

2016 ACHD Supplemental Specifications to the ISPWC
ACHD QC-QA Procedure

SECTION 100 – General Conditions

Add the following:

Ada County Highway District Quality Control and Quality Assurance Procedure

Definitions

Quality Assurance (QA) is defined as the process or set of processes used to measure and assure the quality of a product and/or workmanship. This encompasses ACHD's oversight of the Developer's/Contractor's processes and materials. This includes review of the inspector, sampler, tester and laboratory qualifications (per ACHD Independent Assurance Program defined below); verifying the results of the quality control and process control testing; and inspecting for conformance to plans and specifications.

Quality Control (QC) is defined as the actions necessary to produce quality workmanship and materials. QC includes, but should not be limited to, inspection of the production and placement operations, quality control and process control testing and inspection of the finished product. QC is the responsibility of the Developer/Contractor. No separate payment will be made for this work. If quality control testing is not being performed at the required frequency, ACHD may stop production of work until the tests are supplied, or ACHD determines the work can proceed.

Quality Control Testing and Process Control Testing are defined as the testing and inspections conducted by the Developer/Contractor to determine if the construction materials have been produced and placed in compliance with the project specifications and applicable standards. Process control testing is conducted to demonstrate that the construction materials being produced and used continue to meet the requirements for the product.

Independent Assurance Program (IAP) is the process provided by ACHD, through trained and certified staff, to ensure that all testing is performed correctly and testing equipment is functioning and calibrated properly.

Acceptance is determined by the QA test results, in combination with the assurance that the Developer/Contractor has satisfied the specification requirements for materials quality and workmanship, with the exception of Superpave Hot Mix, as specified below. In addition to the specified testing results, visual inspection of the end product is also taken into consideration in determining acceptance. Acceptance will be determined by ACHD. All samples required for QA testing will be supplied by the Developer/Contractor to ACHD. Prior to obtaining a sample for QA testing, ACHD shall be notified of when and where the sample will be taken from. ACHD will determine if it needs to witness the obtaining of the QA sample. Superpave Hot Mix acceptance shall be based on ACHD's supplement to the ISPWC Section 814 under Part 4.2.

Construction Testing and Inspection Responsibilities

Quality Control

- A. The Developer/Contractor shall be responsible for the *Quality Control* of all construction processes and materials quality. The Developer/Contractor will be responsible for quality throughout the construction process. Therefore, the Developer/Contractor must ensure that the materials and workmanship provided by themselves, Subcontractors, Suppliers, and Producers meet all pertinent specifications. All tests listed under Quality Control in the Minimum Testing Frequency Table are required for quality control, however only tests listed as Acceptance shall be used in determining pay.
- B. The Quality Control laboratory must be approved by the Idaho Transportation Department. All testing personnel and facilities used by the Developer/Contractor must be currently certified by the Western Alliance for Quality Transportation Construction (WAQTC) and by the ACHD Independent Assurance Program. All test results must be supplied to ACHD the next working day after the test was performed. All Quality Control tests will be supplied to ACHD directly from the lab performing the tests. Tests results shall have the ACHD project/permit number listed and be sequential.
- C. Quality Control Testing must occur in a random frequency and at a minimum, at the intervals specified in the table provided in the corresponding ISPWC sections. The Developer/Contractor shall determine the random locations. Upon request, documentation must be supplied showing how the random numbers/locations were determined by the Developer/Contractor. All random sampling for ACHD will be done by the Developer/Contractor and witnessed by an ACHD representative.
- D. For gradation testing by the Developer/Contractor during production, each sample size shall be taken per AASHTO T2, except the sample size shall be doubled. The sample obtained shall be split in accordance with AASHTO T248, and half of it shall be marked with an ID number and tested by the Developer/Contractor. The other half of the sample shall be sealed in a canvas sack or plastic bucket, and marked with the ID number, stored in a weather protected container, and reserved for use in retesting if needed. Material shall be retained until written notification is given by ACHD that it can be discarded.
- E. Acceptance, gradation, binder content and volumetrics for plant mix pavement and/or Superpave Hot Mix asphalt shall be performed on the loose mix sampled from the roadway, haul unit, or an approved sampling method at the Hot Plant. At the start of each project the location for sampling shall be determined by ACHD and all samples for the project shall be obtained from that determined location. The hot mix sample used for asphalt binder content, gradation and volumetric testing shall be doubled in size. The sample shall be split in accordance with AASHTO R47 and half of the sample shall be used for the appropriate testing. The other half of the sample shall

be sealed in a box, marked with the sample ID number, stored in a weather protected enclosure, and reserved for use in retesting if needed. Material shall be retained until written notification is given by ACHD that it can be discarded.

Quality Assurance

- A. ACHD shall oversee the Developer's/Contractor's fulfillment of the QC requirements, and independently verify that the QC test results being submitted by the Developer/Contractor are representative of the workmanship and product quality. ACHD will also be responsible for determining general project acceptance based on conformance to the approved plan and specifications.
- B. ACHD will perform random Quality Assurance testing at the intervals specified in Minimum Testing Frequency table.
- C. Acceptance of material will be based on the Quality Assurance test performed by ACHD. If no QA test is performed, acceptance will be based on the QC tests results and inspections as determined by ACHD.
- D. ACHD will perform random inspections of material storage and handling practices.

Dispute Resolution

- A. The dispute resolution process is to resolve differences between the Developer/Contractor and ACHD when a disagreement regarding the test results occurs.
- B. When a failing QA test occurs, production may be suspended until the differences are resolved and ACHD is satisfied.
- C. ACHD may run one or more tests of the split material from the QC process to help resolve differences.
- D. When ACHD and the Developer/Contractor are unable to resolve the differences, a Third Party prequalified independent lab shall be brought in to verify testing.
- E. ACHD will hire the Third Party independent lab. If ACHD tests are found to coincide with the independent lab, ACHD will not grant additional contract time due to any delays in production and the Developer/Contractor shall bear the costs associated with the Third Party resolution. Likewise, if the Developers/Contractors tests are found to coincide with the independent lab, ACHD will bear the costs associated with Third Party resolution and will grant additional time for any delay caused by this additional testing.
- F. For hot mix density dispute testing, cores shall be obtained by the Third Party from the same locations as the nuclear gauge tests.

Independent Assurance Program

- A. ACHD practices the standards of the Western Alliance for Quality Transportation Construction (WAQTC).
- B. ACHD Independent Assurance personnel may observe testers and verify that the equipment and techniques used for the required testing are calibrated and performing accurately, per WAQTC. During construction, it may be necessary for an IAP representative to verify the reliability of the tester by witnessing sampling and testing, and by splitting samples and comparing results.
- C. All independent testing laboratories to be used shall be pre-qualified by ACHD prior to construction. To request an inspection and certification, contact the ACHD Lab Coordinator at 387-6310 to schedule. Laboratories that are currently certified by the Idaho Transportation Department (ITD) can provide ACHD with their current certification as confirmation of qualification. In the event that the lab is ITD certified; a facility inspection by ACHD IAP personnel may still be required.

Price Adjustment for Non- Compliant Materials or Products

- A. When material fails to meet the required specifications, they will be subject to a price adjustment or rejection. ACHD may also request a lengthened warranty period.
- B. ACHD will, in its sole, discretion determine the price adjustment or rejection.
- C. The determined price adjustment or rejection of material shall be applied to the quantity of material that is represented by the non-compliant test results, as outlined in the Minimum Testing Frequency table.

Minimum Testing Requirements

- A. The requirements outlined herein are the established minimum acceptance requirements for materials used in standard applications and paid for under standard bid items. For special provision items, material used in non-standard, non-roadway, temporary applications, or small quantities of materials, alternative materials acceptance requirements will be determined as discussed herein or as specified in the contract documents, or as otherwise approved by ACHD. Material placed without appropriate testing shall be subject to a price deduction or rejected as determined by ACHD.
- B. Minimum testing frequencies are included in the Minimum Testing Frequency table. The Developer/Contractor frequencies may only be altered by Change Order approved by ACHD. ACHD may elect to increase its own testing frequency at any time. Testing frequency should be increased when accepting material from newly developed sources or those with varying results.

- C. Material source approval requirements are not listed in this document. All fill and aggregate material imported to the project must be obtained from ACHD or ITD approved materials sources.
- D. Based on inspection and without regard for testing frequency, ACHD may isolate and reject obviously defective material.
- E. When the material is not listed in the Minimum Testing Frequency table and not identified in the ISPWC, acceptance shall be determined by ACHD.
- F. When the material is required by the Contract to meet a given specification, such as ASTM or AASHTO, acceptance of material will, at a minimum, require a manufacturer's certification. A partial list of such material is outlined in the List of Miscellaneous Material Accepted on the Basis of Manufacturer's Fabricator's Certification.

Small Quantities

- A. ACHD may accept small quantities of certain materials without sampling and testing. The determination to accept materials using this provision rest solely with ACHD.
- B. The following are not eligible for small quantity acceptance:
 - i. Concrete with a specified strength of greater than 3000 psi.
 - ii. Paving on the roadway with quantities above 100 ton.
- C. Materials may be accepted as a small quantity if the estimated quantity is less than the minimum QC testing frequency. The small quantity exception may be used on pavement items such as; small patches, utility repairs, pavement placed outside the traveled way (driveways, approaches, mailbox turnouts, asphalt sidewalk and curb), and temporary pavement.
- D. The minimum requirements that must be met for small quantities includes; approved sources, mix design, material certifications, inspection, and a core for density acceptance of mainline and intersection paving less than 100 tons.

ACHD QC/QA TESTING FREQUENCY TABLE

~ All random sampling for ACHD will be done by the Developer/Contractor and witnessed by an ACHD representative ~

Minimum Testing Frequency							
Column	ISPWC	Material	Acceptance By/Test Required	Quality Control Contractor	Quality Assurance ACHD	Test Method	Requirement
A	202	Subgrade (Natural Ground)	QA / Density (1)*	Minimum 1 test per 5000 SY	Observation	AASHTO T 310 Method B	Per 202.3.8.C.2
B	202	Embankment	QA / Density (1)*	Minimum 1 test per 350 SY per lift	Minimum 1 test per 1000 SY per lift	AASHTO T 310 Method B	Per 202.3.9.B
C	202	Embankment	QA / Gradation	Minimum 1 per 3000 ton	Minimum 1 per 7500 ton	AASHTO T 27	Per 202.3.8.C.2
D	204/306	Trenches	QA / Density (1)*	Minimum 1 per 300 feet for each lift. Minimum 1 per lift for transverse trenches	Minimum 1 per 1000 feet. Minimum 1 for every 3 transverse trenches.	AASHTO T 310 Method B	Per Section 306
E	305	Bedding Type I,II,III	QA / Gradation Density	Minimum 1 per 3000 ton	Minimum 1 per 7500 ton	AASHTO T 27 AASHTO T 310 Method B	Per 305.2 & 305.3.10
F	703	Concrete (Fine Aggregates)	QA / Gradation	Each 1000 CY of concrete placed	Each 3000 CY of concrete placed	AASHTO T 11 AASHTO T 27	Per 703.2.1.D.5
G	703	Concrete (Coarse aggregates)	QA / Gradation	Each 1000 CY of concrete placed	Each 3000 CY of concrete placed	AASHTO T 27	Per 703.2.1.E.4
H	703	Concrete (specified strength of 3500 psi or greater)	QA / Slump Air Content	Test for slump & air on first truck then for every 100 CY of each class of concrete placed	Minimum 1 per 300 CY of each class of concrete placed	AASHTO T 119 AASHTO T 152	Per Section 703
I	703	Concrete (specified strength of 3500 psi or greater)	QA / Compressive Strength	Minimum one (1) set per 100 CY of each class of concrete placed; or one (1) per day, whichever frequency is greater	Minimum one (1) set per 300 CY of each class of concrete placed; or one (1) per day, whichever frequency is greater.	AASHTO T 22 AASHTO T 23	Each set consists of (2) 28-day and (1) 7-day cylinders. Make the cylinders from loads that are tested for slump, air, etc.
J	703	Concrete (specified strength of 3000 psi or less)	QA / (if applicable) Slump Air Content	Test for slump & air on first truck then for every 100 CY of each class of concrete placed	Minimum 1 per 300 CY of each class of concrete placed	AASHTO T 119 AASHTO T 152	Per Section 703

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Column	ISPWC	Material	Acceptance By/Test Required	Quality Control Contractor	Quality Assurance ACHD	Test Method	Requirement
K	801	Uncrushed Aggregates	QA / Gradation (2)* SE	Minimum 1 per project	Minimum 1 per project	AASHTO T 11 AASHTO T 27 AASHTO T 176 (Method 2)	Per 801.2.2
L	801	Uncrushed Aggregates	QA / Density (1)*	1 test per 500 linear feet of roadway for each lift, based on two travel lanes	1 test per 1000 linear feet of roadway for each lift	AASHTO T 310 Method B	Per 202.3.8
M	802	Crushed Aggregates	QA / Gradation SE Fractured Face (5)*	Minimum 1 per 3000 ton or 1 per project, whichever frequency is greater	Minimum 1 per 5000 ton	AASHTO T11 AASHTO T 27 AASHTO T 176 (Method 2) TP 61	Per 802.2.2
N	802	Crushed Aggregates	QA / Density	1 test per 500 linear feet of roadway based on two travel lanes. 1 test per 500 linear feet for curb/gutter/sidewalk	1 test per 1000 linear feet of roadway	AASHTO T 310 Method B	Per 202.3.8
O	803	Plant Mix/Superpave Aggregates (Cold Feed) (5)*	QC / Gradation SE Fractured Face	One (1) sample at start of project, then 1 test per each 3000 tons.	1 test per project	AASHTO T 11 AASHTO T 27 AASHTO T 176 (Method 2) TP 61	Per 803.2.2
P	805	Plant Mix / Superpave performance grade binder	QA / Sampling Presence of Anti-Strip	One sample for each shift that hot mix is produced and supplied to ACHD for testing	Additional samples taken at ACHD discretion.	AASHTO T 40 Idaho IT 99 (color only)	One sample consists of three (3) one-quart metal cans.
Q	810	Plant Mix Pavement / Superpave HMA SP-1 and SP-2	QA / Sampling Asphalt Content Gradation	One (1) sample per 750 tons or one (1) sample per day, whichever frequency is greater	Each 1500 Tons	AASHTO T 168 AASHTO T 308 AASHTO T 30	Per Section 810.3.13.B
R	810	Plant Mix / Superpave Recycled Asphalt Pavement (RAP)	QC / Sampling Asphalt Content Gradation	Based on category type. See Section 810.2.5.D	Additional samples taken at ACHD discretion.	AASHTO T 168 AASHTO T 308 AASHTO T 30	Per 810.2.5.D

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Column	ISPWC	Material	Acceptance By/Test Required	Quality Control Contractor	Quality Assurance ACHD	Test Method	Requirement
S	810/814	Plant Mix Pavement / Superpave Hot Mix Asphalt	QC / Correlating density gauge (Cores)	Densometers must be correlated to cores on first day of paving, design change or change in underlying material. Minimum 3 cores for quantities up to 750 tons, minimum 5 cores over 750 tons that day. (3)*(4)*(6)*	Densometers must be correlated to cores on first day of paving, design change or change in underlying material. Minimum 3 cores for quantities up to 750 tons, minimum 5 cores over 750 tons that day. (3)*(4)*(6)*	AASHTO T 166 Method C	Compare core density results with the corresponding gauge reading to attain a correlation.
T	810/814	Plant Mix Pavement / Superpave Hot Mix Asphalt	QA / Asphalt depth (Cores)	One (1) core every 750 tons or two (2) cores per road section, whichever is greater. Maximum 4 inch diameter (4)*	Additional samples taken at ACHD discretion.	NA	Per 814.6.1
U	810/814	Plant Mix Pavement / Superpave Hot Mix Asphalt	QC / Density using correlated nuclear gauge	One (1) test every 100 ton of HMA paved	One (1) test every 300 ton of HMA paved	WAQTC TM-8	No greater than 96% and no less than 92% of the Max. Theo. Density from JMF
V	814	Superpave Hot Mix Asphalt SP-3 through SP-6	CONTROL Gradation VFA DP QC ACCEPTANCE / VA VMA	One (1) sample per 750 tons or one (1) sample per day, whichever frequency is greater	One (1) sample per 1500 tons	AASHTO T 168 AASHTO T 308 AASHTO T 30 AASHTO T 312 AASHTO T 209 AASHTO T 166	Each sample must be at least 80 lbs - Results must meet Section 814.2.2

(1)* When material is too granular to test, the compaction effort must be documented for acceptance, including equipment and roller passes. See 202.3.8.C.2

(2)* The test sample mass for sieve analysis will be determined using the nominal maximum size of the tested material according to AASHTO T 27, except the maximum test sample mass, after reduction, will not be greater than 65 lbs.

(3)* Both parties will correlate from same core locations. QC core results will be used for density acceptance on first day of production and correlation of all gauges. QA results will be for verification only (± 0.012).

(4)* Contractor will provide ACHD with cores and fill all locations with a quick setting grout.

(5)* If RAP is allowed, must meet gradation requirements after addition of RAP.

(6)* Mat thickness less than 2.5 inches will require separate gauge correlations for top and bottom lifts.

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List of Miscellaneous Material Accepted on the Basis of Manufacturer's or Fabricator's Certification	
Bearing Pads and Plates	H-Beam Piles
Brick and Blocks, Masonry	Illumination Poles and Bases
Bridge Rail, Metal	Joint Sealants and Sealers
Cement	Liquid or Emulsified Asphalt
Concrete Admixtures	Metal Reinforcement
Concrete, Rapid Set	Paint (only small quantities less than 25 gallons (100L))
Delineators and Mileposts	Performance Graded Asphalt Binder
Dowel Bars and Tie Bars for Concrete Pavement	Pipe
Dust Oil	Sewer (storm and sanitary) Manholes
Electrical	Signs and Posts
Epoxies	Steel Shell Piling
Epoxy Patch	Steel
Fiber	Structural Bolts
Flyash	Timber (structural)
Geotextiles	Traffic Signal Poles and Mast Arms
Guard Rail and Posts	