

SECTION 6 CONTROL OF MATERIALS

6-1 GENERAL

6-1.01 Source of Supply and Quality of Materials. The Contractor shall furnish all materials required to complete the work, except materials that are designated in the specifications to be furnished by the City.

Only materials conforming to the requirements of the specifications shall be incorporated in the work.

The materials furnished and used shall be new, except as may be provided elsewhere in these specifications, on the plans or in the Special Provisions or Technical Provisions. The materials shall be manufactured, handled, and used in a workmanlike manner to insure completed work in accordance with the plans and specifications.

Materials to be used in the work will be subject to inspection and tests by the Engineer or the Engineer's designated representative. The Contractor shall furnish without charge such samples as may be required.

The Contractor shall furnish the Engineer a list of the Contractor's sources of materials and the locations at which those materials will be available for inspection. The list shall be furnished to the Engineer in sufficient time to permit inspecting and testing of materials to be furnished from the listed sources in advance of their use. After testing, if it found that the proposed sources of supply do not furnish a uniform product, or if the product from any such sources proves unacceptable at any time, the Contractor shall furnish approved material from other sources subject to prior approval of the City. No material which, even after approval, has in any way become unfit for use shall be used in the work. The Engineer may inspect sample or test materials at the source of supply or other locations, but the inspection, sampling or testing will not be undertaken until the Engineer is assured by the Contractor of the cooperation and assistance of both the Contractor and the supplier of the material. The Contractor shall assure that the Engineer or the Engineer's authorized representative has free access at all times to the material to be inspected, sampled or tested. It is understood that the inspections and tests in no way shall be considered as a guaranty of acceptance of the material nor of continued acceptance of material presumed to be similar to that upon which inspections and tests have been made, and that inspection and testing performed by the City shall not relieve the Contractor or the Contractor's suppliers of responsibility for quality control.

Manufacturers' warranties, guaranties, instruction sheets and parts lists, which are furnished with certain articles or materials incorporated in the work, shall be delivered to the Engineer before acceptance of the contract.

6-1.02 City-Furnished Materials. Materials which are listed as City-furnished materials in the Special Provisions and/or Technical Provisions will be available to the Contractor free of charge, unless otherwise specified.

The Contractor shall submit a written request to the Engineer for the delivery of City-furnished material at least 15 days in advance of the date of its intended use. The request shall state the quantity and the type of each material.

The locations at which City-furnished materials will be available to the Contractor will be designated in the Special Provisions and/or Technical Provisions. In those cases the materials

shall be hauled to the site of the work by the Contractor at the Contractor's expense, including any necessary loading and unloading that may be involved. All costs of handling and placing City-furnished material shall be considered as included in the price paid for the contract item involving the City-furnished material.

The Contractor shall be responsible for all City-furnished materials furnished to the Contractor, and shall pay all demurrage and storage charges. City-furnished materials lost or damaged from any cause whatsoever shall be replaced by the Contractor at the Contractor's expense. The Contractor shall be liable to the City for the cost of replacing City-furnished material and those costs may be deducted from any monies due or to become due the Contractor. All City-furnished material that is not used on the work shall remain the property of the City and shall be delivered at the location specified by the Engineer.

6-1.03 Storage of Materials. Articles or materials to be incorporated in the work shall be stored in such a manner as to insure the preservation of their quality and fitness for the work, and to facilitate inspection.

6-1.04 Defective Materials. All materials, which the Engineer has determined, do not conform to the requirements of the plans and specifications will be rejected whether in place or not. They shall be removed immediately from the site of the work, unless otherwise permitted by the Engineer. No rejected material, the defects of which have been subsequently corrected, shall be used in the work, unless approval in writing has been given by the Engineer. Upon failure of the Contractor to comply promptly with any order of the Engineer made under the provisions in this Section 6-1.04, the Engineer shall have authority to cause the removal and replacement of rejected material and to deduct the cost thereof from any moneys due or to become due the Contractor.

6-1.05 Trade Names and Alternatives. For convenience in designation on the plans or in the specifications, certain articles or materials, to be incorporated in the work may be designated under a trade name or the name of a manufacturer and the manufacturer's catalogue information and followed by the words "or equal." The use of an alternative article or material, which is of equal quality and of the required characteristics for the purpose intended, will be permitted, subject to the following requirements:

The burden of proof as to the quality and suitability of alternatives shall be upon the Contractor and the Contractor shall furnish all information necessary as required by the Engineer. The Engineer shall be the sole judge as to the quality and suitability of alternative articles or materials and the Engineer's decision shall be final.

Whenever the specifications permit the substitution of a similar or equivalent material or article, no tests or action relating to the approval of the substitute material will be made until the request for substitution is made in writing by the Contractor accompanied by complete data as to the equality of the material or article proposed. The Contractor shall have at least 35 days from the award of the contract to submit data substantiating a request for substitution of "an equal" item. However, the request shall be made in ample time to permit approval without delaying the work.

Wherever a product, material or equipment is identified by only one trade name or manufacturer, it shall be understood that this particular product, material, or equipment is desired

to match others now in use by the City, or is the only known product, material or equipment which will satisfy the requirements. In such cases, no alternates will be considered.

Wherever in the contract documents the name and address of a manufacturer or supplier is given for a material, product, or equipment, or if any other source of a material, product, or equipment is indicated therefor, such information is given for the convenience of the Contractor only, and no limit, restriction, or direction is indicated or intended thereby, nor is the accuracy or reliability of such information guaranteed. It shall be the responsibility of the Contractor to determine the accurate identity and location of any such manufacturer, supplier, or other source of any material, product, or equipment called for in the contract documents.

Approval by the Engineer of substitute items proposed by the Contractor shall not relieve Contractor of the responsibility for full compliance with the contract documents and for adequacy of the substitute item. The Contractor shall also be responsible for resultant changes and all additional costs, which the substitution requires in its work, the work of subcontractors and of other contractors and shall effect the changes without cost to the City.

The Contractor shall order special products, materials and equipment in advance of their being needed in order that the work not be delayed.

6-1.05A No Warranty for Listed Material Supplier or Equipment Manufacturer. The City does not warrant nor guarantee the ability of any material supplier or equipment manufacturer listed in the specifications to perform their work in a timely manner or in a manner acceptable to City. Furthermore, the City does not warrant that such materials or equipment installed and in place will be acceptable to the City.

6-1.06 Plant Inspection. The Engineer may inspect the production of material, or the manufacture of products at the source of supply.

Plant inspection, however, will not be undertaken until the Engineer is assured of the cooperation and assistance of both the Contractor and the material producer. The Engineer or the Engineer's authorized representative shall have free entry at all times to those parts of the plant as concerns the manufacture or production of the materials. Adequate facilities shall be furnished free of charge to make the necessary inspection. The City assumes no obligation to inspect materials at the source of supply.

6-1.07 Certificates of Compliance. A Certificate of Compliance shall be furnished prior to the use of any materials for which these specifications, the Special Provisions, or the Technical Specifications require that such a certificate be furnished. In addition, when so authorized in these specifications or in the Special Provisions or Technical Provisions, the Engineer may permit the use of certain materials or assemblies prior to sampling and testing if accompanied by a Certificate of Compliance. The certificate shall be signed by the manufacturer of the material or the manufacturer of assembled materials and shall state that the materials involved comply in all respects with the requirements of the specifications. A Certificate of Compliance shall be furnished with each lot of material delivered to the work and the lot so certified shall be clearly identified in the certificate.

All materials used on the basis of a Certificate of Compliance may be sampled and tested at any time. The fact that material is used on the basis of a Certificate of Compliance shall not relieve the Contractor of responsibility for incorporating material in the work which conforms to

the requirements of the plans and specifications and any material not conforming to the requirements will be subject to rejection whether in place or not.

The City reserves the right to refuse to permit the use of material on the basis of a Certificate of Compliance.

The form of the Certificate of Compliance and its disposition shall be approved by the Engineer.

6-1.075 Proof of Compliance with Contract. In order that the Engineer may determine whether the Contractor has complied with the requirements of the contract not readily enforceable through inspection and tests of work and material, the Contractor shall, at any time when requested, submit to the Engineer properly authenticated documents or other satisfactory proofs as to the Contractor's compliance with such requirements.

6-1.08 Foreign Materials. Materials which are manufactured, produced or fabricated outside of the United States shall be delivered to a distribution point in San Francisco Bay Area, unless otherwise required in these specifications, the Special Provisions, or in the Technical Provisions where they shall be retained for a sufficient period of time to permit inspection, sampling, and testing.

Attention is directed to the provisions in Section 8-1.07, "Liquidated Damages." The Contractor shall not be entitled to an extension of time for acts or events occurring outside of the United States and it shall be the Contractor's responsibility to deliver materials obtained from outside of the United States to the point of entry into the continental United States in sufficient time to permit timely delivery to the job site.

The Contractor, at no cost to the City, shall supply the facilities and arrange for any testing required in California which the City is not equipped to perform. All testing by the Contractor shall be subject to witnessing by the Engineer.

The manufacturer, producer or fabricator of foreign material shall furnish to the Engineer a Certificate of Compliance in accordance with the provisions in Section 6-1.07, "Certificates of Compliance." In addition, certified mill test reports clearly identifiable to the lot of material shall be furnished where required in these specifications or otherwise requested by the Engineer.

6-1.10 Commencement of Warranty. Unless expressly agreed to in writing by the City, all warranties required under the contract documents shall commence upon acceptance by the City of the entire project. Use or occupancy by the City of a portion of the project either before or after completion of that portion of the work shall not commence the running of any warranty required under the contract documents.

6-1.11 Samples. All materials must be of specified quality and fully equal to samples previously submitted. The Contractor shall furnish to the Engineer for testing, free of charge, samples of all materials proposed to be used in the work, and also samples of completed Portland cement concrete or asphalt concrete work. When so required by the Engineer, the Contractor shall submit for approval samples of the various materials, together with the finish thereon, as specified for that intended to be used in the work. All materials and workmanship shall be equal in every respect to that of the samples so submitted and approved. These samples shall be sent to the place as the Engineer may direct. In all cases, freight must be prepaid by the Contractor. These samples will be returned to the Contractor, if requested, freight collect.

Where samples are called for, 2 or more samples of materials to be used in fulfilling the requirements of the specifications shall be deposited with the Engineer as soon as possible prior to their use in the work.

No materials or equipment of which samples are required to be submitted for approval shall be used on the work until approval has been given by the Engineer, save only at the Contractor's risk and expense.

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6-3 TESTING

6-3.01 General. Unless otherwise specified, all tests shall be performed in accordance with the methods approved by the City and shall be made by the Engineer or the Engineer's designated representative.

The City uses Caltrans and American Society for Testing and Material (ASTM) developed methods for testing the quality of materials and work. These methods are identified by number and are referred to in the specifications as California and ASTM Tests.

Whenever a reference is made in the specifications to a California Test by number, it shall mean the California Test in effect on the day the Notice to Contractors for the work is dated.

Whenever the specifications provide an option between 2 or more tests, the Engineer will determine the test to be used.

Whenever a reference is made in the specifications to a specification, manual, or test designation either of the American Society for Testing and Materials, the American Association of State Highway and Transportation Officials, Federal Specifications, or any other recognized national organization, and the number or other identification representing the year of adoption or latest revision is omitted, it shall mean the specification, manual, or test designation in effect on the day the Notice to Contractors for the work is dated.

Whenever said specification manual or test designation provides for test reports (such as certified mill test reports) from the manufacturer, copies of such reports, identified as to the lot of material, shall be furnished to the Engineer. The manufacturer's test reports shall supplement the inspection, sampling and testing provisions in Section 6, "Control of Materials," and shall not constitute a waiver of the City's right to inspect.

When material which cannot be identified with specific test reports is proposed for use, the Engineer may, at the Engineer's discretion, select random samples from the lot for testing. Test specimens from the random samples, including those required for retest, shall be prepared in accordance with the referenced specification and furnished by the Contractor at the Contractor's expense. The number of such samples and test specimens shall be entirely at the discretion of the Engineer.

When requested by the Engineer, the Contractor shall furnish, without charge, samples of all materials entering into the work, and no material shall be used prior to approval by the Engineer, except as provided in Section 6-1.07, "Certificates of Compliance." Samples of material from local sources shall be taken by or in the presence of the Engineer, otherwise the samples will not be considered for testing.

6-3.02 Testing by the Contractor. The Contractor shall be responsible for controlling the quality of the material entering the work and of the work performed, and shall perform testing as necessary to ensure control. The test methods used for quality control testing shall be as determined by the Contractor. The results of the testing shall be made available to the Engineer upon request. These tests are for the Contractor's use in controlling the work and will not be accepted for use as acceptance tests.

Full compensation for performing quality control tests and making the results available to the Engineer shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

6-3.03 Soils and concrete tests. Soils and concrete tests shall be made by a qualified testing laboratory selected by the Engineer. The Contractor shall notify the Engineer when the Contractor is ready for tests. The Engineer will determine the locations at which tests are to be made. Costs for tests of samples meeting the requirements of the specifications will be borne by the City whereas costs for tests of samples failing to meet the requirements of the specifications will be borne by the Contractor.

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