for damage shortly after delivery. Ensure that the materials of the existing installation are not damaged. If they are, work with the Project Manager to have damage repaired or new materials installed.		✓		**D**
	Ensure that: There are no apparent errors in final elevation or location of the facilities.				
	The planned adjustment, connection, or removal procedure conforms to specification requirements.				**D,I**
	Joints and connections are constructed per specifications.				**D**
	Adjustments are performed to the specified elevation and slope and match the adjacent finished surface.				**D**
	All facilities to be abandoned are drained, plugged, and filled if specified.				**D,I**
Measurement	Unless specified otherwise, measurement will be on a unit basis. As work is performed take measurements, or ensure that they are taken, and prepare and submit the measurements.				**D,I**
495					
Trench Resurfacing	This work consists of resurfacing pipe trenches, including replacing pavement, curbs, sidewalks, rock surfacing, topsoil, landscaping and other features damaged or removed during pipe trenching operations.				
495	Ensure that the Contractor is aware of the requirements, 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 all required quality documentation.	✓			
	Ensure that: The area to be restored is excavated to the depth, the underlying material is compacted, and the area to be restored is clean, as specified.	✓			**D**

Forms: **D** = Daily 734-3474, **I** = Installation Sheet 734-2605, **T** = Traffic Control Installation Report 734-2474, **F** = Flagger/Pilot Car Receipt 734-3955,
P = Pile driving Equipment Data 734-2608, **E** = Erosion Control Monitoring form 734-2361, **S**= Sprinkling Tally Sheet 734-3474

Specification	Inspection Highlights/Checks	Field Test Materials	Non-Field Test Materials	QPL	Form
	The materials of the quality and type, and are placed to the depth, as specified.				D,I
	Replacement materials are smoothed, compacted, and finished, and are cured and protected from damage as specified.	✓			D,I
Measurement	Unless specified otherwise, measurement will be on an area basis. As work is performed take measurements, or ensure that they are taken, and prepare and submit all of the measurements.	✓			D,I