



MOUNTAINS RECREATION & CONSERVATION AUTHORITY
Los Angeles River Center & Gardens
570 West Avenue Twenty-Six, Suite 100
Los Angeles, California 90065
Phone (323) 221-9944 Fax (323) 221-9934

MRCA
Attachment- Item VIII
April 6, 2011

QUALITY ASSURANCE PROGRAM

The purpose of this program is to provide assurance that the materials incorporated into construction projects are in conformance with the contract specifications. To accomplish this purpose, the following terms and definitions will be used:

DEFINITION OF TERMS

- 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.
- Quality Assurance Program (QAP)—A sampling and testing program that will provide assurance that the materials and workmanship incorporated into the construction projects 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.

MATERIALS LABORATORY

The MRCA will use a private 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)
2. Certification of Personnel- The materials laboratory shall employ personnel who are certified by one or more of the following:
 - a. Caltrans District Materials Engineer
 - b. Nationally recognized organizations such as the American Concrete Institute, Asphalt National Institute of Certification of Engineering Technologies, etc.

- c. Other recognized organizations approved by the State of California and/or recognized by local governments or private associations.
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.

ACCEPTANCE TESTING (AT)

AT will be performed by a materials laboratory certified to perform the required tests. The test results will be used to ensure that all materials incorporated into the project are in compliance with the contract specifications.

Testing methods will be in accordance with a 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 locations and frequencies as approved by the Project Manager.

INDEPENDENT ASSURANCE PROGRAM (IAP)

IAP shall be provided by personnel from MRCA or the certified materials laboratory. IAP will be used to verify that sampling and testing procedures are being performed properly and that all testing equipment is in good conditions 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 the MRCA. 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 material test results to the Project Manager:

- When the aggregate is sampled at materials plants, test 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 the day insofar as possible, in order to avoid a predictable sampling routine. The reporting of AT results, if not performed by MRCA staff, shall be done on an expedited basis such as by fax or telephone.

TESTING OF MANUFACTURED MATERIALS

During the Design phase of the project, a "Source Inspection Request" (Exhibit 16-V of the LAPM) may be submitted to the MRCA, 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 #1. All certificates of compliance shall conform to the requirements of the contract specifications.

Should the MRCA request Caltrans to conduct the source inspection, and the request is accepted, all sampling, testing, and acceptance of manufactured and prefabricated materials will be performed by Caltrans' Office of Materials Engineering and Testing Services.

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.

PROJECT CERTIFICATION

Upon completion of a Federal-aid project, a "Materials Certificate" shall be completed. The MRCA 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 the MRCA's construction records. The Project Manager or Owner Authorized Representative for the Agency 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.

RECORDS

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

- The files shall be organized as described in Section 16.8 "Project Files" of the Local Assistance Procedures Manual.
- It is recommended that the complete project file be available at a single location for inspection by Caltrans and Federal Highway Administration (FHWA) personnel.
- The project files shall be available for at least three years following the date of final project voucher.
- The use of a "Log Summary" facilitates reviews of material sampling and testing by Caltrans and FHWA, and assists the Project Manager in tracking the frequency of testing.

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 project to complete the records.

APPROVED BY: _____
(Signature)

NAME: _____

DATE: _____

TITLE: _____

(Agency)

ATTACHMENT #1- Construction Materials Accepted by Certificate of Compliance*

Soil Amendment

Fiber

Mulch

Stabilizing Emulsion

Plastic Pipe

Lime

Reinforcing Steel

Structural Timber and Lumber

Treated Timber and Lumber

Timber and Lumber

Culvert and Drainage Pipe Joints

Reinforced Concrete Pipe

Corrugated Steel Pipe and Corrugated Steel Pipe Arches

Structural Metal Plate Pipe Arches and Pipe Arches

Perforated Steel Pipe

Polyvinyl Chloride Pipe and Polyethylene Tubing

Steel Entrance Tapers, Pipe Down drains, Reducers, Coupling Bands and Slip Joints

Aluminum Pipe (Pipe Down drains, Reducers, Coupling Bands and Slip Joints)

Metal Target Plates

Electrical Conductors

Portland Cement

Minor Concrete

Waterstop

*If Caltrans Standard Specifications May 2006 is part of contract specifications.

Note: Usually these items are inspected at the site of manufacture or fabrication and reinspected after delivery to the job site.