

## SECTION 106 - CONTROL OF MATERIAL

**106.01 Source of Supply and Quality Requirements.** The Contractor shall meet the quality requirements on the material used in the project work. The Contractor shall furnish a list of proposed sources of materials according to the format prescribed by the Engineer to speed up the inspection and testing of materials.

At the option of the Engineer, the Engineer may accept the materials at the source of supply before starting delivery. If the source fails to provide acceptable materials. The Contractor shall furnish materials from other sources according to the contract.

**106.02 Natural Material Sources.** The contract may designate possible sources of natural materials. The Contractor shall be responsible for determining the amount of equipment and work required to produce the material according to the contract. Determining the limits for an entire deposit from samples are not feasible. Variations are usual and expected. The Engineer may order procurement of material from portions of a deposit and may reject portions of the deposit as unacceptable.

The Department may make available to the Contractor the right to take materials from the sources designated and described in the contract. Also, the Department may make available to the Contractor the right to use such property for plant site, stockpiles and hauling roads.

If the Contractor desires to use material from sources other than those designated, the Contractor shall get the necessary rights to take materials from the sources. Also, the Contractor shall pay the cost related thereto including costs that may result from an increase in length of haul. The cost of exploring and developing such other sources shall be at no cost to the State. The Department will not permit the use of material from other than designated sources until the Engineer accepts the material in writing.

When there is no designation for material deposits in the contract, the Contractor shall provide sources of material acceptable to the Engineer.

When the Contractor provides sources of material or material deposits, the Contractor shall assume costs of processing samples required by the Engineer.

The Contractor shall excavate pits and quarries so no water will collect and stand in the pits and quarries.

Upon completion of the excavation and removal of the material, the Contractor shall leave the area in a neat and presentable condition. Where practicable, the Contractor shall locate borrow pits, gravel pits, and quarry sites so the sites will not be visible from the highway.

106.03

**106.03 Samples, Tests, Cited Specifications.** The Engineer will inspect, \*  
test, and accept the materials before incorporation in the work. The work \*  
using untested materials shall be at the Contractor's sole risk. The \*  
Department will not pay for unacceptable and unauthorized materials. If \*  
ordered by the Engineer, the Contractor shall remove the unacceptable and \*  
unauthorized materials at no cost to the State. The Contractor shall furnish \*  
certifications and testing required according to the contract. Also, the \*  
Contractor shall furnish certified test results, when requested, stating that \*  
the materials used in the work conforms to the contract. \*

Except as provided in Subsection 106.09 - Special Test Methods, the \*  
Engineer will test and review for acceptance the materials furnished by the \*  
Contractor according to the standard methods of AASHTO or ASTM. The Engineer \*  
will take samples. The materials used are subject to inspection, test or \*  
rejection. The State will furnish copies of tests to the Contractor at its \*  
written request. \*

The AASHTO, ASTM or other recognized national organization in use by the \*  
Engineer at the time the advertisement for project bid shall prevail for the \*  
project. \*

The Contractor shall furnish the required samples and provide every \*  
facility for the securing of material samples at no cost to the State. Also, \*  
the Contractor shall provide the means for and assist in the verification of \*  
scales, measures and other devices that the Contractor operates at no cost to \*  
the State. \*

The Department reserves the right to retest materials at the source of \*  
supply and to reject materials that do not conform to the contract. \*

The following is a listing of the AASHTO and ASTM Standards in use by the  
Department:

- (1) AASHTO Standard Specifications for Highway Materials and Methods of  
Sampling and Testing, (Parts I and II), 15th Edition.
- (2) ASTM Standards, Volumes 00.01 to 15.09, 1989 Edition.

**106.04 Plant Inspection.** The Engineer may undertake the inspection of  
materials at the source.

If the Engineer assumes plant inspection, the Contractor shall meet the  
following conditions:

- (1) The Engineer shall have the cooperation and assistance of the \*  
Contractor and the producer for the furnished materials. \*
- (2) The Engineer shall have full entry to such parts of the plant of the \*  
furnished materials. \*

(3) If required by the Engineer, the Contractor shall arrange for an acceptable building for the inspector's use. The Contractor shall locate the building near the plant, independent of buildings used by the material producer, and according to the contract. \*|  
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\*|

(4) The Contractor shall provide and maintain adequate safety measures. \*|

(5) For portland cement concrete, asphaltic concrete and aggregate crushing plants, the Contractor shall provide a testing laboratory for control and acceptance testing during periods of production and whenever the Contractor supplies the materials. The laboratory shall be next to the plant. The Contractor shall provide with adequate space, utilities and equipment required by the Engineer for doing the specified tests. \*|  
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When requesting a plant inspection for a plant previously inspected and accepted, the Contractor shall give the Engineer at least twenty-four (24) hours prior written notice. However, if the Contractor intends to use a plant or facility which has not been in use and the Engineer has not inspected and accepted such plant or facility, the Contractor shall give the Engineer at least ten (10) days prior written notice. |

**106.05 Storage of Materials.** The Engineer may again inspect stored materials, accepted before storage, before their use in the work. The Contractor may use the accepted portions of the right-of-way for storage purposes and for the placing of its plant and equipment. The Contractor shall provide additional spaces required at no cost to the State. The Contractor shall not use private property for storage purposes without written permission of the owner or lessee. The Contractor shall submit copies of the written permission to the Engineer. The Contractor shall restore storage sites to their original condition at no cost to the State. \*|  
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**106.06 Handling Materials.** The Contractor shall handle materials to preserve their quality and fitness for the work. The Contractor shall cover vehicles transporting aggregates. \*|  
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\*|

**106.07 Unacceptable Materials.** The Department will not accept materials that does not conform to the contract. The Department will reject such materials. The Contractor shall remove immediately from the work site. The Contractor shall not use corrected rejected material until the Engineer gives a written acceptance. \*|  
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**106.08 Department-Furnished Material.** The Contractor shall furnish materials required to complete the work except when the contract specifies that the Department furnishes the material. \*|  
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The Department will make the materials available at the points specified in the contract. \*|  
\*|

The Department will consider the cost of handling the materials included in the contract price. \*|  
\*|

The Department will hold the Contractor responsible for these materials. \*|

**106.09 Special Test Methods.** The Department uses the test methods specified \*  
below and are modifications of standard procedures or methods peculiar to the \*  
Department. The Contractor may find references to Hawaii Test Method in the \*  
"Materials Quality Control Manual" of the Department. \*

**(A) Relative Compaction Test.** This test determines the ratio of the dry \*  
unit weight (density) of in-place soil to the maximum dry unit weight of \*  
the same soil. |

**(1) Maximum Dry Unit Weight.** The Contractor shall use AASHTO T 180 \*  
for soil aggregate mixtures with a sand equivalent (SE) of fifteen \*  
(15) or more and AASHTO T 99 for soils or soil aggregate mixture \*  
with a SE of less than fifteen (15) with the following modifications \*  
for both procedures: \*

**(a)** The Contractor shall use Method "A" if the particles are \*  
under No. 4 mesh in size. \*

**(b)** The Contractor shall use Method "D" if the particles are \*  
over No. 4 mesh in size. The Contractor shall substitute the \*  
fraction over three-fourths (3/4) inch in size according to \*  
methods stipulated. \*

**(2) Density of Soil In-Place.** This test procedure shall be \*  
according to Hawaii Test Methods HWY-TC 1, 2 and 3. \*

**(B) Wet Method of Sample Preparation.** The Contractor shall use Hawaii \*  
Test Method HWY-TC 5 for sensitive soil mixtures when designated by the \*  
Engineer. \*

**(C) Flat and Elongated Particles.** The Contractor shall use Hawaii Test \*  
Method HWY-TC 4. \*

**(D) Load Test for Piles.** The Contractor shall use ASTM D 1143. \*

**(E) Test for Field Resistivity and pH of Backfill Material.** The \*  
Contractor shall use Hawaii Test Method HWY-TC 8. \*

**(F) Cement Titration Test.** The Contractor shall use Hawaii Test Method \*  
HWY-TC 9 for cement content of cement treated base. \*

**(G) Test for Profile Index (Profilograph).** The Contractor shall use \*  
Hawaii Test Method HWY-TC 10. \*

**(H) Test for Cold Applied Two Component Polysulfide Polymer Type Joint \*  
Sealing Compound.** The Contractor shall use Hawaii Test Method HWY-TC 11. \*

**(I) Sampling of Fresh Concrete.** The Contractor shall use Hawaii Test \*  
Method HWY-TQ 12. \*

(J) **Testing of Bridge-Bearing Pads.** The Contractor shall use Hawaii Test Method HWY-TC 13 for determining coefficient of friction, fatigue life, peel strength and physical properties of bridge-bearing pads.

(K) **Verification and Calibration of Hydraulic Jacks and Pressure Gages Used in Prestressing Operations.** The Contractor shall use Hawaii Test Method HWY-TQ 14.

(L) **Helical Lock Seam Corrugated Pipe.** The Contractor shall use Hawaii Test Method LT-TQ-15 for ascertaining the quality of the seam of a helical corrugated pipe.

(M) **Nuclear Gage Density Test In-Place Density of Bituminous Concrete.** The Contractor shall use Hawaii Test Method HWY-TQ 16.

(N) **Standard Method of Random Sampling.** The Contractor shall use Hawaii Test Method HWY-TQ 20.

(O) **Relative Density of Asphalt Concrete Pavement by Cores.** The Contractor shall use Hawaii Test Method HWY-LQ-23.

(P) **Measuring Thickness of Zinc-coated Surfaces by the Magnetic Gage Method.** The Contractor shall use Hawaii Test Method HWY-LQ-24.

(Q) **Measuring Percent Asphalt Content of Bituminous Mixtures by the Nuclear Gage Method.** The Contractor shall use Hawaii Test Method HWY-LQ-25.

(R) **Measuring the Moisture Content of Bituminous Mixtures and Mineral Aggregates by the Microwave Oven Method.** The Contractor shall use Hawaii Test Method HWY-LQ-26.

106.10 **Certificate of Compliance.** The Engineer may permit use before sampling and testing of certain materials or assemblies accompanied by a certificate of compliance. The certificate of compliance shall state that such materials or assemblies comply with the requirements of the contract. The manufacturer of the material or the manufacturer of the assembled materials involved shall sign the certificate.

The Contractor shall accompany each lot of materials or assemblies delivered to the work site by a Certificate of Compliance with substantiating test data of the lot clearly identified. The Department may sample and test the materials or assemblies used based on Certificate of Compliance. Material used, based on Certificate of Compliance, shall not relieve the Contractor of responsibility for incorporating materials according to the contract. Non-conforming material will be subject to rejection whether in place or not.

The Engineer reserves the right to refuse to permit the use of material based on a Certificate of Compliance.

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

**106.11 Domestic Materials.** According to the "Buy America" provisions in the Surface Transportation Assistance Act of 1982, the Contractor shall produce the steel materials in the United States for Federal-aid projects. Manufacturing processes for these materials used shall not exceed 0.1 percent of the total contract cost or two thousand five hundred dollars (\$2,500) whichever is greater.

If the Contractor chooses to furnish steel items from a foreign source over the minimum amount and its Amount for Comparison of Bids is lower than one furnishing domestic steel, then the above minimum use of foreign materials shall not apply.

This subsection shall not apply to furnishing optional materials instead of steel.

The Contractor shall manufacture domestic steel in the United States, of steel produced from materials and supplies mined, produced, or manufactured in the United States.

Basis for the determination of foreign or domestic character is on place of manufacture. Manufacturing processes for domestic steel shall occur in the United States. The Contractor shall furnish a Certificate of Compliance certifying that the material complies with the contract and that the steel is domestic steel as defined above.

**106.12 Recycling of Waste Glass.** The Department will permit the incorporation of crushed waste glass, up to five (5) percent by weight, in:

- (1) cushioning and backfill of underground utilities,
- (2) drainage backfill behind retaining walls,
- (3) drainage backfill surrounding leachlines and perforated drains, and
- (4) other similar uses requiring crushed aggregate for cushioning or drainage in non-structural works.

The crushed waste glass shall pass the three-eighths (3/8) inch sieve. The combined aggregate and crushed glass product shall meet the established requirements of the fill or cushion material.