

**CITY OF SALINAS
PUBLIC WORKS DEPARTMENT**

QUALITY ASSURANCE PROGRAM (QAP)

Approved By:

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Date:

4-13-2021
April 13, 2021

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1. **GENERAL**

The City of Salinas' (City) Quality Assurance Program (QAP) has been developed by the City to provide guidelines for testing of construction materials and assurance that the materials incorporated into the construction projects are in conformance with the contract specifications. The City's QAP is updated a minimum of every five years to address changes to project specifications, materials, and updates to the testing methods. The QAP is incomplete without Attachment 1 through 3.

Projects **OFF the State Highway System (SHS)**, follow the QAP outlined in this document

Projects **ON the State Hwy System**, follow the QAP outlined in Caltrans manual, Section 2.3 QAP Requirements for projects on the SHS:

QAP Documents

These QAP documents are to be used:

- The California Department of Transportation (Caltrans) Construction Manual
- The Caltrans Independent Assurance (IA) Manual
- Construction Manual Supplement for Local Agency RE's per LAPM chapter 16.
- Local Assistance Structure Representations Guidelines per LAPM chapter 16.

The Caltrans Construction Manual provides the frequency of acceptance testing and outlines the acceptance testing program. The Caltrans IA Manual details the Caltrans Independent Assurance Program to be followed that has been approved by FHWA.

These manuals are available at the following websites:

http://www.dot.ca.gov/hq/construc/manual2001/chapter6/chp6_1.pdf

<http://www.dot.ca.gov/hq/esc/Translab/IAPMasterList/2005%20IA%20Manual.pdf>

Plans and Specifications

Caltrans and local agency projects on the SHS are required to use Caltrans approved plans specifications.

Test Methods

On Caltrans (CT) and local agency projects on the SHS, CT methods are required to be followed. All CT methods are available at the following website:

<http://www.dot.ca.gov/hq/esc/ctms/index.html>

2. **DEFINITION OF TERMS**

Quality Assurance Program (QAP): A sampling, testing and inspection program to provide assurance that the materials and workmanship incorporated into the project conform to the contract specifications.

The main elements of a QAP are the Material Acceptance Program and the Independent Assurance Sampling and Testing Program.

Material Acceptance Program: Sampling, testing, inspection, and certification of project materials to determine compliance with the contract specifications. Materials shall be accepted by one or more of the following methods, as allowed for in this document and the contract specifications: Acceptance Testing, Manufacturer's Certificate of Compliance, Source Inspection, or field inspection.

Acceptance Testing (AT): Testing of project materials to determine compliance with the contract specification criteria.

Certificate of Compliance: A signed document from the materials manufacturer committing that the delivered goods meet the contract specifications.

Source Inspection: Sampling, testing and/or inspection of manufactured or prefabricated structural materials at a location other than the job site, generally at the manufactured location.

Independent Assurance Program (IAP): A program that verifies that AT is being performed correctly by certified testers using qualified laboratories and calibrated equipment.

3. **MATERIALS ACCEPTANCE PROGRAM**

Material incorporated into the work shall be accepted by one or more of the following methods, as specified in the contract specifications and this document:

1. Field Sampling and Acceptance Testing
2. Source Inspection and Testing
3. Manufacturer's Certificate of Compliance (with attachments if required)
4. Visual Inspection (for minor quantities)

FIELD SAMPLING AND ACCEPTANCE TESTING:

General:

- Acceptance sampling and testing shall be performed by certified materials testing personnel.
- Acceptance testing will be performed utilizing accredited materials testing laboratories and properly calibrated equipment.
- Certifications and accreditations shall be specific to the tests being performed.
- A materials testing results log shall be maintained for all test methods performed on a project.
- Test results for materials incorporated into the work shall be in compliance with the contract specifications.
- Actions taken regarding material with failing test results shall be fully documented, including details documenting remove/replace, rework/re-test, and deduction/CCO.
- Justification shall be provided for any failing material allowed to remain in place.

Sampling and Testing Locations and Frequencies:

- Sample and testing locations and frequencies shall be in accordance with the contract specifications.
- If not specified in the contract documents, sampling and testing locations and frequencies shall be as shown in Attachment No. 1, *Acceptance Sampling and Testing Frequencies*.
- When sampling products such as Portland cement concrete, cement-treated base, hot mix asphalt, or similar materials: sampling shall be varied with respect to the time of the day, insofar as possible, in order to *avoid a predictable sampling routine*.

Acceptance Test Methods:

- The test methods used shall be as specified in the contract documents.
- For a material specified to comply with a property shown in the following table, the Agency tests under the corresponding test (or an equivalent):

Test Property	Test
Relative compaction	CT 216 or CT 231 or CT 375
Sand equivalent	CT 217
Resistance (R-value)	CT 301
Grading (sieve analysis)	CT 202
Durability index	CT 229
Cleanness Value	CT 227

Test Methods equivalents to the test listed above require written approval.

Acceptance Testing Laboratory:

- Acceptance testing shall be performed as applicable by one or more of the following:
 - a) Consultant Materials Testing Laboratory
 - b) Other as specified and authorized by City of Salinas – Public Works Department
- The materials laboratory shall be under the responsible management of a California Registered Engineer with experience in sampling, inspection, and testing of construction materials.
- The Engineer shall certify the results of all tests performed by laboratory personnel under the Engineer’s supervision.
- The Laboratory shall be properly accredited.
- The Laboratory testing personnel shall be appropriately certified.
- Testing equipment shall be properly calibrated.
- Laboratories shall comply with Section IV, Independent Assurance Program, of this document.

Reporting Acceptance Test Results:

- Test results shall be reported to the RE as soon as possible by email.
- Copies of complete material test result reports, including data and calculation sheets, shall be provided to the RE in accordance with the following timetable:

Timetable for Providing Full Test Results to the RE		
<i>If the material is sampled:</i>	<i>and the test performed is:</i>	<i>submit results to the RE within:</i>
at the material plant	Sieve Analysis, or Sand Equivalent (SE), or Cleanness Value (CV)	24 hours
at the job site	Compaction and/or maximum density	24 hours
	Sieve Analysis, or Sand Equivalent (SE), or Cleanness Value (CV)	72 hours
	R value, or	96 hours
	Asphalt extraction	

Acceptance Testing Summary Logs

- The RE shall maintain a testing summary log for each test method performed on the project (CT 217, CT 202 etc...), and for each salient feature (structure backfill, subgrade, etc...).
- Attachment 2, Test Result Summary Log shall be used.

Test Result Summary Log shall include, at minimum the following:

- Name and ID Number of the Test Method Performed
- Date Tested
- Name of Tester
- Location
- Approximate Quantity of Material Represented by the Test
- Required Passing Result
- Actual Test Result
- Resolution of any Failing Results
- The RE shall use the log to track that:
 - Sampling is performed at the required frequencies;
 - Acceptance tests are performed at the required frequencies;
 - Tester certifications are current and on file; and
 - All failing tests have been mitigated and documented.

MANUFACTURER’S CERTIFICATES OF COMPLIANCE:

General:

- Various manufactured materials may be accepted for incorporation into the work without sampling or testing, on the basis of a certificate from the manufacturer.
- Where required by the contract specifications and QAP, the contractor shall submit a certificate of compliance.

- Where required by the contract, the contractor shall attach test data or other documents to the certificate of compliance.
- The RE may perform sampling and testing on such materials at any time.

Materials Accepted by Certificate of Compliance

A Certificate of Compliance will also be accepted in lieu of sampling and testing for the following materials, regardless of the quantity of material used on a project.

Materials/ Product
Asphalt
Asphaltic Emulsion
Asbestos Cement Pipe
Asbestos sheet packing
Asphalt modifier
Asphalt rubber joint sealant
Backer rods
Barbed wire
Blast cleaning material
Bonding Agent for repairing spalled surfaces
Bonding material
Brick
Cable-type restrainers/lock nuts
Cast Iron Pipe
Cast iron manhole rings and covers
Chemical adhesive for bonding tie bars and dowels in concrete pavement
Chemical adhesive for structures
Concrete admixtures and Curing compounds
Concrete Cementitious Material
Concrete- Minor Concrete
Ceramic Tile
Chain Link Fence and Railing
Concrete Anchorage Devices
Concrete Pipe Circular Reinforced Direct Design Method
Copper Pipe
Corrugated Metal Pipe
Crack Sealant
Crash Cushion

Materials/ Product
Joint Filler Material
Joint Seals (Type A and AL)
Joint Seal (Type B)
Joint Seal- Alternate Joint Seal Assemblies
Lime
Machine Spiral Wound PVC Pipeliners
Markers
Masonry Block
Micro Surfacing Emulsion
Mulch
Open Steel Flooring and Grating
Overside Drains
Parking Area Seal Material
Pavement Markers
Pavement Marking - Paint or Thermoplastic
Plastic Lumbar
Plastic Traffic Drums
Plastic Pipe for Drainage
Precast Concrete – Cementitious Material Used in Precast Concrete Products
Precast Concrete- Box Culverts
Precast Raised Traffic Bars
Preformed Compression Seal for Concrete Pavement
Preformed Membrane Sheet
Rapid Strength Concrete
Reinforcement
Reinforcement – Epoxy Coated and Epoxy Coated Prefab Reinforcement.
Reinforcement–Epoxy-Coating Patching Materials
Reinforcement – Headed Bar

Materials/ Product	Materials/ Product
Crumb Rubber Modifier	Reinforcement – Splice Material
Culvert Markers	Sheet Metal
Delineators	Sign Panels
Dowel Bar Cages	Silicone Joint Sealant
Drop Intel Grates and Frames	Slotted Edge Drain
Drain Tile	Soil Amendment
Drip Irrigation Line	Steel Crib Wall
Elastomeric Bearing Pads – Plain & Steel Reinforced	Steel Pipe Piles
Electrical Battery Backup System	Structural Plate Culverts
Electrical – Conductor	Structural Shape Steel Piles
Electrical – Conduit (Galvanized and Plastic)	Structural Sheet Piles
Electrical – Equipment	Structural Composite Lumber Used in Falsework
Electrical – Pull Boxes (Concrete and Plastic)	Structural Steel Thermal Spray Coat- Wire Feed Stock
Electrical – Service Cabinets	Styrofoam Filler
Epoxy	Subsurface Drain
Epoxy Powder Coating for Dowel Bars at Tie Bars	Temporary Fence (ESA)
Erosion Control	Thermoplastic
Expansion Joint Filler	Tie Bars/Tie Bar Baskets
Fiberglass Pipe	Timber Products (Treats/Untreated)
Filler Material for Repairing Spalled Surface Areas	Threaded Tie Bar Splice Couplers
Gabions	Turf Sod
Geocomposite Drain	Underdrains
Geosynthetics	Waterproofing Fabric
Glass Beads	Waterstop
Glue Laminated Timbers and Decking	Welded Wire Fabrics
Guide Markers	Wire Mesh Fencing
Irrigation Hose and Pipe	

Certificates of compliance shall conform to the requirements of the contract specifications, and shall include the following information:

- Be submitted by the Contractor before the material is incorporated into the work;
- Accompany the material to the job site.
- Identify the lot (or heat) number for each lot delivered;
- Include the contract number/project number;
- Include test data and other documents when required.
- State that the material complies with the contract specifications; and
- Be signed by the producer/manufacturer of the material.

List of Materials Accepted by Certificate of Compliance:

- This agency uses the Caltrans 2018, Caltrans 2015, and 2008 City of Salinas Standard Specifications.
- In accordance with the Caltrans 2018, Caltrans 2015, and 2008 City of Salinas Standard Specifications the materials listed above may be accepted by Certificate of Compliance.
- This list may be supplemented or amended by the contract Special Provisions or Technical Provisions.
- For projects on the SHS and projects that include grant funding, this agency uses the Caltrans latest specifications, Caltrans QAP Manual, and 2008 City of Salinas Standard Specifications.

SOURCE INSPECTION AND TESTING:

- Some manufactured or pre-fabricated structural materials will be inspected or tested prior to arrival at the jobsite, generally at the manufacturer’s location (a.k.a. source inspected.)
- Structural items categorized as “catastrophic consequences of failure” or “significant safety concern” may be source inspected. Materials that might be source inspected include: structural steel, precast pre-stressed concrete girders and pilings; RCP greater than 60”, joint seals, bearing pads, lighting and signal poles, sign structures, electrical items.
- The RE may reject source inspected material at the job site if deemed not acceptable, including:
 - Material damage in shipment or installation;
 - Defective material (source inspection is usually a random sampling and may not have checked 100% of the material.)
- One or more of the following materials laboratories will be used to perform source inspection and testing:
 - a. Consultant Materials Testing Laboratory
 - b. Other as specified and authorized by City of Salinas – Public Works Department

ACCEPTANCE OF MINOR QUANTITIES WITHOUT TESTING (VISUAL INSPECTION):

General:

- Relative minor quantities of construction materials may be accepted without testing.
- The following 3 conditions must be met:
 1. Visual examination of the material is performed.
 2. The manufacturer or supplier has recently furnished similar materials found to be satisfactory using normal sampling and testing requirements.
 3. The manufacturer (or supplier in the case of HMA or concrete) provides certification that the material furnished complies with the contract specifications.

Approximate quantities that may be accepted by visual inspection:

- Aggregates other than for use in Portland Cement Concrete, not to exceed:
 - 100 tons per day, nor
 - 500 tons per project
- Bituminous mixtures (example: HMA), not to exceed:

- 50 tons per day, nor
- If project total is less than 500 tons, sample at engineer's discretion
- Bituminous material (example: Liquid Asphalt), not to exceed:
 - 100 gallons per project

4. INDEPENDENT ASSURANCE (IA) PROGRAM

General:

- The IA program shall verify that:
 - Sampling and testing procedures are being performed correctly
 - All AT performed on the project uses a *qualified laboratory and certified testing personnel*.
 - All testing equipment is in good condition and properly *calibrated*.
- A complete review of AT shall be performed by IA program personnel, or an independent materials laboratory chosen by the agency, when unresolved discrepancies related to poor correlation between acceptance tester's results and other test results occur.
- The IA program duties, including certification of testers and qualification of lab, shall be executed by:
 - a) Local Agency designated IA person (Assigned by City Engineer)
 - b) Caltrans (for CT test methods only)
 - c) Consultant (this consultant shall be different from AT consultant)
- IA shall be performed on every type of materials test required for the project.
- IA samples and tests shall not be used for determining compliance with contract requirements.

Laboratory Qualifications:

- The AT materials laboratory shall participate and comply with one or more of the following Correlation Testing Programs:
 - a. AASHTO Materials Reference Laboratory (AMRL)
 - b. Cement and Concrete Reference Laboratory (CCRL)
 - c. Caltrans' Reference Samples Program (RSP)
- The AT Laboratory qualification shall occur annually.
- A copy of the current laboratory qualification shall be kept in the project records.

Tester Certification:

- Sampling and testing personnel shall be certified for a maximum of two years by one or more of the following Personnel Certification Programs:
 - CT Materials Engineer and/or CT METS IA Representative (for CT tests only)
 - American Concrete Institute
 - National Institute of Certification of Engineering Technologies
 - Other nationally recognized organization
 - This agencies designated and qualified IA person (IA person may not perform AT)
 - A consultant lab qualified for such purposes.

- Proficiency tests shall be performed for testers to be certified on Sieve Analysis, Sand Equivalent, and Cleanness Value tests. All other types shall be witness tests.
- A copy of each tester's current and applicable certifications shall be kept in the project files.

Equipment Certifications/Calibration:

- Laboratory testing equipment shall be:
 - Capable of performing the tests required.
 - Be in good working order.
 - Be calibrated at least once each year.
 - Be calibrated by impartial means using devices of accuracy traceable to the **National Institute of Standards and Technology**.
 - Have a *decal* firmly affixed to each piece of equipment showing the date of the last calibration.

5. RESIDENT ENGINEER'S CERTIFICATION OF PROJECT MATERIALS:

- The RE shall complete and sign LAPM Exhibit 17-G, "Materials Certificate" of the Local Assistance Procedures Manual (LAPM), upon completion of a federal-aid project,
- The form shall explain and justify all materials incorporated into the work which did not conform to specifications, including changes by virtue of contract change orders.
- The form shall be filed in the project records.
- The form shall be included in the Report of Expenditures submitted to the Caltrans District Local Assistance Engineer.

6. PROJECT QAP RECORDS:

Project construction files shall be organized and indexed, and will include the following items:

1. Copy of Quality Assurance Program
2. Independent Assurance
 - a) Certs. Of Proficiency – Testers and Samplers (Exhibit 16-D TL-011)
 - b) Cert. of Accreditation of Testing Lab (TL-0113)
 - c) Equipment Calibration Verifications (Nuclear Gauge, etc...)
3. Notice of Materials to be Used (Ex. 16-I)
4. Acceptance Testing Results and Initial Tests
 - a) Summary Log of Acceptance Testing
 - b) Test Results/Reports
5. Certificates of Compliance
6. Buy America Certifications
7. Records of Source Inspection of structural pre-manufactured material (collect inspection tags)
8. Materials Certification (Ex. 17-G)

The project records shall be available in a single location for inspection by auditors and reviewed at any time during the project and up to three years following the end of final project voucher.

ATTACHMENTS

ATTACHMENT NO. 1: Acceptance Sampling and Testing Frequencies
ATTACHMENT NO. 2: Acceptance Test Results Summary Log

Sampling and Testing Frequency Table for projects OFF the SHS.

HVEEM HOT MIX ASPHALT (HMA) (2010 and Earlier Caltrans Standard Specifications)

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Aggregate Gradation (Sieve)	CT 202	At production startup and every 10,000 tons thereafter	At Plant Per CT 125 (a)
Sand Equivalent	CT 217		
Percent Crushed Particles (1 and 2 faces for coarse aggregate and 1 face for fine aggregate)	CT 205		
L.A. Rattler (100 and 500 revolutions)	CT 211		
Fine Aggregate Angularity	CT 234		
Flat and Elongated Particles (5:1)	CT 235		
In-Place Density and Relative Compaction (e)	Nuclear (b) CT 375 (c)	1 per 750 Tons or part thereof; Minimum 1 per street per day. (b)	Random Locations Per CT 375
Theoretical Maximum Specific Gravity and Density (Rice)	CT 309	2 samples per mix design material per day / test 1 sample per mix design material per day and hold the other to be tested at the discretion of the Engineer	Loose Mix Behind Paver Per CT 125 (a)
Stabilometer Value (d)	CT 366		
Air Voids Content (d)	CT 367		
Asphalt Content	CT 382	At production startup and every 10,000 tons thereafter	Loose Mix Behind Paver Per CT 125 (a)
Voids in Mineral Aggregate	CT 367		
Voids Filled with Asphalt	CT 367		
Dust Proportion	CT 367		
Tensile Strength Ratio	CT 371		
Asphalt Binder	Section 92 of the Caltrans Standard Specifications	1 sample per day / hold and test at the discretion of the Engineer	At Plant Per CT 125
Smoothness	12-foot Straightedge	As necessary to confirm contract compliance.	Final Pavement Surface

- (a) Exact tonnage of sample location to be determined by Random Sampling Plans
- (b) Compaction determined by Nuclear Density Device. Core testing required if compaction fails the nuclear test
- (c) Correlation between core densities and nuclear device required only if compaction fails the nuclear test
- (d) Report the average of 3 tested briquettes from a single split source
- (e) Use CT 309 to determine maximum theoretical density in lieu of CT 308 or CT 367 calculated maximum theoretical density.

Sampling and Testing Frequency Table

for projects OFF the SHS.

SUPERPAVE HOT MIX ASPHALT (HMA) (2015 and Later Caltrans Standard Specifications)

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Aggregate Gradation (Sieve)	AASHTO T 27	At production startup and every 10,000 tons thereafter	At Plant Per CT 125 (a)
Sand Equivalent	AASHTO T 176		
Percent Crushed Particles (1 and 2 faces for coarse aggregate and 1 face for fine aggregate)	AASHTO T 335		
L.A. Rattler (100 and 500 revolutions)	AASHTO T 96		
Fine Aggregate Angularity	AASHTO T 304, Method A		
Flat and Elongated Particles (5:1)	ASTM D4791		
In-Place Density and Relative Compaction (e)	Nuclear (b) ASTM D2950 (c)	1 per 750 Tons or part thereof; Minimum 1 per street per day. (b)	Random Locations Per ASTM D2950
Theoretical Maximum Specific Gravity and Density (Rice)	AASHTO T 209	2 samples per mix design material per day / test 1 sample per mix design material per day and hold the other to be tested at the discretion of the Engineer	Loose Mix Behind Paver Per CT 125 (a)
Air Voids Content (d)	AASHTO T 269		
Asphalt Content	AASHTO T 308	At production startup and every 10,000 tons thereafter	Loose Mix Behind Paver Per CT 125 (a)
Voids in Mineral Aggregate	MS-2 (g)		
Voids Filled with Asphalt	MS-2 (g)		
Dust Proportion	MS-2 (g)		
Hamburg Wheel Track	AASHTO T 324 (f)		
Asphalt Binder	Section 92 of the Caltrans Standard Specifications	1 sample per day / hold and test at the discretion of the Engineer	At Plant Per CT 125
Smoothness	12-foot Straightedge	As necessary to confirm contract compliance.	Final Pavement Surface

- (a) Exact tonnage of sample location to be determined by Random Sampling Plans
- (b) Compaction determined by Nuclear Density Device. Core testing required if compaction fails the nuclear test
- (c) Correlation between core densities and nuclear device required only if compaction fails the nuclear test
- (d) Report the average of 3 tested briquettes from a dingle split source
- (e) Use CT 309 to determine maximum theoretical density in lieu of CT 308 or CT 367 calculated maximum theoretical density.
- (f) As modified in the Caltrans Standard Specifications
- (g) MS-2 Asphalt Design Methods, 7th Edition, Asphalt Institute, February 2015.

Sampling and Testing Frequency Table

for projects OFF the SHS.

PORTLAND CEMENT CONCRETE (PCC) – STRUCTURAL AND SIGNAL/LIGHTING FOUNDATIONS

COARSE AGGREGATE *(Note, aggregates are tested and wet mix is tested)*

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Sieve Analysis	CT 202	1 min. test per 500 cubic yards and per each material source; 1 min. test per project; If bridge, 1 min. set per separate pour per abutment/pier/deck	Sample from site stockpile/plant prior to placement
Cleanness Value	CT 227		

FINE AGGREGATE

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Sieve Analysis	CT 202	1 min. test per 500 cubic yards and per each material source; 1 min. test per project; If bridge, 1 min. set per separate pour per abutment/pier/deck	Sample from site stockpile/plant prior to placement
Sand Equivalent	CT 217		

WET MIX

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Slump/Penetration	ASTM C143 or CT 533	1 per truck	Sample from truck/work site
Cylinders	CT 539 and CT 540	1 min. set of 3 per day (1- 7 day, 1- 14 day, and 1- 28 day); If bridge, 1 min. set per separate pour of abutment/pier/deck	

Sampling and Testing Frequency Table

for projects OFF the SHS.

SUBGRADE (DISTURBED BASEMENT SOIL) OR EMBANKMENT

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Maximum Density and Relative Compaction	CT 216 and CT 231	1 min. test per 5,000 sq ft under vehicle traveled way and shoulder	At site of in-place density test hole

AGGREGATE BASES AND SUBBASES, IMPORTED BORROW

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Sieve Analysis	CT 202	1 min. test per material source	Sample from site stockpile/plant prior to placement
R-Value	CT 301		
Sand Equivalent	CT 217		
Maximum Density and Relative Compaction	CT 216 and CT 231	1 min. test per 5,000 sq ft	At site of in-place density test hole

STRUCTURAL BACKFILL, SELECT BACKFILL

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Sieve Analysis	CT 202	1 min. test per material source	Sample from site stockpile/plant prior to placement
R-Value	CT 301		
Sand Equivalent	CT 217		
Maximum Density and Relative Compaction	CT 216 and CT 231	1 min. test per 5,000 sq ft	At site of in-place density test hole

Material Acceptance Sampling and Testing Requirements: Seal Coats

Test	Test Method	Sample Size & Container Size	Sampling Location	Acceptance and Test Frequency	Remarks
POLYMER MODIFIED ASPHALTIC EMULSION					
Viscosity	AASHTO T 59	1-qt widemouth plastic jar with screw-on lid	Transport tanker	Once per Shipment /Hold for testing at the discretion of the Engineer	Certificate of compliance required with each shipment
Sieve Test	AASHTO T 59				
Demulsibility	AASHTO T 59				
Coating	AASHTO T 59				
Residue by Distillation	AASHTO T 59				
Torsional Recovery	California Test 332				
Penetration	AASHTO T 49				
Ring and Ball	AASHTO T 53				
SLURRY SEAL / CHIP SEAL AGGREGATE					
Los Angeles Rattler (loss at 500 revolutions)	California Test 211	50 lb	Stockpile	Once per project	
Percentage of Crushed Particles	California Test 205				
Film Stripping	California Test 302				
Durability Index	California Test 229				
Sieve Analysis	California Test 202, California Test 105	30 lb	Stockpile	biweekly	
Sand Equivalent (Slurry Seal Only)	California Test 217				
Cleanness Value (Chip Seal Only)	California Test 227				
CRACK TREATMENTS					
Softening point	ASTM D36	2 each 3-lb minimum samples in silicone release boxes	From crack treatment material dispensing wand	Once per Shipment /Hold for testing at the discretion of the Engineer	Certificate of compliance required with each shipment
Cone penetration	ASTM D5329				
Resilience					
Tensile adhesion					
Asphalt compatibility					
Flexibility	ASTM D3111				
Specific gravity	ASTM D70				
Sieve test	See note in Section 37-6.01D(3) "Department Acceptance" of the Standard Specifications				
SAND FOR CRACK TREATMENT					
Sieve Analysis	California Test 202	25 lb	Stockpile	At the discretion of the Engineer	


Exhibit 16-Z2 Acceptance Testing Results Summary Log

Test Method Name: _____

Test Method Number: _____

Project Name: _____

Contract Number: _____

Test Number	Date Sampled	Name of Sampler or Tester		Production		Test Results			Remarks
				Location (Stations, depths, etc)	Production Quantity Represented	Required Result	Actual Result	Pass/Fail	
		Tester Certification on file?							Include action taken for any failing test result; note test number of any retest.
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
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