

# IMPERIAL COUNTY DEPARTMENT OF PUBLIC WORKS



## QUALITY ASSURANCE PROGRAM (QAP)

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Recommended for

Approval By:

A handwritten signature of "Atondo V." in blue ink.

Veronica Atondo, PE  
Deputy Director of Public Works  
Registration No. 61484



Approved By:

A handwritten signature of "John Gay" in blue ink.

John Gay, PE  
Director of Public Works  
Registration No. 62028





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## EXHIBITS

Exhibit 1	Exhibit 1 (Appendix D, "Acceptance Sampling and Testing Frequencies" of the QAP Manual).
Exhibit 2	Exhibit 16-R – "Sampling and Testing Frequency Table for Projects OFF the SHS" of the LAP Manual
Exhibit 3	Appendix J - "Example of a Vendor's Certificate of Compliance" of the QAP Manual
Exhibit 4	Appendix K — "Examples of Materials Certificates/Exceptions" of the QAP Manual
Exhibit 5	Exhibit 17-G - "Materials Certificate" of the LAP Manual
Exhibit 6	Section 16.8 - "Project Files" of the LAP Manual
Exhibit 7	Appendix H - "Example of a Log Summary Sheet" of the OAP Manual
Exhibit 8	Exhibit 16-Z2 - "Acceptance Testing Results Summary Log" of the LAP Manual



## 1 INTRODUCTION AND PURPOSE

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The purpose of this program is to provide assurance that the materials incorporated into the construction projects are in conformance with the contract specifications. This program should be updated every five years or more frequent if there are changes of the testing frequencies or to the tests themselves. To accomplish this purpose, the following terms and definitions will be used:

### 1.1 DEFINITION OF TERMS

- Acceptance Testing (AT) - Sampling and testing, or inspection, to determine the degree of compliance with contract requirements.
- ICDPW - Imperial County Department of Public Works
- Independent Assurance Program (IAP) - Verification that AT is being performed correctly by qualified testers and laboratories.
- 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 a QAP are the AT, and IAP.
- Source Inspection - AT of manufactured and prefabricated materials at locations other than the job site, generally at the manufactured location.

Variations for Projects On or Off the State Highway System (SHS) - The requirements of a QAP depend on whether the project is on or off the SHS. For projects on the SHS, the Local Public Agency (LPA) must adopt the Caltrans QAP. In addition, the current Caltrans Standard Specifications (CTSS) and Plans must be part of the Plans, Specifications, and Estimate (PS&E). Test methods used must be as specified in the CTSS and special provisions.

For projects off the SHS, LPAs may adopt the Caltrans QAP described above or may develop their own QAP conforming with the requirements of the QAP Manual and FHWA regulations. For projects off the SHS and on the National Highway System (NHS), the LPA must use the current Caltrans or Greenbook Standard Plans and Specifications.



Mix Design Approval and Checking - Mix designs must be submitted by the Contractor and include the name of the material plant, the product name, a mix design ID number, and item of work in which it is to be used. The Resident Engineer (RE) must review and approve the mix design in writing. A copy of the approved mix design must be placed in the files. Field inspectors must verify that the mix delivered to the job site matches the approved mix design. The inspector must place a check mark adjacent to the mix ID shown on the weigh tag and initial the tag. Tags are to be collected at the point of delivery to the jobsite.

Materials Requiring a Buy America Certification- Iron and steel, manufactured products, and construction materials permanently incorporated into the project must comply with Buy America requirements per 23 CFR 635.410 and Section 70914 of the Build America, Buy America (BABA) Act. All steel and iron products must be delivered with a Certificate of Compliance (COC) stating all manufacturing processes involved in the production of the products occurred within the United States. These processes include:

- Rolling
- Extruding
- Machining
- Bending
- Grinding
- Drilling
- Coating
- Welding
- Smelting

In addition to the COC requirements mentioned earlier in this section, a Buy America COC must also include the mill markings or heat numbers. All manufacturing processes for construction materials as defined in 2 CFR 184.6 must occur in the United States. Contractors must provide certificates of compliance with each project delivery for all construction materials used for the projects. Manufacturer's certificate of compliance must identify where the construction material was manufactured and attest specifically to 2 CFR 184.6. Minor additions of articles, materials, supplies, or binding agents to these construction materials do not change the categorization of the construction material.

Buy America does not apply to temporary materials not permanently incorporated into the project such as temporary steel used in falsework, sheet piling, or shoring. Buy America requirement does not apply to recycled steel nor pig iron and processed, pelletized, and reduced iron ore manufactured outside the United States. A minimal use of foreign iron and steel is allowed provided that the total cost of iron and steel products as delivered to the project site is less than \$2,500 or 0.1 percent of the total contract amount, whichever is greater. The LPA must track the amount of incorporated foreign steel and iron as the work proceeds to ensure that the minimal



use threshold amount is not exceeded at any point in the contract. Once the cumulative value reaches the minimum threshold limit, then all additional installed materials must be of domestic origin. Supporting documentation for this minimal use must be on file in the project records (i.e., invoices, including the cost of transportation).

After-the-fact discoveries of non-domestic materials incorporated in the project are not considered Buy America waivers. The LPA's failure to comply with Buy America provisions will result in the loss of federal funding for not only the applicable contract items, but likely will result in the loss of all federal funding authorized for the construction phase of the project. In the event an after-the-fact discovery occurs, the LPA must expeditiously inform their District Local Assistance Engineer (DLAE), who will coordinate with FHWA to determine the appropriate resolution.



## 2 MATERIALS LABORATORY

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ICDPW will use 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 personnel under the Engineer's 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 materials laboratory shall be a participant in one or more of the following testing programs:
  - a. AASHTO Materials Reference Laboratory (AMRL)
  - b. Cement and Concrete Reference Laboratory (CCRL)
  - c. Caltrans' Reference Samples Program (RSP) and Corroboration Sample Program
2. Certification of Personnel –
  - Local agencies and consultant Acceptance samplers and testers must obtain "Affidavit of Proficiency and Training certificates from a non-Caltrans organization such as the "National Institute for Certification in Engineering Technologies" (NICET).
  - The District Materials Engineer shall review/approve Acceptance samplers and testers' affidavit of proficiency and training certificates. A copy of these certificate is to be on file in the District Materials Laboratory, the Resident Engineer's project files, and Caltrans Statewide IA Database (SIAD).
  - Acceptance sampler and testers must also be certified by one or more of the following and receive Certificate of Proficiency:
    - a. Nationally recognized organizations such as the American Concrete Institute (ACI), American Association of State Highway and Transportation Officials (AASHTO), etc.
    - b. Caltrans Independent Assurance Program.



c. Caltrans Joint Training and Certification Program (JTCP)

- All samplers and testers, including project, laboratory, and consultant personnel, must possess a current certificate of proficiency for the tests performed. A copy of the certificate must be in the project files. It is important that samplers as well as testers are certified to ensure the integrity of the sample and that the sample was taken at the right time, from the right location, using the correct method, and is properly labeled. The Joint Training and Certification Program (JTCP) was established by Caltrans, local agencies, and industry to make the certification process more efficient and to obtain consistent, reliable quality testing. The JTCP offers training and certification in hot mix asphalt, soils and aggregates, and Portland cement concrete. For CTMs not covered by the JTCP, Caltrans will still provide certification. When test methods not covered by the JTCP or Caltrans are used, certifications must be obtained from other acceptable organizations such as ACI, or the agency/testing consultant may need to hire a second lab to perform IA. The process for qualifying sampling and testing personnel should be detailed in the local agency's Independent Assurance Program of the QAP. IA sampling and testing is not to be used for determining quality and acceptability of material incorporated into the job. Such tests are used only for the purpose of determining the reliability of testing personnel.
- 3. Laboratory and Testing Equipment - The materials laboratory shall only 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 of accuracy traceable to the National Institute of Standards and Technology. A decal shall be firmly affixed to each piece of equipment showing the date of the last calibration. All testing equipment calibration decals shall be checked as part of the IAP. The Laboratory shall be properly qualified.

## 2.1 ACCEPTANCE TESTING (AT) PROGRAM

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.

All tests to be performed on a project shall be listed and shall be conducted per the frequencies table listed in Exhibit 1 (Appendix D, "Acceptance Sampling and Testing Frequencies" of the QAP Manual).



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 Exhibit 1 (Appendix D, "Acceptance Sampling and Testing Frequencies" of the QAP Manual).

The RE must also ensure the minimum number of samples are taken and tests are performed as required by the adopted QAP's Testing and Sampling Frequency Table.

For projects OFF the State Highway System (SHS), samples shall be taken at the locations and frequencies as shown in Exhibit 2 (Exhibit 16-R "Sampling and Testing Frequency Table for projects OFF the SHS" of the LAP Manual).

## **2.2 INDEPENDENT ASSURANCE PROGRAM (IAP)**

The IAP consists of activities that are unbiased and are an independent evaluation of all the sampling and testing procedures used in the acceptance program. The requirements are defined in Title 23, Code of Federal Regulations, Chapter 1, Part 637 (23 CFR 637).

FHWA requires that:

- a. Testing equipment be evaluated by using calibration checks and successful participation in one or more proficiency sample programs.
- b. Testing personnel be evaluated by successful participation in a certification program (e.g. Caltrans, JTCP, ACI, AASHTO) and one or more corroboration sample programs.

The objective of the IAP is to provide a mechanism for formally recognizing the competency of a testing laboratory to perform specific tests on construction materials. It is a program available to materials laboratories including private laboratories, local agency laboratories, and Caltrans laboratories.

Participation in this program is required for those laboratories and samplers and testers providing acceptance test results on National Highway System (NHS), State Highway System



(SHS), and other federal-aid projects on local streets and roads. The main components of IA Program are:

- Laboratory accreditation: Verifying that equipment used for acceptance testing is properly calibrated and in good working condition.
- Testers Qualification: Proficiency assessment of acceptance samplers and testers.
- Dispute Resolution: IAP no longer provide dispute resolution. Caltrans LAP Manual Section "16.17- Contract Disputes and Claims" procedures must be followed.

IAP shall be provided by personnel from Caltrans, or consultant's certified materials laboratory. When project specifications call for California Test Methods to be used for Acceptance Testing and Sampling, the IAP must be provided by Caltrans personnel.

Responsibilities of the RE During project construction, the RE must verify that the IA program is being executed by performing the following tasks:

- Obtaining Certifications of all Sampling and Testing Personnel
- Obtaining Accreditation Reports of all AT laboratories
- Verifying testing equipment is calibrated.

**Failing Test** - Whenever failing tests occur, sufficient additional acceptance tests must be taken to isolate the affected work. Documentation of the results of such additional tests must be included in the records, including a description of the corrective measures taken. Corrective action or retesting of failing tests must be noted in the remarks column of the test summary log. Documentation of the reason that materials represented by failing tests were incorporated into the project must be in the project files.

## **2.3 REPORTING ACCEPTANCE TESTING RESULTS**

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

1. When the aggregate is sampled at material plants, test results for Sieve Analysis, Sand Equivalent and Cleanliness Value should be submitted to the Resident Engineer within 24 hours after sampling.
2. 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.

3. When soils and aggregates are sampled at the job site:
  - a. Test results for Sieve Analysis, Sand Equivalent and Cleanliness Value should be submitted to the Resident Engineer within 72 hours after sampling.
  - b. Test results for "R" Value and asphalt concrete extraction should be submitted to the Resident Engineer within 96 hours after sampling.
4. 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 the day insofar as possible, in order to avoid a predictable sampling routine. The reporting of AT results, if not performed by the Resident Engineer's staff, shall be done on an expedited basis such as by email or telephone.

Test Result must be submitted to the RE at required time in accordance with Caltrans QAP Manual (i.e. at 24,72 or 96 hours).



### 3 TESTING OF MANUFACTURED MATERIALS

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All certificates of compliance shall conform to the requirements of the contract specifications, for examples see Exhibit 3 (Appendix J - "Example of a Vendor's Certificate of Compliance" of the QAP Manual)

The local agency determines which materials will be source inspected. For a list of manufactured or prefabricated materials that are commonly source inspected for Caltrans projects, see Table 6-2.1, Inspection of Fabricated and Manufactured Materials of the Caltrans Construction Manual. Resources to assist in the development of a Source Inspection Program can be found on the internet at the following address:

<https://dot.ca.gov/-/media/dotmedia/programs/engineering/documents/mets/sigla-manual.pdf>.

Source inspection is performed by the local agency or a qualified consultant. Caltrans no longer provides source inspection services for projects off the SHS. Caltrans may provide source inspection for projects on the SHS if terms are detailed in a cooperative agreement or encroachment permit.

For Federal-aid projects on the National Highway System (NHS), Caltrans will assist in certifying the materials laboratory, and the acceptance samplers and testers. For Federal-aid projects off the NHS, Caltrans may be able to assist in certifying the materials laboratory, and the acceptance samplers and testers.



## 4 PROJECT CERTIFICATION

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Upon completion of a Federal-aid project, a "Materials Certificate" shall be completed by the Resident Engineer. ICDPW shall include a "Materials Certificate" in the Report of Expenditures submitted to the Caltrans District Director, Attention: District Local Assistance Engineer. A copy of the "Materials Certificate" shall also be included in ICDPW's construction records. The Resident Engineer in charge of the construction function for ICDPW shall sign the certificate. All materials incorporated into the work which did not conform to specifications must be explained and justified on the "Materials Certification", including changes by virtue of contract change orders. See Exhibit 4 (Appendix K—"Examples of Materials Certificates/Exceptions" of the QAP Manual).

Upon completion of the project, the RE must complete Exhibit 17-G: Materials Certificate. The original is submitted to the DLAE in the Report of Expenditures and a copy is placed in the project file. See Exhibit 5 (Exhibit 17-G - "Materials Certificate" of the LAP Manual).



## 5 RECORDS

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

1. The files shall be organized as described in Exhibit 6 (Section 16.8 "Project Files" of the LAP Manual).
2. It is recommended that the complete project file be available at a single location for inspection by Caltrans and Federal Highway Administration (FHWA) personnel.
3. The project files shall be available for at least three years following the date of final project voucher.
4. The use of a "Log Summary," as shown in Exhibit 7 (Appendix H - "Example of a Log Summary Sheet" of the QAP Manual), facilitates reviews of material sampling and testing by Caltrans and FHWA, and assists the Resident Engineer in tracking the frequency of testing Exhibit 8 (Exhibit 16-Z2- "Acceptance Testing Results Summary Log" of LAP Manual).

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 test reports are to be provided for each of the projects to complete the records.



## 6 LIST OF REFERENCES

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California Department of Transportation (Caltrans), Quality Assurance Program (CQAP) Manual for Use by Local Agencies, Division of Local Assistance, December 2008, latest revision January 2011.

California Department of Transportation (Caltrans), Local Assistance Procedures Manual (LAPM), Division of Local Assistance, latest revision August 2016, available on-line at <http://www.dot.ca.gov/hq/LocalPrograms/tam/lapm.htm>.

California Department of Transportation (Caltrans), Construction Manual, latest revision October 2013 available on-line at <http://www.dot.ca.gov/hq/construc/constmanual/>.

California Department of Transportation (Caltrans), Independent Assurance Manual, Procedures for Accreditation of Laboratories and Qualification of Tester, Division of Engineering Services, Materials Engineering and Testing Services, July 2005, available on-line at [http://www.dot.ca.gov/dist1/d1lab/forms/2005\\_IA\\_Maunal.pdf](http://www.dot.ca.gov/dist1/d1lab/forms/2005_IA_Maunal.pdf).



## **EXHIBIT 1**

**Appendix D, "Acceptance Sampling and Testing Frequencies" of the OAP  
Manual Exhibit 16-V of the L AP Manual**



## Appendix D - Acceptance Sampling and Testing Frequencies

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

### Portland Cement (Hydraulic Cement)

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Cement/fly ash (Sampling only)	8-lb. sample	If possible, take a least one sample per job, even if the material is accepted based on a Certificate of Compliance.	ASTM D75, C494 CT 125 AASHTO T127, M85, M295	Standard for sampling hydraulic cement or fly ash.
Cement (Testing Only)	8-lb. sample	If the product is accepted based on a Certificate of Compliance, testing is not required. If the product is not accepted using a Certificate of Compliance, test at least once per job.	ASTM C109 CT 515 AASHTO T106	If testing appears warranted, fabricate six 2-in. mortar cubes using the Portland (or hydraulic cement). Test for compressive strength.

### Portland Cement Concrete (Hydraulic Cement Concrete)

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Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Aggregate for Hydraulic Cement Concrete (Sampling & Testing)	50-lb. sample	Take one aggregate sample for each 1000 cu. yd. of PCC/HCC concrete. Test at least one sample per job.	ASTM D75 CT 125 AASHTO M6, T2, M80	Sample aggregate from belt or hopper (random basis).
Water (Sampling & Testing)	Take a two-quart sample using a clean plastic jug (with lining) and sealed lid. Sample at the point of use.	If the water is clean with no record of chlorides or sulfates greater than 1%, no testing is required. If the water is dirty do not use it. Test only when the chloride or sulfates are suspected to be greater than 1%.	CT 405, CT 422, CT 417 AASHTO R23	If testing appears warranted, test for chlorides and sulfates.

## Appendix D (continued)

### Portland Cement Concrete (Hydraulic Cement Concrete) – Continued

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description of Comments
Air Entraining Admixtures (Sampling & Testing)	Take a one-quart sample using a clean, lined can or plastic bottle, if liquid. If powder, take a 2.5 lb. sample.	If the product is accepted based on a Certificate of Compliance, testing is not required. Take one sample per job. Prior to sampling, check with Caltrans (METS) for acceptable brands and dosage rates.	ASTM C233 AASHTO M154, T157, C260	If testing appears warranted, test for sulfates and chlorides Admixtures with sulfates and chlorides greater than 1% should not be used.
Water Reducers or Set Retarders (Sampling & Testing)	If liquid, take a 1-qt. sample using a clean plastic can. If powder, take a 2.5 lb. sample.	If the product is accepted based on a Certificate of Compliance, no testing is required. If not, test once per job. Prior to using this product, please check with Caltrans (METS) for acceptable brands and dosage rates.	ASTM C494 AASHTO M194	If testing appears warranted, test for sulfates and chlorides. Admixtures with sulfates and chlorides greater than 1% should not be used.
Freshly-Mixed Concrete (Sampling)	Approx. 150lb. (or 1 cu. ft.) near mixer discharge.	When tests are required, take at least one sample for each 500 to 1000 cu. yd. of PCC/HCC.	ASTM C172, C685 CT 539 AASHTO T141, M157	This describes a method to sample freshly-mixed concrete.
Freshly-Mixed Concrete (Testing)	Approx. 150 lb/ (or 1 cu. ft.) near mixer discharge.	On projects with 500 cu. yd., or more, test at least one sample per job.	ASTM C143 AASHTO T119	This test determines the slump of the freshly-mixed concrete.
Freshly-Mixed Concrete (Testing)	Approx. 150 lb/ (or 1 cu. ft.) near mixer discharge	On projects with 500 cu. yd., or more, test at least one sample per job.	ASTM C360 CT 533	This test determines the ball penetration of the freshly-mixed concrete.
Freshly-Mixed Concrete (Testing)	Approx. 150 lb/ (or 1 cu. ft.) near mixer discharge	On projects with 500 cu. yd., or more, test at least one sample per job.	ASTM C231 CT 504 AASHTO T152	This test determines the air content of freshly-mixed concrete (pressure method).
Freshly-Mixed Concrete (Testing)	Approx. 150 lb/ (or 1 cu. ft.) near mixer discharge	On projects with 500 cu. yd., or more, test at least one sample per job.	ASTM C138 CT 518 AASHTO T121	This test determines the unit weight of freshly mixed concrete.



## Appendix D (continued)

### Portland Cement Concrete (Hydraulic Cement Concrete) – Continued

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Freshly-Mixed Concrete (Testing)	Approx. 150 lb/ (or 1 cu. ft.) near mixer discharge	Fabricate at least two concrete cylinders per project. Test for compressive strength at least once for each 500 to 1,000 cu. yd. of structural concrete.	ASTM C39 CT 521 AASHTO T22	This test is used to fabricate 6" x 12" concrete cylinders. Compressive strengths are determined, when needed.
Freshly-Mixed Concrete (Testing)	Approximately 210 lb. of concrete are needed to fabricate three concrete beams.	One sample set for every 500 to 1,000 cu. yd. of concrete.	ASTM C78 CT 31 AASHTO T97 & T23	This test is used to determine the flexural strength of simple concrete beams in third-point loading

### Soils and Aggregates

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Aggregate (Sampling)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM D75 CT 125 AASHTO T2	This test describes the procedures to sample aggregate from the belt or hopper (random basis).
Fine Aggregates (Testing)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM C128 CT 208 AASHTO T84	This test determines the apparent specific gravity of fine aggregates for bituminous mixes, cement treated bases and aggregate bases.
Fine Aggregate (Testing)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM C128 CT 207 AASHTO T84	This test determines the bulk specific gravity (SSD) and the absorption of material passing the No. 4 sieve.
Coarse Aggregate (Testing)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	CT 206	This test determines the cleanliness of coarse aggregate.



## Appendix D (continued)

### Soils and Aggregates - Continued

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Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Coarse Aggregate (Testing)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM C127 CT 227 AASHTO T85	This test determines the specific gravity and absorption of coarse aggregate (material retained on the No. 4 sieve).
Soils and Aggregates (Testing)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM C136 CT 202 AASHTO T27	This test determines the gradation of soils and aggregates by sieve analysis.
Soils and Aggregates (Testing)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM D2419 CT 217 AASHTO T176	This test determines the Sand Equivalent of soils and aggregates.
Soils and Aggregates (Testing)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM C117 AASHTO T11	This test determines the gradation for materials finer than the No. 200 sieve (by washing method).
Soils and Aggregates (Testing)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM D3744 CT 229 AASHTO T210	This test determines the Durability Index of soils and aggregates.
Soils and Aggregates (Testing)	One 50-lb. sample	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM D2844 CT 301 AASHTO T190	This test determines the Resistance Value (R-) and expansion pressure of compacted materials.
Soils and Aggregates (Testing)	One random location for every 2,500 sq. ft.	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM D2922 CT 231 AASHTO T238	This test determines field densities using the nuclear gage.
Soils and Aggregates (Testing)	One random location for every 2,500 sq. ft.	Take one sample for every 500 to 1,000 tons of materials. Test at least one sample per project.	ASTM D3017 CT 231 AASHTO T239	This test determines the water content using the nuclear gage.



## Appendix D (continued)

### Asphalt Binder

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Asphalt Binder (Sampling)	One 0.5-gal. sample placed in a clean, sealed can.	Sample once per job at the asphalt concrete plant.	CT 125 ASTM D 979 AASHTO T 168, T48	This procedure describes the proper method to sample the asphalt binder.
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Sample once per job at the asphalt concrete plant.	ASTM D92, D117 AASHTO T 48	This test determines the flash point of the asphalt binder (by Cleveland open cup).
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D2872 & D92 CT 346 AASHTO T240 &T48	This test determines the rolling thin-film oven test (RTFO).
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D2042 AASHTO T44	This test determines the solubility of asphalt material in trichloroethylene.
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D2171 AASHTO T202	This test determines the dynamic viscosity, (absolute viscosity of asphalt @ 140 degrees F by the Vacuum Capillary Viscometer Poises).
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D5 AASHTO T49	This test determines the penetration of bituminous material @ 77 degrees F and percentage of original penetration from the residue.
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D113 AASHTO T51	This test determines the ductility of asphalt @ 77 degrees F.
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D2170 AASHTO T201	This test determines the kinematic viscosity of asphalt @275 degrees F (Centistoke).



## Appendix D (continued)

### Asphalt Binder - Continued

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D2171 AASHTO T202	This test determines the dynamic viscosity. (absolute viscosity of asphalt @ 140 degrees F by the Vacuum Capillary Viscometer Poises).
Asphalt Binder (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D36 AASHTO T53	This test determines the softening point of asphalt.

### Asphalt Emulsified

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Emulsified Asphalt (Sampling)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D140, D979 CT 125 AASHTO T 40, T168	This test describes the procedure to sample the emulsified asphalt.
Emulsified Asphalt (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D244 AASHTO T59	This test determines the sieve retention of emulsified asphalt.
Emulsified Asphalt (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D244 AASHTO T59	This test determines the weight per gallon of emulsified asphalt.
Emulsified Asphalt (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D244 AASHTO T59	This test determines the penetration of the emulsified asphalt.
Emulsified Asphalt (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D244 CT 330 AASHTO T59	This test determines the residue @ 325 degrees F evaporation of emulsified asphalt.



## Appendix D (continued)

### Asphalt Emulsified - Continued

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Emulsified Asphalt (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D4402 AASHTO T201	This test determines the Brookfield viscosity.
Emulsified Asphalt (Testing)	One 0.5-gal. sample placed in a clean, sealed can.	Obtain one sample at the asphalt concrete plant for each 1,000 tons of asphalt concrete placed.	ASTM D88 AASHTO T72	This test determines the Saybolt-Furol viscosity of emulsified asphalt @ 77 degrees F (seconds).

### Hot Mix Asphalt (Asphalt Concrete) – Concrete

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Asphalt Concrete (Sampling)	Obtain one 30-lb. sample each day of production	Obtain one sample at the asphalt concrete plant for each 5,000 tons of asphalt concrete placed.	ASTM D75, D140, D979 CT 125 AASHTO T 40, T168	This test describes the procedure to sample the asphalt concrete.
Asphalt Concrete (Testing)	4" x 8" cores	Take one 4" x 8" core for every 500 ft of paved roadway.	ASTM D1188, D1560, D1561, D5361 CT 304 AASHTO T246, T247	This test determines the field density of street samples.
Asphalt Concrete (Testing)	Obtain one 30-lb. sample for each day of production	Obtain one sample for every five cores taken.	ASTM D1188, D1560, D1561, D5361 CT 304 AASHTO T246, T247	This test determines the laboratory density and relative compaction of asphalt concrete.
Asphalt Concrete (Testing)	4" x 8" cores	Obtain one sample for every five cores taken.	ASTM D2726, D1188, D5361	This test determines the specific gravity of compacted bituminous mixture dense- graded or non-absorptive.





## Appendix D (continued)

### Hot Mix Asphalt (Asphalt Concrete) –Continued

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Asphalt Concrete (Testing)	One 30-lb sample	Obtain one sample for every 1,000 tons of asphalt concrete.	ASTM D1559 AASHTO T245	This test determines the resistance to plastic flow of prepared mixes as determined by the Marshall Method.
Asphalt Concrete (Testing)	One 30-lb sample	Obtain one sample for every 1,000 tons of asphalt concrete.	ASTM C117, D2172 (use Method B) AASHTO T164	This test determines the screen analysis of aggregates recovered from asphalt materials.
Geotextile Fabric (Placed Under the Asphalt Concrete) (Testing)	One 12 ft. x 3 ft. sample	Obtain one sample per job.	ASTM D4632 AASHTO M288	This test determines the weight per sq. yd. and grabs strength of geotextile fabrics.
Asphalt Concrete (Testing)	Sample any test location (random basis)	Obtain one sample for every 1,000 tons of asphalt concrete.	ASTM D2950 CT 375	This test determines the nuclear field density of in-place asphalt concrete.
Asphalt Concrete (Testing)	One 10-lb sample	Obtain one sample during every day of production.	ASTM D1560, D1561 CT 366 AASHTO T246, T247	This test determines the stability value of asphalt concrete.
Slurry Seals (Sample)	One 0.5 gal. sample in a clean, dry plastic container.	Obtain one sample per truck	ASTM D979 CT 125 AASHTO T 40, T168	This test describes the procedure for sampling the slurry seal.
Aggregate for Slurry Seals (Testing)	One 30-lb. sample.	Obtain at least one sample per project from the belt or hopper or stockpile and test for Sand Equivalent	ASTM D2419 CT 217 AASHTO T176	This test determines the Sand Equivalent of aggregates.



## Appendix D (continued)

### Slurry Seals

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Aggregate for Slurry Seals (Testing)	One 30-lb. sample.	Obtain at least one sample per project from the belt, hopper, or stockpile and test for sieve analysis of fine sand.	ASTM C117 AASHTO T11	This test determines the sieve analysis of fine sand (gradation of materials finer than No. 200 sieve by wash grading).
Slurry Seals (Testing)	One 0.5 gal. sample in a clean, dry plastic container.	Test one sample per project and test for Abrasion.	ASTM D3910	This test determines the Wet Track Abrasion Test (2) (WTAT).

### Steel

Materials to be Sampled or Tested	Sample Size	Sampling/Testing Frequency	Typical Test Methods	Description or Comments
Steel Strand (Testing)	Sample strand at various sizes.	This item may be accepted using a Certificate of Compliance. Sample and test at least two steel strands per job when a Certificate of Compliance is not used.	ASTM A370, A416, E328 AASHTO T244	This test determines the tensile strength of uncoated seven-wire stress-relieved strand for pre-stressed concrete.
Steel Rebar (Testing)	Sample rebar at various sizes.	This item may be accepted using a Certificate of Compliance. Sample and test at least two steel rebar per job when a Certificate of Compliance is not used.	ASTM A615, A370 AASHTO T244	This test determines the steel reinforcement bar tensile strength and bend capability.



## **EXHIBIT 2**

**Exhibit 16-R – “Sampling and Testing Frequency Table for Projects OFF the SHS” of the LAP Manual**

**Exhibit 16-R Sampling and Testing Frequency Table**  
for projects OFF the SHS

**Sample for Local Agency QAPs**

**Sampling and Testing Frequency Table**  
*for projects OFF the SHS.*

**HOT MIX ASPHALT (HMA) / ASPHALT CONCRETE (AC)**

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	Location/Time of Sampling
Aggregate Gradation (Sieve)	CT 202		
Sand Equivalent	CT 217	1 Per 1000 Tons or Part Thereof ; Minimum 1 per day during production/placement of at least 300 tons per day.	At Plant Per CT 125 (a)
Asphalt Binder Content	CT 382		Loose Mix Behind Paver Per CT 125
In-Place Density and Relative Compaction (Nuclear )	Nuclear (b) CT 375 or ASTM D2950 (c)	1 Per 1000 Tons or Part Thereof ; Minimum 1 per day during production/placement of at least 300 tons per day. (b)	Random Locations Per CT 375 (c)
Theoretical Maximum Specific Gravity and Density (Rice)	CT 309	1 Per Day During Production/Placement of At Least 300 Tons Per Day	Loose Mix Behind Paver Per CT 125
HMA Moisture Content	CT 226 or CT 370		
Stabilometer Value (d)	CT 366		
Asphalt Binder	Sample per Section 92	Sample 1 min. per day for production over 300 tons per day; See (f) regarding testing.	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 367 calculated maximum theoretical density
- (f) No testing required unless warranted by concern ; sample and store until completion of project

**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/CT 231	1 Min. Test per 5000 sq ft under vehicle traveled way and shoulder 1 Min. Test Per 300 linear foot under sidewalk	Random locations as determined by the Engineer in place after compaction.

**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/CT 231	1 Min. Test per 5000 sq ft	Random locations as determined by the Engineer in place after compaction.

**STRUCTURE 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/CT 231	1 Min. Test Per 2 Vertical Lifts of Placement	Random locations as determined by the Engineer in place after compaction.

**PORLAND CEMENT CONCRETE (PCC) - STRUCTURAL AND SIGNAL/LIGHTING FOUNDATIONS****COARSE AGGREGATE**

Quality Characteristic	Test Method		
Sieve Analysis	CT 202	1 min. test per 500 cu yds and per each material source ; 1 min. test on smaller projects; 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		
Sieve Analysis	CT 202	1 min. test per 500 cu yds and per each material source ; 1 min. test on smaller projects; 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	CT 533	2 per day	
Cylinders	CT 539/540	1 min. set of 3 per day; If bridge, 1 min. set per separate pour of abutment/pier/deck.	Sample from truck/work site



### **EXHIBIT 3**

**Appendix J - "Example of a Vendor's Certificate of Compliance" of the QAP  
Manual**



## Appendix J.1 - Example of a Vendor's Certificate of Compliance

No. 583408

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**VENDOR'S CERTIFICATE OF COMPLIANCE**  
MF-0543 (REV. 5/03) #CT-7541-0020-2

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 <u>XYZ CEMENT CO.</u>	MILL LOCATION <u>MIDLAND, CALIFORNIA</u>	
TYPE <u>II MODIFIED</u>		
CHEMICAL ADMIXTURE		
1. BRAND <u>ABC ADMIXTURE</u>	MANUFACTURER <u>XYZ SUPPLIER</u>	
TYPE <u>WATER REDUCER</u>		
2. BRAND	MANUFACTURER	
TYPE		
<input type="checkbox"/> CHECK BOX IF A CHEMICAL ADMIXTURE WAS NOT USED		
MINERAL ADMIXTURE		
MANUFACTURER <u>POZZ. INC.</u>	CLASS <u>F</u>	
<input type="checkbox"/> CHECK BOX IF A MINERAL ADMIXTURE WAS NOT USED		
DELIVERY DATE <u>Ready Mix 7/7/07</u>	DATES OF FABRICATION (Precast)	

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

*Portland Cement  
Flyash  
Water Reducer*

MANUFACTURER OF CONCRETE PRODUCTS  
A.E.B. READY MIX  
By: AUTHORIZED REPRESENTATIVE SIGNATURE  
Joe Anderson

FM 03 1029

Original to Res. Engr. Retain Duplicate.

OSP 01 56624



## Appendix J.2 - 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 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 .



## **EXHIBIT 4**

### **Appendix K - "Examples of Materials Certificates/Exceptions" of the QAP Manual**



## Appendix K - 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 one copy is mailed to the DLAE and filed under "Report of Expenditures."

**See the attachment (next page)**



## Appendix K (continued)

### Attachments: Materials Exceptions (Acceptance Testing)

Type of Test	Description of Work	Total Tests 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



## **EXHIBIT 5**

**Exhibit 17-G - “Materials Certificate” of the LAP Manual**

## **Exhibit 17-G: Materials Certificate**

## MATERIALS CERTIFICATE

**CITY/COUNTY LETTERHEAD**  
(Sample)

Date: \_\_\_\_\_  
Federal-Aid Project Number: \_\_\_\_\_  
Caltrans File Category 61: \_\_\_\_\_  
Job Stamp: \_\_\_\_\_

## 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.

- Exceptions to the plans and specifications are explained on the back of this memorandum (or on attached sheet).
- No exceptions to the plans and specifications were found.

---

Signature of local agency engineer in responsible charge of project and title

**Distribution:** *(For all projects)* 1) Local agency Project Files (original)  
*(For projects on the NHS)* 2) DLAE (1 copy in Report of Expenditures)  
3) FHWA (1 copy)



## **EXHIBIT 6**

**Section 16.8 - "Project Files" of the LAP Manual**

- When there is disputed work or a potential claim

The detail should be sufficient to permit review of the contractor's costs of the work in a manner similar to force account. Equipment should be identified sufficiently to enable determination of the applicable rental rates and operator's minimum wage. In some cases it may be desirable to record dates of arrival or departure of equipment, as well as idle time for breakdown or other reasons.

The narrative portion of the report should include a description of the contractor's operation and the location where the work was performed. It should also include statements made by the contractor or agency personnel, which are pertinent to the work. The report must also contain the name of the contractor or subcontractor performing the work.

When the report is used to determine compliance with the labor provisions (see Section 16.11, "Labor Compliance") of the contract, include the following additional information:

- The names or identification numbers of the contractor's personnel
- The respective classifications of the work being performed
- The number of hours worked on the date covered by the report

Reporting for labor compliance shall be done on a random spot-check basis only. The number of reports for labor compliance purposes should vary with the size and duration of the contract and the degree of compliance revealed by checking previous reports. One report per week for each operation being performed on the project should be used as an initial guide. The frequency may be reduced after a high degree of compliance has been verified.

An example of both the Resident Engineer and Assistant Resident Engineers daily report forms used by Caltrans are shown as Exhibit 16-C.

The engineers' daily reports discussed herein are required in addition to the extra work reports submitted by the contractor. For more information on the organization and use of the daily reports see the *Caltrans Construction Manual*, Chapter I, Section 1-10, and Chapter III, Section 3-00 and Section 3-01.

## 16.8 PROJECT FILES

An administering local agency must establish a separate record file for each federal-aid highway project. The project file shall contain all data pertinent to the work and to the requirements of the specifications. In general, project files should support: 1) adequacy of field control, 2) conformance to contract specifications, and 3) contract payments to the contractor. The file must be complete, available at a single location, and organized and maintained in a manner that permits inspection by Caltrans and FHWA personnel during process reviews or random checks.

Generally, whenever the local agency is unable to produce requested data or information, it shall be assumed by reviewing personnel the required actions were either never performed or not properly recorded. Organized project files can minimize these negative assumptions.

DLAEs shall periodically perform process reviews and inspect, during construction, local agency project files for compliance with federal and State requirements. Organization and content of the project file is one indicator of the effective and efficient management of the project by the resident engineer. It also minimizes resources necessary for conducting process reviews.

### Organization of Files

Local agency administered federal-aid highway project files shall be organized and include the following information indicated below:

#### **PROJECT RECORD FILING SYSTEM – LOCALLY ADMINISTERED FEDERAL-AID PROJECTS**

- 1. Project Personnel**
- 2. Correspondence**
  - a. Contractor
  - b. General
- 3. Weekly record of working days (if contract time is specified).** See Sections 12.9 and 16.5 of this manual.
- 4. Materials Data<sup>1</sup>**
- 5. Certificate of Proficiency – Form 03-HC-1 (Exhibit 16-D)<sup>2</sup>**
  - a. Independent Assurance Sampling and Testing – Form MR-0102 (Exhibit 16-E)<sup>3</sup>
  - b. Report of Witness Tests – Form MR-0103 (Exhibit 16-F)<sup>3</sup>
  - c. Project Acceptance Test Results and Initial Tests (no form available)
  - d. Project Independent Assurance Tests (no form available)<sup>3</sup>
  - e. Report of Comparison between Independent Assurance Tests (IAT) and Acceptance Tests – Form MR-0104 (Exhibit 16-G)<sup>1</sup>
  - f. Summary of Independent Assurance Testing – Form MR-0105 (Exhibit 16-H)<sup>1</sup>
  - g. Notice of Materials to be Used – Form HC-30 (3/81) (Exhibit 16-I)<sup>1</sup>
  - h. Notice of Materials to be Furnished – Form MR-0608 (Old: TL-608) (Exhibit 16-J)<sup>1</sup>
  - i. Notice of Materials to be Inspected – Form MR-0028 (Old: TL-28) (Exhibit 16-M)<sup>1</sup>
  - j. Report of Inspection of Material – Form TL-29 (REV. 2-80) (Exhibit 16-K)<sup>1</sup>

<sup>1</sup> Materials Data will vary according to the Local Agency's Quality Assurance Program (QAP). Items listed are required for the Caltrans QAP if adopted by the local agency.

<sup>2</sup> Used for NHS projects only.

<sup>3</sup> Note that these forms are not standard and vary by agency and manufacturer.

<sup>3</sup> Note that these forms are not standard and vary by agency and manufacturer.

- k. Field Laboratory Assistant Reports
- l. Certificates of Compliance<sup>1</sup>
- m. Material Testing Summary Log (as specified in Section 16.14, "Quality Assurance Program")

6. **Engineer's Daily Reports**
  - a. Resident engineer
  - b. Structure engineer
7. **Contract Item Pay Quantity Documents**
8. **Contract Change Orders**
9. **Extra Work Reports**
10. **Progress Pay Estimates and Status of Funds**
11. **Labor Compliance and EEO records**
12. **Contractor's Payrolls**
13. **Final Report**
14. **Materials Certificate**
15. **DBE Records**

Other sections of this chapter explain the contents of the above listed file categories.

A large and complex local agency project usually requires a more detailed record-keeping system. The record-keeping system described in Caltrans Construction Manual, Section 3-01-1 is suggested for large projects. This chapter includes a standardized category system which helps the Resident Engineer and staff keep their files organized.

## **Availability**

All contract documentation and backup records shall be available at any time for inspection by Caltrans and FHWA reviewing personnel. Use of a uniform project record-keeping system, together with diligent maintenance of the system, greatly facilitates a process review and minimizes negative findings. Good records of all construction activities clearly demonstrate to all concerned that project supervision and control were attained on the project.



## **EXHIBIT 7**

**Appendix H - "Example of a Log Summary Sheet" of the OAP Manual**



## Appendix H - Example of a Log Summary Sheet

### Subgrade Materials

Date	CT	Station	Elevation	Test Results	Minimum Spec.	Passed or Failed	Action Taken
5/15/07	231	1+ 00 (30' L)	99.00	93	90 or greater	Passed	N/A
5/16/07	231	1+ 50 (20' R)	100.50	94	90 or greater	Passed	N/A
5/17/07	231	2+ 25 (25' R)	101.00	96	90 or greater	Passed	N/A
5/18/07	231	1+ 50 (30' L)	101.50	95	95 or greater	Passed	N/A
5/19/07	231	2+ 50 (20' L)	102.00	92 *	95 or greater	Failed	See Note 1
5/19/07	231	2+ 50 (20' L)	102.00	95	95 or greater	Passed	N/A

CT 231 = Compaction (Nuclear Gage)

\* Note 1: The Contractor used a water tank to dampen the soil surface at the failed subgrade location. Using a sheep's foot compactor, he reworked the subgrade (making at least 10 passes) from Station 2+ 00 to Station 3+ 00. After approximately 30 minutes, another compaction test was taken. This time the relative compaction was 95.

### Aggregates and Base Materials

Date	CT	Station	Elevation	Test Results	Minimum Spec.	Passed or Failed	Action Taken
6/20/07	202	1+ 00 (10' R)	102.50	See data sheet	See data sheet	Passed	N/A
6/20/07	202	2+ 00 (20' L)	102.50	See data sheet	See data sheet	Passed	N/A
6/22/07	217	1+ 00 (10' R)	102.50	75	25 or greater	Passed	N/A
6/22/07	217	2+ 00 (20' L)	102.50	83	25 or greater	Passed	N/A
6/20/07	227	1+ 00 (20' R)	102.50	86	71 or greater	Passed	N/A
6/20/07	227	1+ 50 (20' L)	102.50	85	71 or greater	Passed	N/A
6/24/07	231	2+ 00 (20' R)	102.50	98	95 or greater	Passed	N/A
6/24/07	231	2+ 50 (20' L)	102.50	97	95 or greater	Passed	N/A

CT 202 = Sieve Analysis, CT 217 = Sand Equivalent, CT 227 = Cleanliness Value,

CT 231 = Compaction (Nuclear Gage)



## Appendix H (continued)

### Hot Mix Asphalt

Date	CT	Station	Elevation	Test Results	Minimum Spec.	Passed or Failed	Action Taken
7/10/07	339	1+ 00 (10' R)	103.00	0.08 gal/ sq yd	0.05 -0.10 gal/sq yd	Passed	N/A
7/10/07	366	2+ 00 (20' L)	103.00	32	>23	Passed	N/A
7/10/07	366	1+ 00 (10' R)	103.00	41	>23	Passed	N/A
7/10/07	375	2+ 00 (20' L)	103.00	94	RC = 93 to 97	Passed	N/A
7/15/07	375	1+ 00 (20' R)	103.00	96	RC = 93 to 97	Passed	N/A
7/15/07	375	1+ 50 (20' L)	103.00	95	RC = 93 to 97	Passed	N/A

CT 339 = Distributor Spread Rate, CT 366 = Stabilometer Value

CT 375 = In-Place Density & Relative Compaction

### Portland Cement Concrete

Date	CT	Station	Elevation	Test Results	Minimum Spec.	Passed or Failed	Action Taken
9/25/07	504	10 + 50 (50' R)	102.50	6.5%	>6.0%	Passed	N/A
9/25/07	533	12 + 50 (50' R)	102.50	1.5"	<2"	Passed	N/A
9/25/07	518	11 + 50 (50' R)	102.50	151 lb/cu ft	> 145 lb/cu ft	Passed	N/A
9/25/07	521	10 + 50 (50' R)	102.50	28 day = 4200 psi	>3800 psi	Passed	N/A
9/28/07	521	11 + 50 (50' R)	102.50	28 day = 4290 psi	>3800 psi	Passed	N/A
9/30/07	521	12 + 50 (50' R)	102.50	28 day = 4160 psi	>3800 psi	Passed	N/A

CT 504 = Air Content, CT 518 = Unit Weight, CT 521 = Compressive Strength,

CT 533 = Ball Penetration



## DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

MATERIALS ENGINEERING TESTING SERVICES AND GEOTECHNICAL SERVICES

OFFICE OF MATERIALS MANAGEMENT AND INDEPENDENT ASSURANCE

TRANSPORTATION LABORATORY-MS 5

5900 FOLSOM BLVD.

SACRAMENTO, CA 95819-4612

**Expiration Date:** 05/10/29

**Status:** In Compliance

**DATE:** 5/10/2024

### Quality Assurance Program REVIEW/ACCEPTANCE Letter

<b>Name of Agency:</b>	<u>County of Imperial</u>
<b>Address:</b>	<u>155 S. 11th Street El Centro 92243 CA</u>
<b>Telephone Number:</b>	<u>442-265-1818</u>
<b>Name and Title of person In Charge:</b>	<u>John A. Gay Lic# 62028</u> <u>Director of Public Works</u>

The document will be reviewed for compliance to California Department of Transportation, Quality Assurance (QAP) Manual for Use by Local Agencies (Jan. 20, 2011 revision) and Federal Highway Administration, 23 CFR 637.

#### A. Document Reviewed

ITEM NO.	DESCRIPTION
1	County of Imperial Quality Assurance Program (QAP) dated : 05/10/24
2	Caltrans Local Assistance District: District 11
3	Local Assistance area engineer -Alejandro Lopez-Rangel, Alejandro.Lopez-Rangel@dot.ca.gov

#### B. Conditions of acceptance

ITEM NO.	DESCRIPTION
1	<b>Document was reviewed and found to be in <u>COMPLIANCE</u> to our requirements</b>
2	Acceptance Sampling & Testing: will be done by a certified materials laboratory.
3	Independent Assurance Program: will be done by Caltrans or consultant certified materials laboratory. Per section 16.11 of Local Assistance Procedure Manual (LAPM), this QAP must be updated at least every five years.
4	Caltrans District Local Assistance must be notified if there is any change or deviation from this QAP.
5	Caltrans no longer provides source inspection services for projects off the SHS.
6	Provide a signed hard copy to <b>District 11</b> area engineer and/or DLAE for archive.

#### C. Reviewed by

Babak Rezaei. Email: [Babak.Rezaei@dot.ca.gov](mailto:Babak.Rezaei@dot.ca.gov)

Caltrans, METS/OMMIA SOUTH - (916) 204-6077

*Babak Rezaei* IA154

CERTIFIED Independent Assurance Engineer

5/10/2024

DATE.



## **EXHIBIT 8**

**Exhibit 16-Z2 - "Acceptance Testing Results Summary Log" of the LAP  
Manual**

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?	<input checked="" type="checkbox"/>	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									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
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25									