

9-1 **General**

The quality of materials used on the project will be evaluated and accepted in various ways, whether by testing of samples, visual inspection, or certification of compliance. This chapter details the manner in which these materials can be accepted. Requirements for materials are described in *Standard Specifications for Road, Bridge, and Municipal Construction* M 41-10 Section 1-06 and Division 9.

The State Materials Engineer is responsible for the state's materials approval and acceptance program, and the Quality Assurance Program. Any changes or deviations to the approval or acceptance of materials, or the Quality Assurance Program beyond what is allowed in this chapter will require approval from the State Materials Engineer or the Assistant State Materials Engineer. The State Materials Engineer can issue changes via memorandums or emails that amend and replace the directions and policies in [Chapter 9 Materials](#) as well as materials approval, acceptance and Quality Assurance Program policies and directions in this manual to address unforeseen issues.

It is the Project Engineer's responsibility to accept materials in accordance with this chapter. For materials that do not meet specification requirements, the Project Engineer shall contact the State Construction Office which will coordinate with the State Materials Engineer or Assistant State Materials Engineer to determine the appropriate action.

9-1.1 **PE Authority for Materials Approval and Acceptance**

This chapter covers the Project Engineer's authority to approve and modify the acceptance of certain materials while maintaining normal approval and acceptance by the State Materials Laboratory and Region. The use of these processes mentioned within this Section are to be implemented prior to work being performed and not to retroactively justify deficiencies discovered after the completion of work, with the exception that Reducing Frequency of Testing is implemented during the work. It is recommended that the Project Engineer office review the original Record of Materials to determine if items can be modified within the guidelines of this section. The Record of Material should be actively maintained per [Section 9-1.2C](#). Materials accepted in accordance with these options shall be identified in the Project Engineer's preparation of the Certification of Materials under [Section SS 1-09.12](#), Audits.

The options that are available to the Project Engineer for approving and modifying the acceptance of materials are the following sections:

- [Section 9-1.1A](#) Sampling and Testing for Small Quantities of Materials
- [Section 9-1.1B](#) Reducing Frequency of Testing
- [Section 9-1.1C](#) Project Engineer Discretionary Materials Approval/Acceptance
- [Section 9-1.1D](#) Optional Approval/Acceptance for Materials

The Reduced Acceptance Criteria Checklist DOT Form 350-120 shall be completed and retained in the materials file when Reducing Frequency of Testing, Sampling and Testing for Small Quantities of Materials and Project Engineer Discretionary Materials Approval/Acceptance are invoked. All information requested on the checklist shall be filled in completely. Any items that do not require approval from the State Materials Laboratory and the State Construction Office may be approved at the Project Engineer level.

For approval of changes beyond the Project Engineer's authority (items marked with a "yes" and an "x" on DOT Form 350-120), a request must be transmitted to the State Materials Laboratory and may require approval from the State Construction Office as well. The completed checklist shall accompany the request and represents the minimum information required to process the modification. The State Materials Laboratory and the State Construction Office have final authority to approve or reject any request for modification. Written approval by the State Materials Laboratory and State Construction Office constitutes agreement with the proposal. The signed checklist and all supporting documentation are to be placed in the project Materials File.

For approval contact the following:

- **State Materials Laboratory** – Areas of responsibility: All changes to materials approval and acceptance, and to *Standard Specifications* Division 9. Initial contact: Materials Quality Assurance Engineer
- **State Construction Office** – Areas of responsibility: *Standard Specifications* Divisions 1, 2, 3, 4, 5, 6, 7, 8, 10, and 11.

9-1.1A Sampling and Testing for Small Quantities of Materials

The Project Engineer may elect to accept small quantities of materials without meeting minimum sampling and testing frequencies using the following criteria. The use of this process is to be implemented prior to work being performed and not to retroactively justify deficiencies discovered after the completion of work.

An item can be accepted as a small quantity if the proposed quantity for a specific material is less than the minimum required testing frequency

Materials that will not be considered under the small quantity definition are:

- Concrete with a 28-day compressive strength of 4000 psi or greater.

Some issues that the Project Engineer may consider prior to use of small quantity acceptance are:

- Has the material been previously approved?
- Is the material certified?
- Do we have a mix design or reference mix design?
- Has it been recently tested with satisfactory results?
- Is the material structurally significant?

Small quantity acceptance could be visual, by certification, or other methods and the basis of acceptance shall be documented on DOT Form 350-120. For visual documentation, an entry should be made in the project records as to the basis of acceptance of the material, and the approximate quantity involved.

The small quantity acceptance may be used for any quantity of the following:

- Curbs and sidewalks
- Driveways and road approaches
- Paved ditches and slopes

Where jobsite mixing of concrete occurs in accordance with *Standard Specifications* Section 6-02.3(4)B small quantity acceptance can be used for acceptance of packaged concrete meeting the requirements of ASTM C 387. The packaged concrete bag must state that the concrete meets the requirements of ASTM C 387.

9-1.1A Reducing Frequency of Testing

Reducing the frequency of testing of materials is intended for WSDOT projects with a high volume of materials. In instances of uniform material production where the statistical acceptance testing data shows the material is running well within specification limits deviations from the testing frequency schedule may be instituted. Sampling frequency reduction may be considered only after ten consecutive samples taken at the normal testing frequency indicate full conformance with the specifications. The sampling and testing frequency will revert back to the normal frequency if there are any failing tests. The use of this process is to be implemented prior to work being performed and not to retroactively justify deficiencies discovered after the completion of work.

The Statistical Analysis of Materials (SAM) program will be utilized to develop and support approvals to reduce testing frequency and/or to eliminate selected test properties. Testing on selective materials may be reduced or eliminated without statistical data on select material, for example selective relief would be reduction/elimination of fracture determinations and sand equivalent testing for production from quarry sources.

All deviations from the testing frequency must be documented in the project records, and fully explained by the Project Engineer. Lack of personnel, equipment, and facilities will not be considered sufficient reasons for such deviation.

The authority given below to approve deviations to testing frequencies shall not be subdelegated within the regions.

- The Project Engineer, licensed as a Professional Engineer in the State of Washington, may initiate and approve up to 10 percent deviations from the testing frequency schedule. The Project Engineer does not have the authority to reduce sampling frequencies for the following materials: Hot Mix Asphalt, Warm Mix Asphalt, Structural Concrete and Cement Concrete Pavement.
- The Region Materials Engineer, licensed as a Professional Engineer in the State of Washington, may approve requests from project engineers for an additional 10 percent deviation from the testing frequency schedule. The Region Materials

Engineer does not have the authority to reduce sampling frequencies for the following materials: Hot Mix Asphalt, Warm Mix Asphalt, Structural Concrete and Cement Concrete Pavement.

- Elimination of fracture and/or SE from a Quarry Site requires approval from the Region Materials Engineer. Elimination of any other testing will require approval of State Materials Engineer or the Assistant State Materials Engineer.
- Request for sampling frequency deviations exceeding the Project Engineer and Region Materials Engineer reduction authority requires approval from the State Materials Engineer or the Assistant State Materials Engineer.
- Request for sampling frequency deviations for Hot Mix Asphalt, Warm Mix Asphalt, Structural Concrete and Cement Concrete Pavement require approval from the State Materials Engineer or the Assistant State Materials Engineer.

A copy of all testing frequency deviations with substantiating data approved by the Project Engineer and/or the Region Materials Engineer will be sent to the State Materials Engineer.

9-1.1A Project Engineer Discretionary Materials Approval/Acceptance

In advance of or during the course of the project, in the interest of economy and efficiency, noncritical items of work may be identified for which the Project Engineer is allowed to approve the Request for Approval of Material (RAM), and may choose to modify the normal inspection or testing procedures. In taking these actions, the Project Engineer is acting under the professional responsibility inherent in all actions as a representative of the department and as a Licensed Professional Engineer. Full accountability of such actions is expected. The scope of such actions should not exceed \$20,000 for a single bid item, nor exceed \$50,000 for an entire project. Approval above these dollar amounts requires approval from the State Materials Engineer or Assistant State Materials Engineer and the State Construction Office. The use of this process is to be implemented prior to work being performed and not to retroactively justify deficiencies discovered after the completion of work.

The nature of the work to be accepted in this manner will generally be limited to minor and isolated items. Acceptance would typically involve dimensional conformance to the plans and a visual determination that the materials are suitable; however, the Project Engineer may require some testing or other means to support a decision. In such an action, the Project Engineer should be guided by the principle of achieving the intent of the contract, attaining reasonable expectations of service life proportional to cost, and protection of public safety. The changes in acceptance procedures will only be made to work occurring outside of vertical lines through the horizontal limits of the traveled way. Consideration should be given to the consequences of subsequent failure, ease of replacement, whether or not there is a high variability in the quality of similar work, or any other pertinent facts. Actions taken in accepting such materials should be identified in the project records with acknowledgment by signature of the Project Engineer, licensed as a Professional Engineer in the State of Washington.

9-1.1A Optional Approval/Acceptance for Materials

The materials listed in [Table 9-1](#) may be accepted by visual acceptance at the option of the Project Engineer. The Project Engineer's Office can test or require additional documentation for any of the materials in this section if quality appears to be in question per *Standard Specifications* Section 1-06.1. Visual Acceptance requires Field Verification per [Section 9-1.5](#), unless additional documentation is stipulated in the Contract Documents. The use of this process is to be implemented prior to work being performed and not to retroactively justify deficiencies discovered after the completion of work.

The Project Engineer is allowed to approve the Request for Approval of Material (RAM). If there is a question on the quality or ability of the material to perform its intended use, it is the responsibility of the Project Engineer to determine if it is appropriate to accept the materials by visual acceptance or if additional acceptance testing or certification is required. This includes contacting the Headquarters or Region Subject Matter Expert for assistance in assessing whether additional acceptance testing or certification is required for a material. Other items can be considered for addition to this list. Suggestions are encouraged and may be made to the State Construction Office or the Materials Quality Assurance Engineer at the State Materials Laboratory.

The "Buy America" requirements apply to all federally funded projects.

Figure 9-1 Reduced Acceptance Criteria Checklist DOT Form 350-120



**Washington State
Department of Transportation**

Reduced Acceptance Criteria Checklist

This checklist is required to be filled out for individual materials and be put in the Materials File.
If the material is listed in the CM Section 9-1.3C - 'Low Risk Materials' or this material qualifies for Visual Acceptance per 9-1.4C, then **you do not need to proceed with this form.**

Contract Number	Contract Title		Date		
Bid Item Number	Plan Quantity	Material Description			
Description of Change to Materials Acceptance: Explain the work being performed and the proposed changes to the normal materials acceptance, and/or inspection criteria. Explain why this is being proposed, what is the justification for the change, is this a 'critical' item of work and has proper approval (RAM/QPL) been performed?					
Acceptance Criteria per RAM/QPL		Proposed Acceptance Criteria			
R = Region Materials Engineer M = State Materials Laboratory C = State Construction Office			Yes	No	Required Approvals
I. Sampling and Testing for Small Quantities of Material (CM 9-1.1A)					
Is the proposed quantity greater than the minimum required frequency?			<input type="checkbox"/>	<input type="checkbox"/>	STOP If 'Yes'
For concrete, is the concrete CI 4000 psi or greater?			<input type="checkbox"/>	<input type="checkbox"/>	STOP If 'Yes'
Is the material structurally 'significant'?			<input type="checkbox"/>	<input type="checkbox"/>	M C
II. Reduce Frequency of Testing: (CM 9-1.1B)					
Is the material running well within specification limits?			<input type="checkbox"/>	<input type="checkbox"/>	STOP If 'No'
Have ten consecutive samples been taken at normal frequency that indicate complete conformance within specification requirements?			<input type="checkbox"/>	<input type="checkbox"/>	STOP If 'No'
Is the proposal for deviation greater than 10% and less than 20%?			<input type="checkbox"/>	<input type="checkbox"/>	R
Is the proposal for deviation greater than 20% or elimination of test?			<input type="checkbox"/>	<input type="checkbox"/>	M
For Quarry Sites, is 'fracture' being eliminated?			<input type="checkbox"/>	<input type="checkbox"/>	R
III. Project Engineer Discretionary Materials Acceptance (CM 9-1.1C)					
Is the work 'within' the vertical limits of the roadway?			<input type="checkbox"/>	<input type="checkbox"/>	M C
Is the dollar amount over \$20,000 for this Bid Item? \$ _____			<input type="checkbox"/>	<input type="checkbox"/>	M C
Is the total dollar amount over \$50,000 for the entire project? \$ _____			<input type="checkbox"/>	<input type="checkbox"/>	M C

State Materials Laboratory and Headquarters Construction concurrence documentation must be attached.

Approvals	
Project Engineer Approval By: _____	Date _____
Region Materials Laboratory: _____	Date of Concurrence _____
State Materials Laboratory: _____	Date of Concurrence _____
State Construction Office: _____	Date of Concurrence _____

DOT Form 350-120 EF 10/09 Distribution: Region Materials Lab State Materials Lab State Construction Office

Table 9-1 Optional Approval/Acceptance for Materials

Material	Standard Specifications Reference	Construction Manual Section 9-4
Access Control Gate	Std. Plan L-70.10 & L-70.20	
Adhesive for Girder Stop Pads	Special Provision	
Agricultural Grade Dolomite Lime	9-14.5(5)	
Agricultural Grade Gypsum	9-14.5(6)	
Air Relief Valve	9-15.16	9-4.49
Anchor Bars for Extruded Curb	Std. Plan F-10.42	
Asphalt Primer & Adhesive for Deck Seal Membrane	Special Provision	
Automatic Control Valves	9-15.7(2)	9-4.49
Automatic Control Valves with Pressure Regulator	9-15.7(3)	9-4.49
Automatic Controller	9-15.3	9-4.49
Bark or Wood Chips	9-14.5(3)	9-4.48
Barrier Delineator Adhesive	Special Provision	
Biodegradable Erosion Control Blanket	9-14.6(2)	9-4.80
Bollard Type 1 and 2	See Std. Plan for Bollards	9-4.95
Butyl Rubber	9-04.10	
Butyl Rubber Sealant	9-04.11	
Chain Link Gates	9-16.1(1)E	9-4.50
Check Dams	9-14.6(4)	9-4.80
Check Valves	9-15.12	9-4.49
Chemical Pesticides	8-02.3(2)A	
Coir Log	9-14.6(7)	9-4.80
Compost	9-14.5(8)	9-4.48
Compost Sock	9-14.6(6)	9-4.80
Concrete	9-16.1(1)F & 9-16.2(1)J	9-4.76
Concrete Block for Manholes and Catch Basins	9-12.1	9-4.48
Concrete Brick	9-12.2	9-4.98
Detectable Marking Tape	9-15.18	9-4.49
Detectable Underground Warning Tape	9-29.1(6)	
Drain Grate for Soil Nail Walls	Plan Sheet	
Drain Valves	9-15.9	9-4.49
Drip Tubing	9-15.2	9-4.49
Electrical Wire and Splices	9-15.17	9-4.49
Expanded Polystyrene	9-04.6	
External Sealing Band	9-04.12	
Fertilizer	9-14.4	9-4.47
Fittings and Hardware	9-16.1(1)D	9-4.50
Foam Backer Rod	9-08.8	
Flow Control Valves	9-15.15	9-4.49

Table 9-1 Optional Approval/Acceptance for Materials

Material	Standard Specifications Reference	Construction Manual Section 9-4
Galvanized Pipe and Fittings (Irrigation System)	9-15.1(1)	9-4.49
Galvanizing Repair Paint (Fence)	9-08.1(2)	9-4.35
Gate Valves	9-15.6	9-4.49
Hose Bibs	9-15.10	9-4.49
Hydraulically Applied Erosion Control Products (HECPs)	9-14.5(2)	9-4.48
Inlet Protection	8-01.3(9)D	9-4.80
Irrigation Heads	9-15.4	9-4.49
Log Weirs and Root Wads with associated hardware	Special Provisions	
Loop Sealant for Induction Loop	Special Provision	
Mailbox Support Type 3	Std. Plan H-70.30	
Manual Control Valves	9-15.7(1)	9-4.49
Miscellaneous Fence Hardware	9-16.2(1)H	9-4.50
Mortar Blocks (Dobies)	6-02.3(24)C	9-4.29
Nitrile Rubber	9-04.10	
Pipe, Tubing, and Fittings (Irrigation System)	9-15.1	9-4.49
Pipe Hanger	Std. Plan J-90.10, J-90.20, & J-90-21	
Plants	9-14.6(1)	9-4.44
Plastic Covering	9-14.6(3)	
Polyacrylamide (PAM)	9-14.6(1)	9-4.80
Polyethylene Pipe (Irrigation System)	9-15.1(3)	9-4.49
Single Component Polyurethane Sealant	9-04.2(3), 9-08.7, & 6-07.3(10)G	9-4.35
Polyvinyl Chloride Pipe and Fittings (Irrigation System)	9-15.1(2)	9-4.49
Premolded Joint Filler	9-04.1(1) & 9-04.1(2)	9-4.12
Prepackage Concrete	6-02.3(4)B	9-4.76
Prepackage Mortar Type 2	9-20.4(3)	9-4.81
Pressure Regulating Valves	9-15.13	9-4.49
Quick Coupling Equipment	9-15.8	9-4.49
Rebar Chairs and Spacers	6-02.3(24)C	9-4.29
Riprap and Quarry Spalls for Stabilized Construction Entrances	8-01.3(7)	9-4.42
Rock and Aggregate Material for Landscape Features	9-03 & 9-13	
Rust Penetrating Caulk	6-07.3(10)G	
Seed	9-14.3	9-4.46
Semi-Open Concrete Masonry Units (Slope Protection)	9-13.5(1)	9-4.43
Silt Fence and All Components	8-01.3(9)A	9-4.80
Site Furnishings (benches, trash, recycling, and ash receptacles, bike security stations and planters)	Special Provision	
Sod	9-14.7(4)	
Stakes, Guys, and Wrapping	9-14.8	9-4.49

Table 9-1 Optional Approval/Acceptance for Materials

Material	Standard Specifications Reference	Construction Manual Section 9-4
Staples and Wire Clamps	9-16.2(1)D	9-4.50
Straw	9-14.5(1)	9-4.48
Tackifier	9-14.5(7)	9-4.48
Temporary Curb	8-01.3(14)	
Temporary Pipe Slope Drain	8-01.3(14)	
Three-Way Valves	9-15.14	9-4.49
Topsoil Type A	9-14.2(1)	9-4.45
Topsoil Type B	9-14.2(2)	9-4.45
Topsoil Type C	9-14.2(3)	9-4.45
Valve Boxes and Protective Sleeves	9-15.5	9-4.49
Vertical Cinch Stays	9-16.2(1)G	9-4.50
Wattles	9-14.6(5)	9-4.80
Weed Control (Herbicides)	8-02.3(2)	
Wire Fence and Gates	9-16.2	9-4.50 & 9-4.36
Wood Strand Mulch	9-14.5(4)	9-4.48
Wye Strainers	9-15.19	9-4.49

9-1.2 Control of Materials

The succeeding parts of this chapter outline the detailed method to be used in the control of materials. The expenditure made for materials is a large portion of construction costs. If faulty materials are permitted to be incorporated into the project, the cost of replacement may exceed the original cost.

[Section 9-2](#) Materials Fabrication Inspection Office – Inspected Items Acceptance explains the process for the acceptance of fabricated items, and the types of Fabrication acceptance markings used to identify approved fabrication items.

[Section 9-3](#) Guidelines for Job Site Control of Materials provides the engineer with additional information to assist in determination of the point of acceptance for materials from WSDOT and Contractor sources, the basis of acceptance, verification sampling and testing, and the sampling and testing frequency guide.

[Section 9-4](#) Specific Requirements for each Material provides specific requirements about each material that includes the following information:

1. Approval of Material
2. Preliminary Samples
3. Acceptance or Acceptance/Verification
4. Field Inspection
5. Specification Requirements
6. Other Requirements

Section 9-5 Quality Assurance Program defines the requirements for the materials tester to become qualified. The requirements for the Independent Assurance Program are also included.

Section 9-6 Radioactive Testing Devices explains policy on the administration of radioactive testing devices.

Section 9-7 WSDOT Test Methods/Field Operating Procedures defines the testing procedures and lists the equipment that are used in the field.

9-1.2A Materials Management Computer Programs

There is a series of material management computer programs that have been developed to aid the Project Engineer office's in tracking, approving, accepting, and testing materials.

- **Record of Materials (ROM)** – A listing of the construction items that have been identified from the plans and specifications for each project. The ROM, which is organized by Bid Item - Sub Item, identifies the kinds and quantities of materials, the standard Acceptance Methods and the number of acceptance and verification samples required for each material that will be used on the project. It also lists the acceptance requirements for materials requiring other actions, such as fabrication inspection, manufacturer's certificate of compliance, shop drawings or catalog cuts. The ROM is also used to track material deficiencies and has various reports available for tracking materials documentation. The ROM is not a payment or purchasing document.
- **Aggregate Source Approval (ASA)** – A program that tracks aggregate sources, approvals and expiration dates for the different aggregate material types that could be used on a construction project. This application is designed to allow the user to query the database for the intended source of aggregate to be used, determine if it is approved, and print the ASA report.
- **Qualified Product List (QPL)** – A program that lists products that have been found capable of meeting the requirements of the *Standard Specifications* or General Special Provisions under which they are listed and, therefore, have been "Approved." These may be "Accepted" in the field by fulfilling the requirements of the Acceptance Code and any notes that apply to the product.
- **Statistical Analysis of Materials (SAM)** – A program that is used for the statistical acceptance of materials according to *Standard Specifications* Section 1-06. The testing data will be kept electronically for quality and compliance audits and for historical references. The program will generate the reports showing the composite pay factors and project totals.
- **Materials Testing System (MATS)** – A testing program where all materials testing will be recorded. This includes the testing performed at the State Materials Laboratory, the Region Materials Laboratory, and the project office acceptance testing. The program will generate the transmittal, provide for tracking the samples throughout the testing process, and automatically bills for the testing performed. The program will also provide a report detailing the test results, and distribute the reports according to the established distribution list.

9-1.2B Materials Forms

A number of form letters have been prepared as an aid to the Project Engineer in transmitting information to the State Materials Laboratory. In order to minimize delays to completion of material testing, transmittal letters should include all the information that is pertinent to the sample in question. In order to assist the State Materials Laboratory, copies of the transmittal letters should be retained in the Project Engineers Office. The following is a list of the forms that may be used for transmittal of samples and/or information to the State Materials Laboratory:

350-016	Asphalt Emulsion Sample Label
350-023	Pit Evaluation Report
350-040	Concrete Mix Design
350-041	Request for Reference HMA Mix Design
350-042	HMA Mix Design Submittal
350-067	Thickness Measurements Pavement and Treated Base Cores Transmittal/Report
350-071	Request for Approval of Material
350-072	Transmittal of Catalog Cuts
350-073	Hot Mix Asphalt Test Point Evaluation Report
350-074	Field Density Test
350-092	Hot Mix Asphalt Compaction Report
350-114	Summary Report of Acceptance Sampling and Testing
350-115	Contract Materials Checklist
350-572	Manufacturer Certification of Compliance Check List
351-015	Daily Compaction Test Report
410-025	Project Engineer Transmittal

9-1.2C Record of Materials

The Record of Materials (ROM) is used to track material type, make/model, approval, acceptance, field verification documentation, Certificate of Materials Origin and other materials documentation. The ROM is organized by Bid Item – Sub Item and the program also tracks deficiencies and has various reports available for tracking documentation. The ROM is not a payment or purchasing document. The program is located at:
<http://webapps.wsdot.loc/Materials/Tracking>

The Construction Materials - Materials Quality Assurance Section (MQAS) uploads the initial materials and acceptance criteria into the ROM shortly after the contract is awarded. This initial listing of materials identifies the types and planned quantities for all materials requiring acceptance. It further identifies the minimum number of acceptance and verification samples that would be required based on the Summary of Quantities.

The Project Office uses the ROM computer program to maintain the materials documentation information for each State Contract that is administered by that office except as follows. When the MQAS does not provide the initial upload of materials

acceptance into the ROM, the Project Office is not required to use the ROM computer program. When an initial materials and acceptance criteria is not uploaded into the ROM by the MQAS, the Project Engineer may request the MQAS to set up a blank ROM template for the Project Office to populate, track, and maintain permanently incorporated materials, or the Project Engineer may utilize other documentation methods to track and document permanently incorporated materials that are placed on the Contract.

The Project Office utilizes the ROM program to track all permanently incorporated materials that are placed on the Contract. Temporary materials are also tracked in the ROM when the contract documents contain temporary material requirements. The Project Engineer is responsible for the accuracy of the ROM, other documentation methods used, and Certification of Materials. Acceptance requirements shown in the ROM can be modified by referencing the properly submitted QPL page or the approved Request for Approval of Materials. Reviewing the contract plans and provisions may identify additional materials documentation requirements as well as construction items that shall be added to the ROM and tracked for completion throughout the course of the project work.

In order to ensure clarity upon completion of the work and to allow for easy certification of the project by both the Project Engineer and the Region, the ROM needs to be maintained throughout the course of the project. "Maintained" and "maintain" means the ROM is updated to reflect materials placed within 30 calendar days of the material payment. This includes material type, make/model, approval, acceptance, field verification documentation, Certificate of Materials Origin and other materials documentation. For materials used in the Contract, the Project Office is required to maintain the Status Work Completed (WC)/Documentation Complete (DC) /Not Used (NU) fields in the ROM.

For materials that are listed in the ROM, but are not used in the project the WC, DC, and NU fields may be left blank in the ROM until the project work is complete, at which time all materials not used in the ROM need to have the "Not Used (NU)" status of work field completed.

The Project Office is required to maintain quantities paid, quantities placed, quantities field verified for materials that have sampling frequencies, WSDOT Fabrications Inspection items, where the Acceptance Criteria requires quantities such as Manufacturer Certificate of Compliance, or when quantities are noted in the initial materials and acceptance criteria. Any changes to the acceptance requirements, additional permanently incorporated materials used, or any additional materials added to the project by Change Order or Force Account need to be documented and tracked either in the ROM or for Contracts that do not use the ROM program documented and tracked by other methods in the project records. A copy of the ROM Materials Documentation Report shall be included in the final records or if the ROM program is not used a copy of the documents used to track the above information shall be included in the final records.

The Project Engineer is encouraged to contact the MQAS for assistance with questions on materials documentation requirements.

9-1.2D Vacant

9-1.2E Certification of Materials Origin

For Contracts Advertised Prior to January 11, 2016

Projects that include Federal funding, or any project defined in the Federal Record of Decision under the National Environmental Policy Act (NEPA), must meet the requirements of “Buy America” (23 CFR 635.410, 23 USC 313). This provision, incorporated into the contract by General Special Provision, applies to all products containing steel or iron permanently incorporated into the project. The Contractor may choose to utilize minor quantities of foreign steel or iron, as described in the General Special Provision. Minor amounts of foreign steel and iron may be used in the project provided the cost of the foreign material used does not exceed one-tenth of one percent of the total contract cost or \$2,500.00, whichever is greater. Included in this amount is state supplied materials, Proprietary items and Contractor provided materials. WSDOT makes a tracking sheet available as either a FileMaker form or an Excel spreadsheet at: <http://sharedot/eng/cn/hqconstr/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2Feng%2Fcn%2Fhqconstr%2FShared%20Documents%2FBuy%20America&FolderCTID=0x012000EC3BE7FA6C2AE7439BB67EED30CD322B&View=%7B52477B85-35C4-41E1-9B8E-53C8D6577A14%7D>

The “Buy America” provision applies to products that are manufactured predominately of steel and iron if the product consists of at least 90 percent steel or iron content when it is delivered to the jobsite for installation. The 90 percent is a percentage of the total monetary value of the manufactured product.

To determine the 90 percent value, divide the raw steel or iron costs by the total manufactured product costs (without taxes, shipping, handling, or other fees applied), and if the percentage is equal to or greater than 90 percent of the final manufactured product costs, then the “Buy America” provision applies.

Determining whether a product is a steel or iron manufactured product, the jobsite includes the locations where any precast concrete products are manufactured. For example, in the specific case of “precast concrete products,” the casting yard/facility is considered part of the “jobsite.” Therefore, the iron and steel materials delivered to the precast yard/facility are subject to the “Buy America” provision.

The Contractor shall provide the completed and signed Certification of Materials Origin (CMO) to the Project Engineer prior to such items being incorporated into the permanent work. This certification may be supplied using [DOT Form 350-109](#) or another form containing all the same information as required by [DOT Form 350-109](#). It is the responsibility of the Project Engineer to ensure the CMO is on file prior to placing or paying for products that are made of steel or iron. CMOs for domestic steel or iron from fabricated inspected items will be retained by the fabrication inspection office. The exception is 30 inch diameter or less concrete pipe (see Sections [9-4.16](#) and [9-4.21](#)). The Project Engineer is required to ensure these CMOs are on file prior to placement and payment.

In all cases, Certification of Materials Origin (CMO) must be completed and signed prior to incorporation of the steel or iron materials into the project. It is the responsibility of the Project Office to ensure that the CMO is on file prior to placing or paying for steel or iron materials, as defined below.

Fabricated Items

- WSDOT Fabrications Inspection Offices will review the supporting documentation, i.e., Mill Certificates and CMOs prior to inspecting and Stamping/Tagging the fabricated material. The Fabricator/plant is required to supply the Fabrications Inspector the [DOT Form 350-109](#) completed and signed with each item prior to inspection.
- The project field inspector is required to document in the IDR, QPL Contractor Product Information Page, or Field Note Record (FNR) prior to placement that the fabricated material is identified with a “D” – Domestic or “F” – Foreign per [Section 9-1.5](#). Fabricated items bearing an “F” or not bearing any Stamp when delivered to the job site requires that the Project Engineer office obtain the [DOT Form 350-109](#) from the Contractor and retain this form in the project records.

Non-Fabricated Items

- The Project Office is required to obtain, and place in the materials file, a completed Certification of Materials Origin for any materials containing iron or steel. This certification may be supplied using [DOT Form 350-109](#) or another form containing all the same information as required by [DOT Form 350-109](#).

In summary, if a CMO is required, the Project Office is responsible for obtaining and filing the CMO prior to placement of or payment for the material unless the material is a fabricated item with a “D” stamp documented in the file.

Examples of products that are subject to “Buy America” provision include, but are not limited to the following:

- Steel or iron products used in pavements, bridges, tunnels or other structures, which include, but are not limited to the following: fabricated structural steel, reinforcing steel, piling, high strength bolts, anchor bolts, dowel bars, permanently incorporated sheet piling, bridge bearing, cable wire/strand, pre-stressing/post-tensioning wire, motor/machinery brakes and other equipment for moveable structures.
- Guardrail, guardrail posts, end sections, terminals, cable guardrail.
- Steel fencing material (fabric), fence post.
- Steel or iron pipe, conduit, grates, manhole covers, risers.
- Mast arms, poles, standards, trusses, or supporting structural members for signs, luminaires, or traffic control systems.
- Steel or iron components of precast concrete products, such as reinforcing steel, welded wire and pre-stressing or post-tensioning strands or cables.

The miscellaneous steel or iron components, subcomponents and hardware necessary to encase, assemble and construct the above products (or manufactured products that are not predominantly steel or iron) are not subject to the “Buy America” provision. Examples include, but are not limited to the following:

- Materials listed under [Section 9-1.3C](#) – Low Risk Materials
- Anchor Ferrules
- Architecture miscellaneous items – doors, hinges, fixtures, faucets, shelves, etc.
- Bollard and Components
- Non-High Strength Bolts, Washers, and Nuts
- Clamps
- Dobie/Mortar Blocks
- Construction Aides – lifting hooks and inserts
- Electrical Miscellaneous Fittings
- Erosion Control Miscellaneous Hardware
- Fence Miscellaneous Hardware
- Gate Hardware (except for fabric and poles)
- Gabion Miscellaneous Hardware (except for twisted and welded fabric)
- Irrigation System Components and Hardware (except for steel or iron pipes and conduit)
- Pipe Sleeves
- Precast Concrete Traffic Barrier Pins
- Rebar chair and Spacers
- Screws
- Shims
- Slope Protection Miscellaneous Hardware
- Utility Inserts
- Welding Rods and Welding Wire
- Weld Splices for Precast Concrete Girders

For Contracts Advertised On or After January 11, 2016

Projects that include Federal funding, or any project defined in the Federal Record of Decision under the National Environmental Policy Act (NEPA), must meet the requirements of “Buy America” ([23 CFR 635.410](#), 23 USC 313). This provision, incorporated into the contract by General Special Provision, applies to all products containing steel or iron permanently incorporated into the project. The Contractor may choose to utilize minor quantities of foreign steel or iron, as described in the General Special Provision. Minor amounts of foreign steel and iron may be used in the project provided the cost of the foreign material used does not exceed one-tenth of one percent of the total contract cost or \$2,500.00, whichever is greater. Included in this amount is state supplied materials, Proprietary items and Contractor provided materials. WSDOT

makes a tracking sheet available as either a FileMaker form or an Excel spreadsheet at: <http://sharedot/eng/cn/hqconstr/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2Feng%2Fcn%2Fhqconstr%2Fshared%20Documents%2Fbuy%20America&FolderCTID=0x012000EC3BE7FA6C2AE7439BB67EED30CD322B&View=%7B52477B85-35C4-41E1-9B8E-53C8D6577A14%7D>

The Contractor shall provide the completed and signed Certification of Materials Origin (CMO) to the Project Engineer prior to such items being incorporated into the permanent work. This certification may be supplied using [DOT Form 350-109](#) or another form containing all the same information as required by [DOT Form 350-109](#). It is the responsibility of the Project Engineer to ensure the CMO is on file prior to placing or paying for products that are made of steel or iron. CMOs for domestic steel or iron from fabricated inspected items will be retained by the fabrication inspection office. The exception is 30 inch diameter or less concrete pipe (see Sections [9-4.16](#) and [9-4.21](#)). The Project Engineer is required to ensure these CMOs are on file prior to placement and payment.

In all cases, Certification of Materials Origin (CMO) must be completed and signed prior to incorporation of the steel or iron materials into the project. It is the responsibility of the Project Office to ensure that the CMO is on file prior to placing or paying for steel or iron materials, as defined below.

Fabricated Items

- WSDOT Fabrications Inspection Offices will review the supporting documentation, i.e., Mill Certificates and CMOs prior to inspecting and Stamping/Tagging the fabricated material. The Fabricator/plant is required to supply the Fabrications Inspector the [DOT Form 350-109](#) completed and signed with each item prior to inspection.
- The project field inspector is required to document in the IDR, QPL Contractor Product Information Page, or Field Note Record (FNR) prior to placement that the fabricated material is identified with a “D” – Domestic or “F” – Foreign per [Section 9-1.5](#). Fabricated items bearing an “F” or not bearing any Stamp when delivered to the job site requires that the Project Engineer office obtain the [DOT Form 350-109](#) from the Contractor and retain this form in the project records.

Non-Fabricated Items

- The Project Office is required to obtain, and place in the materials file, a completed Certification of Materials Origin for any materials containing iron or steel. This certification may be supplied using [DOT Form 350-109](#) or another form containing all the same information as required by [DOT Form 350-109](#).

In summary, if a CMO is required, the Project Office is responsible for obtaining and filing the CMO prior to placement of or payment for the material unless the material is a fabricated item with a “D” stamp documented in the file.

9-1.2F Project Material Certification

The Project Engineer is responsible for obtaining all required materials documentation or otherwise ensuring that all required materials testing is completed, all with satisfactory results, prior to the materials being incorporated into the project. The Project Engineer is also responsible for maintaining a comprehensive accounting for the materials incorporated into the project in order to support the Region's Certification of Materials. Managing and accounting for materials used in the construction of a project are to be administered in the same manner regardless of its funding source; Federal, State, or a combination of both.

The Region is responsible for periodic reviews of each project's materials documentation at the Project Engineer's Office. Upon completion of the project the Region will prepare a Region Materials Certification letter listing all variances that were identified and their resolution. On projects that involve Federal participation where material deficiencies are documented, these deficiencies must be resolved with the State Construction Office through the Region before the Region Certification of Materials can be completed. On projects that involve State Funds only, documented deficiencies must be resolved with the Region prior to the Region Certification of Materials. The Regional Administrator or their designee is responsible for signing and distributing the certification letter.

The State Materials Laboratory will also perform Construction Quality Audits on a sampling of active projects statewide where the materials have yet to be certified.

9-1.2F(1) Definitions

(I) Certification

A Region Materials Certification based on a documented evaluation of the project's materials inspection, sampling, testing, and other materials acceptance activities for their conformance to the contract documents, *Standard Specifications*, and this manual. The certification reflects the project's conformance with the Record of Materials as adjusted by the Project Engineer for:

1. Actual project quantities utilized.
2. Acceptance practices as provided for in this chapter.
3. Adjusted sampling/testing frequencies as provided for in [Section 9-3](#).
4. Work added by Change Order.

(II) Variance

An identified difference between the materials acceptance requirements noted in this manual, the contract documents, the *Standard Specifications*, and a review of the completed projects Record of Materials. All variances must be noted. Such notations must include the basis by which the material was accepted and how the requirements for that material were met. Any variance between the recognized acceptance requirements and the Project Engineer's use of the material must be resolved with the Region, State Construction Office, and/or State Materials Laboratory, as appropriate.

9-1.2F(2) Project Material Certification Process

The Project Engineer Office completes the Contract Materials Checklist (DOT Form 350-115) prior to Completion of Final Project Records.

Any contract materials checklist items marked “No” constitute a Materials Certification deficiency.

- a. Each “No” requires the contract item number for the affected item to be shown along with an attachment to the Materials Checklist detailing the circumstances of use, the method used for acceptance of the material, the Project Engineer’s evaluation of the material, suitability for its application, and determination as to whether or not it may have met the specification in spite of the materials documentation oversight.
- b. If the project is federally funded, the Project Engineer should also include a recommendation for Federal participation in light of the use of undocumented materials.

The Project Engineer Office submits the completed Contract Materials Checklist Form along with documentation of materials variances to the Construction Division Documentation Engineer

The Construction Division Documentation Engineer will review the contract materials checklist variances and coordinates with FHWA to determine federal funding eligibility for variances.

The Documentation Engineer will send a letter of resolution to Region identifying degree of federal participation on the project.

An example of the Region Materials Certification letter and its distribution is available on the Construction SharePoint site.

9-1.3 Approval of Materials

Prior to use, the Contractor must notify the engineer of all proposed materials to be permanently incorporated into the project in accordance with *Standard Specifications* Section 1-06.1. Some temporary items may require approval if required by the Contract Documents. This may be accomplished by a Qualified Product List (QPL) submittal or by submitting a Request for Approval of Material (RAM) [DOT Form 350-071](#).

When materials are approved, it does not necessarily constitute acceptance of the materials for incorporation into the work. All additional acceptance actions, as noted by the code on the RAM or QPL must be completed prior to the materials being used in the work.

9-1.3A Aggregate Source Approval and the Qualified Products List

9-1.3A(1) Aggregate Source Approval

The State Materials Engineer establishes requirements for aggregate source sampling, testing and approval of aggregate sources in the Aggregate Source Approval (ASA) database. The ASA engineer at the State Materials Laboratory maintains and updates the

ASA computer database, records source approvals, and coordinates with source owners and the Region materials engineers on sampling and testing for source approvals.

The Region Materials Engineer, licensed as a Professional Engineer in the State of Washington, manages the aggregate sources in their region. This includes:

- Being the primary point of contact for privately owned aggregate sources located in their Region
 - This includes communication on approval, disapproval, discussion of test results, etc. The QPL/ASA Engineer is available to assist the Region Materials Engineer with arrangements for testing and payments required. Evaluation letters will be sent by the QPL/ASA Engineer to the aggregate source point of contact.
- Providing the recommended approval time or disapproval for privately owned aggregate source to the QPL/ASA Engineer
 - The length of approval time will not exceed 5 years and may be less than 5 years based upon the Region Materials Engineers determination of the quality of materials in the source.
 - For aggregate sources having variable quality, the Region Materials Engineer may have remarks added to the ASA database indicating that the aggregate source approval is on a stockpile basis. The Region Materials Engineer may approve these aggregate sources by either a stockpile(s) or on a project-by-project basis provided the aggregate source approval duration has not expired.
 - Can initiate and approve up to a 3 month extension of an aggregate source on a project-by-project basis for a WSDOT construction project as long as the extension is approved prior to the aggregate source/material expiration date.

9-1.3A(2) Qualified Products List (QPL)

Products listed in the QPL have been found capable of meeting the requirements of the *Standard Specifications*, General Special Provision, Bridge Special Provision and Standard Plans under which they are listed and, therefore, have been “Approved.” These products may be “Accepted” by fulfilling the requirements of the Acceptance Code and any notes that apply to the product. If the Contractor elects to use the QPL, the most current list available at the time the product is proposed for use, shall be used. During the life of the Contract, acceptance methods for materials in the QPL may change, becoming more stringent or less stringent. The acceptance method detailed on the originally submitted QPL page will continue to be the acceptance method for the life of the contract, unless the Contractor submits a new QPL page for the material. This is the case regardless of whether the acceptance method becomes more stringent or less stringent. Instructions are given in the QPL for processing QPL submittals. Contractors and Project Offices are encouraged to use the QPL database for submittals. The QPL database is constantly updated with additions and/or deletions and can be accessed at https://www.wsdot.wa.gov/biz/mats/QPL/QPL_Search.cfm

The Project Office shall review the material submittal for consistency with the Bid Item and shall promptly notify the Contractor of any concerns, working with the Contractor toward resolving these issues. QPL submittals inconsistent with the intended use for

the Bid Item should be marked “unacceptable for intended use” and returned to the Contractor. Copies of QPL pages for materials that are to carry a WSDOT Fabrication Inspection “Stamp/Tag” or Sign Inspection “Decal” shall be forwarded to the WSDOT Headquarters Fabrication Inspection Office.

9-1.3B Request for Approval of Material – Submittal

The Contractor submits all Request for Approval of Materials (RAM) to the Project Office using the WSDOT RAM form [DOT Form 350-071](#).

The coding of the RAM is to determine if the proposed material on the RAM is capable of meeting the established standards and defining the material acceptance method. Acceptance determines if the material being placed on the contract meets the established standards.

If a RAM is submitted with a material found on the QPL, the Project Office may code the RAM as defined in [Section 9-1.3B\(1\)](#).

RAMs submitted by the Contractor that contain errors should be returned to the Contractor for correction. The Project Office needs to provide details to the Contractor on why the RAM is being returned, noting what needs to be corrected. The Project Office may elect to modify the RAM submitted by the Contractor to clarify minor errors. Any modifications by the Project Office to the Contractor’s submitted RAM shall have written documentation from the Contractor showing the Contractor’s request to modify the RAM, and contain the specific details that were missing in the original Contractor submittal. The written documentation from the Contractor shall be attached to the RAM that was modified.

If a RAM is submitted with a material not identified under the Project Office Approval Coding ([Section 9-1.3B\(1\)](#)), the Project Office shall submit the RAM to the Construction Materials - Materials Quality Assurance Section for coding. The Project Engineer or delegated representative will sign, date, and code the items with a “7” – “Approval Pending” and forward it to the Materials Quality Assurance Section at MLRAM@wsdot.wa.gov. If the RAM is not filled out correctly it will be returned to the Project Office prior to any action being taken.

A copy should also be returned to the Contractor at this point to inform them that the RAM has been sent to the Materials Quality Assurance Section for approval. Submit any additional documentation, including appropriate transmittals that may assist the RAM engineer in approving the proposed material; such as Test Reports, Catalog Cuts, Manufacturer’s Certificate of Compliance, etc. The page number of the Special Provision or Plan Sheet will also aid in expediting the approval process.

The Materials Quality Assurance Section may elect to delegate approval of some specialty items.

All RAMs shall be signed and dated by the Project Engineer and copies distributed as indicated at the bottom of the RAM form.

9-1.3B(1) Project Engineer's Office Approval Coding

(I) QPL Reference Materials

The engineer may code the RAM if the product listed on the RAM is identified in the QPL by make, model, batch, color, size, part no., etc. The product must also be listed in the QPL under the appropriate *Standard Specifications* for the intended use as indicated by the Bid Item and Specification Reference shown on the RAM. The RAM should be coded with the 4-digit QPL acceptance code and any notes and/or restrictions restated as "Remarks" on the RAM.

(II) Aggregates

Aggregate Sources will be approved by consulting the Aggregate Source Approval database for the use intended. The Project Engineer shall approve the RAM, coding when there is a sampling frequency in [Section 9-3.7](#) with a "1" – "Conditionally Approved: Acceptance based upon Satisfactory Test Report." Aggregates that do not have a sampling frequency should be coded per requirements of the ASA database. Print the ASA Report and attach it to the approved RAM.

The Region Materials Engineer may have added remarks to the ASA database for aggregate sources having variable quality. Contact the Region Materials Engineer prior to use. It has been demonstrated that some of these sources can provide quality material through diligent production and stockpile management. The Region Materials Engineer may approve these aggregate sources by the stockpile(s) or on a project-by-project basis.

Review the approval date on the ASA Report to verify that the approval of the aggregate source has not expired or will not expire before the end of your contract. If the aggregate source is approved at the beginning of your project, it does not mean that it is approved for the duration of the project. If the aggregate source requires evaluation, contact the Region materials office for further direction. If samples are required, the Region materials office will coordinate with the Materials Quality Assurance Section QPL/ASA Engineer to obtain the necessary samples in accordance with SOP 128.

The remarks in the ASA Report also need to be reviewed to make sure that there are no additional requirements or restrictions on the material that you intend to use. If you are using concrete aggregate, review the ASR values to see if ASR mitigation is required for the concrete mix design.

(III) Optional Approval/Acceptance

The Project Engineer may elect to approve some materials by invoking [Section 9-1.1D](#). This process allows the Project Engineer to approve the RAM. The PE needs to verify the material being approved meets the requirements listed and is for the same specifications as the material listed in [Section 9-1.1D](#). After verifying concurrence with [Section 9-1.1D](#), the Project Engineer shall approve the RAM, coding with an "8 – Approved per CM [Section 9-1.1D](#)."

(IV) Proprietary Materials

Where the Contract Documents state “shall be...” and list products by specific name and model, the Contractor needs only to complete the RAM indicating to the engineer the intended choice. The engineer shall approve the RAM, coding with an “8” – “Source Approved” and note the page number where it is listed in the Contract Documents as a proprietary product. Occasionally proprietary materials will have additional acceptance criteria and these criteria need to be noted on the RAM. On occasion the Subject Matter Expert for the material being placed may ask for additional documentation.

The “Buy America” requirements apply to Proprietary materials used on all federally funded projects. The “Buy America” requirements should be addressed by the Designer prior to including the material into the Contract Special Provisions. Ultimately it is the responsibility of the Project Engineer to verify that the requirements are met.

(V) Agency Supplied Materials

An approved RAM is not required for Agency Supplied Materials. If a RAM is submitted to the PEO, the engineer shall approve the RAM, coding with an “8” – “Source Approved” and note the page number where it is listed in the Contract Documents as an Agency Supplied Material. Additional acceptance criteria may be required by the Contract Special Provisions or Plans.

The “Buy America” requirements apply to Agency Supplied materials used on all federally funded projects. The “Buy America” requirements should be addressed by the Designer prior to including the material into the Contract Special Provisions. Ultimately it is the responsibility of the Project Engineer to verify that the requirements are met.

(VI) Concrete and Asphalt Batch Plants

For Concrete Batch Plants, the Project Engineer office shall ensure requirements of *Standard Specifications* Section 6-02.3(4)A are met prior to approving the RAM.

For Asphalt Mixing Plants, the Project Engineer office shall ensure requirement of *Standard Specifications* Section 5-04.3(1) are met. There is no approval on the RAM required for Asphalt Mixing Plants, however coding the RAM with an “8” – “Source Approved” would be appropriate.

(VII) Recycle Materials for Aggregate

Requirements for recycled materials in aggregates are described in *Standard Specifications* Section 9-03.21 which applies to recycled hot mix asphalt, recycled concrete aggregate, glass aggregates and steel furnace slag. The Project Engineer is required to verify that recycled material imported to the job site is not classified as a Dangerous Waste per the Dangerous Waste Regulations [WAC 173-303](#). Recycled materials obtained from the Contracting Agency’s roadways will not require testing and certification for toxicity testing or certification for toxicity characteristics.

The Project Engineer needs to do the following in order to determine and document the recycled material is not classified as a Dangerous Waste and is acceptable for use on a WSDOT project:

- Have the Contractor provide documentation identifying what recycled materials the Contractor is proposing to use and sampling documentation.
- Have the Contractor provide testing information from representative samples of the recycled material and check to ensure the recycled material is below the Maximum Concentration of Contaminates for the Toxicity Characteristics in the Toxicity Characteristics List in [WAC 173-303-090](#).
- Have the Contractor certify that the recycled material is not a Washington State Dangerous Waste per [WAC 173-303](#).

The Project Engineer can contact the WSDOT Hazardous Materials Program to help evaluate sample approach, lab results, help in determining if changes in the recycled material warrant additional testing, or other assistance as needed. The Hazardous Material Program can be reached at 360-570-6656.

The Contractor is required to do sampling and testing for toxicity of the recycled material at the frequency specified in *Standard Specifications* Section 9-03.21(1) prior to combining with other materials and not less than one sample and test from any single source. If the Project Engineer suspects the recycled material may be contaminated based on a change in odor, appearance, or knowledge of the source of material, the WSDOT Hazardous Materials Program should be contacted to determine if a verification sample should be tested for toxicity. Sample results are expected to exhibit the average properties of the stockpile of material being proposed for use. The final blended product shall meet the acceptance requirements for the specified type of aggregate.

Once it has been determined that the recycled material is not classified as a Dangerous Waste the Project Engineer shall code the RAM either as an “8” Source Approved or as a “9” Submit samples for preliminary evaluation depending on what type of aggregate material the recycled material is being proposed for.

The RAM should be coded with an “8 & 1” and noted as “certification and acceptance testing per *Standard Specifications* Section 9-03.21” in the remark field for the following aggregate materials; Section 9-03.8 Aggregates for Hot Mix Asphalt (recycle HMA only), Section 9-03.10 Aggregate for Gravel Base, Section 9-03.12(1)B Gravel Backfill for Foundations Class B, Section 9-03.12(2) Gravel Backfill for Walls, Section 9-03.12(3) Gravel Backfill for Pipe Zone Bedding, Section 9-03.12(4) Gravel Backfill for Drains, Section 9-03.12(5) Gravel Backfill for Drywells, Section 9-03.13 Backfill for Drains, Section 9-03.13(1) Sand Drainage Blanket, Section 9-03.14(1) Gravel Borrow, and Section 9-03.14(2) Select Borrow.

The RAM should be coded with a “9” and noted “source properties evaluation and indicate the standard specification being proposed” in the remarks field for the following aggregate materials; Section 9-03.8 Aggregates for Hot Mix Asphalt (recycle steel furnace slag only), Section 9-03.9(1) Ballast, Section 9-03.9(2) Permeable Ballast, Section 9-03.9(3) Crush Surfacing, Section 9-03.12(1)A Gravel Backfill for Foundations Class A, and Section 9-13.1 Riprap and Quarry Spalls. Include copies of the toxicity tests results with the preliminary sample that is submitted to the State Materials Laboratory for evaluation of source properties.

Engrossed Substitute House Bill 1695 requires the use of recycled concrete aggregates (RCA) in the amount of 25 percent on all WSDOT projects. This requirement only applies to those materials listed in *Standard Specifications* Section 9-03.21 table that allow the use of RCA, see Section [SS 1-06.6](#). To encourage and streamline the use of RCA on WSDOT projects the State Materials Laboratory developed quality control plans for RCA. There are three tiers of quality for RCA;

- Tier 1 pertains to those aggregate materials that do not require preliminary testing for source property requirements such as LA Wear, WSDOT Degradation, and Specific Gravity and applies to *Standard Specifications* Sections 9-03.10 Aggregates for Gravel Base, 9-03.12(1)B Gravel Backfill for Foundations Class B, 9-03.12(2) Gravel Backfill for Walls, 9-03.12(3) Gravel Backfill for Pipe Zone Bedding, 9-03.14(1) Gravel Borrow, 9-03.14(2) Select Borrow, 9-03.14(2) Select Borrow (greater than 3 feet below subgrade and side slope), 9-03.14(3) Common Borrow, 9-03.14(3) Common Borrow (greater than 3 feet below subgrade and side slope), 9-03.17 Foundation Material Class A and Class B, 9-03.18 Foundation Material Class C, and 9-03.19 Bank Run Gravel for Trench Backfill. See Section 9-4.11 for approval and acceptance requirements.
- Tier 2 pertains to RCA from WSDOT projects and returned concrete. Returned concrete is concrete that was returned to the concrete plant that was produced from a WSDOT approved aggregate source. For a reclamation facility to participate in Tier 2 the reclamation facility must be compliant with WSDOT Standard Practice QC 9 “Standard Practice for Approval of Reclamation Facilities for WSDOT Recycled Concrete and Returned Concrete”. See Section 9-4.11 for approval and acceptance requirements.
- Tier 3 pertains to RCA from stockpiles of unknown sources. For reclamation facility to participate in Tier 3 the reclamation facility must be compliant with WSDOT Standard Practice QC 10 “Standard Practice for Approval of Recycled Materials Facilities from Stockpiles of Unknown Sources” See Section 9-4.11 for approval and acceptance requirements.

Reclamation facilities that are compliant with WSDOT’s quality control plans will be listed on the QPL under *Standard Specifications* Section 9-03.21(1)B.

(VIII) Preliminary Evaluation Samples

The Project Engineer may elect to approve some materials by submitting samples for testing by coding the RAM with a “9” –“Submit Samples for Preliminary Evaluation.” This authority is applicable only to the materials that the State Materials Laboratory is capable of testing. The Project Office shall review the established specifications and contract documents for compliance prior to submitting the sample for testing.

The Project Engineer can contact the State Materials Laboratory if assistance is needed to determine their testing capabilities. The State Materials Laboratory can be reached at 360-709-5400.

Upon receipt of a satisfactory test report from the State Materials Laboratory, the Project Engineer shall approve the RAM, coding it with an “8” – Source Approved.

The “Buy America” requirements apply to material approved under this authority that is used on all federally funded projects. The “Buy America” requirements should be addressed by the Designer prior to including the material into the Contract Special Provisions. Ultimately it is the responsibility of the Project Engineer to verify that the requirements are met.

(IX) Region Special Provisions

The Project Engineer is allowed to approve the Request for Approval of Material (RAM) for material specified in the Region Special Provisions. In taking these actions, the Project Engineer is acting under the professional responsibility inherent in all actions as a representative of the department and as a Licensed Professional Engineer. Full accountability of such actions is expected. It is the responsibility of the Project Engineer to determine the appropriate acceptance criteria for the material; which may require testing or other means to support a decision. This includes contacting the Region or Headquarters Subject Matter Expert if assistance is needed.

The “Buy America” requirements apply to material approved under this authority that is used on all federally funded projects. The “Buy America” requirements should be addressed by the Designer prior to including the material into the

Contract Special Provisions. Ultimately it is the responsibility of the Project Engineer to verify that the requirements are met.

9-1.3C Low Risk Materials

There are low risk materials that may be used in the project without contractor identification per *Standard Specifications* Section 1-06 or any other documentation unless stipulated in the Contract Documents. The “Buy America” requirements apply to all federally funded projects. Table 9-2 is a listing of these materials. Other items can be considered for addition to this list. Suggestions are encouraged and may be made to the State Construction Office or the Materials Quality Assurance Engineer at the State Materials Laboratory.

Table 9-2 Low Risk Materials

- Asphaltic felt for bridge approach slabs and pavement seats
- Backer Rod for Induction Loop Vehicle Detectors
- Bond breaking material for cement concrete pavement
- Clear plastic covering
- Colloidal copper compound
- Concrete Drain Tile with Cover for Ground Rods
- CSL Access Tubes and Caps
- Duct tape for bridge approach slab anchors
- Dust Palliative
- Electrical pull string
- Electrical tape
- Expanded polystyrene for bridge approach slab anchors
- Friction tape, and moisture proof varnish for friction tape
- Fasteners for Mailbox Supports (bolts, nuts, and washers)
- Galvanized wire mesh and hardware for screens on sign bridges and cantilever sign structure bases
- Material for Painting/Coating preparation (abrasive blast media, bird guano treatment, fungicide treatment, filter fabric, foam backer rod)
- Mailbox Support Type 1
- Metal Form For Light Standard Foundation
- Nails
- Oxide Inhibitors for Aluminum Conductors
- Parting Compound for Concrete Forms
- Pea gravel for decorative purposes
- Pipe wrap and spacers for electrical conduit
- Pipe Joint Lubricant
- Polypropylene rope for induction loop centralizers
- Premolded joint filler for expansion joints in sidewalks, curbs, and gutters
- PVC pipe for bridge approach slab anchors
- PVC Pipe for Weep Holes through Bridge Abutment Pier Walls, Reinforced Concrete Retaining Wall Stem Walls, and Concrete Fascia Panels
- PVC solvent cement
- Rebar tie wire (plain and epoxy-coated)
- Shims for Concrete Barrier
- Shims for Oak Blocks for Bridges
- Shims (plastic) for precast drainage items
- Grout for cosmetic purposes
- High Visibility Fence including hardware and stakes
- Locknuts for terminating conduit
- Loose Woody Debris
- Signal Foundation Identification Tag and Epoxy adhesive to attach them
- Silicone sealant for electrical service cabinets
- Spacers for electrical conduit duct bank
- Spacers for rebar columns
- Steel Reinforcing Bar Centralizers
- Weed-free straw bales not used as mulch or check dams
- Wire marking sleeve

9-1.4 Acceptance Methods for Materials

Materials acceptance is accomplished by several different methods. Once a material is approved and has demonstrated the ability to meet the applicable specification, a proper method of acceptance is determined for that type of product. The approved Request for Approval of Material or submitted Qualified Product List page will state the acceptance method.

Types of Acceptance methods are Sampling and Testing, WSDOT Fabrications Inspection, Manufacturer's Certificate of Compliance, Miscellaneous Certificates of Compliance, Shop Drawings, Catalog Cuts, Optional Approval/Acceptance for Materials, Visual Acceptance or Reduced Acceptance Criteria. Sampling and testing is the highest level of acceptance method showing conformance to the requirements. All designated acceptance documentation is to be approved and retained prior to material being placed except for verification samples and Manufacturer's Certificate of Compliance within the restraints of *Standard Specifications* Section 1-06.3.

9-1.4A Testing

Project Engineer offices are responsible for tracking the acceptance/verification tests performed on their contracts. Refer to *Standard Specifications* Section 1-06.2(1) and this chapter for testing criteria and frequency information. This chapter also includes a large variety of test procedures that may be performed in the field office lab or at the jobsite by a qualified tester. All testers shall be qualified to perform sampling/testing for those acceptance tests found in the *Construction Manual* M 41-01.

9-1.4A(1) Reference Test Report

When a Satisfactory Test Report is required, a Reference Test Report may be used if allowed in [Section 9-4](#) for that specific material. A Reference Test Report as listed below will not be allowed for HMA Mix Designs or other materials unless allowed per [Section 9-4](#).

A Reference Test Report shall consist of a printed copy of the current electronic QPL database page showing "referenced" lots previously tested during the current calendar year. The lot number in the QPL must match the lot number of the material used. The information will be listed in the "description" field for specific materials in the QPL. The QPL page used as the "Reference Test Report" shall be within the same calendar year that the material is used on the project. The QPL page must reflect the same specification as the material to be used and be received prior to installation of the intended material.

The use of a test report from another contract is not acceptable as a Reference Test Report.

9-1.4A(2) **Statistical Acceptance With SAM**

The Statistical Analysis of Materials program (SAM) has been developed to calculate the percent within limits of materials being statistically accepted per *Standard Specifications* Section 1-06.2(2). When the test results for at least three samples has been entered, the program will calculate the percent within limits based on the upper and lower acceptance limits, calculate the pay factor for each, and calculate the composite pay factor (CPF) for the material being evaluated.

(I) Initial Material Set-up

When a contract requires statistical analysis to be used, the “lot” acceptance criteria for the material needs to be entered into SAM. A lot is defined as 15 sublots; the final lot may be increased to 25 sublots. All samples from a material type, i.e., gravel backfill for walls, mineral aggregate, concrete aggregate, or CSBC shall be evaluated collectively. For paving concrete, each class of mix shall be evaluated collectively. For hot mix asphalt, each job mix formula, and all changes to that job mix formula shall be evaluated collectively.

Make sure that this information is correct. Once test data has been entered, the lot acceptance criteria cannot be altered. There are three ways to establish the lot acceptance criteria:

1. Select the material. The appropriate specifications will be automatically retrieved.
2. For HMA, you can enter the mix design number, and the JMF, the acceptance specifications, the tolerances, price adjustment factors, and the upper and lower acceptance limits will be automatically retrieved.
3. Pick User Define and you will be able to add new requirements, or edit existing requirements. For HMA, make sure that you calculate the upper and lower acceptance criteria based on the tolerance limits.

If there is a change to the HMA job mix formula, (JMF), the program allows you to copy existing lots. The original mix design and a “-1, -2, -3...” number is added, and you are allowed to edit the JMF. These JMF’s will be evaluated collectively.

It is important to delete lots that are not used from the program. The statistical acceptance results are used by other programs to evaluate the material.

(II) Inputting Test Results

Once the testing has been completed, the test results need to be entered into the program for the material being tested as soon as possible. Once the office starts using the Materials Testing Program for the field testing, the test results will be retrieved into the statistical program.

(III) Review Work

As with all materials documentation, this information entered into the statistical program needs to be reviewed regularly to make sure that there are no mistakes. If an error has been found in the test data, the original data can be revised. If an error has been found in the lot acceptance criteria, all of the test data will have to be deleted and re-entered under the new lot.

(IV) Contractor Access

The PEO documentation engineer will give the contractor access to the statistical program. This will allow the contractor access to the statistical program for the work order they are working on to view the acceptance results. They will not be able to change the lot acceptance criteria or any test results. They will be able to access the acceptance portion of the program, and view the gradation report, the compaction report, and the contract detail report.

9-1.4B Fabricated Items

9-1.4B(1) Stamp/Tag

Items that are inspected and found to meet contract document requirements by the WSDOT Materials Fabrication Inspection Office are identified by a Stamp or Tag. This type of inspection is generally performed at the manufacturing or fabrication plants. There are various types of Stamps or Tags used for acceptance of inspected items, which attest that the item was in full conformance with the specifications at the time of inspection. The inspected items, along with the type of Stamp or Tag designation, are covered under [Section 9-2](#).

It is the responsibility of the Project Engineer office to notify the WSDOT Materials Fabrication Inspection Office when their inspection services are needed by sending a 'cc' of the approved RAM or submitted QPL page to WSDOT Fabrications at fabinspect@wsdot.wa.gov. The Contractor or the Fabricator may also contact the WSDOT Materials Fabrication Inspection Office for needed inspection.

To schedule a fabrication inspection contact:

Fabrication Inspection – 360-709-5504
Mail Stop to send hardcopy documents – MS 47365 Attn: Fabrication Inspection
Email Address: fabinspect@wsdot.wa.gov
Physical Address: 1655 S 2nd Ave. SW, Tumwater, WA 98504-7365

WSDOT Materials Fabrication Inspection Office can be contacted at:

- State Materials Laboratory (Tumwater) 360-709-5504
- Vancouver Inspection 360-905-2251
- Online at <http://wwwi.wsdot.wa.gov/MatsLab/Construction/FabricationInspection.htm>

If there are no stamps or tags present, inform the Contractor that the item is not acceptable and contact the Materials Fabrication Inspection Office to determine the status of the inspection. The Project Engineer may accept an email from the WSDOT Fabrication Inspection Office as field verification documentation that an item delivered with a missing/unreadable tag or stamp has been inspected and was acceptable at the time/place of inspection by the WSDOT Fabrication Inspector. With the exception of items that have been verified as acceptable by the WSDOT Fabrication Inspection Office, items lacking stamps or tags and those items damaged during shipping should be rejected and the material tagged or marked appropriately.

9-1.4B(2) *Signing Decal*

Signing items that are inspected and found to meet contract document requirements by the WSDOT Materials Fabrication Inspection Office are identified by a Decal. This type of inspection is performed at the sign fabrications plant. The Decal present attests that the item was in full conformance with the specifications at the time of inspection. The Decal designation is covered under [Section 9-2](#).

It is the responsibility of the Project Engineer office to notify the WSDOT Materials Fabrication Inspection Office when their inspection services are needed by sending a 'cc' of the approved RAM or submitted QPL page to WSDOT Fabrications at fabinspect@wsdot.wa.gov. The Contractor or the Fabricator may also contact WSDOT Materials Fabrication Inspection Office as listed in Section 9-1.4B(1) for needed inspection.

9-1.4B(3) *Concrete Pipe Acceptance Report*

Concrete Pipe less than 30 in in diameter that are inspected and found to meet contract document requirements by the WSDOT Materials Fabrication Inspection Office are identified by a Concrete Pipe Acceptance Report.

The Concrete Pipe Acceptance Report will indicate the date and original test results as performed by the Fabrication Inspector and will bear the appropriate certification from the fabricator.

It is the responsibility of the Project Office Field Inspector to verify material delivered to the jobsite is represented by the Concrete Pipe Acceptance Report delivered with the pipe. The Concrete Pipe Acceptance Report is only valid for a 90 day period starting from the manufacturing date of the tested pipe.

The Field Inspector is required to verify the following:

- Manufacturing date of the pipe is within the 90-day window on the report.
- Pipe is at the age of the specified days or older as stated on the concrete pipe acceptance report.

Note: Concrete Pipe greater than 30 in require different acceptance per [Section 9-4](#).

The WSDOT Materials Fabrication Inspection Office can be contacted as listed in Section 9-1.4B(1).

9-1.4C *Visual Acceptance*

Visual Acceptance is appropriate for material that has the lowest risk and consequence of failure. The field inspector is required to verify that proper "Approval" has been performed per Section 9-1.3. No further documentation is required for acceptance unless the Contract Documents mandate additional information.

9-1.4D Manufacturer's Certificate of Compliance

As designated by the Specifications and Contract Special Provisions, certain materials may be accepted on the basis of a Manufacturer's Certificate of Compliance. This acceptance is an alternative to job site sampling and testing. The submitted *Qualified Products List* page or approved Request for Approval of Material shall stipulate the items for which a compliance certification is an acceptable basis of acceptance. The Manufacturer's Certificate of Compliance is required prior to permanent installation of the material. See Section [SS 1-06.3](#) for guidance on allowing material to be placed without certification.

The form of the Manufacturer's Certificate of Compliance will vary considerably based on both the material and the origin, and may take the form of standard certificate form, individual letter from manufacturers, or overstamp on bill of lading. Certain information is required and is designated by the specifications. This information includes the identity of the manufacturer, the type and quantity of material being certified, the applicable specifications being affirmed, and the signature of a responsible representative of the manufacturer. Supporting mill tests or documents may also be required. A Manufacturer's Certificate of Compliance is required for each delivery of material to the project and the lot number, where lot numbers apply, of material being certified shall be identified.

Upon receipt of the Manufacturer's Certificate of Compliance at the project office, it shall be reviewed for compliance with the specification requirements using the preceding guidelines and the checklist for Transmittal of Manufacturer's Certificate of Compliance Check List [DOT Form 350-572](#). The manufacturer of the material must make the certification. A supplier certificate is not acceptable except as evidence for lot number and quantity shipped and can only be accepted when accompanied by a certificate from the manufacturer, which meets the requirements of *Standard Specifications* Section 1-06.3. The Project Office is required to retain the signed and dated Manufacturer's Certificate of Compliance Check List for each submittal.

9-1.4E Miscellaneous Certificates of Compliance

As designated by the Specifications and Contract Special Provisions, certain materials may be accepted on the basis of a Certificate of Compliance. Various Certificates of Compliance, such as a Lumber Grading Certificate, Lumber Grading Stamp, Certificate of Treatment, Bag Label, Concrete Delivery Ticket, Asphalt Certification of Shipment (BOL), Supplier's Certificate of Compliance and Contactor's Certificate of Compliance, may be required for acceptance on different types of materials. A Supplier's Certificate of Compliance or Contractor's Certificate of Compliance shall be on Company letterhead, specifying the Contract number, name, the material being certified, the WSDOT Standards or Specifications being affirmed, and signed and dated by the company official.

Standard Specifications, Contract Provisions, and Chapter 9 may require written verification or retention of the Certificate of Compliances by the Project Engineer office Field Inspector.

9-1.4F Shop Drawings

As designated by the specifications and contract special provisions, certain materials may be accepted on the basis of a Shop Drawing. Shop drawings are generally manufacturer's or fabricator's drawings that show details about an item being built for a specific job. Approval of Shop Plans and Working Drawings is per Section 1-2.4H and [Figure 1-1](#).

The Shop Drawing shall be retained and placed in the Materials Files for acceptance.

9-1.4G Catalog Cuts

As designated by the Contract documents, certain materials may require the acceptance method be based on a Catalog Cut. A Catalog Cut may also be required in support of approving a Request for Approval of Materials (RAM) per [Section 9-1.3B](#). The approved Catalog Cut is required prior to installation of the material.

Upon receipt of the Catalog Cut information at the Project Office, an initial review for compliance with the established Specifications and Contract documents should be performed. All information shall be accompanied by the "Transmittal of Catalog Cuts" form generated with the Record of Materials. The Project Office shall follow the directions on the Transmittal of Catalog Cuts [DOT Form 350-072](#) and submit the package to the State Materials Lab Documentation Section for approval, or as per the original Record of Material. The Transmittal of Catalog Cuts form and Catalog Cuts for those materials listed in *Standard Specifications* Section 9-14 and 9-15, and accepted based on approved Catalog Cuts, should be submitted to the Region or State Roadside and Site Development Office for approval.

The Catalog Cut may be forwarded by mailing, electronically transferring or faxing.

9-1.5 *Field Verification of Materials*

All material permanently incorporated into a Contract shall be field verified by the Inspector. Field verification documentation for aggregate, all components of hot mix asphalt and concrete is by receipt of delivery tickets. Field verification shall occur prior to or during placement of the material. When the Field Inspector signs/initials a Field Note Record (FNR), they are affirming that items requiring field verification have been checked and have been found to be acceptable.

The Field Inspector shall inspect the product, material and construction processes for conformity to the Contract requirements. The Field Inspector shall also inspect the product or material for shipment and handling damage.

The Field Inspector is required to verify that the material being placed is the same material that was submitted on the *Qualified Products List* (QPL) page or as listed on the approved Request for Approval of Material (RAM). The field inspector is also required to verify that the material being installed is the same lot/heat number/roll of material that was tested or certified for acceptance.

For WSDOT Fabrications Inspected items, the Field Inspector shall document the quantity, WSDOT Tag/Stamp/Decal, and Material Origin Foreign or Domestic (F or D) designation in either the Inspector's Daily Report (IDR), QPL Contractor Product Information Page, FNR, or other forms of documentation. The Project Engineer may accept an email from the WSDOT Fabrication Inspection Office as field verification documentation that an item delivered with a missing/unreadable tag or stamp has been inspected and was acceptable at the time/place of inspection by the WSDOT Fabrication Inspector.

If the placement of the materials has occurred prior to approval or acceptance, the Field Inspector is required to document in either the IDR, QPL Contractor Product Information Page, FNR or other forms of documentation all information that can be gathered such as quantity, Manufacturer, Lot, Heat Number, Model or Type. The note in the FNR or IDR will link what was placed once the approval and acceptance documents have been received. The Field Inspector should immediately notify the Office Engineer of the deficiency to ensure missing documentation is obtained.

Photos with dates are good supporting documentation and are highly recommended for all permanently placed materials.

9-2 Materials Fabrication Inspection Office – Inspected Items Acceptance

9-2.1 General

All fabrication inspection of construction materials is performed by the WSDOT Materials Fabrication Inspection Office, unless otherwise delegated by the State Materials Engineer.

Items that are inspected and found to meet Contract requirements by the WSDOT Materials Fabrication Inspection Office are identified by a tag or stamp or an email sent to the Project Office. This type of inspection is generally performed at the manufacturing or fabrication plants; however there are items that are inspected at the job site as identified in [Section 9-4](#). There are various types of stamps or tags used for acceptance of inspected items, which attest that the item was in full conformance with the Specifications at the time of inspection. The inspected item along with the type of stamp designation is covered under [Section 9-2.2](#).

9-2.1A Acceptance of Fabricated Items

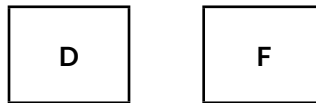
The following is the process for the acceptance of inspected items.

1. The manufacturing or fabrication plant must be approved via the "Request for Approval of Material," (RAM) or the *Qualified Products List* (QPL)
2. The Materials Fabrication Inspection Office Inspector will obtain the necessary mill certifications, Certificate of Material Origin, or other documentation from the manufacturer. After assuring the inspected item and documentation meets Contract Provisions the Inspector will identify approved material by applying a stamp or tag shown in [Figure 9-3](#) through [9-7](#). The WSDOT Fabrication Inspection Office may provide the Project Engineer an email verification that items have been accepted

when the Fabrication Inspection Office is certain the materials at the jobsite were inspected. The WSDOT Fabrication Office's email to the Project Engineer will also identify whether the item contained foreign or domestic steel.

Items containing Foreign steel and iron, and coating or other processes performed outside the USA will be stamped with an "F" identifier, and items containing steel that has been determined to be of domestic origin will be stamped with a "D" identifier. See [Figure 3A](#) and [3B](#). This stamp is in addition to the appropriate acceptance tag or stamp in [Figure 9-3](#), [9-4](#), [9-5](#), and [9-7](#). The "F" or "D" identifier will be stamped next to the acceptance stamp. For those items with an acceptance tag, the "F" or "D" stamp will be stamped on the back of the Tag.

Figure 3A and 3B Domestic or Foreign Identifier Stamp



For projects with the Buy America requirement, the Project Engineer office is required to obtain the Certificate of Materials Origin for foreign steel from the Contractor, track the quantity and retain these documents in the project records.

9-2.2 Inspected Items, Stamps, and Tagging Identification

The following are examples of the types of stamps and tags used by the WSDOT Materials Fabrication Inspection Office. The letter or letter number combination on the stamp or tag represents the Inspector who performed the inspection. In [Figure 9-3](#), the Inspector identification is denoted "M" and "G." In [Figure 9-4](#), the Inspector identification is denoted "N," and the "001234" is the inspection identification number.

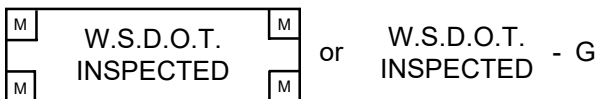
9-2.2A Inspected Stamp Identification

The Stamp shown in [Figure 9-3](#) identifies inspection and the Inspector of the following items:

- Expansion Joints (Excluding Modular Expansion Joints)
- Precast Concrete Barrier
- Precast Concrete Catch Basins
- Precast Concrete Drywell
- Precast Concrete Inlets
- Precast Concrete Manholes
- Precast Concrete risers and adjustment sections 12 inches and above
- Signing Hardware
- Other items per the Contract
- Precast Concrete Junction Boxes Type 1, 2, and 8

All documentation associated with the Stamp in [Figure 9-3](#) will be reviewed and approved by the WSDOT Materials Fabrication Inspection Office and kept at the point of Manufacture. Quantities of foreign steel used on the project will not be tracked by the WSDOT Materials Fabrication Inspection Office.

Figure 9-3 Stamps



9-2.2B Inspected Stamp and Tag Identification

The Stamp shown in [Figure 9-4](#) or Tag shown in [Figure 9-5](#) identifies inspection and the inspector of the following items:

- Anchor Bolts (ASTM A449 and ASTM F1554 Grade 105)
- Bridge Bearings (Disc, Spherical, Cylindrical, and Fabric Pad)
- Cattle guard
- Concrete Drain, Perforated Underdrain, Culvert, and Storm Sewer Pipe (30" and above in diameter)
- Concrete Sanitary Sewer Pipe (30" and above in diameter)
- Epoxy Coated Steel Reinforcing Bars
- Grates (Grate Inlets and Drop Inlets)
- Handrail
- High Mast Light Poles (Contract Provisions)
- High Strength Bolts (shop provided)
- Light and Signal Standards
- Metal Bridge Railing (Steel and Aluminum)
- Miscellaneous Welded Shop Items
- Modular Expansion Joint
- Piles (Structural, Coated, Timber, Composite, Treated Wood, Prestressed Concrete, Steel Pipe Piles for Concrete-Filled Steel Tubes, and Soldier)
- Precast Concrete Bridge Deck Panels
- Precast Concrete Box Culverts, and Split Box Culverts
- Precast Concrete Cable Vaults
- Precast Concrete Floor Panels
- Precast Concrete Junction Boxes Type 4, 5, and 6
- Precast Concrete Marine Pier Deck Panels
- Precast Concrete Noise Barrier Walls
- Precast Concrete Pier Caps
- Precast Concrete Pull Boxes
- Precast Concrete Retaining Walls
- Precast Concrete Roof Panels
- Precast Concrete Structural Earth Walls
- Precast Concrete Vaults (Utility, Drainage, etc.)
- Precast Concrete Wall Panels
- Precast Concrete Wall Stem Panels
- Precast Reinforced Concrete Three Sided Structures
- Prestressed Concrete Girders
- Guardrail Posts with Welded Base Plates
- Seismic Retro Fit Earthquake Restrainers
- Sign Structures
- Steel for Bridges
- Steel Column Jackets
- Structural Steel for State Ferry System
- Wood Bridges
- Other items per the Contract

With the exception of Steel Bridges, Prestressed Concrete Girders, and Bridge and Cantilever Sign Structures, all documentation associated with the stamp in [Figure 9-4](#) or the tag in [Figure 9-5](#) will be reviewed and approved and kept at the point of manufacture. Documentation associated with Steel Bridges, Prestressed Concrete Girders, and Bridge and Cantilever Sign Structures will be reviewed and approved by the WSDOT Materials Fabrication Inspection Office and kept at the WSDOT Materials Fabrication Inspection Office until the documents are sent to the State Records Center for retention. Quantities of foreign steel used on the project will not be tracked by the WSDOT Materials Fabrication Inspection Office.

Figure 9-4 Stamp

**APPROVED
FOR SHIPMENT
WASH. DEPT. TRANSP.**
N001234

Figure 9-5 Tag

**APPROVED
FOR
SHIPMENT**

Inspector, Washington State
Department of Transportation

Date _____

DOT 350-021
Revised 11/03

9-2.2C Inspected Tag Identification

The Tag in [Figure 9-6](#) identifies inspection and the inspector of Treated Timber, Piling and Poles.

All documentation associated with the tag in [Figure 9-6](#) will be reviewed and approved by the WSDOT Materials Fabrication Inspection Office and kept at the WSDOT Materials Fabrication Inspection Office and kept at the point of manufacture.

Figure 9-6 Tag



9-2.2D Inspected Casting Stamp Identification

The Stamp shown in [Figure 9-7](#) identifies inspection and the inspector of the following items:

- Gray-Iron Castings
- Steel Castings
- Ductile-Iron Castings (Catch Basin Frame and Grates, Manhole Ring and Covers, etc.)
- Other items per the contact

For Rectangular Frames and Grates, each set shall be stamped aligning the adjacent mating surfaces to each other. This alignment is critical as the leveling pads are ground to prevent rocking of the grates in the frames.

All documentation associated with the stamp in [Figure 9-7](#) will be reviewed and approved by the WSDOT Materials Fabrication Inspection Office and kept at the point of manufacture. Quantities of foreign steel used on the project will not be tracked by the WSDOT Materials Fabrication Inspection Office.

(This Stamp is impressed on the casting and will be circled with spray paint for ease of visibility of the Stamp.)

Figure 9-7 Stamp

WSDOT-A

9-2.3 Permanent Sign Inspection

All permanent signs are required to be inspected prior to installation. The Project Engineer office has the option of inspecting the project signs as detailed in Section 9-2.3B prior to installation or can contact the WSDOT Fabrication office to inspect the permanent signs per Section 9-2.3A at the fabrication facility prior to shipment to the project. The difference is a matter of convenience to the Project Engineer and the choice is up the Project Engineer.

9-2.3A Sign Inspection by WSDOT Materials Fabrication Inspection Office

The Project Engineer Office will need to contact the WSDOT Fabrication Inspection Office to schedule the inspection. The WSDOT Materials Fabrication Inspection Office inspects permanent signs at the fabrication facility. Construction and temporary signs are not inspected by the WSDOT Materials Fabrication Inspection Office. The Materials Fabrication Inspector will verify that signs meet the requirements of the contract. The Fabrication inspector will attach a "Fabrication Approved" decal (see [Figure 9-8](#)) to all approved signs prior to shipment of the sign to the job site (except double sided signs). Sign mounting hardware provided by the Sign Fabricator will be inspected and approved by the Materials Fabrication Inspector prior to shipment to the job site. The inspector will stamp each box of hardware "WSDOT INSPECTED" (see [Figure 9-3](#)).

All documentation associated with the decal in Figure 9-8 and stamp in Figure 9-3 will be reviewed and approved by the WSDOT Materials Fabrication Inspection Office and kept at the point of manufacture.

Pre-approval of the Sign Fabricator by Traffic Operations and the WSDOT Materials Fabrication Inspection Office is required.

Figure 9-8



9-2.3B Sign Inspection by the WSDOT Project Engineer

If the Project Engineer elects to inspect the signs, the Project Engineer is responsible for inspection of permanent Signs detailed in the Contract Plans. The Project Engineer will verify that signs meet the requirements of the contract. The Project Engineer will attach a “PEO Approved” decal (see Figure 9-9) to all approved signs (except double sided signs, construction, and temporary signs). PEO Approved Decals will be provided to the Project Engineer by WSDOT Materials and Fabrication Inspection Office. Sign mounting hardware provided by the Sign Fabricator will be inspected and approved by the Project Engineer at the job site.

Figure 9-9



9-2.4 Pipe Acceptance Report

The WSDOT Materials Fabrication inspection Office periodically inspects and witnesses testing of concrete pipe less than 30 in in diameter at approved fabricators. During this inspection, samples of each type, size, and class of pipe are inspected and tested to verify compliance with the *Standard Specifications*.

For a 90-day period from the date of manufacture, concrete pipe less than 30 in in diameter may be shipped and accepted based on “Concrete Pipe Acceptance Reports.” The concrete pipe that ships must be at the age or older than the concrete pipe tested and represented by the Concrete Pipe Acceptance Report. This report is prepared by the Materials Fabrication Inspector and copies are thereafter supplied by the fabricator to accompany each shipment of pipe.

All documentation associated with inspection and acceptance of concrete pipe, and the Concrete Pipe Acceptance Report will be kept at the point of manufacture.

9-3 Guidelines for Job Site Control of Materials

9-3.1 General

The intent of sampling and testing is to ensure that the material provided to the project conforms to the specifications. The frequency schedule in [Section 9-3.7](#) covers the minimum requirements for sampling and testing at the project level. The Project Engineer is responsible for obtaining the number of samples necessary to ensure adequate control of the material being produced under the circumstances and conditions of the particular project. There may be cases where production is just getting under way, where source material is variable or marginal in quality. Also operations from commercial sources when small lots of material are being sampled (as for barge loads of aggregate) or when stockpiles are built and depleted may require more frequent sampling and testing. A minimum of one acceptance test is required unless the Project Engineer reduces materials acceptance per [Section 9-1.1](#).

When in doubt as to sampling requirements, refer to Record of Materials (ROM), Request for Approval of Material (RAM), and [Section 9-4](#).

In some instances, items usually sampled by project engineers representative may be sampled and tested by representatives of the State Materials Laboratory or other representatives. Such items as shown in this chapter, when properly identified with an “APPROVED FOR SHIPMENT” Tag, may be accepted for use by the Project Engineer without any further sampling or testing.

9-3.2 Sample Types

9-3.2A Preliminary Samples and Tests

Preliminary samples are intended to show the general character of the materials available or proposed for use. The sample may be taken from a natural deposit, the general stock of a dealer, or elsewhere. The material sampled may require further treatment before it will meet the specification requirements. Preliminary samples are a basis for approving which aggregate site or brand of material will be considered for use. Deliveries cannot be accepted on the basis of preliminary samples unless the samples represent an identified lot of materials.

Unless specified for a particular purpose, preliminary sampling and testing of materials from a potential source are not mandatory functions. It is to be performed when requested by the Project Engineer, Region Materials Engineer or the State Materials Laboratory on the Request for Approval of Material DOT Form 350-071.

9-3.2A(1) Sampling and Testing for Aggregate Source Approval

A pit or quarry source owner may contact the State ASA Engineer directly to request an ASA source approval and will pay all sampling and testing charges. If the Region or project offices elect to sample a pit or quarry for source approval for a project and this is paid by project funds, the samples will have to be obtained by the Region Materials Engineer's designated representative according to WSDOT SOP 128 and include all of the required documentation.

9-3.2A(2) Sampling and Testing for Preliminary Hot Mix Asphalt Mix Design

These samples are used to determine if the aggregate source is capable of meeting the mix design specification requirements. Preliminary samples shall be taken in accordance with WSDOT FOP for AASHTO R 90 and consist of a minimum of 200 pounds of mineral material. Contact the Region materials office if preliminary samples are required. Give full details of type of construction proposed.

9-3.2B Acceptance Samples and Tests

Acceptance samples and tests are defined as those samples tested for determining the quality, acceptability, and workmanship of the materials prior to incorporating the materials into the project. The results of these tests are used to determine conformance to the contract requirements. The minimum frequency for sampling and testing of acceptance samples is detailed in [Section 9-3.7](#).

The Code of Federal Regulations, [49 CFR](#), has listed certain materials to be hazardous. When shipping hazardous materials using a common carrier, i.e. UPS or Fed Ex, the USDOT and the carrier have special requirements that need to be followed. The following is a list of hazardous materials that we commonly sample and test on our projects; paint, epoxy part B, pigmented sealer, form release oil, and polyester resin. When these materials or other hazardous materials need to be sent for testing, contact the Region Materials Laboratory for shipping instructions. The Region Materials Laboratory needs to contact the shipper for proper shipping requirements.

9-3.2C Verification Samples and Tests

Verification samples and tests are used for verifying the reliability of a manufacturer's test results when acceptance of the material is based upon a Manufacturer's Certificate of Compliance. In the event of a failing verification test, the Project Engineer office will be notified by the State Materials Laboratory or the State Construction Office. The Project Office needs to verify whether the material has been used. If the material was used, the Project Engineer office shall contact the State Construction Office which will coordinate with the State Materials Engineer or Assistant State Materials Engineer to determine the appropriate action.

9-3.3 Test Numbering

A separate series of numbers, starting with "No. 1" in each instance, shall be used for acceptance, independent assurance, and verification samples for each type of material for which there is a separate bid item. Verification samples shall be referenced to the corresponding Manufacturer's Certificate of Compliance.

9-3.4 Point of Acceptance

9-3.4A State Owned Source

Material produced from a State owned source may be accepted either as it is placed into stockpile or as it is placed in hauling vehicles for delivery to the roadway. The sampling and testing frequency during stockpiling shall be in conformance with [Section 9-3.7](#).

9-3.4B Contractor's Source

If stockpiled material is set aside exclusively for use on WSDOT projects it may be accepted the same as a state-owned source. If stockpiles are constructed for general use, materials for WSDOT projects shall be tested for acceptance from samples taken by the Project Engineer representative in accordance with WSDOT FOP for AASHTO T 2. The engineer will determine the exact point of acceptance. If an existing stockpile was built without acceptance testing during material production, and later set aside exclusively for use on state projects, the material may be accepted with satisfactory test results from samples taken by the Project Engineer representative in accordance with WSDOT FOP for AASHTO T 2. The sampling and testing frequency shall conform to [Section 9-3.7](#).

9-3.5 **Basis for Acceptance**

The basis of acceptance of Hot Mix Asphalt is by statistical or visual evaluation. The basis of acceptance of aggregate is by statistical or non-statistical evaluation. The method to be used is specified in the Standard Specifications or Contract Documents.

9-3.5A **Basis for Acceptance – Statistical Evaluation**

For materials being accepted using statistical evaluation procedures, random samples will be evaluated to determine quality level within a defined tolerance band. Acceptance, bonus, and disincentive procedures are defined in the contract documents.

Test results with acknowledged errors or equipment deficiencies are to be immediately discarded without recourse and another sample run.

9-3.5A(1) **Contractor HMA Retest**

Test results for Hot Mix Asphalt may be retested at the request of the Contractor, as defined in the *Standard Specifications* Section 5-04.3(9)B7. This specification allows the Contractor to request a retest of any subplot, provided the request is submitted in writing and within seven calendar days after the specified test results have been posted to a WSDOT website.

A split of the original acceptance sample must be tested utilizing different equipment and a different qualified tester. It is therefore necessary that a split of every field sample (i.e., opposite quarter from acceptance test) be saved in a secure area, accurately marked, and be available for retesting if necessary. The specification requires that the retesting be performed in the Region Materials Laboratory or the State Materials Laboratory. When the Contractor requests a retest, it is expected that the split sample be sent and tested as quickly as possible. This will require that testing of these samples be prioritized. By expediting the retest, problems that may exist in testing or with the material being produced can be identified and corrected, lessening the impact to both the Contractor and WSDOT.

9-3.5B **Basis for Acceptance – Non-Statistical Evaluation**

9-3.5B(2) **Aggregate**

When the test results for aggregate that are accepted by non-statistical evaluation fall outside the specification limits, the aggregate will be statistically evaluated according to the *Standard Specifications* Section 3-04.3(5).

For materials that do not meet specifications, the Project Engineer office shall contact the State Construction Office which will coordinate with the State Materials Engineer or Assistant State Materials Engineer to determine the appropriate action.

9-3.5C Basis for Acceptance – Performance Graded Asphalt Binder and Emulsified Asphalt

The basis for acceptance of asphalt binder and emulsified asphalts is compliance with existing specifications as modified to include the tolerance as follows:

1. If a binder or emulsified asphalt sample fails to meet the required specifications, the binder or emulsified asphalt samples prior to and subsequent to the failed sample will be tested. Samples of asphalt binder or emulsified asphalt will continue to be tested until samples taken both prior to and subsequent to the failing samples meet the specifications.
2. If a binder or emulsified asphalt sample does not meet the specifications but is not more than 10 percent outside the specification limits and the binder or emulsified asphalt sample prior to and subsequent to the out of specification binder or emulsified asphalt both meet the specifications, there will be no price adjustment.
3. If the binder or emulsified asphalt sample is more than 10 percent out of specification or if the binder or emulsified asphalt sample is less than 10 percent out of specification and the binder or emulsified asphalt sample prior to or subsequent to the out of specification sample does not meet the specifications, the HMA or emulsified asphalt will be rejected.

9-3.6 Vacant

9-3.7 Acceptance Sampling and Testing Frequency Guide

Item	Test	Acceptance Sample
Gravel Borrow	Grading & SE	1 – 4000 Ton
Select Borrow	Grading & SE	1 – 4000 Ton
Gravel Borrow for Structural Earth Wall See Note 6	Grading & SE	1 – 4000 Ton
Sand Drainage Blanket	Grading	1 – 4000 Ton
Gravel Base	Grading, SE & Dust Ratio	1 – 4000 Ton
CSTC	Grading, SE & Fracture	1 – 2000 Ton
CSBC	Grading, SE & Fracture	1 – 2000 Ton
Streambed Sediment	Grading	1 – 500 Tons
Maintenance Rock	Grading, SE & Fracture	1 – 2000 Ton
Ballast	Grading, SE & Dust Ratio	1 – 2000 Ton
Permeable Ballast	Grading & Fracture	1 – 2000 Ton
Backfill for Sand Drains	Grading	1 – 2000 Ton
Crushed Coverstone	Grading, SE & Fracture	1 – 1000 Ton
Crushed Screening		
5/8 – No. 4	Grading & Fracture	1 – 1000 Ton
1/2 – No. 4	Grading & Fracture	1 – 1000 Ton
No. 4 – 0	Grading & Fracture	1 – 1000 Ton
Gravel Backfill for		
Foundations	Grading & SE	1 – 1000 Ton
Walls	Grading, SE & Dust Ratio	1 – 1000 Ton
Pipe Zone Bedding	Grading & SE	1 – 1000 Ton
Drains	Grading	1 – 500 Ton
Dry Wells	Grading	1 – 500 Ton
Concrete Patching Material		
Cylinder (3 hour and 24 hour)	Compressive Strength	1 per Shift
Air Content	Air	1 per Shift
Grout Type 2		
Cube molds (7 day)	Compressive Strength	1 per bridge pier or 1 per Shift
Grout Type 3		
Cube molds (3 hour, 1 day, 7 day)	Compressive Strength	1 per bridge pier or 1 per Shift
Grout Type 4 (Structural Applications)		
Cube mold/cylinder (7 day)	Compressive Strength	1 per bridge pier or 1 per Shift
Mortar Type 3		
Cube molds (7 day)	Compressive Strength	1 per day
CC Paving		
Coarse Aggregate See Note 3	Grading	1 – 2000 CY
Fine Aggregate See Note 3	Grading	1 – 2000 CY
Combined Aggregate See Note 3	Grading	1 – 2000 CY
Air Content	Air	1 – 500 CY
Cylinders (28-day)	Compressive Strength	1 – 500 CY
Measurement	Thickness	1 – 15 Panels

Item	Test	Acceptance Sample
CC Structures (See Note 7)		
Coarse Aggregate See Note 3	Grading	1 - 1000 CY
Fine Aggregate See Note 3	Grading	1 - 1000 CY
Combined Aggregate See Note 3	Grading	1 - 1000 CY
Consistency See Note 4	Slump	1 for every 10 trucks, See Note 4
Air Content See Note 4	Air	1 for every 10 trucks, See Note 4
Temperature See Note 4	Temperature	1-1000 CY
Cylinders (28-day)	Compressive Strength	1 for every 10 trucks, See Note 4
Hot Mix Asphalt (See Note 8)		
Completed Mix, See Note 1		
<20,000 Tons	Va, VMA, Grading & Asphalt Content	1 - 1,000 Tons
20,000 to 30,000 Tons	Va, VMA, Grading & Asphalt Content	1 - 1,500 Tons
>30,000 Tons	Va, VMA, Grading & Asphalt Content	1 - 2,000 Tons
<20,000 Tons	Compaction	1 - 100 Ton
20,000 to 30,000 Tons	Compaction	1 - 150 Ton
>30,000 Tons	Compaction	1 - 200 Ton
Hot Mix Asphalt Aggregate (See Note 8)		
Aggregate	SE, Fracture, Uncompacted Void Content of Fine Aggregate	1 - 2,000 Ton

Asphalt Materials		Certification	
Asphalt Binder (PG, Etc.)	Verification:	2-1 quart	Every other mix acceptance sample, see Note 2
Emulsified Asphalt for Bituminous Surface Treatment (BST)	Verification:	2-1 quart	Every other shipment
Emulsified Asphalt for Fog Seal	Verification:	None Required	
Emulsified Asphalt for HMA Tack Coat	Verification:	2-1 quart	1 sample per project (Statistically Evaluated Projects Only)

Compaction (See Note 5)	
Embankment	1 - 2500 CY
Cut Section	1 - 500 LF
Surfacing	1 - 1,000 LF (per layer)
Backfill	1 - 500 CY

- Note 1 Mix design conformation samples shall be submitted to the State Materials Laboratory Bituminous Materials Section. For all projects, beginning with the first Acceptance sample, submit one sample (two representative quarters) every 10,000 mix tons. The conformation samples should be taken in conjunction with and be representative quarters of the acceptance samples taken for the project as described in FOP for AASHTO R47.
- Note 2 The first sample of asphalt binder will be taken with the second Hot Mix Asphalt (HMA) mix sample.
- Note 3 The frequency for fine, course, and combined concrete aggregate samples for CC Paving and CC Structures shall be based on the cubic yard (CY) of concrete.
- Note 4 Sample the first truck, and each load until loads meet specifications, and then randomly test one load for every 100 CY. If at any time one load fails to meet specifications, continue testing every load until two successive loads meet specifications, and then randomly test one load for every 100 CY.
- Note 5 For materials placed in a non-structural application outside the roadway prism such as slope flattening or shoulder dressing, acceptance for compaction may be based on visual inspection to the satisfaction of the engineer.
- Note 6 The gravel borrow for structural earth walls shall be tested for Los Angeles Wear and Degradation prior to placement and the test data may come from an approved source in the aggregate source approval database. For geosynthetic reinforcement, the gravel borrow shall be tested for pH prior to placement. For metallic reinforcement, the gravel borrow shall be tested for pH, resistivity, chlorides, and sulfates prior to placement. If the resistivity of the backfill material equals or exceeds 5,000 ohm-cm, the specified chloride and sulfate limits may be waived. If the aggregate source has variable quality, additional testing may be required. Contact the Regional Materials Engineer or the State Geotechnical Engineer for direction.
- Note 7 The following concrete applications shall be accepted based on a Certificate of Compliance in accordance with *Standard Specification* Section 6-02.3(5)B and sampling and testing of the aggregate is not required;
- Lean Concrete
 - Commercial Concrete
 - Class 4000P concrete for Roadside Steel Sign Support Foundations.
 - Class 4000P concrete for Type II, III, and CCTV Signal Standard Foundations that are 12'-0" or less in depth.
 - Class 4000P concrete for Type IV and V Strain Pole Foundations that are 12'-0" or less in depth.
 - Class 4000P concrete for Steel Light Standard Foundations Types A & B.
- Note 8 Sampling and testing of HMA will be at the option of the Engineer in accordance with *Standard Specifications* Section 5-04.3(9)D for the following applications; Commercial HMA, sidewalks, road approaches, ditches, slopes, paths, trails, gores, pre-level, temporary pavement, pavement repair, and other non-structural applications approved by the Engineer.

9-4 Specific Requirements for Each Material

Section Number	Specific Requirements for Each Material Alphabetical Listing	Page Number
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9-4.51	Beam Guardrail, Guardrail Anchors, and Guardrail Terminals	9-93
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9-4.32	Bridge Approach Slab Anchors	9-76
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9-4.85	Junction Boxes, Cable Vaults, and Pull Boxes	9-124
9-4.57	Liquid Concrete Curing Compound	9-100
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Section Number	Specific Requirements for Each Material Alphabetical Listing	Page Number
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9-4.74	Metal Bridge Rail	9-113
9-4.96	Metal Trash Racks, Debris Cages, and Safety Bars for Culvert Pipe and Other Drainage Items	9-132
9-4.8	Mineral Filler	9-55
9-4.10	Miscellaneous Aggregates: Gravel Base, Gravel Backfill for Foundation Class B, Gravel Backfill for Walls, Gravel Backfill for Pipe Zone Bedding, Gravel Backfill for Drains, Gravel Backfill for Drywells, Backfill for Sand Drains, Sand Drainage Blanket, Gravel Borrow, Select Borrow, Common Borrow, Native Materials for Trench Backfill, Foundation Material Class A, B, and C, and Bank Run Gravel for Trench Backfill	9-56
9-4.53	Miscellaneous Precast Concrete Products (Block Traffic Curb, Precast Traffic Curb)	9-95
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9-4.1 **Portland Cement, Blended Hydraulic Cement, Rapid Hardening Hydraulic Cement, Fly Ash, and Other Cementitious Materials**

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Samples** – Preliminary samples will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance/Verification**
 - a. **Acceptance**
 - i. **Bulk Cement** – Acceptance shall be by receipt of a Manufacturer’s Mill Test Report. The Mill Test Report Number shall be reported on each certified concrete delivery ticket.
 - ii. **Bagged Cement**
 - **Less than 400 Bags** – Visual Acceptance per [Section 9-1.4C](#). Verify each Bag is labeled meeting the requirements of AASHTO M 85 or ASTM C150.
 - **400 Bags and Greater** – Acceptance shall be by “Satisfactory” test reports from the State Materials Laboratory. Obtain a 10-pound sample from one of every 400 bags and ship to the State Materials Laboratory for testing.
 - iii. **Rapid Hardening Hydraulic Cement** – Acceptance shall be by receipt of a Manufacturer’s Mill Test Report submitted with Mix Design.
 - iv. **Fly Ash** – Acceptance shall be by receipt of a Manufacturer’s Mill Test Report submitted with Mix Design.
 - v. **Ground Granulated Blast Furnace Slag** – Acceptance shall be by receipt of a Manufacturer’s Mill Test Report submitted with Mix Design.
 - vi. **Microsilica Fume** – Acceptance shall be by receipt of a Manufacturer’s Mill Test Report submitted with Mix Design.
 - vii. **Natural Pozzolan** – Acceptance shall be by receipt of a Manufacturer’s Mill Test Report submitted with Mix Design.
 - viii. **Blended Supplementary Cementitious Material** – Acceptance shall be by receipt of a Manufacturer’s Mill Test Report submitted with Mix Design.
 - b. **Verification** – Cement producers, importers/distributors, and suppliers that certify Portland cement or blended cement will provide samples directly to the State Materials Laboratory on a quarterly basis for comparison with the manufacturer’s mill test report per WSDOT Standard Practice QC-1. The Project Engineer office will be notified in the event of a failing test report. The PEO will be required to check Concrete Delivery Tickets for failing mill test numbers to ensure that the failing cement from that mill test was not placed.

4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-01, 9-23.9, 9-23.10, and 9-23.11. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Allow a minimum of 14 days from receipt of the sample at the Laboratory for testing. DO NOT permit the use of bagged cement until a “Satisfactory” test report has been received from the State Materials Laboratory.

9-4.2 Bituminous Materials

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance/Verification**
 - a. **Acceptance** – Acceptance shall be by the Asphalt Supplier’s Certification of Compliance incorporated in their Bill of Lading with the information required by *Standard Specifications* Section 9-02.
 - b. **Verification** – Samples for verification conformance will be taken based on the frequencies stated in [Section 9-3.7](#). Because the entire sample may be used in testing, it is necessary to take a backup for each sample. The samples shall be taken and labeled in duplicate by the engineer with both samples forwarded promptly to the State Materials Laboratory. Consult the FOP for AASHTO R 66 for detailed sampling procedures.

Enter complete data on gummed label DOT Form 350-016 and attach to each of the two cans. Complete a Sample Transmittal DOT Form 350-056 and attach it, in its envelope, to the container. If tape is used to attach envelope to container, or the containers together, be sure the tape is not contacting the label(s).

The Project Engineer office will be notified in the event of a failing test report. The PEO shall refer to Section 9-3.5C and contact WSDOT Roadway Construction Office for possible price adjustment.

4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-02. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – None.

9-4.3 Pavement Marker Adhesive

1. **Approval of Material** – In accordance with Standard Specifications Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071. Submit Manufacturers Certificate of Compliance meeting the requirements of *Standard Specifications* Section 1-06.3, including supporting tests reports to State Materials Laboratory for evaluation.
3. **Acceptance**
 - a. **Flexible Bituminous Pavement Marker Adhesive** – If the lot is listed on the QPL, it may be used without testing on current projects per Section 9-1.4A(1). If the lot is not on the QPL, submit a sample taken by, or in the presence of, an agency representative for each lot. Samples must be submitted for testing 10 days prior to use of adhesive. Samples submitted shall be accepted on receipt of “Satisfactory” test reports from the State Materials Laboratory.
 - b. **Epoxy Adhesive** – Acceptance shall be by the Manufacturer’s Certificate of Compliance per [Section 9-1.4D](#).
4. **Field Inspection** – Field Verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-02.1(8) and 9-26.2. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – There may be special shipping requirements for adhesive. These samples shall be transported to the Region Materials Laboratory for proper shipping.

9-4.4 Concrete Aggregates

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Consult the Aggregate Source Approval (ASA) database for approval status of the material for each source. If the ASA database indicates the aggregate source has expired or will expire before the end of the project, a source evaluation will be required. Contact the Region Materials Office for further direction. If samples are required, the Region Materials Office will coordinate with the Materials Quality Assurance Section QPL/ASA Engineer to obtain the necessary samples in accordance with SOP 128.

Source approval is not required for aggregates used for Commercial Concrete, as described in *Standard Specifications* Section 6-02.3(2)B.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Acceptance shall be administered in accordance with *Standard Specifications* Section 3-04. Acceptance samples shall be obtained, tested, and recorded in accordance with the contract documents, and Sections 9-3.7 and 9-7.
4. **Field Inspection** – Field verify per Section 9-1.5.
5. **Specification Requirements** – See *Standard Specifications* Section 3-02,3-04, 6-02.3(2) B, 9-03.1, and 9-03.2. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Consult the ASA database to see if Alkali Silica Reactive (ASR) mitigation is required. ASR mitigation is not required for Commercial Concrete as identified in *Standard Specifications* Section 6-02.3(B).

9-4.5 **Aggregates for Bituminous Surface Treatment, Ballast, Permeable Ballast, Crushed Surfacing Base and Top Course, Maintenance Rock, and Gravel Backfill for Foundations Class A**

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Consult the Aggregate Source Approval (ASA) database for approval status of the material for each source. If the ASA database indicates that the aggregate source has expired, or will expire before the end of the project, a source evaluation may be required. Contact the Region Materials Office for further direction. If samples are required, the Region Materials Office will coordinate with the Materials Quality Assurance Section QPL/ASA Engineer to obtain the necessary samples according to SOP 128.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Acceptance shall be administered in accordance with *Standard Specifications* Section 3-04. Acceptance samples shall be obtained, tested, and recorded in accordance with the contract documents, and Sections 9-3.7 and 9-7.
4. **Field Inspection** – Field verify per Section 9-1.5.
5. **Specification Requirements** – See *Standard Specifications* Section 3-02, 3-04, 9-03.4, 9-03.9, and 9-03.12(1)A. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Refer to *Standard Specifications* Section 9-03.21 to see if recycled materials are permitted.

9-4.6 **Aggregates for Hot Mix Asphalt (HMA)**

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Consult the Aggregate Source Approval (ASA) database for approval status of the material for each source. If the ASA database indicates that the aggregate source has expired, or will expire before the end of the project, a source evaluation may be required. Contact the Region Materials Office for further direction. If samples are required, the Region Materials Office will coordinate with the Materials Quality Assurance Section QPL/ASA Engineer to obtain the necessary samples according to SOP 128.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Acceptance shall be administered in accordance with contract documents and *Standard Specifications* Sections 3-04 and 5-04.3(8)2. Acceptance samples shall be obtained, tested, and recorded in accordance with the contract documents, and Sections 9-3.7 and 9-7.

The requirements for fracture, sand equivalent and uncompacted void content of fine aggregate shall apply at the time of its introduction to the cold feed of the mixing plant. Acceptance of the aggregate for gradation shall be in accordance with [Section 9-4.7](#).

4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Sections 3-02, 3-04, 5-04, and 9-03.8. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Refer to *Standard Specifications* Section 9-03.21 and contract provisions to see if recycled materials are permitted.

9-4.7 **Hot Mix Asphalt (HMA)**

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Commercial HMA may be approved without evaluating mix design, contact the State Materials Laboratory.
2. **Preliminary Samples** – Not required.
3. **Acceptance** – Acceptance samples shall be obtained, tested, and recorded in accordance with the *Standard Specifications*, the contract special provisions, and [Section 9-3](#) and 9-7. When used in HMA, the Recycled Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS) components are considered incidental to the HMA acceptance testing.

- a. **Statistical** – Acceptance shall be administered under *Standard Specifications* Section 5-04.
- b. **Visual** – Acceptance shall be at the option of the Project Engineer.
- c. **Commercial** – Acceptance shall be at the option of the Project Engineer.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 5-04 and 9-03.8. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – The Project Engineer should perform a plant inspection prior to production. Contact the Region materials office for assistance with this inspection.

9-4.8 Mineral Filler

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Sample** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071. If required, ship 3 pounds in a polyethylene bag.
3. **Acceptance** – Acceptance of mineral filler (commercial stone dust) shall be based on “Satisfactory” laboratory tests only for each lot of 50 tons or less. Portland cement may be accepted without test if it is furnished in original factory sacks and is not lumpy.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-03.8(5). Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – None.

9-4.9 Aggregate Materials for Walls (Gravel Borrow for Structural Earth Walls)

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06 approval of materials is required prior to use. Consult the Aggregate Source Approval (ASA) database for approval status of the material for each source. If the ASA database indicates that the aggregate source has expired, or will expire before the end of the project, a source evaluation may be required. Contact the Region materials office for further direction. If samples are required, the Region materials office will coordinate with the Materials Quality Assurance Section QPL/ASA Engineer to obtain the necessary samples according to SOP 128.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
 - a. **Gravel Borrow for Structural Earth Walls** – Shall be tested for Los Angeles Wear and Degradation prior to placement. If the source has current testing and listed in the ASA database, then the Los Angeles Wear and Degradation value can be used for approval. If the material does not have a current listing in the ASA database, a sample will have to be tested for Los Angeles Wear and Degradation.
 - i. **Geosynthetic Reinforcement** – Prior to delivery of the material to the project a preliminary sample of material will be required to be tested for pH to determine if the material in fact meets specification requirements for the intended use.
 - ii. **Metallic Reinforcement** – Prior to delivery of the material to the project a preliminary sample of material will be required to be tested for pH, Resistivity, Chlorides, and Sulfates to determine if the material in fact meet specification requirements for the intended use. If the Resistivity equals or exceeds 5,000 ohm-cm, the specified Chlorides and Sulfates limits may be waived.
3. **Acceptance** – Acceptance shall be administered in accordance with *Standard Specifications* Section 3-04. Acceptance samples shall be obtained, tested, and recorded in accordance with contract documents and Sections 9-3.7 and 9-7.
4. **Field Inspection** – Field verify per Section 9-1.5.
5. **Specification Requirements** – See *Standard Specifications* Sections 3-02, 3-04, 9-03.12(2), and 9-03.14(4). Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Refer to *Standard Specifications* Section 9-03.21 to see if recycled materials are permitted. Gravel Borrow for Structural Earth Walls, refer to *Standard Specifications* Section 9-03.14(4) if recycled materials are permitted.

9-4.10 Miscellaneous Aggregates: Gravel Base, Gravel Backfill for Foundation Class B, Gravel Backfill for Wall, Gravel Backfill for Pipe Zone Bedding, Gravel Backfill for Drains, Gravel Backfill for Drywells, Backfill for Sand Drains, Sand Drainage Blanket, Gravel Borrow, Select Borrow, Common Borrow, Native Materials for Trench Backfill, Foundation Material Class A, B, and C, and Bank Run Gravel for Trench Backfill

1. **Approval of Material** – Approval is not required.
2. **Preliminary Samples** – A preliminary sample of the materials will be required only if coded on the Request for Approval of Material DOT Form 350-071.
 - a. **Common Borrow** – Prior to delivery of the materials consult with the Region Materials Engineer to determine if a preliminary sample is required to determine if the material meets the requirements of *Standard Specifications* Section 9-03.14(3).

3. **Acceptance**
 - a. **Aggregate for Gravel Base, Gravel Backfill for Foundations Class B, Gravel Backfill for Wall, Gravel Backfill for Pipe Zone Bedding, Gravel Backfill for Drains, Gravel Backfill for Drywells, Backfill for Sand Drains, Gravel Borrow, Select Borrow, Foundation Material Class A, B, and C, and Bank Run Gravel for Trench Backfill** – Acceptance shall be administered in accordance with *Standard Specifications* Section 3-04. Acceptance samples shall be obtained, tested, and recorded in accordance with the contract documents, and Sections 9-3.7 and 9-7.
 - b. **Native Material for Trench Backfill** – Visual Acceptance per Section 9-1.4C. Verify that trench backfill is free of wood waste, debris, clods or rock greater than 6 inches in any dimension.
 - c. **Common Borrow** – Visual Acceptance per Section 9-1.4C. Verify that common borrow is free of deleterious materials such as wood, organic waste, coal, charcoal, or any other extraneous or objectionable material.
4. **Field Inspection** – Field verify per Section 9-1.5.
5. **Specification Requirements** – See *Standard Specifications* Section 3-02, 3-04 and 9-03. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Refer to *Standard Specifications* Section 9-03.21 to see if recycled materials are permitted.

9-4.11 Recycled Materials

1. **Approval of Materials** – In accordance with *Standard Specifications* Section 1-06 approval of recycled material is required prior to use. Recycled materials will be approved by the [Qualified Products List \(QPL\)](#) or Request for Approval of Materials (RAM) DOT Form 350-071. Prior to incorporating recycled materials into the work or storage on the job site, the certification shall be received and retained on the source of all recycled materials. This certification shall state that either the recycled materials are from the contracting agency's roadways or not from the contracting agency's roadways. Recycled materials obtained from the contracting agency's roadways will not require toxicity testing or certification for toxicity characteristics unless requested by the Engineer. Recycled materials that are not from the contracting agency's roadways shall not be incorporated into the work or imported to the jobsite until testing and certification of toxicity characteristics is provided to the Engineer.

Reclaimed Asphalt Shingles shall be non-asbestos containing material (ACM) in accordance with *Standard Specifications* Section 9-03.21(1)A.

Source approval is not required for Recycled Concrete Aggregates used in Commercial Concrete as described in *Standard Specifications* Section 6-02.3(2).

RAM Submittal – The Project Engineer can approve the RAM. The Region Materials Engineer can assist the Project Engineer in evaluating these submittals.

2. Preliminary Samples

- a. **Recycled Materials from the Contracting Agency's Roadway** – Certification for toxicity characteristics in accordance with *Standard Specifications* Section 9-03.21(1) is not required. Contact Region Materials Engineer to determine if preliminary sample is required.
- b. **Recycled Concrete Aggregate Reclamation Facilities listed on the QPL** – For those reclamation facilities that are not participating in WSDOT's quality control programs and are not listed on the QPL, preliminary samples shall be in accordance with Section 2c2 – Recycled Concrete Aggregate. For those reclamation facilities that are participating in WSDOT's quality control programs and are listed on the QPL, preliminary samples shall be in accordance with the following:
 - i. **Tier 1** – Preliminary sample for aggregate source properties (LA Wear, Degradation, and Specific Gravity) are not required. Certification for toxicity characteristics in accordance with *Standard Specifications* Section 9-03.21(1) is required prior to delivery and placement.
 - ii. **Tier 2** – Preliminary sample for aggregate source properties (LA Wear, Degradation, and Specific Gravity) are not required unless determined by the Project Engineer. Certification for toxicity characteristics in accordance with *Standard Specifications* Section 9-03.21(1) is not required unless determined by the Project Engineer.
 - iii. **Tier 3** – Preliminary sample will be required if the recycled concrete aggregate is being proposed for *Standard Specification* Sections; 9-03.9(1) Ballast, 9-03.9(2) Permeable Ballast, 9-03.9(3) Crush Surfacing, 9-03.12(1)A Gravel Backfill for Foundations Class A, and 9-13.1 Riprap and Quarry Spalls. Certification for toxicity characteristics in accordance *Standard Specifications* Section 9-03.21(1) is required prior to delivery and placement.
- c. **Recycled Materials from Other Sources** – Certification for toxicity characteristics in accordance with *Standard Specifications* Section 9-03.21(1) is required prior to delivery and placement.
 - i. **Recycled HMA/Recycled Asphalt Pavement (RAP)** – A preliminary sample will be required if the recycled HMA is being proposed for *Standard Specifications* Sections; 9-03.8 Aggregate for HMA, 9-03.9(1) Ballast, 9-03.9(2) Permeable Ballast, 9-03.9(3) Crushed Surfacing, and 9-03.12(1)A Gravel Backfill for Foundations Class A.
 - ii. **Recycled Concrete Aggregate** – A preliminary sample will be required if the recycled concrete aggregate is being proposed for *Standard Specifications* Sections; 9-03.9(1) Ballast, 9-03.9(2) Permeable Ballast, 9-03.9(3) Crushed Surfacing, 9-03.12(1)A Gravel Backfill for Foundations Class A, and 9-13.1 Riprap and Quarry Spalls.

- iii. **Recycled Glass (glass cullet)** – A preliminary sample will be required if the recycled glass is being proposed for *Standard Specifications* Sections; 9-03.9(1) Ballast, 9-03.9(2) Permeable Ballast, 9-03.9(3) Crushed Surfacing, and 9-03.12(1)A Gravel Backfill for Foundations Class A.
- iv. **Reclaimed Aggregate** – Reclaimed aggregate is aggregate that has been recovered from the plastic concrete by washing away the cementitious materials. Reclaimed aggregate is permitted to be used for *Standard Specifications* Section 9-03.1(1). A preliminary sample and certification of toxicity characteristics is not required.
- v. **Re-Used Aggregate** – A preliminary sample will be required if the re-used aggregate is being proposed for *Standard Specifications* Sections; 9-03.1 Fine and Coarse Concrete Aggregate, 9-03.4 Aggregate for Bituminous Surface Treatment, 9-03.8 Aggregate for Hot Mix Asphalt, 9-03.9(1) Ballast, 9-03.9(2) Permeable Ballast, 9-03.9(3) Crushed Surfacing, 9-03.11 Streambed Aggregates, 9-03.12(1)A Gravel Backfill for Foundations Class A, Section 9-03.14(4) Gravel Borrow for Structural Earth Walls, and 9-13 Riprap and Quarry Spalls.
- vi. **Steel Furnace Slag** – A preliminary sample will be required if the steel furnace slag is being proposed for *Standard Specifications* Sections; 9-03.9(1) Ballast, 9-03.9(2) Permeable Ballast, 9-03.9(3) Crushed Surfacing, and 9-03.12(1)A.

3. Acceptance

- a. **Concrete Aggregate** – See Section 9-4.4.
 - b. **Aggregate for Bituminous Surface Treatment, Ballast, Permeable Ballast, Crush Surfacing, Maintenance Rock, and Gravel Backfill for Foundations Class A** – See [Section 9-4.5](#).
 - c. **Aggregate for Hot Mix Asphalt (HMA)** – See [Section 9-4.6](#).
 - d. **Recycled Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS)** – See Section 9-4.7.
 - e. **Gravel Backfill for Walls** – See [Section 9-4.9](#).
 - f. **Gravel Base, Gravel Backfill for Foundations Class B, Gravel Backfill for Pipe Zone Bedding, Gravel Backfill for Drains, Gravel Backfill for Drywells, Backfill for Sand Drains, Sand Drainage Blanket, Gravel Borrow, Select Borrow, Common Borrow, Foundation Material Class A, B, and C, and Bank Run Gravel for Trench Backfill** – See [Section 9-4.10](#).
 - g. **Riprap and Quarry Spalls** – See [Section 9-4.42](#).
4. **Field Inspection** – Field Verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-03. Review contract documents to determine if supplemental specifications apply.

Other Requirements – If there are questions about the recycled material and its intended use contact the Region Materials Engineer.

9-4.12 Premolded Joint Filler for Expansion Joints

1. **Approval of Material** – In accordance with Standard Specifications Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071. When a preliminary sample is required, it shall consist of a 1 square foot Section of the proposed material. Submit sample to the State Materials laboratory for testing.
3. **Acceptance** – Visual Acceptance per [Section 9-1.4C](#).
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-04.1(2). Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – None.

9-4.13 Elastomeric Expansion Joint Seals

1. **Approval of Material** – Approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071. When a preliminary sample is required, it shall consist of a 2 feet Section from each lot of material used. Submit sample to the State Materials Laboratory for testing.
3. **Acceptance** – If the lot is listed on the QPL, it may be used without testing on current projects per Section 9-1.4A(1). If the lot is not on the QPL, submit a sample taken by, or in the presence of, an agency representative for each lot. Samples must be submitted for testing 10 days prior to use of joint seal. Samples submitted shall be accepted on receipt of “Satisfactory” test reports from the State Materials Laboratory.
Sample – The sample shall consist of a 2 feet Section from each lot of material used.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-04.1(4). Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – None.

9-4.14 **Poured Rubber Joint Sealer – Two Component**

1. **Approval of Material** – In accordance with Standard Specifications Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – If the lot is listed on the QPL, it may be used without testing on current projects per Section 9-1.4A(1). If the lot is not on the QPL, submit a sample taken by, or in the presence of, an agency representative for each lot. Samples must be submitted for testing 10 days prior to use of joint sealer. Samples submitted shall be accepted on receipt of “Satisfactory” test reports from the State Materials Laboratory.
Sample: The sample shall consist of an unopened container of each component (kit) from each lot, mixing instructions, and SDS sheets. Submit sample to the State Materials Laboratory for testing.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-04.2(2). Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – None.

9-4.15 **Hot Poured Joint Sealants**

1. **Approval of Material** – In accordance with Section 1-06 of the *Standard Specifications*, approval of materials is required prior to use. Materials will be approved by the Qualified Products List (QPL) or Request for Approval of Material (RAM) DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
RAM Submittal – If the hot poured sealant material is not listed on the QPL submit one box sample to the State Materials Laboratory for preliminary evaluation. The Project Engineer can approve the RAM for the material components of the Sand Slurry.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.

3. Acceptance

- a. **Hot Poured Sealants** – If the lot is listed on the QPL, it may be used without testing on current projects per Section 9-1.4A(1). If the lot is not on the QPL, submit a sample taken by, or in the presence of, an agency representative for each lot. Samples must be submitted for testing 10 days prior to use of joint sealant. Samples submitted shall be accepted on receipt of “Satisfactory” test reports from the State Materials Laboratory.

Sample – When a sample is required, submit a one box sample to the State Materials Laboratory for testing.

- b. **Sand Slurry** – Acceptance shall be by Visual Acceptance per [Section 9-1.4C](#).

4. Field Inspection – Field verify per [Section 9-1.5](#).

5. **Specification Requirements** – See *Standard Specifications* Section 9-04.2(1) for hot poured joint sealants. Review contract documents to determine if supplemental specifications apply.

6. Other Requirements – None.

9-4.16 Concrete Drain, Perforated Underdrain, Culvert, and Storm Sewer Pipe

1. **Approval of Material** – Approval of the Fabricator is required prior to fabrication. The Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use, and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Engineer office. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the Fabricator. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the fabricator.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. Concrete pipe less than 30 inch in diameter is accepted based on “Concrete Pipe Acceptance Reports” which shall accompany the pipe to the job site. Inspect the manufacture date marked on each pipe to verify that it was made within the period covered by the Concrete Pipe Acceptance Report.
 - b. Concrete pipe 30 inch in diameter and larger are individually inspected and stamped for approval by the Materials Fabrication Inspector at the fabrication facility prior to shipment. Acceptance is based on “APPROVED FOR SHIPMENT” Stamp ([Figure 9-4](#)). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.

4. **Field Inspection** - Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-05. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements**
 - a. **Materials Fabrication Inspected CMO (30 inch in Diameter and larger)** – Certification of Material Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if a Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

- b. **Non-Fabrication Inspected CMO (less than 30 inch in Diameter)** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if a Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.17 Corrugated Galvanized Steel, Aluminized Steel, Aluminum: Drain, Perforated Underdrain, Culvert Pipe Arch, and Storm Sewer Pipe

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. An on-site inspection of the fabricating facilities prior to approval will be required only if a new manufacture is requested on the Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **Treated** – Acceptance shall be by the Manufacturer's Certificate of Compliance with supporting Mill Certification per [Section 9-1.4D](#).

The Project Office is required to inspect treated culvert pipe for uniformity of coating, no hanging treatment drips inside the pipe or other problems with the coating. Upon request the State Materials Laboratory Fabrication Inspection office can come inspect the treated metal culvert pipe at the jobsite if there are concerns about the thickness of the treatment, and uniformity of the coating. WSDOT Fabrication inspectors are able to measure the thickness using non-destructive testing.

- b. **Untreated** – Acceptance shall be by Visual Acceptance per [Section 9-1.4C](#). Verify that the appropriate AASHTO specification for the steel sheet, gauge thickness, and heat number is stamped on the pipe. Pipe not bearing this stamp shall not be installed. Any pipe, which is damaged in any way from shipping or handling, should not be accepted. If the manufacturer of the pipe delivered to the job site cannot be identified, a Bill of Lading showing the manufacturer should be requested prior to accepting or installing the pipe.
- 4. **Field Inspection** – Field verify per [Section 9-1.5](#).
- 5. **Specification Requirements** – See *Standard Specifications* Section 9-05. Review contract documents to determine if supplemental specifications apply.
- 6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.18 Polyvinyl Chloride (PVC) and Corrugated Polyethylene (PE) Drain, Perforated Underdrain, Culvert, and Storm Sewer Pipe

- 1. **Approval of Material** – Approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
- 2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
- 3. **Acceptance**
 - a. **Drain Pipe, Perforated Underdrain Pipe, Solid Wall PVC Culvert and Storm Sewer Pipe** – Visual Acceptance per [Section 9-1.4C](#).
 - b. **Profile Wall PVC Culvert and Storm Sewer Pipe, Corrugated PE Culvert and Storm Sewer Pipe** – Acceptance shall be by the Manufacturer’s Certificate of Compliance per [Section 9-1.4D](#), shall accompany materials delivered to the project and shall include production lots for all materials represented.
- 4. **Field Inspection** – Field verify per [Section 9-1.5](#).
- 5. **Specification Requirements** – See *Standard Specifications* Section 9-05. Review contract documents to determine if supplemental specifications apply.
- 6. **Other Requirements** – None.

9-4.19 Structural Plate Pipes, Arches, and Boxes

1. **Approval of Material** – In accordance with Standard Specifications Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Approval of fabrication facility as well as the base metal must be obtained. An on-site inspection by the WSDOT Materials Fabrication Inspection Office of the fabricating facilities prior to approval will be required only if a new manufacture is requested on the Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Acceptance shall be on the basis of Manufacturer's Certificate of Compliance, with accompanying mill test reports per [Section 9-1.4D](#). The mass of zinc coating for each heat number in the shipment must be present on the "Manufacturer's Certificate of Compliance." The mill test report will contain both chemical and physical analysis of the base metal.

All suppliers of structural plate pipes, arches and boxes are to transmit four copies of the certification to the Project Engineer. At least one copy must accompany the shipment; the others may be forwarded through the Contractor. Two copies of the certification are to be retained in the Project Engineer's files.

4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-05.6. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.20 Steel, Gray-Iron, and Ductile-Iron Castings: Manhole Rings and Covers; Metal Frame, Grate, and Solid Metal Cover for Catch Basins or Inlets; Cast Metal Inlets; Frame (Ring), Grate, and Cover for Drywells

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of the Fabricator is required prior to fabrication. The Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use, and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Engineer office. Provide the Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the fabricator.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Acceptance is based on “WSDOT-A” (Figure 9-7) Stamp impressed stamped into all castings. In Figure 9-7, the “A” is an inspector identifier, and will be different for each individual inspector. An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin. Only properly stamped castings may be accepted.
 - a. For Rectangular Frames and Grates, the frame and grate will each be stamped in such a fashion as to align adjacent mating surfaces to each other. This alignment is critical as the leveling pads are ground to prevent rocking of the grates in the frames.
4. **Field Inspection** – Field verify per Section 9-1.5.
5. **Specification Requirements** – See *Standard Specifications* Section 9-05.15. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Certification of Material Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision; the Project Engineer will refer to Section 9-1.2E to determine if a Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.21 Sanitary Sewers

1. **Approval of Material** – Approval of materials and or the Fabricator is required prior to use or fabrication depending on the method of acceptance detailed below. The materials or Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. If approval is by the QPL, be certain to verify that the product is in fact qualified for its intended use, and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Engineer office. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the fabricator.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Material may be accepted upon receipt of an “Approved” document in lieu of sampling as shown below:
 - a. **Concrete Pipe Less Than 30 inch in Diameter** – Acceptance shall be based on “Concrete Pipe Acceptance Reports” which shall accompany the pipe to the job site. Inspect the manufacture date marked on each pipe to verify that it was made within the period covered by the Concrete Pipe Acceptance Report.

3. **Acceptance** – Acceptance is based on “APPROVED FOR SHIPMENT” Stamp and/or Tag (Figure 9-4 or 9-5). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.

The Materials Fabrication Inspector will provide a weekly Fabrication Progress Report to the Project Engineer while the structural steel is being fabricated.

4. **Field Inspection** – Field verify per Section 9-1.5.
5. **Specification Requirements** – See *Standard Specifications* Section 6-03 and 9-06. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements**

- a. **Materials Fabrication Inspected CMO** – Certification of Materials Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to Section 9-1.2E to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials from the Contractor, track the quantity, and retain these documents in the project records.

- b. **Non-Fabrication Inspected CMO** – For projects with the Buy America provision refer to Section 9-1.2E to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.23 Unfinished Bolts (Ordinary Machine Bolts), Nuts, and Washers

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Acceptance of unfinished bolts, nuts, and washers shall be by the Manufacturer’s Certificate of Compliance per Section 9-1.4D.
4. **Field Inspection** – Field verify per Section 9-1.5.
5. **Specification Requirements** – See *Standard Specifications* Section 9-06.5(1). Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – For projects with the Buy America provision refer to Section 9-1.2E to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.24 High Strength Bolts, Nuts, and Washers

1. **Approval of Material** – Approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. If approval is by QPL, be certain to verify that the product is in fact qualified for its intended use, and the product is listed under the appropriate specification.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **Materials Fabrication Inspected Item** – Acceptance for high strength bolts, nuts, and washers associated with items receiving Materials Fabrication Inspection shall be an “APPROVED FOR SHIPMENT” Stamp and/or Tag (Figure 9-4 or 9-5) stamped on the container of bolts, nuts and washers. The Materials Fabrication Inspector will inspect hardware if it is available at the time of inspection at the point of manufacture. High strength bolts, nuts and washers not present during Materials Fabrication Inspection and delivered to the job site without an approval stamp shall be accepted by “Non-Fabrication Inspected Items” (see below). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.
 - b. **Non-Fabrication Inspected Items:**
 - i. **Fabrication Inspection Sampled** – Acceptance shall be by the Manufacturer’s Certificate of Compliance for each heat number or manufacturing lot per Section 9-1.4D. When the materials are received on the job site stamped “WSDOT Sampled,” the material shall also be accepted by the PEO on receipt of “Satisfactory” test reports from the State Materials Laboratory.
 - ii. **PEO Sampled** – Acceptance shall be by the Manufacturer’s Certificate of Compliance per Section 9-1.4D for each heat number or manufacturing lot. Acceptance shall also be by a “Satisfactory” test report from the State Materials Laboratory when samples are required for each consignment lot as defined by *Standard Specifications* Section 9-06.5(3). A separate transmittal and materials certification shall accompany each sample of bolts, nuts, and washers.
4. **Field Inspection** – Field verify per Section 9-1.5.
5. **Specification Requirements** – See *Standard Specifications* Section 9-06.5(3). Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements**
 - a. **Materials Fabrication Inspected CMO** – Certification of Materials Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to Section 9-1.2E to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification

of Materials Origin for all foreign steel or iron materials. The Project engineer will track the quantity of the materials and retain these documents in the project records.

- b. **Non-Fabrication Inspected CMO** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.25 **Anchor Bolts, Rods, Nuts, and Washers**

1. **Approval of Material** – In accordance with Standard Specifications Section 1-06, approval of the Fabricator is required prior to the start of fabrication. The Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use, and the product is listed under the appropriate specification. Approval of material sources through the QPL or RAM process for materials used by the Fabricator is not required. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the fabricator.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **Materials Fabrication Inspected Item** – Acceptance for ASTM F 1554 Grade 105 anchor bolts, rods, and associated nuts and washers receiving Materials Fabrication Inspection shall be an “APPROVED FOR SHIPMENT” Stamp and/or Tag ([Figure 9-4](#) or [9-5](#)) on each bundle and the Materials Fabrication Inspectors inspection ID number randomly stamped on a representative number of anchor bolts. An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.
 - b. **Non-Fabrication Inspected Items** – Acceptance for ASTM F 1554 Grade 36 or Grade 55 anchor bolts, rods, nuts and washers shall be based on receipt of Manufacturer’s Certificate of Compliance.

Nuts and washers for ASTM F 1554 Grade 105 anchor bolts and rods not containing an “APPROVED FOR SHIPMENT” Tag and/or Stamp shall be accepted by a Manufacturer’s Certificates of Compliance per [Section 9-1.4D](#) and it will be the responsibility of the Contractor to supply the certifications to the Project Engineer’s Office prior to use.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).

5. **Specification Requirements** – See *Standard Specifications* Section 9-06.5(4), 9-28.14(2), and 9-29.6(5). Review contract documents to determine if supplemental specifications apply.

6. **Other Requirements**

- a. **Materials Fabrication Inspected CMO** – Certification of Materials Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials. The Project engineer will track the quantity of the materials and retain these documents in the project records.

- b. **Non-Fabrication Inspected CMO** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.26 **Reinforcing Bars for Concrete (Uncoated and Epoxy Coated Rebar)**

1. **Approval of Material** – In accordance with *Standard Specification* Section 1-06, approval of materials, and the coating facility is required prior to use.

Materials, and the coating facility will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. An on-site inspection by WSDOT State Materials Laboratory's Fabrication Office of the coating facility prior to approval will be required only if a new coating facility is requested on the Request for Approval of Materials DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Engineer office. Provide the WSDOT State Materials Laboratory Fabrication Office with a copy of the Qualified Products Page or Request for Approval of Material list the coating facility. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the bender cutter and the coating facility.

RAM Submittal:

- a. **Reinforcing Steel Rebar (Deformed and Plain Steel Bar)** – Submit documentation or a web link that demonstrates the Steel Reinforcing Bar Manufacturer is listed and compliant with the NTPEP audit program for Reinforcing Steel (rebar) Manufacturer as required in *Standard Specification* Section 9-07.1(1)A.
- b. **Coating Facility** – Submit the following information; Name of Facility, Contact Person, phone number, email address, and facility address.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **Reinforcing Steel Rebar (Uncoated)**
 - i. **Acceptance** – Shall be by the Manufacturer’s Certification of Compliance and Certified Mill Test Reports that will accompany each shipment per Section 9-1.4D.
 - ii. **Verification** – A representative of the State Materials Laboratory Fabrication Office may take random samples at the point of manufacture or fabrication for testing. The Project Engineer office will be notified in the event of a failing test report. The PEO will be required to check reinforcing bars for failing heat numbers to ensure that the failing reinforcing bars from that heat number was not installed.

Note: If Mill Test reports are not available, do not permanently incorporate steel into the project i.e. reinforcing steel being cast in concrete.
 - b. **Epoxy-Coated Steel Reinforcing Bar** – Acceptance shall be by an “APPROVED FOR SHIPMENT” Tag (Figure 9-5) attached to a representative number of bundles of epoxy coated reinforcing steel bars. An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic steel.
4. **Field Inspection** – Field verify per Section 9-1.5.
5. **Specification Requirements** – See *Standard Specifications* Section 9-07. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** –
 - a. **Materials Fabrication Inspected CMO** – Certification of Materials Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to Section 9-1.2E to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials. The Project Engineer will track the quantity and retain these documents in the project records.
 - b. **Non-Fabricated Inspected CMO** – For projects with the Buy America provision refer to Section 9-1.2E to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.27 Vacant

9-4.28 Mechanical Splices

1. **Approval of Material** – In accordance with Standard Specifications Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Sample** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071. Required preliminary samples shall include a made up splice for each size bar to be used and the manufacturer's product information. The overall length of the sample shall be 6 feet plus the length of the splice.
3. **Acceptance** – Materials shall be accepted on receipt of "Satisfactory" test reports from the State Materials Laboratory. The sample shall be from Contractor's assembled samples (see Note) taken from the project. A Manufacturer's Certificate of Compliance and other technical data MUST be submitted with the samples. The overall length of the sample shall be 6 feet plus the length of the splice, and shall consist of one made up splice for each size bar to be used.

Note: This is a test of the Contractor's ability to properly assemble the splice as much as it is a test of the quality of the materials. For this reason the spliced bars must be assembled by the contractor's personnel, witnessed by the inspector and transmitted intact to the State Material Lab for testing.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 6-02.3(24)F and G. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.29 Rebar Chairs, Mortar Blocks (Dobies), and Spacers

1. **Approval of Material** – Approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal
 - a. **Mortar Blocks (Dobies)** – If approval action is being requested via the RAM process, attach the Manufacturer's Certificate of Compliance per [Section 9-1.4D](#) to assist in the approval process.
 - b. **Rebar Chairs and Spacers** – Submit sample of each size and type with the Request for Approval of Material.

2. **Preliminary Sample** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **Mortar Blocks (Dobies)** – Acceptance shall be by the Manufacturer’s Certificate of Compliance per [Section 9-1.4D](#).
 - b. **Rebar Chairs and Spacers** – Visual Acceptance per [Section 9-1.4C](#).
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 6-02.3(24)C. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.30 Dowels and Tie Bars for Concrete Pavement

1. **Approval of Material** – In accordance with *Standard Specification* 1-06, approval of materials and coating facility are required prior to use. The materials and coating facility will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal

- a. **Epoxy-Coated Dowel Bars (for Cement Concrete Pavement Rehabilitation)** – Submit the following;
 - i. Identification of the epoxy coater and,
 - ii. Identification of the dowel bar fabricator and,
 - iii. Manufacturer’s Certification of Compliance and supporting certified mill tests for chemical composition and mechanical properties of current or previous productions for the steel dowel bar and epoxy coating material. Mill tests shall be less than 2 years old.
- b. **Corrosion Resistant Dowel Bars (for Cement Concrete Pavement)**
 - i. **Stainless Steel Clad Dowel Bars and Zinc Clad Dowel Bars** – Submit the following;
 1. Identification of the dowel bar fabricator and,
 2. Manufacturer’s Certification of Compliance and supporting certified mill tests for chemical composition and mechanical properties of current or previous production for the steel dowel bar and the clad. Mill tests shall be less than 2 years old.

- ii. **Stainless Steel Tube Dowel Bars** – Submit the following;
 1. Identification of the dowel bar fabricator and,
 2. Manufacturer's Certification of Compliance and supporting certified mill tests for chemical composition and mechanical properties of current or previous production for the steel dowel bar and stainless steel tube. Mill tests shall be less than 2 years old.
 - iii. **Stainless Steel Solid Dowel Bars and Corrosion-Resistant Low Carbon Chromium Plain Steel Bars** – Submit the following;
 1. Identification of the stainless steel dowel bar fabricator and,
 2. Manufacturer's Certification of Compliance and supporting certified mill tests for chemical composition and mechanical properties of current or previous production for the steel dowel bar. Mill test shall be less than 2 years old.
 - iv. **Corrosion-Resistant Steel Tubes**
 1. Identification of the stainless steel dowel bar fabricator and,
 2. Manufacturer's Certification of Compliance and supporting certified mill tests for chemical composition and mechanical properties of current or previous production for the steel tube. Mill test shall be less than two years old.
- c. **Tie Bars (for Cement Concrete Pavement)**
- i. **Epoxy Coated (AASHTO A 775) Tie Bars** – Submit the following;
 1. Identification of the epoxy coater and,
 2. Identification of the tie bar fabricator and,
 3. Manufacturer's Certification of Compliance and supporting certified mill tests for chemical composition and mechanical properties of current or previous production for the steel tie bar and the epoxy coating material. Mill tests shall be less than 2 years old.
 - ii. **Corrosion-Resistant Tie Bars** – Submit the following;
 1. Identification of the tie bar fabricator and;
 2. Manufacturer's Certification of Compliance and supporting certified mill tests for chemical composition and mechanical properties of current or previous production for the tie bar. Mill tests shall be less than 2 years old.
2. **Preliminary Sample** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material (DOT Form 350-071).
 3. **Acceptance** – Acceptance shall be by the Manufacturer's Certificate of Compliance and Certified Mill Test Report for both steel and coating process that will accompany each shipment per [Section 9-1.4D](#).
 4. **Field Inspection** – Field verify per [Section 9-1.5](#).

5. **Specification Requirements** – See *Standard Specifications* Sections 9-07.5 and 9-07.6. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – For projects with the Buy America provision refer [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the material and retain these documents in the project records.

9-4.31 **Welded Wire Reinforcement for Concrete**

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Acceptance shall be by the Manufacturer’s Certificate of Compliance and Certified Mill Test Reports that will accompany each shipment per [Section 9-1.4D](#).
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-07.7, 9-07.8, and 9-07.9. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.32 **Bridge Approach Slab Anchors**

1. **Approval of Material** – Approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Sample** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **Anchors Type A** – Acceptance for the Steel Rod and Plate shall be by the Manufacturer’s Certificate of Compliance per [Section 9-1.4D](#).
 - b. **Anchors Type B** – Acceptance for the Threaded Steel Rod and Steel Plate shall be by the Manufacturer’s Certificate of Compliance per [Section 9-1.4D](#).
 - c. **Other Anchor Rod materials** – Plastic pipe, polystyrene, and duct tape are identified as Low Risk Materials per Section 9-1.3C.

4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See Standard Plans A-40.50.00 and *Standard Specifications* Section 6-02.3(10). Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.33 **Prestressing/Post Tensioning Reinforcement – Strand**

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06 approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance/Verification**
 - a. **Acceptance** – Acceptance shall be by the Manufacturer's Certificate of Compliance, Certified Mill Test Reports and the stress/strain curve that will accompany each reel.
 - b. **Verification** – The strand shall be tested for verification prior to placement. Samples for verification of conformance will be taken randomly at a frequency of 1 sample for every 5 reels. Sample per AASHTO M203. The samples shall be 6 to 7 feet in length. All samples must include the Manufacturer's Certificate of Compliance, a mill certificate with supporting test report, and the stress/strain curve.

Submit 1 sample for each 5 reels to the State Materials Laboratory for testing. A copy of the Manufacturer's Certificate of Compliance, a mill certificate with supporting test report, and the stress/strain curve MUST accompany each sample submitted for testing. If the submitted sample fails the testing, submit two additional samples from the same heat number for additional testing.

4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-07.10. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.34 **Prestressing/Post Tensioning Reinforcement – Bar**

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Materials shall be accepted on receipt of “Satisfactory” test reports from the State Materials Laboratory. Send two samples from each heat number. If supplemental requirements apply, send additional samples of two bars from each heat number. See Contract documents. Sample per AASHTO T244. The samples must be a minimum of 6 feet in length, plus the length of the splice. A copy of the Manufacturer’s Certificate of Compliance and Certified Mill Test Reports shall accompany each heat number of reinforcing bar.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – Review contract documents to determine specification requirements.
6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.35 **Painting, Paints, Coating, and Related Materials**

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of the materials and painting/coating facility is required prior to the application of the paint/coating. The materials and painting/coating facility will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials/coating facility(s) used to produce the fabricated item do not require approval through the Project Engineer office. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Materials listing for the painting/coating facility.
 - Materials for Painting/Coating preparation (i.e., Abrasive blast media, bird guano treatment, fungicide treatment, filter fabric, foam backer rod) do not require approval documentation. It is within the inspector’s authority to ask for additional documentation if the products are not performing satisfactorily.

RAM Submittal – Vinyl Pretreatment, Inorganic Zinc-Rich Primer, Epoxy Polyamide, Rust-Penetrating Sealer, Black Enamel, Orange Equipment Enamel, Exterior Acrylic Latex Paint-White, Single-Component Polyurethane Sealant, NEPCOAT Qualified Products (List A & B), and Galvanizing Repair Paint (High Zinc Dust Content):

Attach Catalog Cut showing conformance with the Contract Documents to assist in approving the RAM.

2. **Preliminary Samples** – Preliminary Samples will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **Shop/Fabrications Coated Materials for Items Delivered to the Jobsite** – Acceptance is based on “APPROVED FOR SHIPMENT” Stamp and/or Tag (Figure 9-4 or 9-5). See Section 9-4 for individual materials acceptance.
 - b. **Jobsite Coated Materials**
 - i. **Primer Zinc Filled Single Component Moisture** – Cured Polyurethane, Intermediate and Stripe Coat Single Component Moisture-Cured Polyurethane, Top Coat Single-Component Moisture-Cured Polyurethane:
 - **20 gallons or Less** – Acceptance shall be by the Manufacturer’s Certificate of Compliance per Section 9-1.4D. The Manufacturer’s Certificate of Compliance shall include a list of materials and quantities used.
 - **Greater than 20 Gallons** – If the lot is listed on the QPL, it may be used without testing on current projects per Section 9-1.4A(1). If the lot is not on the QPL, a one-quart sample for each lot is required. The WSDOT Fabrication Inspection Office will pick up the sample from the Manufacturer/Distributor. Samples must be submitted for testing 10 days prior to use. Materials shall be accepted on receipt of “Satisfactory” test reports from the State Materials Laboratory.
 - ii. **Vinyl Pretreatment, Inorganic Zinc** – Rich Primer, Epoxy Polyamide, Rust-Penetrating Sealer, Black Enamel, Orange Equipment Enamel, and Exterior Acrylic Latex Paint-White: Visual Acceptance per Section 9-1.4C.
 - iii. **Pigmented Sealer Materials for Coating of Concrete Surfaces** – If the lot is listed on the QPL, it may be used without testing on current projects per Section 9-1.4A(1). If the lot is not on the QPL, submit a one-quart sample taken by, or in the presence of, an agency representative for each lot. Samples must be submitted for testing 10 days prior to use. Materials shall be accepted on receipt of “Satisfactory” test reports from the State Materials Laboratory.
 - iv. **Single-Component Polyurethane Sealant** – Visual Acceptance per Section 9-1.4C.
 - v. **Repair material for Powder Coated Items** – Visual Acceptance per Section 9-1.4C that the repair material is per Contract Documents and is as specified in the Contractor’s powder coating plan as specified by the engineer.
 - vi. **Galvanizing Repair Paint (High Zinc Dust Content)** – Visual acceptance per Section 9-1.4C that the spray can label states that the material meets “Federal Specification MIL-P-21035.”
4. **Field Inspection** – Field verify per Section 9-1.5.

5. **Specification Requirements** – See *Standard Specifications* Section 9-08. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – There may be special shipping requirements for paints and coatings. These samples shall be transported to the Region Materials Laboratory for proper shipping. Verify and document manufacturer's expiration date on each approved lot prior to use in accordance with Field Verification of Materials, Section 9-1.5. If intended lot is to be used past expiration date, on quart samples for each lot shall be submitted for testing to the State Materials Laboratory a minimum of 10 days prior to use.

9-4.36 Timber and Lumber

1. **Approval of Material** – Approval of the Treatment Facility for treated lumber 6 in by 6 in and larger is required prior to the start of treatment. The Treatment Facility will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the Treatment Facility do not require approval through the Project Engineer office. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the Treatment Facility.

The Project Engineer is responsible for obtaining the approval for all untreated lumber and treated lumber less than 6 in by 6 in prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **Untreated** – Acceptance shall be by a Lumber Grading Stamp or Grading Certificate for Timber and Lumber. The Grading Certificate will be issued by the grading bureau whose authorized stamp is being used, or by the mill grading the timber or lumber under the supervision of one of the following lumber grading agencies: West Coast Lumber Inspection Bureau (WCLIB), Western Wood Products Association (WWPA), or the Pacific Lumber Inspection Bureau (PLIB). Check that all lumber and timber has the proper lumber grade stamps.

Typically Lumber Grade Stamps, as used by the various inspection agencies are shown in the QPL, Appendix B:
 - b. **Treated**
 - i. Acceptance for Treated Timber and Lumber 6 in × 6 in and greater shall be an “APPROVED FOR SHIPMENT” tag (Figure 9-6).
 - ii. Acceptance for Treated Timber and Lumber less than 6 in × 6 in shall be by a Lumber Grading Stamp or Grading Certificate and Certificate of Treatment.

4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-09, 9-16.2, 9-28.14, and 9-32.4. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Aquatic use requires additional documentation per *Standard Specifications* Section 9-09.3.

9-4.37 Vacant

9-4.38 Piling – All Types

1. **Approval of Material** – In accordance with Section 1-06 approval of the Fabricator, coating facility and treatment facility is required prior to the start of fabrication. The Fabricator or treatment facility will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Engineer office. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the Fabricator. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the fabricator.

The Project Engineer is responsible for obtaining the approval of materials prior to use. Materials listed as “Project Engineer Office accepted” will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **WSDOT Fabricated Inspected**
 - i. **Treated Wood Piling** – Acceptance shall be by an “APPROVED FOR SHIPMENT” Tag ([Figure 9-6](#)). Aquatic use requires additional documentation per *Standard Specifications* Section 9-09.3.
 - ii. **Timber Composite Piling** – Acceptance shall be an “APPROVED FOR SHIPMENT” Tag ([Figure 9-6](#)). Aquatic use requires additional documentation per *Standard Specifications* Section 9-09.3.
 - iii. **Coated Steel Piling** – Acceptance shall be by an “APPROVED FOR SHIPMENT” Stamp ([Figure 9-4](#)). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.
 - iv. **Prestressed Concrete Piling** – Acceptance shall be by an “APPROVED FOR SHIPMENT” Stamp ([Figure 9-4](#)). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.

- v. **Structural Steel Piling (open-ended and close-ended pipe piles), H-pile, and Soldier Pile** – Acceptance shall be by an “APPROVED FOR SHIPMENT” Stamp (Figure 9-4). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.
 - vi. **Steel Pipe Piles for Concrete-Filled Steel Tubes (CFST)** – Acceptance shall be by an “APPROVED FOR SHIPMENT” Stamp (Figure 9-4). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.
- b. **Project Engineer Office Accepted**
- i. **Untreated Wood Piling** – Visual Acceptance per Section 9-1.4C and by field inspection per *Standard Specifications* Section 9-10.1(1).
 - ii. **Steel Casing** – Acceptance shall be by the Manufacturer’s Certificate of Compliance and Certified Mill Test Reports that will accompany each shipment per Section 9-1.4D.
 - iii. **Steel Pile Tips, Shoes, and Pile Strapping** – Acceptance shall be by the Manufacturer’s Certificate of Compliance and Certified Mill Test Reports that will accompany each shipment per Section 9-1.4D.
 - iv. **Micropiles (Casing)** – Acceptance shall be by the Manufacturer’s Certificate of Compliance and Certified Mill Test reports that accompany each shipment per Section 9-1.4D.
 - v. **Cast-In-Place Concrete Piling** – Acceptance of the concrete shall be in accordance with Section 9-4.76 and the acceptance of the reinforcement shall be in accordance with Section 9-4.26.
4. **Field Inspection** – Field verify per Section 9-1.5.
5. **Specification Requirements** – See *Standard Specifications* Sections 9-10.1(1) and 9-19.1. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements**
- a. **Materials Fabrication Inspected CMO** – Certification of Materials Origin for domestic steel will be the responsibility of the WSDOT Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to Section 9-1.2E to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron. The Project Engineer will track the quantity of the materials and retain these documents in the project records.
 - b. **Non-Fabrication Inspected CMO** – For projects with the Buy America provision refer to Section 9-1.2E to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.39 Vacant**9-4.40 Vacant****9-4.41 Precast Concrete Manholes, Catch Basins, Inlets, Drywells, and Adjustment Sections**

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of the Fabricator is required prior to the start of fabrication. The Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Engineer office. Provide the Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the Fabricator. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the fabricator.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - **Precast Concrete Manholes, Catch Basins, Inlets, Drywells, Steel and Concrete Adjustment Sections 12 inches and Greater** – Acceptance shall be a “WSDOT INSPECTED” Stamp ([Figure 9-3](#)). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.
 - **Steel Risers less than 4 inches** – Acceptance shall be by a Manufacturer’s Certificate of Compliance in accordance with [Section 9-1.4D](#).
 - **Concrete Adjustment Sections less than 12 inches** – Visual Acceptance in accordance with [Section 9-1.4C](#).
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 7-05 and 9-05.50(2), 9-05.50(3), 9-05.50(4), and 9-05.50(5). Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Certification of Material Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.42 **Riprap, Rock for Erosion and Scour Protection, Quarry Spalls, Rock for Rock Wall and Chinking Material, Backfill for Rock Wall, and Stone for Gabions**

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Consult the Aggregate Source Approval (ASA) database for approval status of the material for each source. If the ASA database indicated that the aggregate source has expired, or will expire before the end of the project, a source evaluation may be required. Contact the Region Materials Office for further direction. If samples are required, the Region Materials Office will coordinate with the Materials Quality Assurance Section QPL/ASA engineer to obtain the necessary samples according to SOP 128.

When the usage is for non-structural applications, the Region Materials Engineer may approve the source.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
 - a. **Stone for Gabions** – Prior to incorporating the material into the project a preliminary sample of material will be required; Stone for filling gabions shall be dense enough to pass the unit weight test described in *Standard Specifications* Section 8-24.3(3)F.
3. **Acceptance**
 - a. Acceptance for quantities less than or equal to 150 cubic yards shall be by a Visual Acceptance per [Section 9-1.4C](#).
 - b. Acceptance for quantities that exceed 150 cubic yards, the Project Engineer shall determine and document that the grading is in conformance with the *Standard Specifications* and contract special provisions.
 - c. Acceptance for non-structural applications shall be by a Visual Acceptance per [Section 9-1.4C](#).
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Sections 9-13 or 9-27.3(6). Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Refer to *Standard Specifications* Sections 9-13 and 9-13.4 to see if recycled materials are permitted.

9-4.43 **Semi-Open Slope Protection**

1. **Approval of Material** – Approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal – Attach Catalog Cuts using the Catalog Cut Transmittal DOT Form 350-072 to assist in the approval process.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.

3. **Acceptance** – Acceptance shall be by the Certificate of Compliance which will accompany each shipment per [Section 9-1.4E](#).
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-13.5(1). See Standard Plans. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – None.

9-4.44 Plant Material

1. **Approval of Material** – In accordance with Section 1-06 of the *Standard Specifications*, approval of the Nursery is required prior to the start of planting. The Nursery will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal – The Project Engineer can approve the Request for Approval of Material (RAM). The Regional Landscape Architect or HQ Design Landscape Architect can assist the Project Engineer in these evaluations.

2. **Preliminary Samples** – A preliminary Site Inspection will be required only if coded on the Request for Approval of Material DOT Form 350-071. Contact the Regional Landscape Architect or HQ Design Landscape Architect.
3. **Acceptance** – Visual Acceptance per [Section 9-1.4C](#).

Check for uniformity of plants within each lot and for representative sample lot based on the following:

(N = total number of plants in lot) (n = number of plants in sample lot)

Total Number of Plants (N)	Minimum No. of Plants Required to Make Sample Lot (n)
0 – 500	All plants
501 – 1,000	500
1,001 – 5,000	600
5,001 – 30,000	850
Over 30,000	1000

Should 5 percent or less of the sample lot fail, the entire lot may be accepted. Should over 5 percent of the acceptance sample lot fail to meet nominal specification requirements, the entire lot shall be rejected and removed from the project. The engineer may accept the plants if there is a large percentage of plants that appears to be exceptionally hearty and vigorous after sorting by the Contractor. If done immediately, the contractor shall be allowed to sort and remove the substandard portion of the plants.

After the contractor has completed sorting, a new sample lot based on the above schedule of the remaining stock will again be selected and inspected. Should 5 percent or less of this sample lot fail, the sorted lot may be accepted.

4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-14.7. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – If there is a question on the plant material, contact the Regional Landscape Architect or HQ Design Landscape Architect at 360-705-7230.

9-4.45 Topsoil

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal – The Project Engineer can approve the Request for Approval of Material (RAM). The Regional Landscape Architect or HQ Design Landscape Architect can assist the Project Engineer in these evaluations.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - Type A – Acceptance shall be as stated in the Contract Documents.
 - Type B & C – Visual Acceptance per [Section 9-1.4C](#).
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-14.2. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – If there is a question on the top soil, contact the Regional Landscape Architect or HQ Design Landscape Architect at 360-705-7230.

9-4.46 Seed

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal – Attach business license issued by the supplier's state or provincial Department of Licensing with a "seed dealer" endorsement. The Project Engineer can approve the Request for Approval of Material (RAM). The Region Landscape Architect or the HQ Design Landscape Architect can assist the Project Engineer in evaluating these submittals.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material (DOT Form 350-071).

3. Acceptance

- a. **Non-Native or Non-Source Identified Seed** – Acceptance shall be by Certificate of Compliance per [Section 9-1.4E](#). Retain label and certifications during each placement pay period showing analysis for Contract records. Seed shall be accepted based on analysis shown on the label/tag meeting contract requirements and by certification demonstrating compliance with [WAC 16-302](#) for prohibited weed, noxious weeds, other weeds, and other crops.
 - b. **Native Seed, Source Not Identified** – Acceptance shall be by Certificate of Compliance per [Section 9-1.4E](#). Retain label and certifications during each placement pay period showing analysis for Contract records. Seed shall be accepted based upon the analysis shown on the label/tag meeting contract requirements and by certification that seed meets or exceeds Washington State Department of Agriculture Seed Standards and by certification (blue tag) demonstrating compliance with [WAC16-302](#) for prohibited weed, noxious weeds, other weeds, and other crops.
 - c. **Native Seed, Source Identified** – Acceptance shall be by Certificate of Compliance per [Section 9-1.4E](#). Retain label and certifications during each placement pay period showing analysis for Contract records. Seed shall be accepted based upon the analysis shown on the label/tag meeting contract requirements and by certification that seed meets or exceeds Washington State Department of Agriculture Seed Standards and by certification (blue tag) demonstrating compliance with [WAC 16-302](#) for prohibited weed, noxious weeds, other weeds, and other crops and certification by yellow seed label from the Association of Official Seed Certifying Agents (AOSCA) or by site identification log.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
 5. **Specification Requirements** – See *Standard Specifications* Section 9-14.3. Review contract documents to determine if supplemental specifications apply.
 6. **Other Requirements** – If there is a question on the correct seed for the intended use, or other questions, contact the Region Landscape Architect or HQ Design Landscape Architect at 360-705-7230.

9-4.47 Fertilizer

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal – The Project Engineer can approve the Request for Approval of Material (RAM). The Regional Landscape Architect or HQ Design Landscape Architect can assist the Project Engineer in these evaluations.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.

3. **Acceptance**
 - a. **Fertilizer for General Use** – Visual Acceptance per [Section 9-1.4C](#). Verify that the material and chemical content shown on container label meets contract requirements.
 - b. **Fertilizer for Erosion Control**
 - i. **Less than 5 Acres** – Visual Acceptance per [Section 9-1.4C](#). Verify that the material and chemical content shown on container label meets contract requirements.
 - ii. **5 Acres and Greater** – Acceptance of fertilizer shall be by receipt of a Manufacturer’s Certificate of Compliance (*Standard Specifications* Section 1-06.3) per [Section 9-1.4D](#).
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-14.4. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – If there is a question on the intended use of the fertilizer, contact the Region or State Roadside and Site Development Office at 360-705-7230.

9-4.48 **Mulch**

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal – The Project Engineer can approve the Request for Approval of Material (RAM). The Regional Landscape Architect or HQ Design Landscape Architect can assist the Project Engineer in these evaluations.

 - a. **Straw** – A certificate of compliance from either North America Weed Management Association (NAWMA) or Washington Wilderness Hay and Mulch (WWHAM) program indicating the straw is weed free or provide certification that the straw is steam or heat treated and is weed free.
 - b. **Hydraulically Applied Erosion Control Products (HECP), Moderate-Term Mulch, and Short-Term Mulch** – Submit the following:
 - Test results dated within three years prior to the date of application from independent laboratory demonstrating compliance with Table 1 of *Standard Specifications* Section 9-14.5(2). Test results shall be reported on WSDOT Form 220-043, Temporary HECP Mulch Test Result Submission.
 - If the HECP contains cotton or straw, provide documentation that the material has been steam or heat treated to kill seeds or provide a U.S., Washington, or other State’s Department of Agriculture laboratory test reports, dated within 90 days prior to the date of application, showing there are no viable seeds in the mulch.

- Safety Data Sheet (SDS) that demonstrates that the product is not harmful to plants, animals, and aquatic life.
- c. **Hydraulically Applied Erosion Control Products (HECP), Long-Term Mulch** – Submit the following:
- Test results dated within three years prior to the date of application from independent laboratory demonstrating compliance with Tables 1 and 2 of *Standard Specifications* Section 9-14.5(2). Test results shall be reported on WSDOT Form 220-042, Long Term HECP Mulch Test Result Submission.
 - If the HECP contains cotton or straw, provide documentation that the material has been steam or heat treated to kill seeds or provide a U.S., Washington, or other State's Department of Agriculture laboratory test reports, dated within 90 days prior to the date of application, showing there are no viable seeds in the mulch.
 - Safety Data Sheet (SDS) that demonstrates that the product is not harmful to plants, animals, and aquatic life.
 - Independent test results from the National Transportation Product Evaluation Program (NTPEP) for ASTM D 6459.
- d. **Wood Strand Mulch** – Submit preliminary sample to the State Materials Laboratory for evaluation.
- e. **Organic Synthetic Tackifier** – Submit the following:
- Test results dated within three years prior to the date of application from independent laboratory demonstrating compliance with Table 1 of *Standard Specifications* Section 9-14.4(2).
 - Safety Data Sheet (SDS) that demonstrates that the product is not harmful to plants, animals, and aquatic life.
- f. **Compost** – Submit the following:
- A copy of the Solid Waste Handling Permit issued to the manufacturer by the Jurisdictional Health Department in accordance with [WAC 173-350](#).
 - Provide laboratory analysis from independent Seal of Testing Assurance (STA) Program certified laboratory that the material complies with the processes, testing, and standards specified in [WAC 173-350](#) and *Standard Specifications* 9-14.5(8).
 - A copy of the manufacturer's Seal of Testing Assurance (STA) certification as issued by the U.S. Composting Council.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
- a. **Straw** – Acceptance shall be by Visual Acceptance per [Section 9-1.4C](#).

- b. **Hydraulically Applied Erosion Control Products (HECPs), Long-Term Mulch, Moderate-Term Mulch, and Short-Term Mulch** – Acceptance shall be by Visual Acceptance per [Section 9-1.4C](#).
 - c. **Bark or Wood Chips** – Acceptance shall be by the Certification of Compliance per [Section 9-1.4E](#).
 - d. **Tackifier** – Acceptance shall be by Visual Acceptance per [Section 9-1.4C](#).
 - e. **Compost** – Materials shall be accepted on receipt of “Satisfactory” test report from an independent STA program certified laboratory, documentation stating that the compost facility is STA certified, waste handling permit, etc., see contract provisions.
 - f. **Wood Strand Mulch** – Acceptance shall be by “Satisfactory” test report from the Contractor, performed in accordance with WSDOT Test Method 125 and Safety Data Sheet (SDS) that demonstrates the product is not harmful to plant life.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
 5. **Specification Requirements** – See *Standard Specifications* Section 9-14.5. Review contract documents to determine if supplemental specifications apply.
 6. **Other Requirements** – If there is a question on the intended use of mulch, contact the Region Landscape Architect, or State Roadside and Site Development Office at 360-705-7230.

For Compost Only – Samples may be tested using the Solvita Compost Maturity Test by the Contracting Agency at the Engineer’s discretion. To purchase Solvita Compost Maturity Test Kits for field office use, contact Woods End Research Laboratory, Inc., Box 297, Mount Vernon, Maine 04352, 207-293-2457, email info@woodsendlab.org.

Note: If the compost smells like ammonia, the Solvita test should be performed.

9-4.49 Irrigation System

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal – If approval action is being requested via the RAM process, attach Catalog Cuts or other appropriate documents, using proper transmittal, to assist in the approval process. All Irrigation System materials being requested via RAM process will be sent to the Region or State Roadside and Site Development Office, except for Electrical Wire and Splices, which will be sent to the State Materials Laboratory. Atmospheric vacuum breaker assemblies (AVBA), pressure vacuum breaker assemblies (PVBA), double check valve assemblies (DCVA) and reduced pressure backflow devices (RBFV) shall be of a manufacturer and model approved for use by the Washington State Department of Health. When approved, be certain to verify that the product is in fact qualified for its intended use, and the product is listed under the appropriate specification.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **QPL Acceptance**
 - i. **PVC Pipe and Fittings, Automatic Controllers, Spray Heads, Valve Boxes and Protective Sleeves, Automatic Control Valves with Pressure Regulator, Quick Coupling Equipment, Electrical Wire and Splices** – Visual Acceptance per [Section 9-1.4C](#).
 - ii. **Cross-Connection Control Devices** – Visual Acceptance per [Section 9-1.4C](#). Document that the model number of the device is listed on the current Washington State Department of Health (WSDOH) listing.
 - b. **Non-QPL Acceptance**
 - i. **PVC Pipe, Polyethylene Pipe, and Detectable Marking Tape** – Visual Acceptance per [Section 9-1.4C](#).
 - ii. **Galvanized Iron Pipe** – Manufacturer’s Certificate of Compliance per [Section 9-1.4D](#).
 - iii. **PVC Pipe Fittings, Drip Tubing, Automatic Controllers, Spray Heads, Valve Boxes and Protective Sleeves, Gate Valves, Manual Control Valves, Automatic Control Valves, Automatic Control Valves with Pressure Regulator, Quick Coupling Equipment, Drain Valves, Hose Bibs, Check Valves, Pressure Regulating Valves, Three-Way Valves, Flow Control Valves, Air Relief Valves, Electrical Wire and Splices, Wye Strainers** – Catalog Cut per Section 9-1.4G.
 - iv. **Cross Connection Control Devices** – Manufacturer’s Certificate of Compliance per [Section 9-1.4D](#), indicating device is approved by Washington State Department of Health (WSDOH) listing, and Catalog Cut per Section 9-1.4G.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-15. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.50 Fencing and Gates

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal

- a. **Chain Link Fabric** – One sample consisting of three wires across full width of fabric, from one roll.
 - b. **Wire Mesh** – One 12-in sample across full width of roll.
 - c. **Tension Wire and Barbed Wire** – One 3-foot sample from one roll.
 - d. **Grade 1 Post Material**
 - i. **Rails and Grade 1 Posts for Chain Link Fence** – Sample to consist of one post and 12-in sample from each end of the rail, where appropriate.
 - ii. **Corner Posts or Brace Posts** – One complete post assembly.
 - iii. **Wire Fence Line Posts** – One complete post with plate.
 - e. **Colored Ultraviolet-Insensitive Coating Material** – The Project Engineer can approve the Request for Approval of Materials. The State Materials Engineer can assist the Project Engineer in these evaluations.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
 3. **Acceptance**
 - a. The following materials shall be accepted on receipt of an acceptable Manufacturer's Certificate of Compliance per [Section 9-1.4D](#):
 - i. Chain Link Fabric and Wire Mesh
 - ii. Tension Wire and Barbed Wire
 - iii. Grade 1 and Grade 2 Post Material
 - iv. Rails, Corner Posts, and Brace Posts
 - v. Wire Fence Line Posts
 - b. **Gates, Miscellaneous Fence Hardware, and Colored Ultraviolet-Insensitive Coating Material** – Visual Acceptance per [Section 9-1.4C](#).

Miscellaneous fence hardware includes such items as tie wire, hog rings, galvanized bolts, nuts, washers, fence clips, stays, post caps, tension band and bars, rail end caps, etc.
 4. **Field Inspection** – Field verify per [Section 9-1.5](#).
 5. **Specification Requirements** – See *Standard Specifications* Section 9-16. Review contract documents to determine if supplemental specifications apply.
 6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.51 **Beam Guardrail, Guardrail Anchors, and Guardrail Terminals**

1. **Approval of Material** – In accordance with Standard Specifications Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. An on-site inspection by the WSDOT Materials Fabrications Inspection Office of the fabricating facilities prior to approval will be required only if a new manufacture is requested on the Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal

- **Beam Guardrail Fabricator** – Submit the following information; Name of facility, contact person, phone number, email address, and facility address.
 - **Guardrail Anchor Components**
 - **Foundation Tube** – Submit a manufacturer's certificate of compliance demonstrating compliance with Section 9-16.3(5) of the *Standard Specifications*.
 - **Anchor Plate Assembly and Anchor Cable** – Submit a manufacturer's certificate of compliance and supporting test report demonstrating compliance with Section 9-16.3(5) of the *Standard Specifications*.
 - **Swaged Cable Fitting** – Submit one sample in accordance with Section 9-16.3(5).
 - **Guardrail Terminal (Proprietary Systems)** – Submit either NCHRP Report 350 or Manual for Assessment of Safety Hardware (MASH) crash testing report.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
 3. **Acceptance**
 - a. **Beam Guardrail and Components**
 - **W-Beam and Thrie Beam Rail Element, Backup Plates, Reducer Sections, and End Sections and Galvanizing** – Acceptance shall be by a manufacturer's certificate of compliance in accordance with [Section 9-1.4D](#).
 - **Post and Block** – Acceptance shall be in accordance with [Section 9-4.52](#).
 - **Hardware**
 - **Unfinished Bolts, Nuts, and Washers** – Acceptance shall be in accordance with Section 9-4.23.
 - **High Strength Bolts, Nuts, and Washers** – Acceptance shall be in accordance with [Section 9-4.24](#).

b. Guardrail Anchor and Components

- **Foundation Tube** – Acceptance shall be by a manufacturer’s certificate of compliance in accordance with [Section 9-1.4D](#).
- **Anchor Plate Assembly and Anchor Cable** – Acceptance shall be by a manufacturer’s certificate of compliance and supported test results in accordance with [Section 9-1.4D](#).
- **Swage Cable Fitting** – Acceptance shall be by a “Satisfactory test report from the State Materials Laboratory. Sample shall be prepared in accordance with Section 9-16.3(5) of the *Standard Specifications*.

c. Guardrail Terminals**• Non-Proprietary Systems**

- **W-Beam and Thrie Beam Rail Element, Backup Plates, Reducer Sections, and End Sections and Galvanizing** – Acceptance shall be by a manufacturer’s certificate of compliance in accordance with Section 9-1.4D.
- **Post and Block** – Acceptance shall be in accordance with [Section 9-4.52](#).
- **Hardware**
 - **Unfinished Bolts, Nuts, and Washers** – Acceptance shall be in accordance with Section 9-4.23.
 - **High Strength Bolts, Nuts, and Washers** – Acceptance shall be in accordance with Section 9-4.24.

- **Proprietary Systems** – Review contract documents to determine acceptance criteria.

4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-16.3 and *Standard Plans* M 21-01.
6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.52 Guardrail Posts and Blocks

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. An on-site inspection by the WSDOT Materials Fabrications Inspection Office of the Fabrication and Treatment Facilities prior to approval will be required only if a new manufacture is requested on the Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **Treated Timber Posts and Blocks** – Shall be accepted by a Lumber Grading Stamp or Grading Certificate for Timber and Lumber and Certificate of Treatment.
 - b. **Steel Post and Blocks** – Shall be accepted by a Manufacturer’s Certificate of Compliance per [Section 9-1.4D](#).
 - c. **Alternate Block Material** – Shall be accepted by documentation demonstrating conformance to the requirements of NCHRP Report 350 or the AASHTO Manual for Assessing Safety Hardware (MASH).
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-16.3 and Standard Plans.
6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.53 **Miscellaneous Precast Concrete Products (Block Traffic Curb, Precast Traffic Curb)**

1. **Approval of Material** – Approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. An on-site inspection by the WSDOT Materials Fabrication Office of the fabricating facilities prior to approval will be required only if a new manufacture is requested on the Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **Precast Traffic Curb** – Visual Acceptance per [Section 9-1.4C](#). Unless the curb sections have been inspected prior to shipping they are to be carefully inspected upon arrival on the project site. Check for surface color and damage, such as cracks, broken corner or edges, contour and alignment. Surface color and texture should match advanced sample provide by the manufacturer. See Standard Plans for details.
 - b. **Block Traffic Curb** – Visual Acceptance per [Section 9-1.4C](#). Check exposed faces of curb sections for damage such as chips, cracks, and air holes. See *Standard Specifications* Section 9-18.3 for details. Compressive strength may be determined in accordance with the FOP for ASTM C 805.

4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-18. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.54 **Prestressed Concrete Girders**

1. **Approval of Material** – Approval of the Fabricator is required prior to the start of fabrication. The Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Engineer office. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the Fabricator. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the Fabricator.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Acceptance is based on “APPROVED FOR SHIPMENT” Stamp and/or Tag ([Figure 9-4](#) or [9-5](#)). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.

The Materials Fabrication Inspector will provide a weekly Fabrication Progress Report to the Project Engineer while the girders are being fabricated.

4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 6-02.3(25), 6-05.3(3), 6-02.3(28), and Section 9-19. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Certification of Material Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.55 Pavement Marking Materials

1. **Approval of Material** – In accordance with Standard Specifications Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal – Pavement Marking Paint and Plastic that are not listed on the QPL shall provide test data from an independent laboratory and field test documentation from northern NTPEP (National Transportation Product Evaluation Program) or test deck information conducted by other public entities may be considered provided the data is similar to a northern NTPEP Test Deck.

Raised Pavement Markers that are not listed on the QPL shall provide a sample and test data from an independent laboratory and field test documentation from northern NTPEP (National Transportation Product Evaluation Program) or test deck information conducted by other public entities may be considered provided the data is similar to a northern NTPEP Test Deck.

Glass Beads that are not listed in the QPL shall provide test data from an independent laboratory demonstrating compliance with *Standard Specifications* Section 9-34.4.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Visual Acceptance per [Section 9-1.4C](#).
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-21 and 9-34. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – There may be special shipping requirements for epoxy and adhesive. These samples shall be transported to the Region Materials Laboratory for proper shipping.

9-4.56 Signing Materials, Mounting Hardware, Posts, Sign Supports and Digital Printing System – Reflective Sheeting with its Integrated Engineered Matched Component System: Ink, Clear Overlay Film and Digital Printer and Sign Fabricator

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of the Sign Fabricator as well as the manufacturer of the sign blanks, panels, reflective sheeting, posts, and sign supports is required prior to the start of fabrication. The Fabricator will be approved by the Qualified Products List (QPL) or Request for Approval (RAM) of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the fabricated item, approved by Materials Fabrication Inspection Office do not require approval through the Project Office. The Project Office has the option of inspecting the project signs prior to installation as detailed in Section 9-2.3B or they can request that the WSDOT

Fabrication Office inspect the permanent sign at the fabrication facility prior to shipment to the project per Section 9-2.3A. If the Project Office elects to have the signs inspected by the Fabrication Inspection Office they must send a copy of the Qualified Products Page or Request for Approval of Material listing the Fabricator to the WSDOT Materials Fabrication Inspection Office. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the Fabricator.

A RAM will not be required for sign mounting hardware provided by the Sign Fabricator. Mounting hardware from a source other than the sign fabrication facility will require approval by Request for Approval of Material DOT Form 350-071.

RAM Submittal:

- a. **Sign Fabricator, and the Manufacturers of Sign Blanks, Panels, Reflective Sheeting, Posts, and Sign Supports** – Submit the following information; Name of Facility, Contact Person, phone number, email address, and facility address.
 - b. **Sign Support Types; AP, AS, PL, PL-T, PL-U, SB-1, SB-2, SB-3, ST-1, ST-2, ST-3, ST-4, TPA, and TPB** – Submit either NCHRP Report 350 or Manual of Assessment of Safety Hardware (MASH) crash test report.
 - c. **Digital Printing System**
 - i. Product Number for Reflective Sheeting, Ink and Overlay Material and Type and Model Number for Digital Printer
 - ii. A detailed Certification Letter that identifies the specific Sign Fabricator and identifies in the letter the integrated engineered match component system the plant is being certified for
 - iii. **Sign Fabricator**
 - If Sign Fabricator is an approved sign shop – submit digitally printed signs and a Certification Letter from the sign material manufacturer that identifies an integrated engineer match component system that is listed in the QPL under Section 9-28.10
 - If Sign Fabricator is not an approved sign shop – submit the following information; Name of Facility, Contact Person, phone number, email address, and facility address
2. **Preliminary Samples** – A preliminary sample of the material may be required only if coded on the Request for Approval of Material DOT Form 350-071, or as requested by the Sign Fabricator Inspector.
 3. **Acceptance**
 - a. **Materials Fabrication Inspected Items**
 - i. **Sign** – Acceptance is based on a “FABRICATION APPROVED” Decal (Figure 9-8).
 - ii. **Sign Mounting Hardware** – Hardware supplied by the Sign Fabricator will have the mounting hardware certifications verified at the sign fabricator’s facility by the Materials Fabrication Inspector to ensure the materials meet the contract

requirements. These records will be kept at the sign fabrication facility. Fabrication inspectors will verify sign mounting hardware as it is packaged for shipment and stamp it “WSDOT INSPECTED” (Figure 9-3). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.

Contractors who purchase sign mounting hardware separately from a source other than a WSDOT approved sign fabrication facility will be required to supply a Manufacturer’s Certificates of Compliance per Section 9-1.4D and it will be the responsibility of the Contractor to supply the certifications to the Project Engineer’s Office prior to use.

iii. **Bolts for Roadside Wood Posts** – Acceptance for A307 bolts, nuts and washers shall be by Visual Acceptance per Section 9-1.4C.

b. **Non-Fabrication Inspected items (Project Engineer Acceptance)**

i. **Sheet Aluminum Signs, Fiberglass Reinforced Plastic Signs, Reflective Sheeting, Hardware (Bolts, U-Bolts, Washers, Nuts, Locknuts, Rivets, Post Clips, Wind Beams, Angles and “Z” Bars, Straps, and Mounting Brackets), and Posts** – Acceptance shall be by a Manufacturer’s Certificate of Compliance per Section 9-1.4D.

ii. **Bolts for Roadside Wood Posts** – Acceptance for A307 bolts, nuts and washers shall be by Visual Acceptance per Section 9-1.4C.

iii. **Sign Support Types; AP, AS, PL, PL-T, PL-U, SB-1, SB-2, SB-3, ST-1, ST-2, ST-3, ST-4, TPA, and TPB** – Acceptance shall be by Visual Acceptance in accordance with Section 9-1.4C.

iv. **Reflective Sheeting with its Integrated Engineered Matched Component System: Ink, Clear Overlay Film and Digital Printer** – Acceptance shall be by Visual Acceptance in accordance with Section 9-1.4C.

4. **Field Inspection**

a. **Materials Fabrication Inspected Items** – Field verify per Section 9-1.5. Double-faced signs, which do not receive decals, will be approved on visual inspection at the fabricator’s facility and in the field. A list/invoice of all inspected and accepted signs will be kept in the WSDOT Materials Fabrication Inspection Office files. Check that all overhead signs are mounted with stainless steel bolts, U-bolts, washers, nuts, locknuts, mounting brackets and straps. Mounting hardware shall include bolts, nuts, washers, locknuts, rivets, post clips, windbeams, angles, “Z” bar, straps and mounting brackets.

If there is not a Decal present, inform the Project Engineer. If the sign is installed it should be removed and sent back to the fabrication facility or if not installed just sent back to the fabrication facility. The Project Office has the option to proceed with Project Engineer Acceptance as detailed below. Items lacking decals or stamps, or which are damaged during shipping, should be rejected and that material tagged or marked appropriately.

b. **Non-Fabrication Inspected Items (Project Engineer Acceptance)** – Field verify per Section 9-1.5.

5. **Specification Requirements** – See *Standard Specifications* Section 9-28 and [Section 9-1.4B\(2\)](#). Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements**
 - a. **Non-Fabrication Inspected Items (Project Engineer Acceptance)** – Once the Project Engineer has confirmed the sign complies with WSDOT specification requirements the Project Engineer shall apply “WSDOT PE APPROVED” decal (Figure 9-10) to the sign.
 - b. **Buy America Provisions**
 - **Materials Fabrication Inspected CMO** – Certification of Materials Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.
 - **Non-Fabrication Inspected CMO** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.57 **Liquid Concrete Curing Compound**

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – If the lot is listed on the QPL, it may be used without testing on current projects per Section 9-1.4A(1). If the lot is not on the QPL, submit a one-quart sample taken by, or in the presence of, an agency representative for each lot. Samples must be submitted for testing 10 days prior to use of curing compound. Samples submitted shall be accepted on receipt of “Satisfactory” test reports from the State Materials Laboratory.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-23. Review contract documents to determine if supplemental specifications apply.

6. **Other Requirements** – Verify and document manufacturer’s expiration date on each approved lot prior to use in accordance with Field Verification of Materials, Section 9-1.5. If intended lot is to be used past expiration date, one quart samples for each lot shall be submitted for testing to the State Materials Laboratory a minimum of 10 days prior to use.

9-4.58 Admixtures for Concrete

1. **Approval of Material** – Approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Materials shall be accepted on the basis of a Certified Concrete Delivery Ticket indicating the product and dosage of the admixture conform to the concrete mix design.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 6-02.3(5)B and 9-23. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Check Concrete Delivery Ticket for proper admixture dosage.

9-4.59 Plastic Waterstop

1. **Approval of Material** – Approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Material shall be accepted by a Manufacturer’s Certificate of Compliance per [Section 9-1.4D](#).
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-24. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – None.

9-4.60 Epoxy Systems

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.

3. **Acceptance**

a. **Epoxy Bonding Agents** – Materials shall be accepted on receipt of “Satisfactory” test reports from the State Materials Laboratory. For epoxy bonding agents, submit mix ratios, intended use and a representative sample of each component with MSDS sheet for each batch or lot number. Samples shall be submitted to the State Materials Laboratory. A period of 21 calendar days should be allowed for testing.

Sample – A representative sample shall be a minimum of a 1 pint container of each component or a pre-packaged kit. The sample size shall represent the mixing ratio, (for example; 1 pint of A and 2 pints of B, or 1 pint A and 3 pints of B). Containers shall be identified as “Component A” (Epoxy Resin) and “Component B” (Curing Agent) and shall be marked with the name of the manufacturer, the date of manufacture and the lot number.

b. **Epoxy Grout/Mortar/Concrete** – Materials shall be accepted on receipt of “Satisfactory” test reports from the State Materials Laboratory. For epoxy grout/mortar/concrete, submit mix ratios, intended use and a representative sample of each component for each batch or lot number. Samples shall be submitted to the State Materials Laboratory. A period of 15 working days should be allowed for testing.

Sample – A representative sample shall be a minimum of a 1 pint container of each component or a pre-packaged kit. The sample size shall represent the mixing ratio, (for example; 1 pint of A and 2 pints of B, or 1 pint A and 3 pints of B). Containers shall be identified as “Component A” (Epoxy Resin), “Component B” (Curing Agent), and “Aggregate Component” and shall be marked with the name of the manufacturer, the date of manufacture and the lot number.

Acceptance for aggregate for non-Prepackaged Epoxy Grout/Mortar/Concrete shall be by the Certificate of Compliance per [Section 9-1.4E](#).

4. **Field Inspection** – Field verify per [Section 9-1.5](#).

5. **Specification Requirements** – See *Standard Specifications* Section 9-26. Review contract documents to determine if supplemental specifications apply.

6. **Other Requirements**

- Type IV epoxy bonding agent may be substituted for and be tested to the same criteria as Type I when used in the application identified in *Standard Specifications* Section 5-01.3(6) and 5-05.3(10). Ensure that the transmittal states the *Standard Specifications* for which the material is being tested for.
- Aggregate for non-Prepackaged Epoxy Grout/Mortar/Concrete shall meet the requirements of *Standard Specifications* Section 9-03.1(2).
- There may be special shipping requirements for epoxy. These samples shall be transported to the Region Materials Laboratory for proper shipping.

9-4.61 Resin Bonded Anchors

1. **Approval of Material** – In accordance with Standard Specifications Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal – If approval is being requested by the Request for Approval of Material process, submit independent laboratory test report indicating resin bonded anchor system, for the specified size rods, meets specification requirements when tested in accordance with ASTM E 488.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **Resin adhesive** – Acceptance shall be by Visual Acceptance per [Section 9-1.4C](#).
 - b. **Threaded Rod, Nut, and Washer or Other Inserts** – Acceptance shall be by the Manufacturer's Certificate of Compliance per [Section 9-1.4D](#).
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements**
 - For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.
 - There may be special shipping requirements for resin adhesive. These samples shall be transported to the Region Materials Laboratory for proper shipping.

9-4.62 Gabion Cribbing, Hardware, and Stone

1. **Approval of Material**

Gabion Cribbing and Hardware – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

Stone – See Section 9-4.42.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.

3. Acceptance

Gabion Cribbing and Hardware – Acceptance shall be by the Manufacturer's Certificate of Compliance per [Section 9-1.4D](#).

Stone – See Section 9-4.42

4. Field Inspection – Field verify per [Section 9-1.5](#).

5. Specification Requirements – See *Standard Specifications* Section 9-27.3. Review contract documents to determine if supplemental specifications apply.

6. Other Requirements – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.63 Steel Sign Structures – Cantilever, Sign Bridge, Bridge Mounted, Roadside

1. **Approval of Material** – Approval of the fabricator is required prior to the start of fabrication. The fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Engineer office. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the fabricator. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the fabricator.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – The fabricated sign structure and associated hardware will be accepted on the basis of an “APPROVED FOR SHIPMENT” Stamp and/or Tag ([Figure 9-4](#) or [9-5](#)). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.
 - a. **Sign Structure** – Cantilever, Sign Bridge, Bridge Mounted, and Roadside Type PLT/PLU – Acceptance is based on “APPROVED FOR SHIPMENT” Stamp and/or Tag ([Figure 9-4](#) or [9-5](#)). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.

Note: The Materials Fabrication Inspector will inspect hardware if it is available at the time of inspection at the point of manufacture. Acceptance for Roadside Sign Structure Hardware not present during Materials Fabrication inspection and delivered to the job site without an approval stamp shall be by the Manufacturer's Certificate of Compliance per [Section 9-1.4D](#). High strength bolts, nuts and washers in quantities over 50 require sampling.

- b. **Roadside** – Except Type PLT and PLU – Acceptance for Roadside sign structures except for Types PLT and PLU shall be by the Manufacturer’s Certificate of Compliance per [Section 9-1.4D](#).
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-06.16 and 9-28.14. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements**
 - a. **Materials Fabrication Inspected CMO** – Certification of Materials Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.
 - b. **Non-Fabrication Inspected CMO** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.64 Conduit

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal – Attach Catalog Cuts using the Catalog Cut Transmittal DOT Form 350-072 to assist in the approval process.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Visual Acceptance per [Section 9-1.4C](#) is required for Rigid Galvanized Steel, Aluminum, PVC, PE, HDPE, Fiberglass, and Flexible Metal Conduit including hardware such as (fittings, couplings, spacers, adapters, split internal expansion plugs, duct plugs, connectors, clamps, conduit bodies, and conduit supports), Expansion Fittings, Deflection Fittings, Combination Deflection and Expansion Fittings.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).

5. **Specification Requirements** – See *Standard Specifications* Section 9-29.1. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.65 **Fiber Optic Cable, Electrical Conductors, and Cable**

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
RAM Submittal – Attach Catalog Cut using DOT Form 350-072 to assist in the approval process. The Project Engineer can approve the Request for Approval of Material (RAM). The Region Traffic Engineer or the State Materials Laboratory can assist the Project Engineer in these evaluations.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Visual Acceptance per [Section 9-1.4C](#) of this manual.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-29.3. Review Contract Documents to determine if supplemental requirements apply.
6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel and iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.66 **Steel Poles – ITS, Pedestrian, Light, Signal Standards, and High Mast Light Poles**

1. **Approval of Material** – In accordance with Section 1-06 of the *Standard Specifications*, approval of the fabricator is required prior to the start of fabrication. The fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Office. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the fabricator. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the fabricator.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **Steel Light and Signal Standards Type II – V, ITS, and High Mast Light Poles**
 - As determined by the Materials Fabrications Inspection Office, Steel Light, Signal Standards and High Mast Light Poles may be inspected at the point of manufacture prior to shipping or at the jobsite by the Materials Fabrication Inspector. Acceptance is based on “APPROVED FOR SHIPMENT” Stamp and/or Tag (Figure 9-4 or 9-5). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.

Steel Light, Signal Standards and High Mast Light Poles delivered to the job site without “APPROVED FOR SHIPMENT” stamps and/or tags require Materials Fabrication Inspection. Contact the WSDOT Materials Fabrication Inspection Office for field inspection. Provide the Materials Fabrication Inspector the following documentation for their review prior to their physical inspection of the Steel Light, Signal Standards and High Mast Light Poles.

- Approved shop drawings not listed in Contract General Special Provisions.
- Manufacturer’s Certificate of Compliance for all steel and associated hardware identified in the pre-approved plan or approved shop drawing.
- Nondestructive test reports generated by the fabricator for inspection of welds.
- Certificate of Material Origin.

Note: The Materials Fabrication Inspector will inspect hardware if it is available at the time of inspection at the point of manufacture or at the jobsite. Hardware not present during Materials Fabrication inspection and delivered to the job site without an approval stamp may be accepted by the project office based on Manufacturer’s Certificate of Compliance with supporting material certifications and Certificate of Material Origin. When high strength bolting materials are received on the job site without Fabrications Inspection Stamp, acceptance shall be by the Manufacturer’s Certificate of Compliance per [Section 9-1.4D](#) for each heat number or manufacturing lot. Acceptance shall also be by a “Satisfactory” test report from the State Materials Laboratory, when samples are required, for each consignment lot as defined by *Standard Specifications* Section 9-06.5(3). A separate transmittal and materials certification shall accompany each sample of bolts, nuts, and washers.

- b. **Standards Type I, Ramp Meter & Flashing Beacon** – Acceptance shall be by a Manufacturer’s Certificate of Compliance with supporting Mill Certification in accordance with [Section 9-1.4D](#) and:
 - Approved shop drawings not listed in the Contract Special Provisions.
 - Manufacturer’s Certificate of Compliance for all steel and associated hardware identified in the pre-approval plan or approved shop drawing.

- Nondestructive test reports generated by the Fabricator for inspection of welds.
 - High strength bolts, nuts, and washers – Acceptance shall be in accordance with Section 9-4.24.
- c. **Standards Type Pedestrian Push Button and Pedestrian Signal** – Visual Acceptance in accordance with [Section 9-1.4C](#) and:
- Approved shop drawings not listed in Contract General Special Provisions.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-06.5(3) and 9-29.6. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements**
- a. **Materials Fabrication Inspected CMO** – Certification of Materials Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.
- For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.
- b. **Non-Fabrication Inspected CMO** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.67 Vacant

9-4.68 *Luminaires, Lamps, and Light Emitting Diodes (LED)*

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal – Luminaires and Lamps – Attach Catalog Cuts using the Catalog Cut Transmittal DOT Form 350-072 to assist in the approval process.

LED – Submit Independent Test Report verifying compliance with the Contract Document requirements along with Catalog Cuts using the Catalog Cut Transmittal DOT Form 350-072 to assist in the approval process.

2. **Preliminary Samples** – Preliminary samples will be required only if coded on the Request for Approval of Material DOT Form 350-071.

3. **Acceptance** – Visual Acceptance per [Section 9-1.4C](#).
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-29.10. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.69 **Water Distribution System**

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
RAM Submittal – Attach Catalog Cuts using the Catalog Cut Transmittal DOT Form 350-072 to assist in the approval process.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **QPL Acceptance**
 - i. **Ductile Iron Pipe and Fittings, PVC Pipe and Fittings, Restrained Joints, Restrained Flexible Couplings, Gate Valves (3-in to 16-in), Butterfly Valves, Saddles, Corporation Stops** – Visual Acceptance per [Section 9-1.4C](#).
 - ii. **Copper Tubing and Polyethylene Tubing** – Manufacturer's Certificate of Compliance per [Section 9-1.4D](#).
 - b. **Non-QPL Acceptance**
 - i. **Ductile Iron Pipe, Steel Pipe, Polyvinyl Chloride (PVC) Pipe, Polyethylene (PE) Pressure Pipe, Polyethylene Encasement** – Manufacturer's Certificate of Compliance per [Section 9-1.4D](#).
 - ii. **Fittings for Ductile Iron, Steel, PVC, and PE Pipe. Restrained Joints, Bolted Sleeve-type Couplings for Plain End Pipe, Restrained Flexible Couplings, Grooved and Shoulder Joints, Fabricated Mechanical Slip-type Expansion Joints, Gate Valves (3-in to 16-in), Butterfly Valves, Valve Stem Extensions, Combination Air Release/Vacuum Valves, Tapping Sleeve and Valve Assemblies, Hydrants, End Connections, Hydrant Extensions, Hydrant Restraints, Traffic Flanges, Saddles, Corporation Stops, Copper Tubing, Polyethylene Tubing, Service Fittings, Meter Setters, Bronze Nipples and Fittings, and Meter Boxes** – Catalog Cut per Section 9-1.4G.

- iii. **Valve Boxes, Valve Marker Posts, and Guard Posts** – Visual Acceptance per [Section 9-1.4C](#).
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-30. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements**
 - a. Water distribution pipe requires testing after installation in conformance with the *Standard Specifications* Section 7-09.
 - b. For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.70 **Elastomeric Pads**

1. **Approval of Material** – In accordance with Section 1-06 of the *Standard Specifications*, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal

- a. **Load Bearing** – Submit Manufacturer's Certificate of Compliance and supporting tests in accordance with *Standard Specifications* Section 1-06.3, demonstrating compliance with *Standard Specifications* Section 9-31.
- b. **Non-Load Bearing; Girder Stop Pads and Seismic Restrainer Pads** – Attach Catalog Cut using Transmittal of Catalog Cut DOT Form 350-072 to assist in the approval process. The Project Engineer can approve the Request for Approval of Material (RAM).
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **Load Bearing** – Acceptance shall be by a Manufacturer's Certificate of Compliance per [Section 9-1.4D](#) accompanied by a test report identifying the specific batch of material and demonstrating conformance to *Standard Specifications* Section 9-31.
 - b. **Non-Load Bearing; Girder Stop Pads and Seismic Restrainer Pads** – Visual acceptance per [Section 9-1.4C](#) or this manual.
4. **Field Inspection** - Field verify per Section 9-1.5.
5. **Specification Requirements** – See *Standard Specifications* Section 9-31. Review contract documents to determine if supplemental specifications apply.

6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.71 Bridge Bearings – Cylindrical, Disc, Fabric Pad, Pin, Spherical

1. **Approval of Material** – Approval of the Fabricator is required prior to the start of fabrication. The Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Engineer office. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the Fabricator. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the fabricator.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – As determined by the WSDOT Materials Fabrication Inspection Office, Bridge Bearings may be inspected at the point of manufacture prior to shipping or at the jobsite by the Materials Fabrication Inspector. Contract Provision may provide for job site inspection of the Bridge Bearings by the engineer. Acceptance is based on “APPROVED FOR SHIPMENT” Stamp and/or Tag ([Figure 9-4](#) or [9-5](#)). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.

Bridge Bearings delivered to the job site without “APPROVED FOR SHIPMENT” stamps and/or tags require Materials Fabrication Inspection. Contact the WSDOT Materials Fabrication Inspection Office for inspection and required documentation needed prior to their physical inspection of the Bridge Bearing.

4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – Bearings specifications are currently defined in General Special Provisions and Bridge Special Provisions. Review the contract documents to determine the specification requirements.
6. **Other Requirements** – Certification of Material Origin will be the responsibility of the Materials Fabrication Inspector as defined in [Section 9-2.1A](#).

For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.72 Precast Concrete Barrier

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of the Fabricator and materials is required prior to the start of fabrication. The Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Engineer office. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the Fabricator. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the fabricator.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **Concrete Barrier** – Acceptance is based on “WSDOT INSPECTED” Stamp ([Figure 9-3](#)). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.
 - b. **Connecting, Drift, and Steel Pins, and Miscellaneous Hardware** – The acceptance of connection, drift, and steel pins, and miscellaneous hardware is based on Manufacturer’s Certificate of Compliance per [Section 9-1.4D](#) for each heat number or manufacturing lot.

Connecting, drift, and steel pins verify the Manufacturer’s Certification of Compliance and supporting mill tests comply with *Standard Specification* 6-10.2.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Sections 1-06 and 6-10. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Certification of Materials Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.
 - a. **Materials Fabrication Inspected CMO** – Certification of Materials Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

- b. **Non-Fabrication Inspected CMO (Miscellaneous Hardware)** – For projects with the Buy America provision, refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.73 Vacant

9-4.74 Metal Bridge Rail

1. **Approval of Material** – Approval of the Fabricator is required prior to the start of fabrication. The Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Engineer office. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the Fabricator. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the fabricator.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – As determined by the WSDOT Materials and Fabrication Inspection Office, Railing may be inspected at the point of manufacture or at the jobsite by the Materials and Fabrication Inspector. Acceptance is based on “APPROVED FOR SHIPMENT” Stamp and/or Tag ([Figure 9-4](#) or [9-5](#)). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 6-06.3(2) and 9-06.18. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Certification of Material Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.75 Construction Geosynthetics (Geotextiles and Geogrids)

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06 approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal

- a. **Underground Drainage, Separation, Soil Stabilization, Permanent Erosion Control, Ditch Lining, Prefabricated Drainage Mat, and Permanent Geosynthetic Retaining Walls, Reinforced Slopes, Reinforced Embankments, and other Geosynthetic Reinforcement Applications** – Refer to *Standard Specifications* Section 9-33.4(1) for submittal requirements.
 - b. **Temporary Geosynthetics (Geotextile and Geogrid) Applications** – Approval of material is not required.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
 3. **Acceptance**
 - a. **Underground Drainage**
 - i. **Less than 100 SY** – Acceptance shall be by the Manufacturer’s Certificate of Compliance per [Section 9-1.4D](#).
 - ii. **100 SY and greater** – Materials shall be accepted on receipt of “Satisfactory” test reports from the State Materials Laboratory.
 - b. **Geosynthetic Reinforcement in Permanent Geosynthetic Retaining Walls, Reinforced Slopes, Reinforced Embankments, and other Geosynthetic Reinforcement Applications** – Materials shall be accepted on receipt of “Satisfactory” test reports from the State Materials Laboratory.
 - c. **Separation, Soil Stabilization, Permanent Erosion Control, Ditch Lining, and Prefabricated Drainage Mat** – Acceptance shall be by the Manufacturer’s Certificate of Compliance per [Section 9-1.4D](#).
 - d. **Temporary Erosion Control Materials** – Visual Acceptance per [Section 9-1.4C](#).
 4. **Field Inspection** – Field verify per [Section 9-1.5](#).
 5. **Specification Requirements** – See *Standard Specifications* Section 9-33. Review contract documents to determine if supplemental specifications apply.
 6. **Other Requirements** – If seams are sewn in the field, refer to *Standard Specifications* Section 9-33.4(5) for sampling and testing requirements.

9-4.76 Concrete

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of all materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

Cement – See [Section 9-4.1](#).

Concrete Aggregate – See [Section 9-4.4](#).

Admixtures for Concrete – See [Section 9-4.58](#).

Water – See [Section 9-4.77](#).

Submittal and approval of the Concrete Mix Design shall be per *Standard Specifications* Section 6-02.3(2) and 9-03.1(1) and Section 6-2.1A. Contractor must submit a concrete mix design on DOT Form 350-040. All concrete must come from a National Ready Mix Concrete Association (NRMCA) certified Batch Plant.

For mix designs proposed for cement concrete pavement the contractor is required to submit flexural and compressive strength test results in accordance with *Standard Specifications* Section 5-05 as part of the concrete mix design.

Note: If the Aggregate Source Approval (ASA) database Tracking System requires Alkali Silica Reactivity (ASR) mitigation, the concrete mix design submittal may include the use of either a low alkali cement (per *Standard Specifications* Section 9-01.3(3)) or fly ash (*Standard Specifications* Section 9-23.9) as approved by the engineer. The contractor shall provide test results for ASTM C 1567 showing the mitigating measures are effective (see *Standard Specifications* Section 9-03). Contact the State Materials Engineer if the contractor is proposing to use other mitigating measures.

2. **Preliminary Samples** – Not required.
3. **Acceptance**
 - a. **Prepackaged Concrete** – Visual Acceptance per [Section 9-1.4C](#) that all bags are labeled meeting the requirements of ASTM C387.
 - b. **Controlled Density Fill (CDF)** – Check Concrete Delivery Ticket to verify the mix provide is in accordance with the approved Mix Design.
 - c. **Commercial and Lean Concrete** – Is accepted based on a Certificate of Compliance to be provided by the supplier as described in *Standard Specifications* Section 6-02.3(5)B.
 - d. **Cement Concrete Pavement** – Compressive Strength shall be accepted on receipt of “Satisfactory” test reports. Acceptance samples shall be obtained, tested, and recorded in accordance with the contract documents, and [Section 9-3](#) and [9-7](#). Air Content will be tested at the time of placement and documented on the Concrete Delivery Ticket. Acceptance samples shall be obtained, tested, and recorded in accordance with the contract documents, and this chapter.

- e. **Structural Concrete** – Compressive Strength shall be accepted on receipt of “Satisfactory” test reports. Acceptance samples shall be obtained, tested, and recorded in accordance with the contract documents, and [Section 9-3](#) and [9-7](#). Slump, Air Content and Temperature will be tested at the time of placement and documented on the Concrete Delivery Ticket. Acceptance samples shall be obtained, tested, and recorded in accordance with the contract documents, and this chapter.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 2-09.3(1)E, 9-03.1, 5-05, and 6-02.
6. **Other Requirements** – None.

9-4.77 Water for Concrete

1. **Approval of Material** – Not required.
2. **Preliminary Samples** – Not required.
3. **Acceptance** – Acceptance is based on test results provided by the contractor. If the Contractor is using potable water that is clear and apparently clean, then no testing is required.
 - a. **Physical Requirements** – Testing will be conducted on a weekly interval for the first four weeks and thereafter on monthly interval.
 - b. **Chemical Requirements** – Testing will be conducted on a monthly interval.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-25.1.
6. **Other Requirements** – None.

9-4.78 Expansion Joints

1. **Approval of Material** – Approval of the Fabricator is required prior to the start of fabrication. The Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the Fabricator. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the fabricator.

The Project Engineer is responsible for obtaining the approval of materials prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – The Project Engineer shall collect, review and approve all of the documentation from the Fabricator for the various material items used in Manufacturing the expansion joints as listed below.
 - a. **Gland Strip** – Acceptance shall be by the Manufacturer’s Certificate of Compliance per [Section 9-1.4D](#).
 - b. **Steel Plates and Shapes** – Acceptance shall be by the Manufacturer’s Certificate of Compliance per [Section 9-1.4D](#).
 - c. **Coatings for Steel Parts** – Acceptance shall be by the Manufacturer’s Certificate of Compliance per [Section 9-1.4D](#).

The Materials Fabrications Inspection Office will inspect the workmanship of the Expansion Joint at the jobsite. Acceptance for the expansion joints is based on a “WSDOT INSPECTED” ([Figure 9-3](#)) Stamp.

4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – Review contract documents to determine specification requirements.
6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.79 **Traffic Signal Controller Assembly**

1. **Approval of Material**

Signal Controller Assembly – Approval of the Signal Controller Assembly Fabricator is required prior to the start of fabrication. The Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the fabricator.

Signal Controller Assembly “Pluggable” Components – The Project Engineer is responsible for obtaining the approval of traffic signal control equipment prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal – Attach Catalog Cuts for components using the Catalog Cut Transmittal DOT Form 350-072 and fully dimensioned Shop Drawings to assist in the approval process.

2. **Preliminary Samples** – A preliminary sample of the individual components will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **Traffic Signal Controllers** – Shall be accepted on receipt of “Satisfactory” test reports. A “Satisfactory” test report is defined as acceptable performance in the following tests:
 - WSDOT Test Method 421, Traffic Controller Inspection and Test Procedure
 - WSDOT Test Method 422, Transient Voltage Test (Spike Test) Procedure (Optional)
 - WSDOT Test Method 423, Conflict Monitor Testing
 - WSDOT Test Method 424, Power Interruption Test Procedure (Only for Type 170 and NEMA Controllers)
 - WSDOT Test Method 425, Environmental Chamber Test
 - WSDOT SOP 429, Method for Determining the Acceptability of Traffic Signal Controller Assembly
 - WSDOT Test Method T 427, Loop Amplifier Test (Optional)
 - WSDOT Test Method T 428, Compliance Inspection and Test Procedure
 - b. **Signal Controller Assembly “Pluggable” Components** – Visual Acceptance per [Section 9-1.4C](#). Document functionality of the “pluggable” component at the start up by the Region Traffic Signal Inspector.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-29.13. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.80 Erosion Control Devices

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal – The Project Engineer can approve the Request for Approval of Material (RAM). The Regional Landscape Architect or HQ Design Landscape Architect can assist the Project Engineer in these evaluations.

- a. **Polyacrylamide (Pam), Coir Log Including Wood Stakes and Rope Ties, Clear Plastic Covering, and High Visibility Fencing** – Attached Catalog Cuts using Catalog Cut Transmittal DOT Form 350-072 to assist the approval process.

- b. **Erosion Control Blanket** – Submit the following:
 - Independent test results from the National Transportation Product Evaluation Program (NTPEP).
 - If netting is present, attach Catalog Cut using the Catalog Cut Transmittal DOT Form 350-072) to assist the approval process.
 - c. **Check Dams**
 - **Biodegradable Check Dams** – Submit the following:
 - Refer to the RAM submittal requirements for Wattles, Compost Socks, and Coir Logs
 - **Non-biodegradable Check Dams** – Submit the following:
 - Geosynthetic material, submit Manufacturer’s Certificate of Compliance
 - Attach Catalog Cuts using Catalog Cut Transmittal DOT Form 350-072 to assist the approval process.
 - d. **Wattles and Compost Socks** – Submit the following:
 - Attach Catalog Cuts using Catalog Cut Transmittal DOT Form 350-072 to assist the approval process.
 - **Compost Fill Material** – See the RAM transmittal requirements for compost in [Section 9-4.48](#).
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
 3. **Acceptance** – Acceptance for all erosion control devices shall be by Visual Acceptance per [Section 9-1.4C](#).
 4. **Field Inspection** – Field verify per [Section 9-1.5](#).
 5. **Specification Requirements** – See *Standard Specifications* Section 8-01, 9-14, and 9-33.
 6. **Other Requirements** – If there is a question on the intended use of erosion control devices, contact the Statewide Erosion Control Program Lead at 360-570-6654.

9-4.81 Concrete Patching Material, Grout and Mortar

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal – If the product is not listed on the QPL, submit test data from an accredited independent laboratory confirming that the concrete patching material, grout or mortar meets *Standard Specifications* Section 9-20.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.

3. Acceptance

- a. **Concrete Patching Materials** – Concrete Patching materials shall be accepted on receipt of “Satisfactory” tests report for air content and compressive strength performed once per shift. The Contractor must submit a mix design meeting the requirements of *Standard Specifications* Section 9-20 for the concrete patching material.
- b. **Grout**
 - i. **Grout Type 1** – Materials shall be accepted by Visual Acceptance per [Section 9-1.4C](#).
 - ii. **Grout Type 2** – Materials shall be accepted by receipt of “Satisfactory” test report for compressive strength, testing to be performed once per bridge pier or 1 per shift. Acceptance samples shall be obtained, tested, and recorded in accordance with the contract documents and [Section 9-3](#) and [9-7](#).
 - iii. **Grout Type 3** – Materials shall be accepted by receipt of “Satisfactory” test report for compressive strength. Testing to be performed once per bridge pier or 1 per shift, and shall be by the Manufacturer’s Certificate of Compliance per [Section 9-1.4D](#) to verify conformance to AASHTO T 22 (ASTM C39), or AASHTO T 106 (ASTM C109), ASTM C1583 or ASTM C882 and ASASHTO T 160 (ASTM C157) requirements. Acceptance samples shall be obtained, tested, and recorded in accordance with the contract documents and [Section 9-3](#) and [9-7](#).
 - iv. **Grout Type 4**
 - **Structural Applications** – Materials shall be accepted by receipt of “Satisfactory” test report for compressive strength, testing to be performed once per bridge pier or 1 per shift, and shall be by Visual Acceptance per [Section 9-1.4C](#). Acceptance samples shall be obtained, tested, and recorded in accordance with the contract documents and [Section 9-3](#) and [9-7](#).
 - **Soils Nails and Ground Anchors** – Acceptance shall be by Visual Acceptance per [Section 9-1.4C](#).
 - **Nonstructural Applications** – Acceptance for column jacket pour back or bridge or retaining wall shaft CSL access tube pour back will be by Visual Acceptance per [Section 9-1.4C](#).
- c. **Mortar**
 - i. **Mortar Type 1 for Finishing Applications** – Visual Acceptance per [Section 9-1.4C](#) and will require confirmation of *Standard Specifications* blending ratio.
 - ii. **Mortar Type 2 for Masonry Applications** – Visual Acceptance per [Section 9-1.4C](#) and will require confirmation of *Standard Specifications* blending ratio.
 - iii. **Mortar Type 3** – Shall be accepted on receipt of “Satisfactory” test report for compressive strength, testing to be performed once per day. Acceptance samples shall be obtained, tested, and recorded in accordance with the contract documents, and [Section 9-3](#) and [9-7](#).

- d. **Aggregate Extender for Concrete Patching Material** – Materials shall be accepted on receipt of “Satisfactory” test reports meeting the requirements of *Standard Specifications* Section 9-20.1.
 - e. **Aggregate Extender for Grout Type 3** – Materials shall be accepted by a Certificate of Compliance stating that the aggregate being used meets the Specifications and recommendations and will be mixed and placed in accordance with the grout manufacturer’s requirements.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
 5. **Specification Requirements** – See *Standard Specifications* Section 9-20. Review contract documents to determine if supplemental specifications apply.
 6. **Other Requirements** – Grouts extended with coarse aggregate will require 4” × 8” test specimens per WSDOT FOP for AASHTO T 23. Grouts extended with fine aggregate will require test specimens per WSDOT TM 813.

9-4.82 Streambed Aggregates

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Consult the Aggregate Source Approval (ASA) database for approval status of the material for each source. If the ASA database indicated that the aggregate source has expired, or will expire before the end of the project, a source evaluation may be required. Contact the Region materials office for further direction. If samples are required, the Region materials office will coordinate with the Materials Quality Assurance Section QPL/ASA engineer to obtain the necessary samples according to SOP 128.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **Streambed Sediment** – Acceptance shall be administered in accordance with *Standard Specifications* Section 3-04. Acceptance samples shall be obtained, tested, and recorded in accordance with the contract documents, and [Section 9-3](#) and [9-7](#).
 - b. **Streambed Cobbles, Streambed Boulders and Habitat Boulders** – Visual Acceptance per [Section 9-1.4C](#). Approximate size can be determined per *Standard Specifications* Section 9-03.11.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Sections 3-02, 3-04, and 9-03.11. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Streambed aggregates shall be naturally occurring water rounded aggregates. Aggregates from quarries, ledge rock, and talus slopes are not permitted.

Refer to *Standard Specifications* Section 9-03.11 to see if recycled materials are permitted.

9-4.83 Temporary Traffic Control Materials

1. **Approval of Materials and Systems** – In accordance with *Standard Specifications* Section 1-06, approval of materials prior to use is required for:
 - a. **Transportable Attenuators** – Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal – The contractor shall provide certification that the unit complies with NCHRP 350 Test Level 3 requirements or the comparable requirement from the AASHTO Manual for Assessing Safety Hardware (MASH) Test Level 3 per Section 1-10.2(3).

- b. **Portable Temporary Traffic Control Signal** – Material will be approved per *Standard Specifications* Section 1-10.3(3)K.
- c. **Pavement Markings** – Refer to Section 9-4.55.

Prior approval is not required for:

- Barricades
- Construction Signs
- Portable Changeable Message Signs
- Sequential Arrow Signs
- Sign Covering
- Stop/Slow Paddles
- Tall Channelizing Devices
- Traffic Cones
- Traffic Safety Drums
- Tubular Markers
- Warning Lights and Flashers
- Wood Sign Posts

2. **Preliminary Samples** – No preliminary sample required.
3. **Acceptance**
 - a. **Stop/Slow Paddles, Wood Sign Supports, Sign Covering** – Visual Acceptance per [Section 9-1.4C](#) to ensure good condition and conformance to the appropriate *Standard Specifications*.
 - b. **Construction Signs, Sequential Arrow Signs, Portable Changeable Message Signs, Barricades, Traffic Safety Drums, Traffic Cones, Tubular Markers, Warning Lights and Flashers, Tall Channelizing Devices** – Visual Acceptance per [Section 9-1.4C](#) to ensure the signs and traffic control devices are acceptable or marginal as defined in Quality Guidelines for Temporary Traffic Control Device and conform to the appropriate *Standard Specifications*.
 - c. **Portable Temporary Traffic Control Signal** – Visual Acceptance per [Section 9-1.4C](#). All Portable Temporary Traffic Control Signals must be accepted prior to use. Inspect all Portable Temporary Traffic Control Signals to ensure good condition, functionality and conformance to the appropriate *Standard Specifications*.

- d. **Transportable Attenuator (TMA)** – Visual Acceptance per [Section 9-1.4C](#) and inspected for condition, reflectivity and conformance to the appropriate *Standard Specifications*. No sampling or testing will be done except that deemed necessary to support the visual inspection.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Sections 1-10, 8-21.3(3), and 9-35. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – None.

9-4.84 **Modular Expansion Joint**

1. **Approval of Material** – Approval of the Fabricator is required prior to the start of fabrication. The Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Engineer office. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the Fabricator. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the fabricator.
2. **Preliminary Samples** – Preliminary samples of the material will be required by the contract provisions or if coded on the Request for Approval of Material DOT Form 350-071).
3. **Acceptance** – As determined by the WSDOT Materials Fabrication Inspection Office, Modular Expansion Joints may be inspected at the point of manufacture prior to shipping or at the jobsite by the Materials Fabrication Inspector. Contract Provision may provide for job site inspection of the Modular Expansion Joints by the engineer. Acceptance is based on “APPROVED FOR SHIPMENT” Stamp and/or Tag ([Figure 9-4](#) or [9-5](#)). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.

Modular Expansion Joints delivered to the job site without “APPROVED FOR SHIPMENT” stamps and/or tags require Materials Fabrication Inspection. Contact the WSDOT Materials Fabrication Inspection Office for inspection and required documentation needed prior to their physical inspection of the Modular Expansion Joints.

4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – Modular Expansion Joints specifications are currently specified in General Special Provisions. Review the contract documents to determine the specification requirements.
6. **Other Requirements** – Certification of Material Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.85 Junction Boxes, Cable Vaults, and Pull Boxes

1. Approval of Material

Fabrication Inspection items – In accordance with *Standard Specifications* Section 1-06, approval of the Fabricator is required prior to the start of fabrication. The Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Engineer office. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the Fabricator. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the fabricator.

Note: Approved design/shop drawings are available online at www.wsdot.wa.gov/design/traffic/shop_drawings.htm. Online drawings represent fabricators designs that have passed initial proof load testing for design approval. The Online drawings maintained by the WSDOT Traffic Design Office are used to inspect Concrete Junction Boxes, Cable Vaults and Pull Boxes.

Non-Fabrication Inspection Items – Approval of the Structure Mounted and Non-Concrete Junction Boxes are required prior to use. The Structure Mounted and Non-Concrete Junction Boxes will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

RAM Submittal

- a. **Standard Duty Junction Boxes Types 1, 2, and 8** – Submittal and approval of Standard Duty Junction Boxes Types 1, 2, and 8 shall be in accordance with *Standard Specifications* Sections 9-29.2(1), 9-29.2(1)A, 9-29.2(1)A1, and 9-29.2(5).
- b. **Heavy Duty Junction Boxes Types 4, 5, and 6** – Submittal and approval of Heavy Duty Junction Boxes Types 4, 5, and 6 shall be in accordance with *Standard Specifications* Sections 9-29.2(1), 9-29.2(1)B and 9-29.2(5).
- c. **Standard Duty Cable Vaults and Pull Boxes** – Submittal and approval of Standard Duty and Heavy Duty Cable Vaults and Pull Boxes shall be in accordance with *Standard Specifications* Sections 9-29.2(2), 9-29.2(2)A, and 9-29.2(5).
- d. **Heavy Duty Cable Vaults and Pull Boxes** – Submittal and approval of Standard Duty and Heavy Duty Cable Vaults and Pull Boxes shall be in accordance with *Standard Specifications* Sections 9-29.2(2), 9-29.2(2)B, and 9-29.2(5).

- e. **Structure Mounted Junction Boxes** – Attach Catalog Cuts using the Catalog Cut Transmittal DOT Form 350-072 and/or Shop Drawing to the State Materials Laboratory to assist in the approval process.
 - f. **Non-Concrete Junction Box** – Submittal and approval of Non-Concrete Junction Boxes shall be in accordance with *Standard Specifications* Sections 9-29.2(1), 9-29.2(1)A, 9-29.2(1)A2, and 9-29.2(5)
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
 3. **Acceptance**
 - a. **Type 1, 2, and 8 Junction Boxes**
 - **Concrete** – Acceptance is based on “WSDOT INSPECTED” Stamp ([Figure 9-3](#)). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.
 - **Non-Concrete** – Visual Acceptance per [Section 9-1.4C](#), verifying that the number stamped on the box and lid are from a current WSDOT Approved drawing located at: www.wsdot.wa.gov/design/traffic/shop_drawings.htm.
 - b. **Type 4, 5, and 6 Junction Boxes** – Acceptance is based on “APPROVED FOR SHIPMENT” Stamp and/or Tag ([Figure 9-4](#) or [9-5](#)). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.
 - c. **Cable Vaults and Pull Boxes** – Acceptance is based on “APPROVED FOR SHIPMENT” Stamp and/or Tag ([Figure 9-4](#) or [9-5](#)). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.
 - d. **Structure Mounted Junction Boxes** – Visual Acceptance per [Section 9-1.4C](#).
 4. **Field Inspection** – Field verify per [Section 9-1.5](#).
 5. **Specification Requirements** – See *Standard Specifications* Section 9-29.2 and Standard Plans sheets J-40.10-02, J-40.20-00, J-40.30-02, and J-40.36-00. Review contract documents to determine if supplemental specifications apply.
 6. **Other Requirements**
 - a. **Materials Fabrication Inspected CMO** – Certification of Materials Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials. The project Engineer will track the quantity of the materials and retain these documents in the project records.

- b. **Non-Fabrication Inspected CMO** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.86 Precast Bridge Deck Panels, Floor Panels, Marine Pier Deck Panels, Noise Barrier Walls, Pier Caps, Retaining Walls, Roof Panels, Structural Earth Walls, Wall Panels, and Wall Stem Panels

1. **Approval of Material** – Approval of the Fabricator is required prior to the start of fabrication. The Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Engineer office. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the Fabricator. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the fabricator.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Acceptance is based on “APPROVED FOR SHIPMENT” Stamp and/or Tag ([Figure 9-4](#) or [9-5](#)). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 6-02.3(25), 6-02.3(28), 6-11, 6-12, and 6-13. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Certification of Material Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.87 Concrete Three Sided Structures, Box Culverts and Split Box Culverts

1. **Approval of Material** – Approval of the Fabricator is required prior to the start of fabrication. The Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Engineer office. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the Fabricator. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the fabricator.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Acceptance is based on “APPROVED FOR SHIPMENT” Stamp and/or Tag (Figure 9-4 or 9-5). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.
4. **Field Inspection** – Field verify per Section 9-1.5.
5. **Specification Requirements** – Review the contract documents to determine the specification requirements.
6. **Other Requirements** – Certification of Material Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to Section 9-1.2E to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.88 Precast Concrete Vaults (Utility, Drainage, etc.)

1. **Approval of Material** – Approval of the Fabricator is required prior to the start of fabrication. The Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Engineer office. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the Fabricator. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the fabricator.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.

3. **Acceptance** – Acceptance is based on “APPROVED FOR SHIPMENT” Stamp and/or Tag (Figure 9-4 or 9-5). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.
4. **Field Inspection** – Field verify per Section 9-1.5.
5. **Specification Requirements** – Review the contract documents to determine the specification requirements.
6. **Other Requirements** – Certification of Material Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to Section 9-1.2E to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin all foreign steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.89 **Fabricated/Welded Miscellaneous Metal Drainage Items: Grate Inlets and Drop Inlets**

1. **Approval of Material** – Approval of the Fabricator is required prior to the start of fabrication. The Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Engineer office. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the Fabricator. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the fabricator.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Acceptance is based on “APPROVED FOR SHIPMENT” Stamp and/or Tag (Figure 9-4 or 9-5). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.
4. **Field Inspection** – Field verify per Section 9-1.5.
5. **Specification Requirements** – See *Standard Specifications* Section 9-05.16. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Certification of Material Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to Section 9-1.2E to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin all foreign steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.90 **Miscellaneous Steel Structures (Cattle Guards, Handrail, Guardrail Posts with Welded Base Plate, Seismic Retrofit Earthquake Restrainers, Column Jackets)**

1. **Approval of Material** – Approval of the Fabricator is required prior to the start of fabrication. The Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Engineer office. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the Fabricator. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the fabricator.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Acceptance is based on “APPROVED FOR SHIPMENT” Stamp and/or Tag (Figure 9-4 or 9-5). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.
4. **Field Inspection** – Field verify per Section 9-1.5.
5. **Specification Requirements** – See *Standard Specifications* Section 6-03. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Certification of Material Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to Section 9-1.2E to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin all foreign steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.91 **Miscellaneous Welded Structural Steel**

1. **Approval of Material** – Approval of the Fabricator is required prior to the start of fabrication. The Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Office. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the Fabricator. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the fabricator.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Acceptance is based on “APPROVED FOR SHIPMENT” Stamp and/or Tag (Figure 9-4 or 9-5). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.

4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 6-03. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Certification of Material Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.92 Wood Bridges

1. **Approval of Material** – Approval of the Fabricator is required prior to the start of fabrication. The Fabricator will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. Materials used within the fabricated item do not require approval through the Project Office. Provide the WSDOT Materials Fabrication Inspection Office with a copy of the Qualified Products Page or Request for Approval of Material listing the Fabricator. Review of the Contract Special Provisions is necessary to determine if special qualifications or testing is required for approval of the fabricator.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Acceptance is based on “APPROVED FOR SHIPMENT” Stamp and/or Tag ([Figure 9-4](#) or [9-5](#)). An “F” or “D” will be stamped to indicate the steel or iron is of foreign or domestic origin.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – Review contract documents to determine the specification requirements.
6. **Other Requirements** – Certification of Material Origin for steel components will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.93 **Electrical Service Cabinets**

- 1. Approval of Material** – In accordance with Standard Specifications Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
RAM Submittal – Attach Catalog Cuts for components using the Catalog Cut Transmittal DOT Form 350-072) and fully dimensioned Shop Drawings to assist in the approval process.
- 2. Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
- 3. Acceptance** – Acceptance shall be by a Manufacturer's Quality Check List included with the cabinet and signed by the Region Electrical Inspector.
- 4. Field Inspection** – Field verify per [Section 9-1.5](#).
- 5. Specification Requirements** – See *Standard Specifications* Section 9-29.24. Review contract documents to determine if supplemental specifications apply.
- 6. Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.94 **Monument Case, Cover, and Riser**

- 1. Approval of Material** – Approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. An on-site inspection of the fabricating facilities prior to approval will be required only if a new manufacture is requested on the Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
- 2. Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
- 3. Acceptance** – Acceptance shall be by the Manufacturer's Certificate of Compliance with supporting Mill Certification per [Section 9-1.4D](#).
- 4. Field Inspection** – Field verify per [Section 9-1.5](#).
- 5. Specification Requirements** – See *Standard Specifications* Section 9-22. Review contract documents to determine if supplemental specifications apply.
- 6. Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.95 Steel Bollards

1. **Approval of Material** – Approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. An on-site inspection by the WSDOT Materials Fabrication Office of the fabricating facilities prior to approval will be required only if a new manufacture is requested on the Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Acceptance shall be by the Manufacturer's Certificate of Compliance with supporting Mill Certification per [Section 9-1.4D](#).
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – Review contract documents to determine the specification requirements.
6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.96 Metal Trash Racks, Debris Cages, and Safety Bars for Culvert Pipe and Other Drainage Items

1. **Approval of Material** – In accordance with Standard Specifications Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. An on-site inspection by the WSDOT Materials Fabrication Office of the fabricating facilities prior to approval will be required only if a new manufacture is requested on the Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Acceptance shall be by the Certificate of Compliance per [Section 9-1.4E](#).
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Section 9-05.18. Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a

Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the material and retain these documents in the project records.

9-4.97 **Flow Restrictors and Oil Separators**

1. **Approval of Material** – In accordance with Standard Specifications Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. An on-site inspection by the WSDOT Materials Fabrication Office of the fabricating facilities prior to approval will be required only if a new manufacture is requested on the Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.
2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance** – Acceptance shall be by the Certificate of Compliance per Section 9-1.4E.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – Review contract documents to determine the specification requirements.
6. **Other Requirements** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.98 **Concrete Blocks**

1. **Approval of Material**

Ecology Blocks – Approval of materials is not required.

Masonry Units – In accordance with Standard Specifications Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

Precast Concrete Block – In accordance with Standard Specifications Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. An on-site inspection by the WSDOT Materials Fabrication Office of the fabricating facilities prior to approval will be required only if a new manufacture is requested on the Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification.

2. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
3. **Acceptance**
 - a. **Ecology Block** – Visual Acceptance per [Section 9-1.4C](#).
 - b. **Masonry Units** – Acceptance shall be by the Certificate of Compliance per [Section 9-1.4E](#).
 - c. **Precast Concrete Block** – Acceptance shall be by the Manufacturer’s Certificate of Compliance per [Section 9-1.4D](#). A cylinder test report is required for each lot of blocks delivered to the job site. The freeze/thaw report shall be acceptable for a period of two years from the date the block was manufactured.
4. **Field Inspection** – Field verify per [Section 9-1.5](#).
5. **Specification Requirements** – See *Standard Specifications* Sections 6-13.3(4), 8-24.2, 9-12, and 9-13.5(1). Review contract documents to determine if supplemental specifications apply.
6. **Other Requirements** – Certification of Material Origin will be the responsibility of the Materials Fabrication Inspector as defined in [Section 9-2.1A](#).

For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all foreign steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.99 Vacant

9-4.100 *Intelligent Transportation Systems (ITS)/System Operations Management (SOM) Materials*

1. **Approval of Material** – In accordance with *Standard Specifications* Section 1-06, approval of materials is required prior to use. Materials will be approved by the Qualified Products Lists or Request of Approval of Material DOT Form 350-071. An on-site inspection by the WSDOT Materials Fabrications Inspection Office of the fabricating facilities prior to approval will be required only if a new manufacturer is requested on the Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. The Project Engineer is allowed to approve the Request of Approval of Materials (RAM) for ITS/SOM Non-Standard Materials. For ITS/SOM Standard Materials the Project Engineer is required to follow the approval requirements located in [Table 9-4.100-1](#).
2. **RAM Submittal**
 - a. **ITS/SOM Non-Standard Materials** – The Project Engineer can approve the Request for Approval of Materials (RAM) for ITS/SOM non-standard materials used in the following applications:
 - Cameras, Closed Circuit Television Systems, and other Surveillance Devices

- Highway Advisory Radios, Variable and Dynamic Message Signs, and Road/Weather Information Systems
- ITS Controller Cabinet, Data Station, and Fiber Backbone
- Electronic Tolling, License Plate Reader and Radar Detectors
- Weigh-in-Motion Systems and Commercial Vehicle Tag Readers
- Traffic Data Collectors and Ramp Meters

Material submittal requirements for these materials shall be determined by the requirements of the contract, and/or consultation with either Region Traffic Engineer or the State Materials Laboratory.

- b. **ITS/SOM Standard Materials** – For ITS/SOM Standard Materials, the Project Engineer is required to follow the approval requirements per the referenced sections listed in Table 9-4.100-1:
3. **Preliminary Samples** – A preliminary sample of the material will be required only if coded on the Request for Approval of Material DOT Form 350-071.
 4. **Acceptance**
 - a. **ITS/SOM Non-Standard Materials** – Acceptance of ITS/SOM materials shall be determined by the requirements of the contract, and/or consultation with either Region Traffic Engineer or the State Materials Laboratory.
 - b. **ITS/SOM Standard Materials** – Acceptance requirements for the following standard materials are located in the referenced sections in Table 9-4.100-1.

Table 9-4.100-1

Material	Construction Manual Section
Anchor Bolts, Rods, Nuts, and Washers	9-4.25
Concrete	9-4.76
Conduit	9-4.64
Electrical Conductors and Fiber Optic Cable	9-4.65
Electrical Service Cabinets	9-4.93
High Strength Bolts, Nuts, and Washers	9-4.24
Junction Boxes, Cable Vaults, and Pull Boxes	9-4.85
Luminaires, Lamps, and Light Emitting Diodes (LED)	9-4.68
Painting, Paints, Coating, and Related Materials	9-4.35
Precast Concrete Vaults (Utility, Drainage, etc.)	9-4.88
Resin Bonded Anchors	9-4.61
Signing Materials and Mounting Hardware	9-4.56
Steel Poles – ITS, Pedestrian, Light, Signal Standards, and High Mast Light Poles	9-4.66
Steel Sign Structures – Cantilever, Sign Bridge, Bridge Mounted, Roadside	9-4.63
Timber and Lumber	9-4.36
Traffic Signal Controller Assembly	9-4.79

5. **Field Inspection** – Field verify per [Section 9-1.5](#).
6. **Specification Requirements** – See *Standard Specifications* Sections 8-20 and 9-29. Review contract documents to determine if supplemental specifications apply.
7. **Other Requirements** – If there is a question on the intended use of ITS/SOM materials contact the Region Traffic Engineer or the State Materials Laboratory.
 - a. If the Contractor submits an ITS/SOM material that is not specifically identified in the contract provisions, and it has been determine by either the Region Traffic Engineer or the State Materials Laboratory as an approved equal, contact with the State Construction Office is required.
 - b. **Materials Fabrication Inspected CMO** – Certification of Material Origin will be the responsibility of the Materials Fabrication Inspector as defined in Section 9-2.1A.

For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.
 - c. **Non-Fabrication Inspected CMO** – For projects with the Buy America provision refer to [Section 9-1.2E](#) to determine if Certification of Materials Origin is required. If the Buy America requirement applies, the Contractor is required to submit to the Project Engineer a Certification of Materials Origin for all steel or iron materials. The Project Engineer will track the quantity of the materials and retain these documents in the project records.

9-4.101 Media Filter Drain Mix

1. **Approval of Material** – In accordance with Standard Specifications Section 1-06, approval of materials is required prior to use. Material will be approved by the Qualified Products List or Request for Approval of Material DOT Form 350-071. Be certain to verify that the product is in fact qualified for its intended use and the product is listed under the appropriate specification. For the aggregate component, if the ASA database indicates the aggregate source has expired, or will expire before the end of the project, a source evaluation may be required, Contact Region Materials office for further direction. If samples are required, the Region Materials office will coordinate with the Materials Quality Assurance Section QPL/ASA engineer to obtain the necessary samples in accordance with SOP 128.
2. **RAM Submittal**
 - a. **Horticultural Grade Perlite, Agricultural Grade Dolomite Lime, and Agricultural Grade Gypsum** – Attach Catalog Cut or supply a bag label showing conformance with the contract documents to assist in approving the RAM.
3. **Preliminary Sample** – A preliminary sample of material will be required only if coded on the Request for Approval of Material DOT Form 350-071.

4. **Acceptance**
 - a. **Aggregate for Media Filter Drain Mix** – Acceptance shall be administered under *Standard Specifications* Section 3-04 for “Other Materials” based on one sample every 1000 tons. Acceptance samples shall be tested for grading and fracture.
 - b. **Horticultural Grade Perlite, Agricultural Grade Dolomite Lime, and Agricultural Grade Gypsum** – Miscellaneous Certificate of Compliance per [Section 9-1.4E](#) or Catalog cuts per Section 9-1.4G.
5. **Field Inspection** – Field verify per [Section 9-1.5](#).
6. **Specification Requirements** – Review contract documents for specification requirements.
7. **Other Requirements** – If there is a question on the intended use of Media Filter Drain Mix, contact Headquarters Hydraulics Office at 360-705-7260.

9-5 Quality Assurance Program

9-5.1 General

WSDOT Quality Assurance Program (QAP) is to ensure that materials incorporated into any highway construction project are in conformity with the approved plans and specifications, including any approved changes. This program also conforms to the criteria in FHWA regulation for *Quality Assurance Procedures for Construction* (23 CFR 637).

The QAP includes the following:

- WAQTC Testing Technician Qualification Program
- Method Qualified Tester Program
- Equipment Calibration/Standardization/Check and Maintenance Program
- Qualified Laboratory Program
- Independent Assurance (IA) Program

It is the responsibility of the Project Engineer to ensure that all personnel sampling or testing materials on a project or in a field laboratory are WAQTC Certified or Method Qualified per Sections 9-5.3 and 9-5.4.

9-5.2 Quality Assurance Program Structure and Responsibilities

Table 9-3 outlines the structure of the quality program for WSDOT.

Table 9-3

State Materials Laboratory (SML) Requirements	
State Materials Engineer	Oversees: <ul style="list-style-type: none"> • WSDOT Quality System Program • Accreditation of State Materials Laboratory • Program compliance reports to FHWA
Assistant State Materials Engineer	Oversees: <ul style="list-style-type: none"> • WAQTC Testing Technician Qualification Program • Method Qualified Tester Program
Quality Systems Manager	Management of WSDOT's Quality System Program which includes: <ul style="list-style-type: none"> • WAQTC Testing Technician Qualification Program • WSDOT Method Qualified Tester Program • Independent Assurance • Tester Qualification Database • Maintain Construction Materials AASHTO/CCRL Laboratory Accreditation at the State Materials Laboratory Building • Maintain up-to-date Test Procedures in the <i>Materials Manual M 46-01</i> • Maintain Equipment Calibration/Standardization and Check Procedures • Audit SML and Region Materials Laboratories for compliance with the Quality Assurance Program • Qualified Laboratory Program • Certification of all Written and Performance Examiners for tester certification • Certification of all Independent Assurance Inspectors • Annual Independent Assurance Program report to FHWA
SML Laboratory Managers	Management of their laboratories QAP which includes: <ul style="list-style-type: none"> • Maintain WAQTC Certified and Method Qualified Testers • Maintain SML WAQTC Tester and Method Tester Certification records in the Tester Qualification database with greater than 90 percent accuracy • Maintain calibrated/standardized/checked equipment for their department • Maintain AASHTO Resource/CCRL Accreditation

Table 9-3

Region Materials Laboratory Requirements	
Region Materials Engineer	<p>Oversees:</p> <ul style="list-style-type: none"> • Region Quality System Program • Qualification of Region Materials Laboratory
Region Laboratory Supervisor	<p>Management of the Region Laboratory Quality System Program which includes:</p> <ul style="list-style-type: none"> • Maintain WAQTC Certified and Method Qualified Testers • Maintain calibrated/standardized/checked equipment for the Region Materials Laboratory and field laboratories • Participate in biannual laboratory review
Region Independent Assurance Inspector	<p>Management of the Region QAP which includes:</p> <ul style="list-style-type: none"> • WAQTC Certified and Method Qualified Tester <ul style="list-style-type: none"> - Determine how the program will be implemented in the Region within the guidelines of this Section and the WAQTC program - Schedule certification events - Proctor written and proficiency examinations - Maintain documentation of WAQTC Certifications and Method Tester Qualifications as both physical and/or digital records - Amendments or corrections to certification or qualification by the IA with concurrence of the QSM is permissible - Maintain the Region WAQTC Tester and Method Tester Certification records in the Tester Qualification database with greater than 90 percent accuracy • Independent Assurance <ul style="list-style-type: none"> - Annual audits of active WAQTC Certified Testers and Method Qualified Testers - Maintain annual audit records and send copies to the Quality System Manager - Determine frequency of visits - Witness IA process in the field - Investigate excessive deviations on split samples and aid in the review of reports of deviation from specified sampling and testing procedures - Investigations of complaints against a WAQTC certified tester or method qualified testers - Providing yearly report of IA to Quality Systems Manager • Other functions (optional by Region) <ul style="list-style-type: none"> - Conduct initial training - Mentor new or newly WAQTC Certified/Method Qualified Testers to enhance efficiency and confidence - Assist in conducting testing and inspection training in concert with the Region Construction Trainer - Review materials, test-related records, and forms - Radiation Safety Officer

Table 9-3

Project Engineering Office Requirements	
Project Engineer	<p>Management of the Project Office QAP which includes:</p> <ul style="list-style-type: none"> • Training of testers <ul style="list-style-type: none"> – Provide training opportunities – Provide opportunity for experience in the field – Maintain WAQTC Certified/Method Qualified Testers on projects – Maintain staff of WAQTC Certified/Method Qualified Testers to perform testing on all projects under the management of the Project Engineer – Verify WAQTC Testers are certified in all modules and test methods that are required to test materials on projects – Maintain copies of the WAQTC Tester Certifications and Method Qualified Tester Certifications in the Project Records
PE Office Contact (appointed by PE as the office contact to the IAI)	<ul style="list-style-type: none"> • Track Certified/Method qualification of Testers • Assist Testers in registering for next certification or method qualification event • Assist testers in scheduling audits
Individual Tester Requirements	
Certified and or Method Qualified Tester	<p>Management of personal qualification which includes:</p> <ul style="list-style-type: none"> • Prepare for recertification/requalification • Notify office contact and IAI of approaching expiration of certification/qualification; notification should be at least one year in advance of the expiration of certification and one month in advance of the expiration of method qualification • Register for next WAQTC event prior to module expiration • Notify office contact and IAI to schedule annual audits
Uncertified and/or Unqualified Method Tester	<p>Management of personal certifications and or method qualifications, which includes:</p> <ul style="list-style-type: none"> • Maintain certification/qualification • Read test procedure • Attend appropriate training • Hands-on practice of test procedure • Notify office contact and IAI when ready to register for next certification or method qualification event

9-5.3 WAQTC Testing Technician Qualification Program

All WSDOT employees that conduct QA/QV testing for Aggregates, Hot Mix Asphalt, Concrete, or In-Place Density of soils, HMA, and Aggregates shall be certified by the Western Alliance for Quality Transportation Construction (WAQTC). For registration information contact the Region Independent Assurance Inspector.

The purpose of this program is to provide uniform statewide testing by ensuring technicians meet the WAQTC certification and method qualification process below. This program is based on AASHTO R 25.

Refer to the WAQTC and Method Registration Policies & Information Handbook for program requirements.

The Region Independent Assurance Inspectors are responsible for maintaining the Tester Qualification database information for their Region WAQTC Testers as well as maintaining the WAQTC internal certifications and records (physical and digital).

9-5.4 Method Qualified Tester Program

The Method Qualified Tester program will follow the WAQTC and Method Registration Policies & Information Handbook for program requirements.

The purpose of this program is to provide uniform statewide testing by ensuring technicians meet the WAQTC certification and method qualification process below.

All personnel who perform tests not included in a WAQTC module must be method qualified in the test method they are performing or may work under the direct supervision of a qualified tester as a trainee. An individual may only work as a trainee for one year.

A method qualification for FOP for AASHTO T 166, and WSDOT T 813 are still permissible.

The Region Independent Assurance Inspectors are responsible for maintaining the Tester Qualification database information for their Region Method Testers as well as maintaining the Method internal certifications and records (physical and digital).

9-5.4A Method Qualified Tester

A method qualified tester is an individual that has proficiency in one or more test procedures or sampling modules. The following is a list of typical method qualified procedures and other procedures may be added by the Region IAI: FOP for AASHTO R 90, FOP for AASHTO R 97, FOP for AASHTO R 66, FOP for AASHTO T 166, WSDOT TM 813, AASHTO T 22, AASHTO T 106, and AASHTO T 304. A Sampling module (ST) has been added to accommodate previous method certifications for AASHTO R 90, R97 and R 66. This method qualification process will also extend to the State Materials Laboratory and Regional Laboratories for any of their inherent procedures. A complete listing of those procedures can be found in the WSDOT *Materials Manual* M 46-01.

9-5.4B Independent Assurance

An Independent Assurance (IA) audit will be performed a minimum of once per year on all active testers performing sampling, acceptance testing or verification testing. A qualified IAI will perform the IA and submit a report of findings to the Project Engineer, Region Materials Engineer and the Quality Systems Manager. Refer to Section 9-5.7 Independent Assurance Program and Section 9-5.7C Independent Assurance Report.

Active Method Qualified Testers must notify the IAI to schedule an IAI visit. Failure to notify the IAI that you are performing sampling acceptance testing or verification testing is an act of Negligence.

9-5.5 Calibration/Standardization/Check of Equipment

All laboratory equipment will be calibrated/standardized/checked as required by the test procedures, AASHTO R 18 or WSDOT Verification Procedures.

The State Materials Laboratory will calibrate/standardize/check all required equipment every 12 months unless otherwise stated in the test procedure, AASHTO R 18 or the WSDOT Verification Procedures.

Region and field laboratories will calibrate/standardize/check all required equipment once a year unless otherwise specified by the WSDOT Verification Procedures. All calibration/standardization/checks will be completed by April 1st of each year. A tag bearing the year the calibrate/standardize/check expires will be affixed to all calibrated/standardized/checked equipment. The tags will be provided to the regions each year by the Quality Systems Manager.

9-5.6 Qualified Laboratories

The State Materials Laboratory is an AASHTO Accreditation Program (AAP) accredited laboratory. The State Materials Laboratory will review and qualify testing laboratories performing testing on WSDOT projects. Approval or disapproval will be in accordance with Section 9-5.6A or Section 9-5.6B.

9-5.6A Qualification of Region Laboratories

Qualification of Region laboratories requires the following:

1. Identification of all test methods performed on a regular basis. Methods must conform to those established by WSDOT for materials acceptance.
2. Annually, calibration/standardization/check equipment laboratory and field test equipment, using State Materials Laboratory equipment calibrated/standardized or checked equipment procedure. All calibrated/standardized or checked equipment must have a calibration tag stating the expiration date of the calibration/standardization/check.
3. Maintain staff certification/qualification for all methods performed in the laboratory. Certification/qualification shall be either by WAQTC Module or Method Qualification.

4. The State Materials Laboratory Review team will conduct on-site reviews of the Region laboratory facilities, tester performance and calibration/standardization/check of testing equipment in accordance with QC3. The State Materials Laboratory may qualify Region Laboratories for up to two years.

9-5.6B *Qualification of Private Laboratories*

Qualification of Private Laboratories requires the following:

1. The Construction Materials - Quality Systems Review team will conduct a yearly on-site review of the laboratory facilities, tester performance and calibration/standardization/check/maintenance of testing equipment in accordance with QC3.
2. The private laboratory must have an up-to-date *Laboratory Quality Systems Manual* meeting the requirements of AASHTO R 18.
3. The private laboratory must have documentation of tester training and certification/qualification meeting the requirements of AASHTO R 25.
4. The testing equipment must be labeled with a sticker showing the date of calibration/standardization/check and all equipment calibration/standardization/check documentation must meet the requirements of AASHTO R 18.
5. Private laboratories may be qualified for up to one year, with the approval of the Assistant State Materials Engineer. This approval may be extended up to one additional year by the Assistant State Materials Engineer.

9-5.6C *Qualification of Specialty Testing Laboratories*

The Construction Materials - Quality Systems Review team will review and verify the accreditation of Specialty Testing Laboratories. All laboratory qualification, tester certification, and equipment calibration records are maintained at the private testing laboratory facility.

The basis of qualification for specialty testing laboratories are solely based on the specialty testing laboratory accreditation. WAQTC certifications and WSDOT method qualification do not apply to specialty labs unless the WSDOT laboratory qualification letter states otherwise.

Once a successful review is completed, the laboratory will be qualified for up to five years, with the approval of the Assistant State Materials Engineer.

9-5.7 *Independent Assurance Program (IAP)*

The IAP shall consist of a system-based approach to Independent Assurance (IA). This approach bases the frequency of IA audits on time, regardless of the number of tests, quantities of materials, or numbers of projects tested by the active tester. This program is based on AASHTO R 44.

The Region's IAs are responsible for managing the IAP for the Regions. Each active WAQTC Certified or Method Qualified Tester will have an IA audit annually for each WAQTC Module Certification or Method Qualification in which tests are performed.

If the Region IAI is unable to audit a tester the Region IAI will document the reason any annual tester audit was not completed and submit the information with the Independent Assurance Report to the Quality System Manager per Section 9-5.7C, Independent Assurance Report.

- An active tester is defined as any tester performing at least one acceptance or verification test per year. The tester is responsible for contacting the Region IAI and scheduling an IA audit.

The on-site audit shall include evaluation of all test methods in the applicable WAQTC module. Method Qualified Testers will be audited in the performance of the individual test method.

IAP audits will be performed as follows:

- Concrete and Density test method evaluations will be by observation
- Hot Mix Asphalt and Aggregate test methods shown in Table 9-5 will be evaluated by observation and split sample. All other Hot Mix Asphalt and Aggregate test methods will be evaluated by observation only
- The field split of HMA or Aggregate will be tested by the individual who sampled and reduced the material, under the observation of the IAI or a qualified Region laboratory staff member under the direction of the Region Materials Engineer
- The laboratory split of the IA sample must remain in the custody of the IAI until the sample is logged into the Region Materials Laboratory
- A tester from the Region Materials Laboratory will perform the testing on the laboratory portion of the split sample. The same tester may not perform both the field and the laboratory testing on an IA sample
- The same equipment may not be used to test the laboratory and the field portions of the IA split sample
- All equipment used for testing the split samples will be evaluated for condition and current calibration/standardization/check tags

A record of the audits will be kept by the IAI in the Region Office and provided to the PE upon request. The record should contain the following:

- Name of tester
- Observations concerning the condition of the testing equipment
- Observations concerning the performance of the qualified tester including suggestions or on-the-spot corrections for improving the tester's performance

9-5.7A Comparison Evaluation of the Independent Assurance Sample

The IA split sample will be tested by the Region laboratory except, when the Region laboratory performs the acceptance testing. If the Region Materials Laboratory performs the acceptance testing then, the IA split sample will be tested by the State Materials Laboratory or another Region Materials Laboratory. The tester performing the comparison evaluation of the Independent Assurance sample must be qualified in the procedures being evaluated.

The calibrated/standardized/checked testing equipment used for the comparison must be different equipment than that used by the field during the split sample evaluation.

9-5.7B Assurance and Acceptance Test Results

Independent Assurance split samples will be compared using Table 9-5. Reports of the degree of conformance will be sent to the Project Engineer and the Region IAI by the Region Materials Engineer (RME).

Table 9-5

Test	Normal Range of Deviation	Maximum Range of Deviation
Sand Equivalent	± 8 points	± 15 points
Fracture	± 5 percent	± 10 percent
Asphalt Binder Content (HMA)	± 0.3 percent	± 0.6 percent
Sieve Analysis – All Items:		
No. 4 sieve and larger	± 5 percent	± 8 percent
No. 6 sieve to No. 80 sieve	± 3 percent	± 6 percent
No. 100 sieve to No. 200 sieve	± 2 percent	± 4 percent

Comments reflecting the degree of conformance will be entered in the remarks Section of the report by the Region Materials Engineer. The degree of conformance will be determined according to the deviation ranges noted below. Gradation test results will be compared only on specification screens.

In the table above, “Normal Range” indicates an acceptable range of variation between test results and no action is required. Test results that fall in this category will be so indicated by the wording “*normal deviation*” on the IA reports.

Test results falling outside of the “Normal Range” but within the “Maximum Range,” will be indicated by the wording “*questionable deviation*” on the IA reports.

Deviations falling into the questionable category will be reviewed by the Region IAI. The review may include the following:

- Check for calculation errors
- Review of sampling and splitting procedure
- Review of test procedure

Findings of the review will be documented and a copy of the report retained in the Region IAI’s file.

Test results exceeding the maximum range will be indicated by the wording “*excessive deviation*”. Deviations falling in the excessive category will require a review by the Region IAI. The review will include the items listed under questionable deviations and may require the field tester to pull another IA sample. The IAI will document the findings of the review. If further action is required, the IAI will submit a report to the Region Materials Engineer and Project Engineer. If further action is not required a copy of the report will be retained in the IAI’s files.

9-5.7C Independent Assurance Report

WSDOT is required by 23 CFR Part 637 to provide an annual report to the FHWA summarizing the results of the IA program. These reports provide a tool for the Region and WSDOT to analyze trends, identify training needs, and make improvements.

Each Region IAI will submit an annual IA report to the Quality Systems Manager.

The report will be submitted in January and will summarize the IA results of the previous year. The annual IAI report will include the following:

1. Number and percent of testers audited
2. The date each tester was audited
3. If applicable, the reason the annual tester audit was not completed on a tester or testers; see Section 9-5.7 Independent Assurance Program
4. What, if any, problems occurred and why
5. A general statement as to how any problems that were reported were resolved

The focus of Independent Assurance sampling is based on individual tester activity and is not intended to provide independent assurance sample reports on all projects or on all materials on any particular project.

9-6 Radioactive Testing Devices

9-6.1 Administration and Safety

This chapter provides guidance for personnel using, transporting, and administering the use of, nuclear density gauges. The instructions included in this chapter will be used throughout the Washington State Department of Transportation for the express purpose of regulating the use of nuclear density gauges containing radioactive materials.

Each Region shall have a Radiation Administration Officer (RAO) and a Radiation Safety Officer (RSO) whose duties are described in [Section 9-6.2](#) and [9-6.3](#) respectively. All Regional RAO and RSO personnel must have radiation safety training. Only personnel who have successfully completed the WSDOT “Nuclear Gauge Safety and Operations” course are authorized to use or transport the nuclear density gauge. Personnel transporting gauges are also required to have training that satisfies USDOT training requirements of [49 CFR 172](#), subpart H (HAZMAT). This training can be satisfied by successful completion of the (WSDOT) eLearning course “Hazmat Training for the Portable Nuclear Gauge.” Recurrent training is required every three years. Personnel performing acceptance testing with the nuclear density gauge must become a qualified or interim tester in either TM-8, In-Place Density of Bituminous Mixtures Using the Nuclear Moisture Gauge, and or, T-310, In-Place Density and Moisture Content of Soils and Soil-Aggregate by Nuclear Method. The operator’s responsibilities for safety and security of the gauges are described in [Section 9-6.4](#).

All personnel using or responsible for the nuclear density gauge shall be:

1. Thoroughly familiar with the safe handling techniques for using radioactive materials.
2. Fully informed of the hazards to health that exists near radioactive materials.
3. Completely familiar and in compliance with the following rules and regulations:
 - a. Rules and Regulations for Radiation Protection by the State Department of Health, Division of Radiation Protection, [Title 246 WAC](#).
 - b. [Radiation Emergency Handbook](#) by the State Department of Health.

Copies of the above publications will be kept by the Region Radiation Safety Officer and at the storage location of the gauge. A copy of the [Radiation Emergency Handbook](#) will also be supplied with each nuclear density gauge. Authorized Operator(s) will read this handbook before using the radioactive testing device for testing.

If an emergency as outlined in the [Radiation Emergency Handbook](#) occurs, the following people or agencies should be notified by the individual in charge of the nuclear density gauge:

- Radiation safety officer
- Radiation administration officer

The RSO or the RAO will notify the following people or agencies:

- Radiation Control Program, Health Services Division, State Department of Health, Olympia, WA (Phone 206/NUCLEAR).
- Washington State Patrol, if a public hazard exists.
- Radiation Administration Officer or Radiation Safety Officer, at the State Materials Laboratory.

The telephone numbers of these agencies or individuals will be posted at all storage sites and a copy of these numbers shall be kept with each nuclear density gauge.

WSDOT employees that work around or with nuclear gauges need to know the potential health and safety hazards of working with nuclear gauges and their individual rights. Each office that uses or stores nuclear gauges shall have a copy of the latest “*Sealed Source Edition Rules and Regulations for Radiation Protection*” published by the Department of Health. Every employee that uses a nuclear gauge, or works near the storage location of the nuclear gauges, must review the applicable Chapters 246-220 Radiation – General Provisions; 246-221 Radiation Protection Standards; 246-222 Radiation Protection – Worker Rights and sign the “Acknowledgment of the Hazards of Working with Radiation Sources” form which is available through the Radiation Safety Officer.

Any individual using radioactive sources or receiving on the job training with radioactive sources must wear a radiation exposure badge which records exposure the body may receive. Radiation exposure badges are assigned to individuals they are not to be used by any other person. Any individual using radioactive sources or receiving on the job training with radioactive sources must be familiar with the conditions outlined in [WAC 246-221-010](#) and [WAC 246-221-055](#) regarding radiation exposure during

pregnancy and dose limits to the embryo/fetus. Personnel with valid safety or health concerns may be released from the operation of nuclear gauges without prejudice to their career opportunities with WSDOT.

The acquisition of radiation exposure badges, as needed by each Region, shall be the responsibility of the Region Radiation Safety Officer or a designated individual with radiation safety training. Three-month TLD (Thermal Luminescent Dosimeter) badges indicating exposure to gamma, beta, x-ray, and neutron radiation will be used as a minimum.

Each nuclear density gauge will be supplied in the manufacturer's shipping container with an adequate latch. While transporting and when storing the nuclear density gauge, it must be secured with a minimum of three levels of security using locks:

1. Security level one is considered to be a combination of a lock on the handle of the nuclear density gauge, and a lock on the manufacturer's shipping container.
2. Security level two is considered to be the chain and lock combination, or other locking mechanism, used to secure the manufacturer's shipping container to the vehicle if in transport or field use, or to a storage bench or locker in an approved storage facility.

Note: Security level two must prevent the manufacturer's shipping container from being opened if the lock is removed.

3. Security level three is considered to be:
 - a. If a passenger vehicle is used for transporting, the manufacturer's shipping container containing the nuclear density gauge, which is secured and locked in the trunk.
 - b. If a station wagon, van, or panel truck is used, the manufacturer's shipping container containing the nuclear density gauge, which is secured and locked in the back of the vehicle in such a manner as to prevent it from moving during transport.

Note: If the manufacturer's shipping container can be seen through a window or other opening it must be covered.

- c. If a truck with a utility box is used, the manufacturer's shipping container containing the nuclear density gauge must be secured in the utility box with the storage lid locked. The nuclear density gauge shall not be transported in the cab of the truck.
- d. If a truck with a canopy is used, the manufacturer's shipping container containing the nuclear density gauge must be secured to the bed of the truck and the canopy lid locked. The nuclear density gauge shall not be transported in the cab of the truck.
- e. If a licensed storage location, or temporary storage facility approved by the Region RSO is used, the storage facility door must be locked.

At all times, the key(s) for the security locks will be in the possession of the individual responsible for the nuclear density gauge.

Every effort shall be made to store and transport nuclear density gauges in a manner that minimizes its view from the general public.

When the nuclear density gauges are not in use or in transit, they must be stored with three levels of security in licensed storage locations, or temporary storage facilities approved by the Region RSO.

Performance audits shall be conducted randomly by the Region Radiation Safety Officer or designee to ensure that each gauge operator and transporter:

1. Understands the security and transportation requirements described above.
2. Has the necessary means available to use three levels of security in each of their transport vehicles.
3. Is actively employing the three levels of security while gauges are out of a licensed storage area.

The Region Radiation Safety Officer shall retain records of performance audits.

9-6.2 Radiation Administration Officer (Region Materials Engineer)

The Radiation Administration Officer (RAO) will be responsible for administering the use of radioactive material within the Region.

The RAO will obtain, revise, and renew the Region's Radioactive Material License issued by the Washington State Department of Health. A license indicates the strength and type of radioactive sources that a Region may possess.

Licenses are issued subject to all the requirements of the Washington Rules and Regulations for Radiation Protection and to the conditions specified in the license. Licenses are also subject to any additional requirements of the Department of Health as stated in letters issued by DOH. Where a letter containing a license condition requirement differs from the Regulations, the letter will supersede the regulations insofar as the license is concerned.

When a change occurs in the radiation program, which would require a change to the current Radioactive Material License, the Licensee (RSO) will notify the Department of Health and request an appropriate amendment.

The Radiation Safety Officer (RSO) must be listed on the license. Individual operators are not required to be listed on the license, but the RAO or RSO must maintain a list of Authorized Operators. This list of Authorized Operators should include the operator's name, type of training, final test score, and a copy of the training certificate. The RAO or RSO will be responsible for the storage of the nuclear density gauge when not in field use and the assignment of nuclear density gauges to the individual project offices. The RAO or RSO will be responsible for maintaining the following records:

1. List of qualified operators within the Region.
2. List of qualified gauge transporters within the Region.
3. Radioactive testing device location records.
4. Radioactive testing device shipping records.

Prior to shipping or transferring a nuclear density gauge from one licensed organization to another, the shipper shall check, and be assured that, the receiver has a valid radioactive material license; and that the shipped or transferred sources do not exceed the limitations of the receiver's license. Shipment to authorized personnel within the Region is covered by the Region's license. The State Materials Laboratory shall be notified when repairs or calibration are needed for any of WSDOT's nuclear density gauges. When the nuclear density gauges are not in field use, the normal storage will be at the Region office. The Region office shall have an area designated for this purpose. The following information shall be posted on the walls of the storage facility to notify personnel of the existence of radiation:

1. "Caution – Radioactive Materials" sign.
2. DOH Form RHF-3 "Notice to Employees."
3. [WAC Chapters 246-220](#), [246-221](#), and [246-222](#) of the Rules and Regulations for Radiation Protection.
4. DOH Form "Notification of a Radiation Emergency."

9-6.3 **Radiation Safety Officer**

The Radiation Safety Officer (RSO) will be responsible for maintaining the radioactive material license. The RSO will be responsible for maintaining the following records:

1. Leak test records.
2. Medical records.
3. Radiation Exposure Report.
4. Minor testing device maintenance as outlined in the Radioactive Materials License.
5. The Acknowledgment of the Hazards of Working with Radiation Sources form.

Leak testing is required by law and is simply a swabbing of the sealed source to ascertain that no radioactive contamination has occurred from the nuclear source. The Region RSO shall be responsible for having each source leak tested every twelve months. The analysis of leak tests shall be done by a commercial firm licensed to do this work.

The service contract will be obtained by individual regions. Records of leak test results shall be kept in units of micro-curies and maintained for inspection. Any leak test revealing the presence of 1850 Bq or more of removable radioactive material shall be reported to the Department of Health, Division of Radiation Protection, P.O. Box 47827, Olympia, WA 98504-7827, within five days of the test. This report should include a description of the defective source or device, the results of the test, and the corrective action taken.

The RSO will be responsible for radiation exposure reports for personnel in that Region. Exposure records shall be kept on Department of Health Form RFH-5, or in a manner which includes all information required on said form. Each entry shall be for a period of time not exceeding one calendar quarter.

9-6.4 **Authorized Operators**

The Authorized Operators will be directly responsible to the RAO for the use and storage of the nuclear density gauge in the field and to the RSO for all safety in regard to the nuclear density gauge.

The Authorized Operators shall be responsible for posting the following information at all field storage areas:

1. "Caution – Radioactive Materials" Sign.
2. DOH Form RHF-3 "Notice to Employees."
3. [WAC Chapters 246-220, 246-221, and 246-222](#) of the Rules and Regulations for Radiation Protection.
4. DOH Form Notification of a Radiation Emergency

The Authorized Operator must keep the RAO or RSO informed of the location of the nuclear density gauge at all times. (The State Radiation Control Unit inspectors will want the sources produced or the exact locations given during their periodic inspections.) If the exact location where the nuclear density gauge will be used is known in advance, it should be noted before leaving the Region office, and if unknown, shall be forwarded to the RAO or RSO as soon as it is known.

The operation of the shutter-operating device should be frequently checked, and any malfunction reported to the RAO or RSO immediately. When not in use, the source index handle will be locked and the nuclear density gauge locked in an adequate storage facility. When operating the nuclear gauge (i.e., when the handle is in the "USE" position), unauthorized persons are not to be within 15 feet (5 meters) of the gauge.

9-6.5 **Authorized Transporters**

It is permissible for employees to be an authorized transporter of nuclear density gauges providing they have the training described in [Section 9-6.1](#). It is not necessary for authorized transporters who are not also authorized operators to be assigned a radiation exposure badge. Authorized transporters will be issued a card stating the employee has "satisfactorily completed Hazmat training for transportation of the portable Nuclear Gauge as described in [49 CFR 172.700](#)." Authorized transporters are subject to performance audits as described in [Section 9-6.1](#).

9-7 Field Operating Procedures and other Related Test Methods

All test methods are located in the [Materials Manual](#) M 46-01. The below list contains commonly used Field Operating Procedures and other related Test Methods. Click any of the Procedure Numbers to access that specific Test Method or click here to access the full [Materials Manual](#) M 46-01.

Procedure Number	Owner	Test Method
TM 2	WAQTC	FOP for WAQTC TM 2, Sampling Freshly Mixed Concrete
T 23	WAQTC	FOP for AASHTO T 23, Method of Making and Curing Concrete test Specimens in the Field
T 27/11	WAQTC	FOP for AASHTO T 27/T 11, Sieve Analysis of Fine and Coarse Aggregates
T 30	WAQTC	FOP for AASHTO T 30, Mechanical Analysis of Extracted Aggregate
R 47	WAQTC	FOP for AASHTO R 47, Reducing Samples of Hot Mix Asphalt (HMA) to Testing Size
R 66	WAQTC	FOP for AASHTO R 66, Sampling Asphalt Materials
R 76	WAQTC	FOP for AASHTO R 76, Reducing Samples of Aggregates to Testing Size
R 90	WAQTC	FOP for AASHTO R90, Sampling Aggregate Products
T 99	WAQTC	FOP for AASHTO T 99, Moisture-Density Relations of Soils Using a 5.5-lb Rammer and a 12-in Drop
T 119	WAQTC	FOP for AASHTO T 119, Slump of Hydraulic Cement Concrete
T 123	WSDOT	Method of Test for Bark Mulch
T 152	WAQTC	FOP for AASHTO T 152, Air Content of Freshly Mixed Concrete by the Pressure Method
T 166	WAQTC	FOP for AASHTO T 166, Bulk Specific Gravity (G_{mb}) of Compacted Hot Mix Asphalt (HMA) Using Saturated Surface-Dry Specimens
T 168	WAQTC	FOP for AASHTO T 168, Sampling of Bituminous Paving Mixtures
T 176	WAQTC	FOP for AASHTO T 176, Plastic Fines in Grade Aggregates and Soils by the Use of the Sand Equivalent Test
T 209	WAQTC	FOP for AASHTO T 209, Theoretical Maximum Specific Gravity (G_{mm}) and Density of Hot Mix Asphalt (HMA) Paving Mixtures – “Rice Density”
T 255	WAQTC	FOP for AASHTO T 255, Total Evaporable Moisture Content of Aggregate by Drying
T 272	WAQTC	FOP for AASHTO T 272, One-Point Method for Determining Maximum Dry Density and Optimum Moisture
T 304	WSDOT	FOP for AASHTO T 304, Uncompacted Void Content of Fine Aggregate
T 308	WAQTC	FOP for AASHTO T 308, Determining the Asphalt Binder Content of Hot Mix Asphalt (HMA) by the Ignition Method
T 309	WAQTC	FOP for AASHTO T 309, Temperature of Freshly Mixed Portland Cement Concrete
T 310	WAQTC	FOP for AASHTO T 310, In-Place Density and Moisture Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
T 312	WAQTC	FOP for AASHTO T 312, Asphalt Mixture Specimens by Means of the Superpave Gyrotory Compactor
T 329	WAQTC	FOP for AASHTO T 329, Moisture Content of Asphalt Mixtures by Oven Method
T 335	WAQTC	FOP for AASHTO T 335, Determining the Percentage of Fracture in Coarse Aggregate
T 355	WAQTC	FOP for AASHTO T 355, In-Place Density of Asphalt Mixtures by Nuclear Method
SOP 615	WSDOT	Standard Operating Procedure for Determination of the % Compaction for Embankment & Untreated Surfacing Materials using the Nuclear Moisture-Density Gauge
T 716	WSDOT	Method of Random Sampling for Location of Testing and Sampling Sites

Procedure Number	Owner	Test Method
SOP 729	WSDOT	Standard Operating Procedure for Determination of the Moving Average of Theoretical Maximum Density (TMD) for HMA
SOP 730	WSDOT	Standard Operating Procedure for Correlation of Nuclear Gauge Determined Density with Hot Mix Asphalt Cores
SOP 731	WSDOT	Standard Operating Procedure for Method for Determining Volumetric Properties of Hot Mix Asphalt
SOP 733	WSDOT	Standard Operating Procedure for Determination of Pavement Density Differentials Using the Nuclear Density Gauge
SOP 734	WSDOT	Standard Operating Procedure for Sampling Hot Mix Asphalt (HMA) after Compaction (Obtaining Cores)
SOP 735	WSDOT	Standard Operating Procedure for Longitudinal Joint Density
SOP 736	WSDOT	Standard Operating Procedure for In-Place Density of Bituminous Mixes Using Cores
C 805	WSDOT	Rebound Hammer Determination of Compressive Strength of Hardened Concrete
T 813	WSDOT	Field Method of Fabrication of 2-in. Cube Specimens for Compressive Strength Testing of Grouts and Mortars
T 818	WSDOT	Air Content of Freshly Mixed Self-Compacting Concrete by the Pressure Method
T 819	WSDOT	Making and Curing Self-Compacting Concrete Test Specimens in the Field
T 914	WSDOT	Practice for Sampling of Geotextiles for Testing
C 939	WSDOT	FOP for ASTM for Flow of Grout for Preplaced-Aggregate Concrete (Flow Cone Method)
C 1611	WSDOT	FOP for ASTM for Slump Flow of Self-Consolidating Concrete
C 1621	WSDOT	FOP for ASTM for Passing Ability of Self-Consolidating Concrete by J-Ring

