

Quality Assurance Program (QAP)



County of Tulare Public Works Department 2025

- This QAP shall be *updated* every **five years** (minimum)
- This QAP shall be updated if changes are made such to the test methods or to the testing sampling and frequencies.
- This QAP is incomplete without the Attachments 1 through 5.

Approved By:

Reed Schenke, Director

Date:

1/21/25

CE # and Expiration Date:

C 73642 exp 12/31/26

Quality Assurance Program (QAP)

Agency: County of Tulare

This Quality assurance Program (QAP) is a sampling and testing program designed to provide assurance that the materials and workmanship incorporated into Local Agency, Federal-aid projects off the National Highway System (NHS).

The guidelines of the QAP include items addressed as follows:

- ❖ Definition of Terms
- ❖ Materials Laboratory
- ❖ Acceptance Testing (AT)
- ❖ Independent Assurance Program (IAP)
- ❖ Reporting Acceptance Testing Results
- ❖ Testing of Manufactured Materials
- ❖ Testing by Private Laboratories
- ❖ Project Certification
- ❖ Records
- ❖ Procedure for Dispute Resolution
- ❖ Attachments 1 through 5

Definition of Terms

- Quality Assurance Program (QAP) – A sampling and testing program that will provide assurance that the materials and workmanship incorporated into the construction project are in conformance with the contract specifications. The main elements of the QAP are the AT, and the IAP.
- Acceptance Testing (AT) – Sampling and testing, or inspection, to determine the degree of compliance with contract requirements.
- Independent Assurance Program (IAP) – Verification that AT is being performed correctly by qualified testers and laboratories.
- 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.
- Certificate of Compliance – A signed document from the materials manufacturer committing that the delivered goods meet the contract specifications.

Materials Laboratory

Tulare County will use their own materials laboratory or a private consultant materials laboratory to perform AT on Federal-Aid and other designated projects. 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 personally under the Engineers supervision. The materials laboratory shall contain certified test equipment capable of performing the tests conforming to the provisions of this QAP.

The materials laboratory used shall provide documentation that the laboratory complies with the following procedures.

1. Correlation Testing Program

The testing laboratory shall be a participant in one or more of the following testing programs:

- a. ASSHTO Materials Reference Laboratory (AMRL)
- b. Cement Concrete Reference Laboratory (CCRL)
- c. Caltrans Reference Sample Program (RSP)

2. Certification of Personnel

The materials laboratory shall employ personnel who are certified by one or more of the following:

- a. Caltrans Independent Assurance Program, Local Agency Independent Assurance and the Joint Training and Certificate Program (JTCP).
- b. Nationally recognized non-Caltrans organizations such as the American Concrete Institute, Asphalt, National Institute for Certification in Engineering Technologies (NICET), etc.
- c. Other recognized organizations approved by the State of California and/or Recognized by local governments or private associations.

3. Laboratory Testing Equipment

The materials laboratory shall use laboratory and testing equipment that is in good working order. All such equipment shall be calibrated at least once each year. All testing equipment must be calibrated by impartial means using devices traceable to the National Institute of Standards Technology (NIST). A decal shall be firmly affixed to each piece of equipment showing the date of last calibration. All testing equipment calibration decals shall be checked as part of the IAP.

Acceptance Testing (AT)

AT will be performed by a materials laboratory certified to perform the required tests. The tests results will be used to ensure that all materials incorporated into the project are in compliance with the contract specifications. Materials entering a construction project shall be tested to verify, that the materials or products comply with the contract specifications and/or standards. The results from these tests shall be used to determine the quality and acceptability of materials and workmanship incorporated into the project.

Tulare County prescribes to this QAP, Caltrans Testing Procedures, Specifications, Construction Manual, Local Assistance Procedures Manual, ASTM Test Manuals, AASHTO Test Manuals and Tulare County Improvement Standards. Unless specified otherwise in the Special Provisions, these references establish criteria for sampling, frequency and testing of materials. Testing methods will be in accordance with the CT Methods or a national recognized standard (i.e., AASHTO, ASTM, etc.) as specified in the contract specifications.

Sample locations and frequencies may be in accordance with the contract specifications. If not so specified in the contract specifications, samples shall be taken at the locations and frequencies as shown in Attachment #1 (“Acceptance Sampling and Testing Frequencies”)

Samples will be logged in a testing results summary log per Exhibit 16-Z2 or similar form (Attachment #2 “Acceptance Testing Results Summary Log”)

Independent Assurance Program (IAP)

IAP shall be provided by personal from Caltrans, the Tulare County certified materials laboratory, or consultant’s certified materials laboratory. IAP will be used to verify that sampling and testing procedures are being performed properly and that all testing equipment is good condition and properly calibrated.

IAP personnel shall be certified in all required testing procedures, as part of IAP, and shall not be involved in any aspect of AT.

IAP shall be performed on every type of materials test required for the project. Proficiency tests shall be performed on Sieve Analysis, Sand Equivalent, and Cleanness Value tests. All other types of IAP shall be witness tests.

Poor correlation between acceptance tester’s results and other test results may indicate probable deficiencies with the acceptance sampling and testing procedures. In cases of unresolved discrepancies, a complete review of AT shall be performed by IAP personnel, or an independent materials laboratory chosen by Tulare County. IAP samples and tests are not to be used for determining compliance with contract requirements. Compliance with contract requirements is determined only by AT.

Reporting Acceptance Testing Results

The following are time periods for reporting materials test results to the Resident Engineer:

- When the aggregate is sampled at material plants, tests results for Sieve Analysis, Sand Equivalent, and Cleanness Value should be submitted to the Resident Engineer within 24 hours after sampling.
- When materials are sampled at the job site, test results for compaction and maximum density should be submitted to the Resident Engineer within 24 hours after sampling.
- When soils and aggregates are sampled at the job site:
 - (1) Test results for Sieve Analysis, Sand Equivalent, and Cleanness Value should be submitted to the Resident Engineer within 72 hours after sampling.
 - (2) Test results for “R” Value and Asphalt Concrete extraction should be submitted to the Resident Engineer within 96 hours after sampling.

When sampling products such as Portland Cement Concrete (PCC), cement-treated base (CTB), hot mix asphalt (HMA), and other such materials; the time of such sampling shall be varied with respect to the time of day insofar as possible, in order to avoid a predictable sampling routine. The reporting of AT results, if not reported by the Resident Engineer’s staff, shall be done on an expedited basis such as by email, fax, or telephone.

Testing of Manufactured Materials

During the Design phase of the project, the Project Engineer may submit a “Source Inspection Request” see Attachment #2 (Exhibit 16-V of the Local Assistance Procedures Manual) to Tulare County, consultant, or Caltrans for inspection and testing of manufactured and prefabricated materials by their materials laboratory. A list of materials that can be typically accepted on the basis of certificates of compliance during construction is found in Attachment #3 (“Construction Materials Accepted by a Certificate of Compliance”). All certificates of compliance shall conform to the requirements of the contract specifications, for examples see Attachment #4 (“Example of a Vendor’s Certificate of Compliance”).

Testing by Private Laboratory

Any test procedures that the County’s Materials And Testing Laboratory is not certified to perform shall be contracted out to a private laboratory that is qualified by Caltrans or another professional organization (i.e., AASHTO, Asphalt Institute, American Concrete Institute, National Institute of Certification of Engineering Technologies, etc.) and has written policies and procedures conforming to the Tulare County QAP Manuel and are certified to perform the particular test or tests.

Project Certification

Upon completion of a Federal-aid project, a "Materials Certificate" shall be completed by the Resident Engineer. Tulare County shall include a "Materials Certificate" in the Report of Expenditures submitted to Caltrans District Director, Attention: District Local Assistance Engineer. A copy of the "Materials Certificate" shall also be included in the Tulare County Construction records. The Resident Engineer in charge of the construction function for the Tulare County shall sign the certificate. All materials incorporated into the work which did not conform to specifications must be explained and justified on the "Materials Certificate", including changes by virtue of contract change orders. See Attachment #5 for an example ("Examples of Materials Certificates/Exceptions").

Records

All materials records of samples and tests, material releases and certificates of compliance for construction project shall be incorporated into the Resident Engineer's project file. If a Federal-aid project:

- The files shall be organized per the Tulare County filing structure.
- It is recommended that the complete project file be available at a single location for inspection by Caltrans and the Federal Highway Administration (FHWA) personnel.
- The project files shall be available for at least three years following the date of final project reimbursement or through the period of litigation, whichever is lesser.

When two or more projects are being furnished identical materials simultaneously from the same plant, it is not necessary to take separate samples or perform separate tests for each project; however, copies of the tests reports are to be provided for each of the projects to complete the records.

Procedure for Dispute Resolution

If the contactor or member of a private laboratory has a dispute with the Tulare County involving a quality assurance item, a manager from Tulare County shall be selected to review the dispute. The Resident Engineer and/ or IA person and the party in dispute will submit his/her substantiating paperwork to the management person, within 10 days after requested to do so. In some cases one or more meetings may be needed to resolve disputes. Within a 30 day period, Tulare County management person should try to resolve the dispute, based on the evidence presented. Appeals by the contractor, Resident Engineer, the IA person, or acceptance sampler or tester may be made after the final decision by the local agency management person. The person making the appeal should be directed to contact the District Local Assistance Engineer no more than 14 days after receiving written notice of the final decision by the local agency management person.

Attachments:

1. Acceptance Sampling and Testing Frequency Tables
2. Acceptance Testing Results Summary Logs
3. Exhibit 16-V of the Local Assistance Procedures Manual
4. Construction Materials Accepted by a Certificate of Compliance
5. Example of a Vendor's Certificate of Compliance
6. Examples of Materials Certificates/Exceptions

Attachment #1

Acceptance Sampling and Testing Frequency Tables

**Materials Acceptance Sampling and Testing Requirements:
Earthwork (Standard Specifications Section 19) (1 of 2)**

Test	Test Method	Sample Size & Container Size	Sampling Location (See Note 1)	Acceptance Test Frequency	Remarks
STRUCTURE BACKFILL (Section 19-3.02B)					
Sieve Analysis	California Test 202	50 lb.	Materials Site or Stockpile	1 Every 3000 tons or 2000 cu yd.; see Remarks	If material is uniform and well within specification limits, frequency may be decreased to 1 per Project
Sand Equivalent	California Test 217		Material Site or Stockpile		
Relative Compaction	California Test 231	35 lb.	Project Site in accordance with California Test 231	1 Every 2000 sq. yd. and test compaction at every 12 in. of placed material, see Remarks	ASTM D6938 & D1557 may be used if material uniformity is consistent.
Maximum Wet Density	California Test 216	35 lb.	Relative Compaction Test Site Locations	1 Every Relative Compaction Test, see Remarks	Wet Common-Composite Test maximum value may be used in accordance with California Test Method 231.
PERVIOUS BACKFILL (Section 19-3.02C)					
Sieve Analysis	California Test 202	50 lb.	Stockpile	1 Every 3000 tons or 2000 cu. yd.; see Remarks	If material is uniform and well within specification limits, frequency may be decreased to 1 per Project
BASEMENT MATERIAL (Section 19-5)					
R-Value	California Test 301	50 lb.	Project Site	Test to verify R-Value if differing site conditions are encountered, see Remarks	R-value used in project designs are usually conservative and do not need to be field verified; when testing done for R-Value in the materials report are incomplete because of preproject conditions then additional R-Value testing should be requested to verify design R-Value
Relative Compaction	California Test 231	35 lb.	California Test 216	1 Every 2000 sq. yd.	ASTM D6938 & D1557 may be used if material uniformity is consistent.
Maximum Wet Density	California Test 216	35 lb.	Relative Compaction Test Site Locations	1 Every Relative Compaction Test	Wet Common-Composite Test maximum Value may be used in accordance with California Test Method 231.

Note:

1. See California Test 125 for sampling procedures.
2. Frequency may be reduced to 1 per project if under 500 cu yds.

**Materials Acceptance Sampling and Testing Requirements:
Earthwork (Standard Specifications Section 19) (2 of 2)**

Test	Test Method	Sample Size & Container Size	Sampling Location (See Note 1)	Acceptance Test Frequency	Remarks
EMBANKMENT (Section 19-6)					
Relative Compaction	California Test 231	35 lb.	Project site in Accordance with California Test 231	1 Every 2000 sq. yd. and test compaction at every 12 in. of placed material, see Remarks	ASTM D6938 & D1557 may be used if material uniformity is consistent.
Maximum Wet Density	California Test 216	35 lb.	Relative Compaction Test Site Locations	1 Every Relative Compaction Test, see Remarks	Wet Common-Composite Test Maximum Value may be used in accordance with California Test Method 231.
BORROW (Section 19-7)					
R-Value	California Test 301	50 lb.	Import Borrow Source	1 Per Source, see Remarks	Test for R-Value only when an R- value is specified for import borrow in the special provisions; if material at import borrow source is not uniform, increase testing frequency
SHOULDER BACKING (Section 19-9)					
Durability	California Test 229		Materials Site or Stockpile		If Aggregate Import Source 1 per project
Sieve Analysis	California Test 202	50 lb.	Materials Site or Stockpile	1 Every 3000 tons or 2000 cu yd., see Remarks	If material is uniform and well within specification limits frequency may be decreased to 1 per day
Sand Equivalent	California Test 217				

Note:

1. See California Test 125 for sampling procedures.
2. Frequency may be reduced to 1 per project if under 500 cu yds.

**Materials Acceptance Sampling and Testing Requirements:
Aggregate Subbase (Standard Specifications Section 25) (1 of 1)**

Test	Test Method	Sample Size & Container Size	Sampling Location (See Note 1)	Acceptance Test Frequency	Remarks
AGGREGATE SUBBASE					
Sieve Analysis	California Test 202	50 lb.	Windrow or Roadway Acceptance from Material Site or Stockpile	Every 2000 cu yd.: see Remarks and Note 2	If material is uniform and well within specification limits, frequency may be decreased to 1 per day
Sand Equivalent	California Test 217				
R-Value	California Test 301	50 lb.	Windrow or Roadway Acceptance from Material Site or Stockpile	Every 3000 tons or 2000 cu yd. : see Remarks	R-Value testing may be reduced to minimum 1 acceptance test per project when test records demonstrate that material from the same source, and having comparable grading and Sand Equivalent Values, meets minimum R- Value requirements. Only test when projects exceed 2000 tons.
Relative Compaction	California Test 231	35 lb.	Project site in Accordance with California Test 231	1 Every 2000 sq. yd.	ASTM D6938 & D1557 may be used if material uniformity is consistent.
Maximum Wet Density	California Test 216	35 lb.	Relative Compaction Test Site Locations	Every 2000 sq. yd.; see Remarks	Wet Common-Composite Test maximum value may be used in accordance with California Test Method 231

Notes:

1. See California Test 125 for sampling procedures.
2. Frequency may be reduced to 1 per project if under 500 cu yds.

**Materials Acceptance Sampling and Testing Requirements:
Aggregate Base (Standard Specifications Section 26) (1 of 1)**

Test	Test Method	Sample Size & Container Size	Sampling Location (See Note 1)	Acceptance Test Frequency	Remarks
AGGREGATE BASES					
Sieve Analysis	California Test 202	50 lb.	Materials Site or Stockpile	Every 2,000 cu yd.; see Remarks and Note 2	If material is uniform and well within specification limits, frequency may be decreased to 1 per day
Sand Equivalent	California Test 217				
R-Value	California Test 301	50 lb.	Materials Site or Stockpile	Every 2,000 cu yd.; see Remarks and Note 2	R-Value testing may be reduced to minimum 1 acceptance test per project when test records demonstrate that material from the same source, and having comparable grading and Sand Equivalent Values, meets minimum R-Value requirements. Only test when projects exceed 2000 tons.
Durability Index	California Test 229	50 lb.	Materials Site or Stockpile	1 per project; see Remarks	Durability test not required for Class 3 aggregate base
Moisture	California Test 226	25 lb.	Materials Site or Stockpile	2 daily when Aggregate Base is paid for by weight	
Relative Compaction	California Test 231	35 lb.	Project site in accordance with California Test 231	1 Every 2000 sq. yd.	
Maximum Wet Density	California Test 216	35 lb.	Relative Compaction Test Site Locations	Every 2000 sq. yd., see Remarks	Wet Common-Composite test maximum value may be used in accordance with California Test Method 231.

Notes:

1. See California Test 125 for sampling procedures.
2. Frequency may be reduced to 1 per project if under 500 cu yds.

**Materials Acceptance Sampling and Testing Requirements:
Seals Coats (Standard Specifications Section 37) (1 of 1)**

Test	Test Method	Sample Size & Container Size	Sampling Location (See Note 1)	Acceptance Test Frequency	Remarks
Polymer Modified Asphaltic Emulsion					
Viscosity	AASHTO T 59	1-qt round wide-mouth plastic bottle with double seal friction top lid	Transport Tanker	Each Shipment; See remarks	Certificate of compliance required with each shipment; Acceptance testing not required if certificate of compliance is received.
Sieve Test	AASHTO T 59				
Demulsibility	AASHTO T 59				
Torsional Recovery	California Test 332				
Penetration	AASHTO T 49				
Ring and Ball	AASHTO T 53				
Screenings					
% Crushed Particles	AASHTO T 335	50 lb.	Stockpile	Once Per Project	Reduce to 1 per project if less than 200 tons, per project
Sieve Analysis	California Test 202	30 lb.	Stockpile	Once Daily	
Cleanness Value	California Test 227			Once Daily	
Sand for Flush Coat					
Sieve Analysis	California Test 202	25 lb.	Stockpile	Once Per Project	
Slurry Seal Aggregate					
Durability Index	California Test 229	30 lb.	Stockpile	Once Per Project	
Sieve Analysis	California Test 202			Once Daily	
Sand Equivalent	California Test 217				

Notes:

1. See California Test 125 for sampling procedures.

Materials Acceptance Sampling and Testing Requirements:
Concrete (Standard Specifications Section 90)
Concrete Except Minor Concrete and Rapid Strength Concrete (1 of 3)

Test	Test Method	Sample Size & Container Size	Sampling Location (See Note 1)	Acceptance Test Frequency	Remarks
AGGREGATE: Coarse Aggregate					
Sieve Analysis	California Test 202	50 lb.	Production Plant	1 per 300 cy, 1 per day minimum; see Remarks	See Note 5
Cleanness Value	California Test 227	25 lb.	Production Plant		See Note 5
AGGREGATE: Fine Aggregate					
Sieve Analysis	California Test 202	50 lb.	Belt Feed	1 per 300 cy, 1 per day minimum; see Remarks	See Note 5
Sand Equivalent	California Test 217	25 lb.	Production Plant		See Note 5
AGGREGATE: Coarse & Fine Aggregate					
Sieve Analysis (combined gradation determined with fine and Coarse Aggregate Sieve Analysis)	California Test 202		NA	1 per 300 cy, 1 per day minimum; see Remarks	See Note 5
CONCRETE for Pavement and Structures					
Shrinkage	AASHTO T 160 Modified See Standard Specifications Section 90- 1.01D(3)	Set of three: 4 x 4 x 11¾ in	During Mix Design Process	Prior to production (mix is over 3600 psi)	Engineer may use contractor provided test result for acceptance; test results must be within 3 years of contract authorization date.

Notes:

1. Refer to California Test 125 for sampling procedures.
2. For initial testing, provide 100 lb. of 1-1/2 in. x 3/4 in., 75 lb. of 3/4 in. x No. 4, 75 lb. of pea gravel, and 50 lb. of sand. Use this material for California Test 202, 206, 207, 211, 213, 214, 217, 227 and 229.
3. Refer to California Test 539 for method of sampling fresh concrete.
4. More cylinders may be added at Resident Engineers request.
5. If daily production is less than 20 cu yds all testing may be waved at Resident Engineer discretion.

Materials Acceptance Sampling and Testing Requirements:
Concrete (Standard Specifications Section 90)
Concrete Except Minor Concrete and Rapid Strength Concrete (2 of 3)

Test	Test Method	Sample Size & Container Size	Sampling Location (See Note 1)	Acceptance Test Frequency	Remarks
CONCRETE Designated Compressive Strength 3600 psi or Greater					
Concrete Uniformity	CTM 556 (Slump) or CTM 533 (Kelly Ball)	See Test Method	Concrete Truck Discharge Chute; see Note 3	When compressive test specimen is fabricated and when consistency or uniformity is questionable, minimum 1 per day	See Note 5
Compressive Strength	California Test 540	1 set of 4 - 6x12 cylinders or 1 set of 5 - 4x8 cylinders	Concrete Truck Discharge Chute; see Note 3	1 set for every 300 cu yd. concrete or minimum 1 set per day; see Remarks	See Note 5
Air Content	California Test 504	See Test Method	Concrete Truck Discharge Chute; see Note 3	1 set for every 300 cu yd. concrete or minimum 1 set per day; see Remarks	Only test when air entrainment is specified
Temperature	California Test 557	See Test Method	Concrete Truck Discharge Chute; see Note 3	At beginning of pour, and when compressive test specimens are fabricated; see Remarks	When outside temperatures exceed 90 degrees, test every truck during the duration that outside temperatures remain above 90 degrees or at Resident Engineer discretion.

Notes:

1. Refer to California Test 125 for sampling procedures.
2. For initial testing, provide 100 lb. of 1-1/2 in. x 3/4 in., 75 lb. of 3/4 in. x No. 4, 75 lb. of pea gravel, and 50 lb. of sand. Use this material for California Test 202, 206, 207, 211, 213, 214, 217, 227 and 229.
3. Refer to California Test 539 for method of sampling fresh concrete.
4. More cylinders may be added at Resident Engineer's request.
5. If daily production is less than 20 cu yds all testing may be waved at Resident Engineer discretion.

Materials Acceptance Sampling and Testing Requirements:
Concrete (Standard Specifications Section 90)
Concrete Except Minor Concrete and Rapid Strength Concrete (3 of 3)

Test	Test Method	Sample Size & Container Size	Sampling Location (See Note 1)	Acceptance Test Frequency	Remarks
CONCRETE With Compressive Strength Less Than 3600 psi					
Concrete Uniformity	CTM 540 (Slump), CTM 533 (Kelly Ball)	See Test Method	Concrete Truck Discharge Chute; see Note 3	When compressive test specimen is fabricated and when consistency or uniformity is questionable, minimum 1 per day	See Note 5
Compressive Strength	California Test 540	1 set of 4 - 6x12 cylinders or 1 set of 5 - 4x8 cylinders	Concrete Truck Discharge Chute; see Note 3	1 set for every 300 cu yd. concrete or minimum 1 set per day; see Remarks	See Note 5
Air Content	California Test 504	See Test Method	Concrete Truck Discharge Chute; see Note 3	1 set for every 300 cu yd. concrete or minimum 1 set per day; see Remarks	Only test when air entrainment is specified
Temperature	California Test 557	See Test Method	Concrete Truck Discharge Chute; see Note 3	At beginning of pour, and when compressive test specimens are fabricated; see Remarks	When outside temperatures exceed 90 degrees, test every truck during the duration that outside temperatures remain above 90 degrees or at Resident engineer discretion.
CURING COMPOUND					
Curing Compound; must comply with Standard Specifications Section 90-1.03B(3)	ASTM C309	N/A	N/A	See Remarks	Must be on Authorized Materials List and Certificate of Compliance must accompany each shipment

Notes:

1. Refer to California Test 125 for sampling procedures.
2. For initial testing, provide 100 lb. of 1-1/2 in. x 3/4 in., 75 lb. of 3/4 in. x No. 4, 75 lb. of pea gravel, and 50 lb. of sand. Use this material for California Test 202, 206, 207, 211, 213, 214, 217, 227 and 229.
3. Refer to California Test 539 for method of sampling fresh concrete.
4. More cylinders may be added at Resident Engineer's request.
5. If daily production is less than 20 cu yds all testing may be waved at Resident Engineer discretion.

**Materials Acceptance Sampling and Testing Requirements:
Miscellaneous Materials (1 of 1)**

Test	Test Method	Sample Size & Container Size	Sampling Location (See Note 1)	Acceptance Test Frequency	Remarks
POST TENSIONING GROUT (Section 50-1.03B(2)(d))					
Efflux time	California Test 541 *or ASTM C939 or C939 Modified (per ASBI)*	One 6 x 12 in. cylinder mold or grout beaker	From batch immediately after mixing for prequalification, thereafter from outlet end of tendon and/or storage tank	At the start of each day's work Minimum of 2 a day or at Inspector discretion	Repeat acceptance tests whenever source of material is changed
POST TENSION CABLES (Section 50-1.01C(4) & 52-1.01C(4))					
Standard Specification for Steel Strand, Uncoated Seven-Wire for Prestressed Concrete	ASTM A 416 /A 416M	1 - 4ft minimum strand per reel or pack	Contractor ships to Lab	1 per reel or pack	See table Section 50-1.01C(5)
BEARING PAD (Section 51-3.02A)					
Tensile Strength, Ultimate Elongation	ASTM D412	1 pad	Manufacture ships to Lab	1 pad per lot	Testing should be completed prior to installation
Tear Strength	ASTM D624				
Peel Strength	CA Test 663, Pt 2				
REINFORCING STEEL (Section 52)					
Reinforcing Steel, various properties (hoops)	See Standard Specifications Section 52	2 samples, 30 in., except 40 in. for #14 & #18	Job Site	As necessary for verification if quality is questionable; see Remarks	Each shipment must be accompanied by a Certificate of Compliance
REBAR MECHANICAL COUPLER (Section 52-1.01C(4))					
Mechanical and Welded Reinforcing Steel Splices	CT 670	#9 and smaller - 4Ft #10 and larger- 6.5Ft	Contractor ships to Lab	1 per heat(bar & coupler) per size	See table Section 50-1.01C(5)

Note: It may be desirable to sample and store some materials. If warranted, testing can be performed at a later date.

**Materials Acceptance Sampling and Testing Requirements:
Hot Mix Asphalt (Standard Specifications Section 39) (1 of 4)**

Test	Test Method	Sample Size & Container Size	Sampling Location (See Note 1)	Sample Frequency	Acceptance Test Frequency	Remarks
AGGREGATE						
Gradation (Sieve Analysis) (see Note 2)	AASHTO T11,T27, CTM 202 &384	Combined two 20-lb canvas bags (see Note 3) or Batch 30 lb (proportioned per bin percentages)	HMA Plant	1 for each 750 tons, 1 per day minimum	Production start-up Evaluation. Minimum 1 per day of paving.	
Sand Equivalent	CTM 217 or AASHTO T176		HMA Plant	1 for each 750 tons, 1 per day minimum	Production start-up Evaluation. Minimum 1 per day of paving.	
Percent Crushed Particles (Coarse & Fine)	CTM 205 or AASHTO T 335		HMA Plant	1 for each 750 tons, 1 per day minimum	Production start-up evaluation, and minimum 1 random for every 25,000 tons or less of paving	Not required for Minor HMA; or during method placement
LA Rattler (100 & 500 Revs)	CTM 211 or AASHTO T 335		HMA Plant	1 for each 750 tons, 1 per day minimum	Production start-up evaluation	Not required for Minor HMA; or during method placement
Fine Aggregate Angularity	AASHTO T 304, Method A		HMA Plant	1 for each 750 tons, 1 per day minimum	Production start-up evaluation	Not required for Minor HMA; or during method placement
Flat and Elongated Particles	ASTM D4791		HMA Plant	1 for each 750 tons, 1 per day minimum	Production start-up evaluation	Not required for Minor HMA; or during method placement

Notes:

1. Refer to California Test 125 for sampling procedures.
2. When using RAP, RAS or RAP/RAS, adjust gradation by the correction factor determined under California Test 384.
3. Store three 20-lb canvas bags for dispute resolution.
4. Sampling HMA production plant is the preferred location. You may also take samples from the windrow, HMA behind the paver, or truck.
5. Sample sizes are based on split samples—one sample for acceptance testing, and one for dispute resolution. Store one-half of the boxes or cans for dispute resolution.
6. Determine percent of theoretical maximum density under California Test 375, except use AASHTO T 275 to determine in-place density of each core and AASHTO T 209, Method A to determine theoretical maximum density instead of calculating maximum density.
7. May use Inertial Profiler data and ProVAL Smoothness Assurance “Rolling Straightedge Comparison Tool” to assist in determining where to check with 12-foot straightedge.
8. Cores must be taken before traffic is released and prior to the next lift placement. Final core is to be a full depth core for total lift placement verification.

**Materials Acceptance Sampling and Testing Requirements:
Hot Mix Asphalt (Standard Specifications Section 39) (2 of 4)**

Test	Test Method	Sample Size & Container Size	Sampling Location (See Note 1)	Sample Frequency	Acceptance Test Frequency	Remarks
ASPHALT BINDER						
Various properties based on asphalt type used (see Standard Specification Section 92)	See Standard Specification Section 92	1-qt round wide-mouth can with double seal friction top lid	Asphalt feed Line connecting the plant storage tanks	1 per day of HMA production	1 random for every 5 samples	Certificate of compliance required for each shipment; if asphalt binder source is not on approved list, sample and test asphalt before use
Warm Mix Asphalt Additive						
Various properties based on additive quality	California Test 125	1-qt round wide-mouth can with double seal friction top lid	Feed Line at the plant	1 per day minimum	Production start-up evaluation; minimum 1 per day of paving	Certificate of compliance required for each shipment; if additive is not on approved list, sample and test before use
HOT MIX ASPHALT: Type A (Super Pave)						
Asphalt Binder Content	AASHTO T308 Method A, AASHTO T164	70 lb (see Note 5) 8x8x4=7 boxes, 8½x8½x4½= 6 boxes	HMA Plant (see Note 4)	1 for each 750 tons, 1 per day minimum	Production start-up evaluation; minimum 1 per day of paving	
Maximum Theoretical Density	AASHTO T209		HMA Plant (see Note 4)	1 for each 750 tons, 1 per day minimum	Production start-up evaluation; minimum 1 per day of paving	
Air Void Content	AASHTO T269		HMA Plant (see Note 4)	Production startup evaluation, 1 every 25,000 tons of paving	Production start-up evaluation, and minimum 1 random for every 25,000 tons of paving	
Voids in Mineral Aggregate	SP-2 Asphalt Mixture Volumetrics		HMA Plant (see Note 4)			
Dust Proportion	SP-2 Asphalt Mixture Volumetrics		HMA Plant (see Note 4)			
Hamburg Wheel Tracker	AASHTO T324 (Modified)		Loose mix at plant, truck, or windrow	Production startup evaluation, 1 every 10,000 tons of paving	Production start-up evaluation, and minimum 1 random for every 10,000 tons or less of paving	Not required for Minor HMA

Notes:

1. Refer to California Test 125 for sampling procedures.
2. When using RAP, RAS or RAP/RAS, adjust gradation by the correction factor determined under California Test 384.
3. Store three 20-lb canvas bags for dispute resolution.
4. Sampling HMA production plant is the preferred location. You may also take samples from the windrow, HMA behind the paver, or truck.
5. Sample sizes are based on split samples—one sample for acceptance testing, and one for dispute resolution. Store one-half of the boxes or cans for dispute resolution.
6. Determine percent of theoretical maximum density under California Test 375, except use AASHTO T 275 to determine in-place density of each core and AASHTO T 209, Method A to determine theoretical maximum density instead of calculating maximum density.
7. May use Inertial Profiler data and ProVAL Smoothness Assurance “Rolling Straightedge Comparison Tool” to assist in determining where to check with 12-foot straightedge.
8. Cores must be taken before traffic is released and prior to the next lift placement. Final core is to be a full depth core for total lift placement verification.

**Materials Acceptance Sampling and Testing Requirements:
Hot Mix Asphalt (Standard Specifications Section 39) (3 of 4)**

Test	Test Method	Sample Size & Container Size	Sampling Location (See Note 1)	Sample Frequency	Acceptance Test Frequency	Remarks
HOT MIX ASPHALT: HVEEM						
Asphalt Binder Content	California Test 382, AASHTO T164	2, 40 lb, Cardboard boxes Boxes Need 12 - 8X8X3 or 5 - 8½X8½X4½. Store 6 - 8X8X3 or 4 - 8½X8½X4½ for dispute resolution.	HMA Plant (see Note 4)	1 for each 750 tons, 1 per day minimum	Production start-up evaluation. For standard and method process: minimum 1 per day of paving	
Stability	California Test 366			Production start-up evaluation, 1 min. on projects exceeding 3000 tons	Production start-up evaluation, and minimum 1 random for every 10,000 tons or less of paving.	
Maximum Theoretical Density	California Test 309, AASHTO T209			1 for each 750 tons, 1 per day minimum	Production start-up evaluation; minimum 1 per day of paving	Testing frequency can be modified per California Test 375, Part 5D-5
Bulk Specific Gravity	CTM 309, AASHTO T166/ T275			Production start-up evaluation, 1 min. on projects exceeding 3000 tons	Production start-up evaluation, and minimum 1 random for every 10,000 tons or less of paving.	Test Needed for Air Void Content Calculations
Air Void Content	California Test 367				Production start-up evaluation, and minimum 1 per projects exceeding 3000 tons	Report only if the adjustment for asphalt binder content target value is less than ±0.3%
Voids Filled with Asphalt	California Test 367					

Notes:

1. Refer to California Test 125 for sampling procedures.
2. When using RAP, RAS or RAP/RAS, adjust gradation by the correction factor determined under California Test 384.
3. Store three 20-lb canvas bags for dispute resolution.
4. Sampling HMA production plant is the preferred location. You may also take samples from the windrow, HMA behind the paver, or truck.
5. Sample sizes are based on split samples—one sample for acceptance testing, and one for dispute resolution. Store one-half of the boxes or cans for dispute resolution.
6. Determine percent of theoretical maximum density under California Test 375, except use AASHTO T 275 to determine in-place density of each core and AASHTO T 209, Method A to determine theoretical maximum density instead of calculating maximum density.
7. May use Inertial Profiler data and ProVAL Smoothness Assurance “Rolling Straightedge Comparison Tool” to assist in determining where to check with 12-foot straightedge.
8. Cores must be taken before traffic is released and prior to the next lift placement. Final core is to be a full depth core for total lift placement verification.

**Materials Acceptance Sampling and Testing Requirements:
Hot Mix Asphalt (Standard Specifications Section 39) (4 of 4)**

Test	Test Method	Sample Size & Container Size	Sampling Location (See Note 1)	Sample Frequency	Acceptance Test Frequency	Remarks
PAVEMENT DENSITY						
Density of Cores (% of maximum theoretical density) (see Note 6)	California Test 375	4-or-6-inch cores	Final layer, cored to the Specified total lift thickness (See note 8, for final thickness only)	1 for each 250 tons	1 for each 250 tons	Density applies to HMA thickness of 0.15 ft or greater

Notes:

1. Refer to California Test 125 for sampling procedures.
2. When using RAP, RAS or RAP/RAS, adjust gradation by the correction factor determined under California Test 384.
3. Store three 20-lb canvas bags for dispute resolution.
4. Sampling HMA production plant is the preferred location. You may also take samples from the windrow, HMA behind the paver, or truck.
5. Sample sizes are based on split samples—one sample for acceptance testing, and one for dispute resolution. Store one-half of the boxes or cans for dispute resolution.
6. Determine percent of theoretical maximum density under California Test 375, except use AASHTO T 275 to determine in-place density of each core and AASHTO T 209, Method A to determine theoretical maximum density instead of calculating maximum density.
7. May use Inertial Profiler data and ProVAL Smoothness Assurance “Rolling Straightedge Comparison Tool” to assist in determining where to check with 12-foot straightedge.
8. Cores must be taken before traffic is released and prior to the next lift placement.

Attachment #2

Exhibit 16-Z2 Acceptance Testing Results Summary Logs


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
		Tester Certification on file?		Location (Stations, depths, etc)	Production Quantity Represented	Required Result	Actual Result	Pass/Fail	Include action taken for any failing test result; note test number of any retest.
1			<input type="checkbox"/>						
2			<input type="checkbox"/>						
3			<input type="checkbox"/>						
4			<input type="checkbox"/>						
5			<input type="checkbox"/>						
6			<input type="checkbox"/>						
7			<input type="checkbox"/>						
8			<input type="checkbox"/>						
9			<input type="checkbox"/>						
10			<input type="checkbox"/>						
11			<input type="checkbox"/>						
12			<input type="checkbox"/>						
13			<input type="checkbox"/>						
14			<input type="checkbox"/>						
15			<input type="checkbox"/>						
16			<input type="checkbox"/>						
17			<input type="checkbox"/>						
18			<input type="checkbox"/>						
19			<input type="checkbox"/>						
20			<input type="checkbox"/>						
21			<input type="checkbox"/>						
22			<input type="checkbox"/>						
23			<input type="checkbox"/>						
24			<input type="checkbox"/>						
25			<input type="checkbox"/>						

Attachment #3

Exhibit 16-V of the Local Assistance Procedures Manual

**SAMPLE COVER MEMO SOURCE
INSPECTION REQUEST FROM
LOCAL AGENCY TO
CALTRANS' DISTRICT LOCAL ASSISTANCE ENGINEER
(Prepared By Applicant On Applicant Letterhead)**

To: (DLAE name)
Caltrans' District Local Assistance Engineer
Caltrans' Local Assistance Office
(district office address)

Date: _____

Federal-aid Project Number: _____

Project Description: _____

Project Location: _____

Subject: (*Source Inspection for Project Name, County*)

We are requesting that Caltrans provide Source Inspection (reimbursed) services for the above mentioned project. We understand we are responsible for paying for this service provided for by the State. Listed below are the materials for which we are requesting Caltrans' Source Inspection (reimbursed) services.

Materials that will require source inspection:

Justification for request: (Based on the requirements in Section 16.14 under "Source Inspection")

Any question you might have about the above materials should be directed
to: _____, at _____

Approved:

(Applicant Representative Name)

District Local Assistance Engineer

(Title)

(Date)

(Local agency, name & address)

Attachment #4

Construction Materials Accepted by a Certificate of Compliance

Attachment #4

Materials Accepted by Certificate of Compliance (1 of 8)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Alternative earth retaining systems	Must state that the supplied material complies with the index criteria for the system at the time of prequalification.
Asphalt	<p>Certificates of compliance must include the following:</p> <ol style="list-style-type: none"> 1. Name and location of the supplier. 2. Grade of the asphalt. 3. The date and time of shipment. 4. A unique shipment number, such as a bill of lading number or manifest number. 5. A statement confirming that the transport vehicle was checked before loading and was found acceptable for the asphalt shipped. 6. The following wording: "<i>(Supplier name) hereby certifies that the asphalt product accompanying this certification was produced in accordance with the California Department of Transportation's Certification Program for Suppliers of Asphalt, and that this product complies in all respects with the requirements of the applicable specifications for the asphalt product identified on this document.</i>" <p><i>I hereby certify by my signature that I have the authority to represent the supplier providing the accompanying asphalt product."</i></p>
Asphaltic emulsion	<p>Certificate of compliance must include the following:</p> <ol style="list-style-type: none"> 1. Shipment number and shipment date. 2. Source refinery, consignee, and destination. 3. Type and description of material with specific gravity and quantity. 4. Contract or purchase order number. 5. Signature by the manufacturer of the material and a statement that the material complies with the contract.
Asbestos cement pipe	
Asbestos sheet packing	
Asphalt modifier	Test results required with each truckload.
Asphalt rubber joint sealant	A certified test report of the results for the required tests performed within 12 months before the proposed use.
Backer rods	Must include manufacturer's statement of compatibility with the joint sealant to be used.
Barbed wire	
Blast cleaning material	
Bonding agent for repairing spalled surface area	Submittal of certificate of compliance required for contracts of less than 60 working days.
Bonding material	
Brick	
Cable-typerestrainers Lock nuts	Certificate of compliance must be submitted with a copy of each required test report.
Cast iron pipe	
Cast iron manhole rings and covers	

Attachment #4

Materials Accepted by Certificate of Compliance (2 of 8)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Chemical adhesive for bonding tie bars and dowel bars in concrete pavement	
Chemical adhesive for structures	Certificate of compliance must state compliance with ICBO AC58 and Caltrans. Augmentation/Revisions to ICBO AC58.
Concrete Admixture	Certificate of compliance from the manufacturer must certify that the admixture furnished is the same as that previously authorized for the Authorized Material List.
Concrete Cementitious material	Certificate of compliance must include the source name and location. If the cementitious material is delivered directly to the job site, the certificate of compliance must be signed by the cementitious material supplier. If the cementitious material is used in ready-mixed concrete, the certificate of compliance must be signed by the concrete manufacturer. If blended cement is used, the certificate of compliance must include a statement signed by the blended cement supplier that shows the actual percentage of supplementary cementitious material, by weight, in the blend.
Concrete Curing compound	Certificate of compliance must include: 1. Test results for the tests specified in Section 90-1.01D(6), "Curing Compound," of the <i>Standard Specifications</i> . 2. Certification that the material was tested within 12 months before use.
Concrete Minor concrete	Before placing minor concrete from a source not previously used on the contract, a certificate of compliance stating that the minor concrete to be furnished complies with the contract requirements, including the specified minimum cementitious material content.
Ceramic tile	
Chain link fencing and railing	Certificate required for protective coating system.
Concrete anchorage devices	
Concrete pipe Circular reinforced direct design method, less than 60 inches in diameter	Certificate of compliance must: 1. Be signed by the manufacturer's quality control representative. 2. State that all materials and workmanship comply with the specifications and authorized shop drawings.
Copper pipe	
Corrugated metal pipe	

Attachment #4

Materials Accepted by Certificate of Compliance (2 of 8 continued...)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Crack sealant	Certificate of compliance must include: <ol style="list-style-type: none">1. Manufacturer's name2. Production location3. Product brand or trade name4. Product designation5. Batch or lot number6. Crack treatment material type7. Contractor or subcontractor name8. Contract number9. Lot size10. Shipment date11. Manufacturer's signature
Crash cushions	
Crumb rubber modifier	Test results required with each truckload.

Attachment #4

Materials Accepted by Certificate of Compliance (3 of 8)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Culvert markers	
Delineators	Certificate of compliance required for: <input type="checkbox"/> Metal target plates <input type="checkbox"/> Enamel coating <input type="checkbox"/> Retroreflective sheeting
Dowel bar baskets	
Drop inlet grates and frames	
Drain tile	
Drip irrigation line	
Elastomeric bearing pads Plain	Certified test results for the elastomer. METS samples and tests bearing pads.
Elastomeric bearing pads Steel-reinforced	Certified test results. METS samples and tests bearing pads.
Electrical Battery backup system	Certificates of compliance are required for: <ul style="list-style-type: none"> • External cabinet • Batteries
Electrical Conductor	
Electrical Conduit (galvanized and plastic)	
Electrical Equipment	
Electrical Pull boxes (concrete and plastic)	
Electrical Service cabinets	
Epoxy	
Epoxy powder coating for dowel bars and tie bars	METS samples and tests epoxy coating.
Erosion control	Certificate of compliance is required for: <ul style="list-style-type: none"> • Straw • Fiber • Rolled erosion control product • Fasteners Certificate of compliance with attachments is required for: <ul style="list-style-type: none"> • Tackifier • Bonded fiber matrix Polymer-stabilized fiber matrix

Attachment #4

Materials Accepted by Certificate of Compliance (4 of 8)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Erosion control (continued)	<p>Certificates of compliance attachments include:</p> <ol style="list-style-type: none"> 1. Safety data sheet 2. Product label 3. List of applicable, nonvisible pollutant indicators for soil amendment and stabilization products as shown in the table "Pollutant Testing Guidance Table" in the Caltrans <i>Construction Site Monitoring Program Guidance Manual</i> 4. Report of acute and chronic toxicity tests on aquatic organisms conforming to EPA methods 5. List of ingredients, including chemical formulation 6. Properties of polyacrylamide in tackifier including: (1) percent purity by weight, (2) percent active content, (3) average molecular weight, and (4) charge density.
Expansion joint filler	
Fiberglass pipe	Certificate of compliance must be submitted with laboratory test results.
Filler material for repairing spalled surface areas	Submittal of certificate of compliance required for contracts of less than 60 working days.
Gabions	If PVC coating is shown, a suitable UV resistant additive must be blended with the PVC and the additive must be shown on the certificate of compliance.
Geocomposite drain	Certificate of compliance must certify that the drain produces the specified flow rate. The certificate must be accompanied by a flow capability graph for the geocomposite drain showing flow rates and the externally applied pressures and hydraulic gradients. Verification must be by an authorized laboratory for the flow capability graph.
Geosynthetics	Test sample representing each lot and minimum average roll value.
Glass beads	Certificate of compliance by lot or batch and test data from an independent laboratory.
Glue laminated timbers and decking	
Guide markers	
Irrigation hose	
Irrigation pipe	<p>Certificate of compliance required for:</p> <ul style="list-style-type: none"> • Polyethylene pipe <p>Plastic pipe supply line for pipe with wall thickness of the bell less than the specified minimum wall thickness of the pipe</p>
Joint filler material	
Joint seals (Type A and AL)	Certified test report for each batch of sealant.
Joint seal (Type B)	<p>Certificate of compliance required for:</p> <ul style="list-style-type: none"> • Elastomeric joint seal • Lubricant-adhesive <p>Certificate of compliance must be submitted with certified test report for each lot of elastomeric joint seal and lubricant-adhesive. Test reports must include the seal movement rating, the manufacturer's minimum uncompressed width, and test results. METS samples and tests joint seal.</p>

Attachment #4

Materials Accepted by Certificate of Compliance (5 of 8)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Joint seal Alternate joint seal assemblies	For alternative joint seal assemblies, a certificate of compliance must be submitted for each shipment of joint seal materials. The certificate must state that the materials and fabrication involved comply with the specifications and the data submitted in obtaining the authorization for the alternative joint seal assembly. METS samples and tests joint seal assemblies.
Joint seal Joint seal assemblies	METS samples and tests joint seal assemblies.
Lime	Certificate of compliance must include a statement certifying the lime furnished is the same as on the Authorized Material List.
Machine spiral wound PVC pipeliners	Certificate of compliance for each reel of PVC strip must include: <ol style="list-style-type: none"> 1. Name of manufacturer 2. Plant location 3. Date of manufacture and shift 4. Cell classification 5. Unit mass 6. Average pipeliner stiffness and profile type
Markers	Certificate of compliance required for: <ul style="list-style-type: none"> • Metal target plates • Enamel coating • Retroreflective sheeting
Masonry block	Certificate of compliance required for: <ul style="list-style-type: none"> <input type="checkbox"/> Concrete masonry units <input type="checkbox"/> Aggregate for grout <input type="checkbox"/> Grout
Micro surfacing emulsion	
Mulch	
Open steel flooring and grating	
Overside drains	Certificate of compliance based on steel materials, aluminum materials or plastic materials.
Parking area seal material	
Pavement markers	
Plastic lumber	Certificate of compliance for each shipment of plastic lumber, that must be accompanied by a laboratory test report.
Plastic traffic drums	
Plastic pipe for drainage	Certificate of compliance must include average pipe stiffness, resin material cell classification, and date of manufacture. For corrugated polyethylene pipe, manufacturer's copy of plant audits and test results from the National Transportation Products Evaluation Program for the current cycle of testing for each pipe diameter furnished.
Portable changeable message sign	

Attachment #4

Materials Accepted by Certificate of Compliance (6 of 8)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Precast concrete Cementitious material used in precast concrete products	Certificate of compliance must be signed by the precast concrete product manufacturer.
Precast concrete Box culverts	Certificate of compliance must signed by the manufacturer's quality control representative for each shipment.
Precast concrete members	Certificate of compliance is for materials and workmanship incorporated in the work, and for testing and inspections that have been performed.
Precast raised traffic bars	
Preformed compression seal for concrete pavement	
Preformed membrane sheet	Must include type of sheet and the conditioner or primer application rates.
PTFE bearing materials	
Rapid strength concrete	Certificate of compliance is required for each delivery of aggregate, cementitious material, and admixtures used for calibration tests. The certificate of compliance must state that the source of the materials used for the calibration tests is the same source as to be used for the planned work.
Reinforcement	You may request that the contractor submits with certificate of compliance: <ol style="list-style-type: none"> 1. Copy of the certified mill test report for each heat and size of reinforcing steel showing physical and chemical analysis. 2. Two copies of a list of all reinforcement before starting reinforcement placement.
Reinforcement Epoxy-coated	Certificate of compliance for each shipment of epoxy-coated reinforcement must be submitted with: <ol style="list-style-type: none"> 1. Certification that the coated reinforcement complies with ASTM A 775/A 775M for bar reinforcement or ASTM A 884/A 884M, Class A, Type 1, for wire reinforcement. 2. All certifications specified in ASTM A 775/A 775M for bar reinforcement or ASTM A 884/A 884M for wire reinforcement. METs samples and tests epoxy coating.
Reinforcement Epoxy-coated prefabricated reinforcement	Certificate of compliance for each shipment of epoxy-coated prefabricated reinforcement must be submitted with: <ol style="list-style-type: none"> 1. Certification that the coated reinforcement complies with ASTM A 934/A 934M for bar reinforcement or ASTM A 884/A 884M Class A, Type 2 for wire reinforcement. 2. All certifications specified in ASTM A 934/A 934M for bar reinforcement or ASTM A 884/A 884M for wire reinforcement. METs samples and tests epoxy coating.
Reinforcement Epoxy-coating patching materials	Certificate of compliance for the patching material must include certification that the patching material is compatible with the epoxy powder to be used.
Reinforcement Headed bar	Certificate of compliance for each shipment of headed bar reinforcement must be submitted with: <ol style="list-style-type: none"> 1. Mill test reports for the: <ol style="list-style-type: none"> 1.1. Bar reinforcement 1.2. Head material 2. Production test reports 3. Daily production logs METs samples and tests headed bar.

Attachment #4

Materials Accepted by Certificate of Compliance (7 of 8)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Reinforcement Splice material	<p>Certificate of compliance for each shipment of splice material must be submitted with:</p> <ol style="list-style-type: none"> 1. Type or series identification of the splice material, including tracking information for traceability. 2. Grade and size number of reinforcement to be spliced. 3. Statement that the splice material complies with the type of mechanical splice on the Authorized Material List. 4. For resistance-butt-welded material: <ol style="list-style-type: none"> 4.1. Heat number 4.2. Lot number 4.3. Mill certificates <p>METS samples and tests reinforcement splices.</p>
Sheet metal	
Sign panels	<p>Certificates of compliance required for:</p> <ul style="list-style-type: none"> • Aluminum sheeting • Retroreflective sheeting • Screened-process colors • Nonreflective, opaque, black film • Protective-overlay film
Silicone joint sealant	A certified test report of the results for the required tests performed within 12 months before the proposed use.
Slotted edge drain	
Snow poles	
Snow plow deflectors polyethylene material	
Soil amendment	
Steel crib wall	
Steel pipe piles	<p>The certificate of compliance must be signed by the plant's quality control representative. The quality control representative must be on record with Structural Materials. Certificate of compliance must include:</p> <ol style="list-style-type: none"> 1. Statement that all materials and workmanship incorporated in the work and all required tests and inspections of this work have been performed as described. 2. Certified mill test reports for each heat number of steel used in pipe piles being furnished. 3. Test reports for tensile, chemical, and any specified nondestructive test must be based on test samples taken from the base metal, steel, coil, or from the manufactured or fabricated piles. 4. Calculated carbon equivalent. The carbon equivalent may be shown on the mill test report.
Structural plate culverts	<p>Certificate of compliance required for:</p> <ul style="list-style-type: none"> • Structural metal plate pipe • Arches • Pipe arches <p>Metal liner plate pipe</p>
Structural shape steel piles	Certificate of compliance must include a statement that all materials and workmanship incorporated in the work and all required tests and inspections of this work have been performed as described.
Structural composite lumber used in falsework	

Attachment #4

Materials Accepted by Certificate of Compliance (8 of 8)

Material/Product	Remarks (Including Requirements for Additional Backup Information Required with Certificate of Compliance)
Structural steel thermal spray coat Wire feedstock	
Styrofoam filler	
Subsurface drain	
Temporary concrete washout	Certificate of compliance required for: <input type="checkbox"/> Gravel-filled bag <input type="checkbox"/> Plastic liner
Temporary fence (Type ESA)	Certificate of compliance required for: <input type="checkbox"/> High visibility fabric <input type="checkbox"/> Safety caps for metal posts
Temporary linear sediment barrier	Certificate of compliance required for: <input type="checkbox"/> Fiber roll <input type="checkbox"/> Safety cap for metal posts <input type="checkbox"/> Silt fence fabric <input type="checkbox"/> Sediment filter bag <input type="checkbox"/> Foam barrier <input type="checkbox"/> Gravel-filled bag fabric
Temporary railing (Type K)	
Thermoplastic traffic stripes and pavement markings	Certificate of compliance by lot of batch and test data report from an independent laboratory. Obtain a minimum 1-foot length of stripe test sample.
Tie bars	METS samples and tests epoxy coating.
Tie bar baskets	METS samples and tests epoxy coating.
Timber products (treated and untreated)	Certificate of compliance for timber and lumber must state the species of the material to be shipped and include a certified grading report. If treated, certified treating report.
Threaded tie bar splice couplers	
Turf sod	
Two-component paint traffic stripes and pavement markings	Certificate of compliance by lot or batch. Obtain a 50-foot test section before application of paint.
Underdrains	Certificate of compliance required for: <input type="checkbox"/> Type of pipe <input type="checkbox"/> Tubing <input type="checkbox"/> Fitting
Waterproofing fabric	
Waterstop	Certificate of compliance for waterstop material must state compliance with paragraph 6 of Army Corps of Engineers CRD-C 572.
Welded wire fabric	
Wire mesh fencing	
Wood Structures	Certificate of compliance for timber and lumber stating the species of the material to be shipped and including a certified grading report. If timber is treated, include a certified treating report. Certificate of compliance for glued laminated timbers and decking.

Attachment #5

Example of a Vendor's Certificate of Compliance

Example of a Vendor's Certificate of Compliance

No. 583408

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
VENDOR'S CERTIFICATE OF COMPLIANCE
MR-0543 (REV. 5/93) #CT-7541-6020-2

☐ PRECAST CONCRETE PRODUCTS OR ☒ SOUNDWALL

TO: BILL SYNDER

STATE HIGHWAY ENGINEER
RESIDENT ENGINEER - CITY OF FLATLAND

We certify that the portland cement, chemical and mineral admixtures contained in the material described below are brands stated and comply with specifications for:

CONTRACT NUMBER:

CEMENT BRAND
XYZ CEMENT CO.
TYPE
II MODIFIED

MILL LOCATION
MIDLAND,
CALIFORNIA

CHEMICAL ADMIXTURE

1. BRAND
ABC ADMIXTURE
TYPE
WATER REDUCER

MANUFACTURER
XYZ SUPPLIER

2. BRAND

MANUFACTURER

TYPE

☐ CHECK BOX IF A CHEMICAL ADMIXTURE WAS NOT USED

MINERAL ADMIXTURE

MANUFACTURER
POZZ. INC.

CLASS
F

☐ CHECK BOX IF A MINERAL ADMIXTURE WAS NOT USED

DELIVERY DATE (Ready-Mix)
7/7/01

DATES OF FABRICATION (Precast)

LIST PRODUCTS TO WHICH CERTIFICATE APPLIES. (Show size and lin. ft. of pipe, etc., delivery slip numbers for ready-mix.)

Portland Cement
Flyash
Water Reducer

MANUFACTURER OF CONCRETE PRODUCTS

A. & B. READY MIX

By: AUTHORIZED REPRESENTATIVE SIGNATURE

Joe Anderson

FM 93 1839

Original to Res. Engr. Retain Duplicate.

OSP 01 55624

Example of a Vendor's Certificate of Compliance (Continued)



Hanson Aggregates
PO BOX 71
San Luis Obispo, CA 93406

Product: ASTM C618 Class F, Gallup Fly Ash
AASHTO M295

1-23-19 POZZOLAN TEST REPORT Ctl#: 161071

Lot: 2380035	Results	Specifications
Chemical Analysis (C311 / C114 / T105 / D4326)		
Silicon Dioxide, SiO ₂	61.15 %	---
Aluminum Oxide, Al ₂ O ₃	22.70 %	---
Ferric Oxide, Fe ₂ O ₃	4.40 %	---
SiO ₂ + Al ₂ O ₃ + Fe ₂ O ₃	88.25 %	70.00 Min
Calcium Oxide, CaO	2.69 %	---
Magnesium Oxide, MgO	1.16 %	---
Sulfur Trioxide, SO ₃	0.26 %	5.00 Max
Moisture Content	0.11 %	3.00 Max
Loss on Ignition	0.49 %	6.00 Max
Sodium Oxide, Na ₂ O	1.55 %	---
Potassium Oxide, K ₂ O	1.19 %	---
Total Alkalis	2.33 %	---
Available Alkalis	0.60 %	---

Physical Analysis		
Fineness, amount retained on		
#325 sieve, % (C430)	24.90	34.00 Max
variation, points from average	1.45	5.00 Max
Density, g/cm ³ (C188)	1.96	---
Variation from average, %	0.02	5.00 Max
Strength Activity Index		
with Portland Cement (C311 / C109)		
at 7 days, % of cement control	76.69	---
at 28 days, % of cement control	80.03	75.00 Min
Water Requirement (C311)		
% of cement control	99.17	105.00 Max
Soundness, autoclave expansion (C311 / C151)	-0.05	0.80 Max
or contraction, %		

All tests have been made in strict accordance with the current standards of the American Society for Testing and Materials covering the type of material specified.



Lee Gorby
Lee Gorby, Quality Assurance Manager
29 MAR 2019

PHOENIX CEMENT

Clarkdale Cement Plant
601 N. Cement Plant Rd
Clarkdale, AZ 86324

19th Ave. Terminal
1802 W. Lower Buckeye Rd
Phoenix, AZ 85007

Lower Buckeye Terminal
1941 W. Lower Buckeye Rd
Phoenix, AZ 85007

21st Ave. Terminal
1325 N. 21st Ave.
Phoenix, AZ 85009

54th Ave. Terminal
5402 W Buchanan St.
Phoenix, AZ 85043

Dobson Storage
9595 E. McKellips Rd.
Scottsdale, AZ 85250

Cholla Fly Ash Plant
4801 Frontage Rd.
Joseph City, AZ 86032

Four Corners Fly Ash Plant
End of County Road 6675
Fruitland, NM 87416

San Juan Fly Ash Plant
End of County Road 6800
Waterflow, NM 87421

Escalante Fly Ash Plant
County Road 19
Prewitt, NM 87405

Gallup Terminal
900 N 9th St.
Gallup, NM 87301

San Diego Terminal
920 Bay Marina Dr.
National City, CA 91950

Fontana Terminal
13600 Napa St.
Fontana, Ca 92335

Bakersfield Terminal
32535 7th Standard Rd.
Bakersfield, CA 93314

Stockton Terminal
1300 N. Gertrude Ave.
Stockton, CA 95215

Sacramento Terminal
4520 50th St.
McClellan Park, CA 95652

Panaca Pozzolan Plant
333 Hansen St.
Panaca, NV 89042

Denver Terminal
220 East 54th Avenue
Denver, CO 80216

Bonanza Fly Ash Plant
12500 East, 25500 South
Vernal, UT 84078

Example of a Certificate of Compliance for Portland Cement (continued)

Lehigh Hanson HEIDELBERGCEMENT Group

**TECHNICAL SERVICES
SALES & MARKETING**
3000 Executive Pkwy, Suite 240
San Ramon, CA 94583
Telephone (925) 244 6500
FAX (925) 244 6586

PLANT LOCATION
13573 Tehachapi Blvd.
Tehachapi, CA 93561
Telephone (661) 822-4445
FAX (661) 822-1278

CEMENT TEST REPORT

Cement: Type II/V, Low Alkali, Type GU
Production Period: March 1, 2019 - March 31, 2019
Report Date: April 10, 2019

CHEMICAL REQUIREMENTS	Test Method	ASTM SPECIFICATION LIMITS			CalTrans 90-1.02B(2)	Test Results
		Type II	Type V	Type GU		
SiO ₂ (%)	C114	-	-	-	-	20.9
Al ₂ O ₃ (%)	C114	6.0 max	-	-	-	4.1
Fe ₂ O ₃ (%)	C114	6.0 max	-	-	-	4.2
CaO (%)	C114	-	-	-	-	63.4
MgO (%)	C114	6.0 max	6.0 max	-	-	1.2
SO ₃ (%)	C114	3.0 max*	2.3 max*	-	-	3.1
Loss on ignition (%)	C114	3.5 max	3.5 max	-	-	2.3
Na ₂ O (%)	C114	-	-	-	-	0.21
K ₂ O (%)	C114	-	-	-	-	0.47
Equivalent alkalis (%)	C114	0.60 max	0.60 max	-	0.60 max	0.52
Insoluble residue (%)	C114	1.5 max	1.5 max	-	-	0.7
CO ₂ (%)	C114	-	-	-	-	1.2
Limestone (%)	C150-A2	5.0 max	5.0 max	-	-	3.7
CaCO ₃ in Limestone (%)	C150-A2	70 min	70 min	-	-	75
Potential phase composition (%) ^a						
C3S	C150-A1	-	-	-	65 max	54
C2S	C150-A1	-	-	-	-	17
C3A	C150-A1	8 max	5 max	-	-	4
C4AF	C150-A1	-	-	-	-	12
C4AF + 2(C3A)	C150-A1	-	25 max	-	-	19
C3S + 4.75(C3A)	C150-A1	-	-	-	-	71

- Not applicable.

* Can be exceeded if ASTM C1038 expansion is below 0.020%

^a Adjusted per ASTM C150 Section A 1.6

PHYSICAL REQUIREMENTS	Test Method	ASTM SPECIFICATION LIMITS			CalTrans 90-1.02B(2)	Test Results
		Type II	Type V	Type GU		
Air content of mortar (volume %)	C185	12 max	12 max	12 max	-	8
Blaine fineness (m ² /kg)	C204	260 min	260 min	-	-	393
Passing 45 µm sieve (%)	C430	-	-	-	-	99.1
Autoclave expansion (%)	C151	0.80 max	0.80 max	0.80 max	0.50 max	0.01
Compressive strength (Mpa [psi])						
1 day	C109	-	-	-	-	16.4 [2380]
3 days	C109	10.0 min	8.0 min	13.0 min	-	29.4 [4260]
7 days	C109	17.0 min	15.0 min	20.0 min	-	35.4 [5140]
28 days (previous month)	C109	-	21.0 min	28.0 min	-	44.2 [6410]
Time of setting, Vicat (minutes)						
Initial	C191	45 - 375	45 - 375	45 - 420	-	119
Final	C191	-	-	-	-	215
Mortar bar expansion (%)	C1038	0.020 max ^r	0.020 max ^r	0.020 max	-	0.004
False set (%)	C451	50 min	50 min	50 min	-	89
Heat of hydration (J/g [cal/g]) ¹						
3 days	C1702	-	-	-	-	0 [0]
Normal Consistency, %	C187	-	-	-	-	26.4

^r Required only if percent SO₃ exceeds the chemical specification limit.

¹ Represents latest result, provided for information only

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of:

ASTM C150 - Type II/V, Low Alkali
ASTM C1157 - Type GU
AASHTO M85 - Type II/V, Low Alkali

Caltrans Section 90 - Cementitious Material
ADOT Subsection 1006-2.01 - Hydraulic Cement
NSF/ANSI 61 - Drinking Water System Components



Sam Steeley

Sam Steeley - Quality Control Manager

WARNING: This product can expose you to chemicals including Lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

**Example of a Certificate of Compliance for
Portland Cement (continued)**

This is to certify that the

Portland Cement

Supplied by ABC Cement Company complies with all
Requirements for the Type II Portland Cement when tested in
Accordance with ASTM C – 494.

Local Agency Project No
HP21L – 5055- 111

Albert Howakowa
Quality Assurance Engineer
ABC Cement Company

Date: 07/07/07

Attachment #6

Examples of Materials Certificates/Exceptions

**Examples of Materials Certificates/Exceptions
(Signed by the Resident Engineer at the Completion of the Project)**

Federal-aid Project No.: Project HP21L – 5055 – 111

Subject: Materials Certification

This is to certify that the results of the tests on acceptance samples indicate that the materials incorporated in the construction work and the construction operations controlled by sampling:

☒ and testing were in conformity with the approved plans and specifications.

☐ All materials exceptions to the plans and specifications on this project are noted below.

No exceptions were found to the plans and specifications on this project.

Bill Sanders
Resident Engineer (Print Name)

Bill Sanders
Resident Engineer (Signature)

7/7/07
(Date)

Note: The signed original of this certificate is placed in the Resident Engineer's project files and a copy is mailed to the DLAE and filed under "Report of Expenditures."

See the attachment (next page)

Examples of Materials Certificates/Exceptions
(Signed by the Resident Engineer at the Completion of the Project)
(Continued)

Attachments: Materials Exceptions (Acceptance Testing)

Type of Test	Description of Work	Total Test Performed On the Project	Number of Failed Tests	Action Taken
Slump Test	Concrete Sidewalk	8	1	When the measured slump exceeded the maximum limit, the entire concrete load was rejected.
Sand Equivalent	Aggregate for Structural Concrete	10	1	The tested S.E. was 70 and the contract compliance specification was 71 minimum. However, the concrete 28-day compressive strength was 4800 psi. The concrete was Considered adequate and no materials Deductions were taken.
Compaction	Sub Grade Material	12	1	One failed test was noted. The failed area was watered and reworked. When this was completed, a retest was performed. The retest was acceptable.
Compaction	Hot Mix Asphalt	12	1	One failed area was noted. It was reworked and retested. The second test met specifications.

Bill Sanders
Resident Engineer (Print Name)

Bill Sanders
Resident Engineer (Signature)

July 4, 2007
Date