

WACA/WSDOT Meeting

Minutes for Wednesday, December 7, 2011

Attendees:

Mike Polodna, WSDOT	Tom Weist, Oldcastle	Anthony Sarhan, FHWA
Dick Boss, Cadman	Mark Gaines, WSDOT	Mike Acton, BASF
Kurt Williams, WSDOT	Steve Ford, Miles Sand and Gravel	John Harris, Lafarge
Craig Matteson, Oldcastle	David Burg, Ashgrove	Bruce Chattin, WACA

Location: *WACA's Office in Des Moines*

Next WACA Meeting Date:

Wednesday, March 7, 2012 at WSDOT HQ Mats Lab, Main Conf Room, 9:30 AM – 12:00 Noon

Future WACA Meetings Dates:

Wednesday, June 6, 2011, at WACA's Office in Des Moines, 9:30 AM – 12:00 Noon

Wednesday, September 5, 2012 at WSDOT HQ Mats Lab, Main Conf Room, 9:30 AM – 12:00 Noon

Meeting Minutes are available at:

<http://www.wsdot.wa.gov/Business/MaterialsLab/WACAMinutes.htm>

Issue: Degradation for concrete Aggregate/Base Course – Kurt Williams

A research study is on-going to test the effect of using aggregate with low degradation values in concrete mixes.

12/7/11 – Kurt Williams reported that WSDOT is meeting with WSU to review a draft report.

Action Plan: *Continue to give updates at quarterly meetings.*

Issue: Water for Concrete - Bob Raynes

WSDOT Standard Specification 9-25.1 Water for Concrete requires that in order to use recycled water the lab that tests their water must meet R-18. No one is currently using recycled water because of the R-18 requirement.

12/7/11 – Mike Polodna passed out Handout 1 which included draft specification 9-25.1 Water for Concrete, draft specification 6-02.3(5) B Certification of Compliance, and excerpts from AASHTO R-18 for review by the group. One comment was to change the 2nd paragraph to "... or exceeds ASTM C 1602 Tables 1 and 2...". Dick Boss inquired why water density shall not exceed 1.03 g/ml.

Action Plan: *The group will review the proposal in further detail and continue the discussion at the next meeting. Mike Polodna will answer Dick's question regarding the water density.*

Issue: Standard Specification 9-23.8 Waterproofing –Jason Brewer

Are changes needed to this specification? Should WSDOT be specifying ASTM C 1585 instead of ASTM C 642?

12/7/11 – Jason Brewer was not in attendance today. Mike Polodna reported that he received no comments on the draft specification he passed out at the September meeting.

Action Plan: Provide WSDOT comments at the next meeting.

Issue: NMS of Coarse Aggregate for 4000P – Neil Guptill and Dick Boss

Neil and Dick pointed out that the NMS of coarse aggregate changed from 1/2" to 3/8" in the 2010 Specification. Kurt will refer this issue to Mark Gaines.

12/7/11 – Dick Boss proposed gradations up to 1 1/2" NMS for larger shafts. Mark Gaines stated that the issue is concrete flow through the rebar cages. The 3/8" mix performs well and WSDOT is going to maintain the specification as is.

Action Plan: Issue complete. Remove from the agenda.

Issue: Trial Batches for Concrete Overlay Mixes in WSDOT 6-09.3(3)B & C – Craig Matteson

Discussion on prescriptive mixes in 6-09.3(3)B and C. Both these mixes are prescription designs right down to the coarse & fine aggregate ratios, cement contents and W/C ratios. Are we required to run a trial batch for 5- 28 day compressive results, as there is no compressive strength specified?

12/7/11 – Kurt Williams stated that trial batches are not required for compressive strength because no compressive strength is specified, but that mix designs with material sources and gradations are still required.

John Harris reported that Rob Shogren is mixing trial batches of slag-modified concrete overlay mixes. He also reported that the slag mix used on SR 97 in Tonasket looks great and has not cracked.

Action Plan: Continue the discussion at the next meeting.

Issue: Qualification of Concrete Suppliers and the NRMCA – Kurt Williams

Colin Lobo of the NRMCA has contacted WSDOT regarding WSDOT Standard Specification 6-02.3(4)A Qualification of Concrete Suppliers, and the use of the NRMCA Plant Certification checklist by people other than those working through the NRMCA. WSDOT proposes deleting options 2 and 3 of the specification and allowing certification only through the NRMCA.

12/7/11 – Kurt Williams asked for comments on the proposed specification below by the next meeting in March.

Proposed Specification:

6-02.3(4)A Qualification of Concrete Suppliers

Batch Plant Prequalification may be obtained through one of the following methods:

1. Certification by the National Ready Mix Concrete Association (NRMCA). Information concerning NRMCA certification may be obtained from the NRMCA at 900 Spring Street, Silver Springs, MD 20910 or online at www.nrmca.org. The NRMCA certification shall be valid for a 2-year period from the date of inspection. When this method of certification is used the following documentation shall be submitted to the Project Engineer.
 - a. A copy of the current NRMCA Certificate of Conformance, the concrete mix design(s) (WSDOT Form 350-040), along with copies of the truck list, batch plant scale certification, admixture dispensing certification, and volumetric water batching devices (including water meters) verification.
2. Independent evaluation certified by a Professional Engineer using WSDOT Concrete Batch Plant Inspection Checklist (DOT Form 350-010). The Professional Engineer shall be licensed under title 18 RCW, state of Washington, qualified in civil engineering. The independent certification using the WSDOT Concrete Batch Plant Inspection Checklist shall be valid for a 6 month period from the date of inspection. When this method of certification is used the following documentation shall be submitted to the Engineer.
 - a. A copy of the Professional Engineer's stamped and sealed WSDOT Concrete Batch Plant Inspection Checklist, the concrete mix design(s) (WSDOT Form 350-040), along with copies of the truck list, batch plant scale certification, admixture dispensing certification, and volumetric water batching devices (including water meters) verification.

Action Plan: Review comments at the March 7, 2012 meeting. Complete in time for the April 2012 amendment package.

Issue: Acceptance of Pumped Concrete – Bruce Chattin

It is well known that pumping can change the air content of the concrete. WSDOT requires that sampling be conducted from the end of the delivery system, after the concrete is pumped, and leaves it to the contractor to determine how to get it there within the required specification.

12-7-11 The discussion continued from the September meeting. Bruce Chattin reviewed the pump operator and equipment maintenance certification program available through the ACPA. John Harris stated that a pre-placement conference with WSDOT participation is needed. He also stated that the World of Concrete has training available for pump operators. Dick Boss stated that a certification program will not make a difference and that industry can solve the problem by only agreeing to provide in-spec concrete at the end of the chute. Kurt Williams stated that if industry wants to proceed with equipment/operator certification that WACA should write a proposal for WSDOT consideration. Kurt would take the proposal to AGC for comments.

9-7-11 – Bruce led a discussion on issues involved with acceptance testing of pumped concrete. It is well known that pumping can change the air content of the concrete. WSDOT requires that sampling be conducted from the end of the delivery system, after the concrete is pumped, and leaves it to the contractor to determine how to get it there within the required specification.

Points discussed included coordination between the supplier, contractor, pump operator, and inspectors; requiring certified pump operators; ACPA style concrete pumping education developed and provided by WACA; existing video by Professor Hover; WSDOT requiring training and certification; WSDOT to continue to sample from the end of the pump.

Action Plan: Continue the discussion at the next meeting.

New Issue: Recycled Glass Aggregates – Kurt Williams

WSDOT is considering adopting AASHTO M 318 and changing WSDOT Standard Specification 9-03.21(1)C Recycled Glass Aggregates to comply with the standard. See handout for proposed specification.

12-7-11 Kurt passed out the proposed specification change. There were no comments. The changes will be incorporated in the April 2012 amendment package.

Action Plan: Issue complete.

Discussion Item: Proposed New Dates for June and December Meetings – Mike Polodna

Kevin Wolf requested that we look at moving the June and December meetings off of the first week of the month as they conflict with the ASTM International meetings which he always attends. Could we move these 2 meetings to the 2nd week of the month?

12-7-11 The June and December meetings will be moved to the 2nd week of the month per consensus of those in attendance.

Action Plan: Issue complete.

Discussion Item: WSDOT Standard Specification 1-06.3 Manufacturer's Certification of Compliance – Greg McKinnon

Greg McKinnon of Stoneway Concrete inquired if the "corporate official" part of this specification applies to concrete.

The Manufacturer's Certificate of Compliance must identify the manufacturer, the type and quantity of material being certified, the applicable Specifications being affirmed, and the signature of a responsible corporate official of the manufacturer and include supporting mill tests or documents. A Manufacturer's Certificate of Compliance shall be furnished with each lot of material delivered to the Work and the lot so certified shall be clearly identified in the certificate."

12-7-11 Dick Boss suggested to add "or designee" to the specification. Kurt Williams will pursue this within WSDOT.

Action Plan: Continue the discussion at the next meeting.

New Issue: Aggregate Source Approvals for Sources to be Blended with Others – Dick Boss

An Aggregate Source Approval is required for each pit. Since WSDOT is now sampling and testing only processed material instead of pit run or blended material, source owners have issues supplying samples of processed, non-blended aggregates.

12-7-11 WSDOT will take this under advisement.

Action Plan: Continue the discussion at the next meeting.

Discussion Item: Excavation from Private Site – Dick Boss

Dick questioned if sites that are not on the ASA database can be used for aggregate sources, and if so, how are they qualified for use on WSDOT projects.

12-7-11 Kurt Williams stated that private sites could be sampled, tested and approved for use on a project-by-project basis.

Action Plan: Issue complete.

Discussion Item: SCC for use in Prestressed Girders – Mark Gaines

Mark reported that the WSDOT Bridge Design Office and the Bridge Construction Office are looking at using SCC in prestressed girders.

Action Plan: Issue complete.

9-25 WATER

9-25.1 Water for Concrete

Water for concrete, grout or mortar shall be clear, apparently clean, and suitable for human consumption (potable). If the water contains substances that cause discoloration, unusual or objectionable smell or taste, or other suspicious content, the Engineer may require the Contractor to provide test results documenting that the water meets the physical test requirements and chemical limits described in ASTM C 1602 Tables 1 and 2.

Water from mixer washout operations may be used in concrete provided it meets or exceeds the above criteria as well as the following additional requirements:

1. Concrete with water from mixer washout operations shall not be used in bridge roadway deck slabs, flat slab bridge superstructures, modified concrete overlays, or prestressed concrete.
2. Water density shall not exceed 1.03 g/ml.
3. Shall be free of coloring agents.

Water from the mixer washout shall be tested at the frequencies stated in Appendix X1 and Section 5 of ASTM C 1602 for the physical requirements and at a frequency of once per month for the chemical requirements.

The Contractor shall use the services of a testing laboratory having a technician training and evaluation program and an equipment calibration/verification program meeting Sections 5 and 6 of AASHTO R-18. Documentation of tester qualifications and equipment calibration/verification records shall be available for review upon request by the Contracting Agency. The Contracting Agency may conduct an on-site review of the laboratory's facility and records at its discretion.

6-02.3(5)B Certification of Compliance

The concrete producer shall provide a Certificate of Compliance for each truckload of concrete. The Certificate of Compliance shall verify that the delivered concrete is in compliance with the mix design and shall include:

Manufacturer plant (batching facility)

Contracting Agency Contract number.

Date

Time batched

Truck No.

Initial revolution counter reading

Quantity (quantity batched this load)

Type of concrete by class and producer design mix number

Cement producer, type, and Mill Certification No. (The mill test number as required by Section 9-01.3 is the basis for acceptance of cement.)

Fly ash (if used) brand and Type

Approved aggregate gradation designation

Mix design weight per cubic yard and actual batched weights for:

Cement

Fly ash (if used)

Coarse concrete aggregate and moisture content (each size)

Fine concrete aggregate and moisture content

Water (including free moisture in aggregates)

Admixtures brand and total quantity batched

Air-entraining admixture

Water reducing admixture

Other admixture

For concretes that use combined aggregate gradation, the Certificate of Compliance shall include the aggregate components and moisture contents for each size in lieu of the aggregate information described above.

For concretes that use recycled mix water, the Certificate of Compliance shall include the density of the mix water used in the delivered concrete, and the date tested. The reported density test shall be conducted within 24 hours of delivery of the concrete.

5. MANAGEMENT REQUIREMENTS

5.1. *Quality Management System (QMS):*

5.1.1. The laboratory shall establish, implement, and maintain a quality management system (QMS) appropriate to the scope of its activities. The QMS shall be available for use and understood by laboratory staff.

Note 2—A QMS may be documented and distributed in hard copy or electronic format.

Note 3—Examples of some QMS documents are provided in the Appendix. The laboratory may establish methods other than those shown in the Appendix to meet QMS requirements.

5.2. *Document Control:*

5.2.1. Each QMS document shall indicate its preparation date. When a document is revised, the date of revision shall be indicated on the document.

5.2.2. *Test Methods, Practices, Procedures, and Specifications*—The laboratory shall maintain copies of standards for the testing performed and shall ensure that the procedures are the most current and are readily accessible to the employees performing the testing.

5.3. *Organization:*

5.3.1. The legal name and address of the laboratory—and that of the main office or company, if different—and any other information needed to identify the organization, shall be documented.

5.3.2. The ownership and management structure of the laboratory shall be documented. Names, affiliations, and positions of principal officers and directors shall be listed.

5.3.3. The laboratory shall maintain an organization chart showing relevant internal organizational components, including positions and names, that are part of the organization. The organization chart shall clearly define relationships with other partner organizations where applicable.

5.4. *Staff:*

5.4.1. The laboratory shall maintain a position description for each technical operational position shown on the laboratory's organization chart. Position descriptions shall identify the position and include a description of the duties, required skills, and education and experience associated with the position.

5.4.2. The laboratory shall maintain a brief biographical sketch, noting the education, work experience, licensure, certifications, and current position for each supervisory technical staff.

5.4.3. *Technical Manager*—The laboratory shall have a technical manager (however named) who has overall responsibility for the technical operations of the laboratory. In addition, the laboratory shall nominate an individual to serve in the technical manager's absence.

5.4.4. *QMS Management*—The laboratory shall designate a person(s) having responsibility for determining whether quality management system activities are being implemented by laboratory staff. This individual(s) shall have direct access to top management (Note 4).

Note 4—This individual(s) may have other responsibilities (e.g., laboratory manager).

5.5. *Technician Training and Evaluation:*

5.5.1. The laboratory shall maintain a procedure which describes the method used to ensure that new laboratory personnel are trained to perform tests in accordance with standard procedures. In addition to the description of training methods, the document shall indicate what position or employee is responsible for the laboratory training program and the maintenance of training records (see Figure X1.1).

Note 5—There may be several different methods employed for differing levels of staff experience including (1) on-the-job apprentice training (one-on-one) for new employees with little or no experience in laboratory or inspection work; (2) formal in-house training sessions for certification, rating, or competency evaluation; and (3) training by external organizations. An individual with prior experience performing a specific test need only have competency confirmed by the laboratory (see Section 5.5.2).

5.5.2. The laboratory shall maintain a procedure describing the method used to evaluate staff

competency to ensure that each test covered by the scope of this standard is performed in accordance with standard procedures. This description shall include the frequency of competency evaluations for each technician and indicate what position or employee is responsible for evaluating staff competency and maintaining records. The procedure shall ensure that each technician receives a performance evaluation for each test that technician performs (see Figure XI.2).

Note 6—Proficiency sample testing may be useful in evaluating staff competency; however, it should be used in conjunction with observation of actual testing performed.

5.5.3. The laboratory shall maintain records of technician training and competency evaluation activities. The records shall include the test method for which the technician was evaluated, the date on which competence was determined or confirmed, the name of the individual who evaluated the technician's competency, and comments about the training or competency evaluation activity.

5.6. *Internal Audits:*

5.6.1. The laboratory shall maintain a document describing the scope of internal audits. Internal audits shall verify that the laboratory's operations continue to comply with its policies and procedures and the requirements of this standard.

5.6.2. The document shall include the frequency of the reviews and identification of the individual(s) responsible for the review. The internal audit program shall address all elements of the quality management system and shall be conducted at least every 12 months by trained personnel independent of the activity being audited, where possible.

5.6.3. Findings from internal audits shall be recorded (see Figures XI.3 and XI.4).

5.7. *Corrective Action:*

5.7.1. The laboratory shall maintain a procedure for implementing corrective action when nonconforming work or departures from policies and procedures have been discovered (Note 7). The procedure shall identify the individual responsible for implementing corrective action and shall begin with an investigation to determine the root cause of the problem. Records of corrective action shall be maintained (see Figure XI.5).

Note 7—The corrective action procedure should be implemented for nonconformities in the following areas: internal audits; customer complaints; equipment calibrations; standardizations; checks and maintenance; external assessments; and proficiency sample testing.

5.7.2. The laboratory shall document the method used in responding to customer complaints (see Figure XI.6). Records of customer complaints and the resulting actions shall be maintained.

5.8. *Records Retention:*

5.8.1. *Quality Management System Records*—Records pertaining to external assessments, internal audits, proficiency sample testing, technician training and evaluation, and personnel shall be retained by the laboratory for a minimum of 5 years.

5.8.2. *Technical Records*—The laboratory shall retain records of test data, test reports, equipment calibration, standardization, check, and maintenance activities for a minimum of 5 years.

Note 8—Although a 5-year retention schedule is adequate in some instances, there are many circumstances when a longer retention period may be advantageous to the laboratory. Records concerning the calibrations, standardizations, checks, and maintenance of equipment are an example. Retention schedules of this type usually require such records to be held throughout the useful life of the equipment.

6. TECHNICAL REQUIREMENTS

6.1. *Equipment:*

6.1.1. *Inventory*—The laboratory shall maintain an inventory of major sampling, testing, calibration, standardization and check equipment, and measurement standards. The list shall

include, where available, the name, date placed in service, manufacturer, and model and serial number.

Note 9—An identification number assigned by the laboratory or other unique identifying information may be substituted for the model and serial number if this is the practice normally followed by the laboratory.

Note 10—Major equipment includes all equipment that is normally amortized by a laboratory, such as shakers, physical or chemical testing machines, balances, baths, ovens, microscopes, and computing equipment dedicated to testing. Equipment such as chairs, desks, and file cabinets may be excluded. Major equipment does not usually include expendable items such as miscellaneous glassware, sieves, molds, and viscometers.

6.1.2. Equipment Calibrations, Standardizations, and Checks:

6.1.2.1. The laboratory shall maintain a list giving a general description of equipment which requires calibration, standardization, and checks. For each item the list shall include the interval of calibration, standardization, or checks and a reference to the procedure used (Note 11) (see Figure X1.7).

Note 11—When standard procedures are used, the standard should be referenced (e.g., unit weight bucket, T 19; compression machine, T 67). When the procedure used has been prepared by the laboratory, the in-house designation should be referenced. It should be indicated if the work is performed by an outside agency.

6.1.2.2. The laboratory shall have a procedure which describes the method for ensuring that the calibration, standardization, and checks are performed for all required equipment at the specified intervals. This procedure shall include the name of the individual(s) or position(s) responsible for ensuring that these activities are performed, and procedures for handling equipment which is newly acquired, removed from service, or defective (see Figure X1.8).

6.1.2.3. The laboratory shall have detailed written procedures for all in-house calibration, standardization, and check activities not addressed in standards or operating instructions (Note 11). These procedures shall indicate the equipment required to perform the calibration, standardization, or check (see Figures X1.9 to X1.14). If a piece of laboratory testing equipment is used over a range of measurements (e.g. thermometer, dial indicator, etc.), the calibration or standardization shall include several measurements over that range.

6.1.2.4. The laboratory shall calibrate, standardize, and check all significant equipment associated with tests which the laboratory performs (Note 12). As a minimum, the applicable equipment listed in Tables A1.1 through A1.8 shall be included.

Note 12—Refer to PP 57 for guidance on performing equipment calibrations, standardizations, and checks.

6.1.2.5. Calibration, Standardization, and Check Frequencies—Applicable measurement equipment shall be calibrated, standardized, or checked at the intervals specified in the laboratory's QMS. The laboratory shall establish intervals according to the following guidelines:

6.1.2.5.1. The intervals specified by the laboratory shall be no greater than those indicated in Tables A1.1 through A1.8 unless such equipment is calibrated, standardized, or checked before each use or the laboratory has documented evidence to show that the conformance of the equipment to the specification requirements is stable (Notes 13, 14, and 15).

Note 13—The intervals for the calibration of measurement equipment may be extended provided that verification of calibration data obtained with frequent measurement checks using control standards indicate that equipment measurement results are stable over time. Process-control charts are commonly used to display the data.

Note 14—Equipment check intervals may be extended provided that equipment check data indicate that equipment wear is predictable over time.

Note 15—Analysis of the verification of calibration data and check data for some equipment may indicate that intervals should be decreased to ensure that the equipment consistently meets the specification requirements or is removed from service when appropriate.

6.1.2.5.2. When a maximum interval for a specific piece of measurement equipment is specified in a standard, the interval specified by the laboratory shall not exceed this interval unless the equipment is calibrated, standardized, or checked before each use.

6.1.2.6. Equipment that has been removed from service and newly acquired equipment without a Manufacturer's certification shall be calibrated, standardized, or checked before being placed in service.

6.1.3. Measurement Standards:

6.1.3.1. The laboratory shall maintain calibration certificates that establish the traceability of measurement standards or in-house equipment used for calibrations, standardizations, and checks. The calibration certificates shall include estimates of measurement uncertainty. The QMS shall include a procedure that describes how the laboratory ensures the calibration of its measurement standards.

6.1.4. Equipment Maintenance:

6.1.4.1. The laboratory shall have a system in place for performing regular maintenance on any equipment or test system in which repeated use could degrade the equipment's or test system's ability to produce repeatable results.

6.1.4.2. The laboratory shall maintain a list giving a general description of equipment which requires maintenance. For each item, the list shall include the interval of maintenance and a reference to the procedure used (Note 16) (see Table A1.9 for requirements and Figure X1.17 for an example of a maintenance table).

Note 16—In most cases, the laboratory should refer to the manufacturers' instructions to determine the recommended maintenance interval and procedures. In some cases, the laboratory will need to create its own maintenance intervals and procedures based on the frequency of use and risk of equipment failure.

6.1.4.3. The laboratory shall have detailed written procedures for all in-house maintenance activities.

These procedures shall indicate the equipment required to perform the maintenance and a general explanation of the work performed. If manufacturer's instructions for maintenance are available, they shall be referenced on the in-house procedure (see Figure X1.18).

6.1.4.4. The maintenance records shall contain the name of the individual that performed the maintenance, the date that the work was completed, and any comments.

6.1.4.5. The laboratory shall maintain the manufacturers' instructions for operating and maintaining equipment, where applicable.

6.1.5. Equipment Records—The laboratory shall maintain calibration, standardization, check, and maintenance records for all equipment specified in the QMS. Such records shall include:

6.1.5.1. Detailed results of the work performed (dimensions, mass, force, frequency, temperature, time, etc.);

6.1.5.2. Description of the equipment calibrated, standardized, checked, or maintained, including model and serial number or other acceptable identification (Note 9);

6.1.5.3. Date the work was done;

6.1.5.4. Identification of the individual who performed the work;

6.1.5.5. Identification of the calibration, standardization, check, or maintenance procedure used; and

6.1.5.6. Identification of any device used for in-house calibration, standardization, check, or maintenance, including serial numbers, laboratory numbers, or other identification.

6.2. Sample Management:

6.2.1. The laboratory shall have a procedure for the storage, retention, and disposal of test samples (see Figure X1.15).

Note 17—In this context, the term “storage” refers to sample placement and handling before testing. The term “retention” refers to sample placement and handling after testing.

6.2.2. The laboratory shall have a procedure for identifying test samples. The identification shall be retained throughout the life of the sample in the laboratory.

6.3. Test Records and Reports:

6.3.1. The laboratory shall have a document which describes methods used by the laboratory to produce test records and to prepare, check, and amend test reports. The document shall identify the individual(s) responsible for maintaining test records and reports and shall describe the distribution of test reports (see Figure X1.16).

6.3.2. *Test Records*—The laboratory shall maintain test records which contain sufficient information to permit verification of any test reports. Records pertaining to testing shall include original observations, calculations, derived data, and an identification of personnel involved in sampling and testing.

6.3.2.1. The laboratory shall prepare test reports which clearly, accurately, and unambiguously present the information specified in Table 1.

Table 1—Test Report Requirements

Identification of the report and the date issued

Description, identification, and condition of the test sample

Identification of the standard test method used

Test results and other pertinent data required by the standard test method

Identification of any test results obtained from tests performed by a subcontractor

Name of the person(s) accepting technical responsibility for the test report (if applicable)

6.3.2.2. In addition to the requirements listed in Section 6.3.2.1, the information listed in Table 2 shall be available and traceable to the test reports.

Table 2—Test Report Information

Name and address of the testing laboratory

Name and address of the client or identification of the project

Date of receipt of the test sample

Date(s) of test performance

Deviations from, additions to, or exclusions from the test method

6.3.2.3. The procedure for amending reports shall require that the previously existing report be clearly referenced when an amendment is made. The references shall establish a clear audit trail from the latest issuance or deletion to the original report and its supporting data.

6.4. *Subcontracting*—The laboratory shall maintain a document describing the policies that the laboratory follows relative to subcontracting, if it engages in such activities. These policies shall include procedures followed by the laboratory in selecting competent subcontractors and reporting the results of testing performed by subcontractors.

6.5. Assuring the Quality of Results:

6.6. The laboratory shall have procedures for monitoring the validity of test results. The monitoring shall be planned and may include one or more of the following:

6.6.1.1. Participation in external assessment programs (Note 17);

6.6.1.2. Participation in proficiency sample or interlaboratory comparison testing (Note 17); and

6.6.1.3. Retesting of retained items.

Note 18—The AASHTO Materials Reference Laboratory (AMRL) and the Cement and Concrete Reference Laboratory (CCRL), located in Gaithersburg, Maryland, conduct on-site assessment and proficiency sample programs which the laboratory may use.

6.6.2. *Records*—The laboratory shall retain results of the monitoring activities, including the steps taken to determine the root cause of any nonconformities and the corrective actions taken.

9-03.21 Recycled Materials for Aggregate

9-03.21(1) General Requirements

Hot Mix Asphalt, Concrete Rubble, Recycled Glass (glass cullet), and Steel Furnace Slag may be used as, or blended uniformly with, naturally occurring materials for aggregates. The final blended product and the recycled material component included in a blended product shall meet the specification requirements for the specified type of aggregate. The Contracting Agency may collect verification samples at any time. Blending of more than one type of recycled material into the naturally occurring materials requires approval of the Engineer prior to use.

Recycled materials obtained from the Contracting Agency's roadways will not require toxicity testing or certification for toxicity characteristics.

Recycled materials that are imported to the job site will require testing and certification for toxicity characteristics. The recycled material supplier shall keep all toxicity test results on file and provide copies to the Project Engineer upon request. The Contractor shall provide the following:

1. Identification of the recycled materials proposed for use.
2. Sampling documentation no older than 90 days from the date the recycled material is placed on the project. Documentation shall include a minimum of 5 samples tested for total lead content by EPA Method 6010. Total lead test results shall not exceed 250 ppm. For samples that exceed 100 ppm, that sample must then be prepared by EPA Method 1311, the Toxicity Characteristic Leaching Procedure (TCLP), where liquid extract is analyzed by EPA Method 6010B. The TCLP test must be below 5.0 ppm.
3. Certification that the recycled materials are not Washington State Dangerous Wastes per the Dangerous Waste Regulations WAC 173-303.
4. Certification that the recycled materials are in conformance with the requirements of the Standard Specifications prior to delivery. The certification shall include the percent by weight of each recycled material.

9-03.21(1)A Recycled Hot Mix Asphalt

For recycled materials incorporating hot mix asphalt the product supplier shall certify that the blended material does not exceed the Maximum Allowable Percentage of hot mix asphalt shown in Table 9-03.21(1)E.

9-03.21(1)B Vacant

9-03.21(1)C ~~Vacant~~ Recycled Glass (Glass Cullet)

Glass Cullet shall meet the requirements of AASHTO M 318 with the additional requirement that the glass cullet is limited to the maximum amounts set in Section 9-03.21(1)E for recycled glass. Prior to use the Contractor shall provide certification to the Project Engineer that the recycled glass meets the physical properties and deleterious substances requirements in AASHTO M-318.

9-03.21(1)D Recycled Steel Furnace Slag

The Contractor shall provide to the Engineer the steel furnace slag blends that will be used in the final product prior to use.

9-03.21(1)E Table on Maximum Allowable Percent (by weight) of Recycled Material

Maximum Allowable Percent (by weight) of Recycled Material					
		Hot Mix Asphalt	Concrete Rubble	Recycled Glass (Glass Cullet)	Steel Furnace Slag
Fine Aggregate for Portland Cement Concrete	9-03.1(2)	0	0	0	0
Coarse Aggregates for Portland Cement Concrete	9-03.1(4)	0	0	0	0
Aggregate for Asphalt Treated Base (ATB)	9-03.6	See 5-04.2			

Aggregates for Hot Mix Asphalt	9-03.8	See 5-04.2	0	0	20
Ballast	9-03.9(1)	20	100	1520	20
Permeable Ballast	9-03.9(2)	20	100	1520	20
Crushed Surfacing	9-03.9(3)	20	100	1520	20
Aggregate for Gravel Base	9-03.10	20	100	1520	20
Gravel Backfill for Foundations – Class A	9-03.12(1)A	20	100	1520	20
Gravel Backfill for Foundations – Class B	9-03.12(1)B	20	100	1520	20
Gravel Backfill for Walls	9-03.12(2)	0	100	1520	20
Gravel Backfill for Pipe Zone Bedding	9-03.12(3)	0	100	1520	20
Gravel Backfill for Drains	9-03.12(4)	0	100	10020	0
Gravel Backfill for Drywells	9-03.12(5)	0	0	10020	0
Backfill for Sand Drains	9-03.13	0	100	10020	0
Sand Drainage Blanket	9-03.13(1)	0	100	10020	0
Gravel Borrow	9-03.14(1)	20	100	10020	20
Select Borrow	9-03.14(2)	20	100	10020	20
Select Borrow (greater than 3-feet below Subgrade and side slopes)	9-03.14(2)	100	100	10020	20
Common Borrow	9-03.14(3)	20	100	10020	20
Common Borrow (greater than 3-feet below Subgrade and side slopes)	9-03.14(3)	100	100	10020	20
Foundation Material Class A and Class B	9-03.17	0	100	10020	20
Foundation Material Class C	9-03.18	0	100	10020	20
Bank Run Gravel for Trench Backfill	9-03.19	20	100	10020	20