

SECTION 209 BORROW

209.01 Description. This work consists of furnishing and placing additional material from approved borrow areas or other approved sources when suitable material available within the right-of-way is not sufficient in quantity for construction purposes. This work also includes all clearing, grubbing, or stripping required to prepare the borrow area for cross-sectioning and excavating.

MATERIALS.

209.02 General Requirements. The uses, classifications, characteristics, and definitions of terms for borrow materials shall be in accordance with the requirements of AASHTO M 57, Modified; M 145, Modified; and M 146 and M 147, Modified.

Unless otherwise directed, all materials having the following properties shall be excluded from use:

1. Material with a maximum dry weight less than 90lb/ft³; (1440 kg/m³).
2. Material with a liquid limit greater than 50.
3. Material containing frozen material, rubbish, boulders in excess of 6" (150 mm) in any direction, or organic matter such as leaves, roots, grass, or sewage.

209.03 Materials Testing. The method of testing materials shall be in accordance with the requirements of AASHTO T 88, Modified; T 89, Modified; T 90, Modified; and T 99 Method C, Modified.

209.04 Borrow Types. The following types of borrow are subject to the requirements of this Section.

- a. *Borrow Type A.* This material shall have between 95 and 100% inclusive, by dry weight, passing a 22" (63 mm) sieve and a maximum of 35%, by dry weight, passing a No. 200 (75 μ m) sieve.
- b. *Borrow Type B (Special Fill).* This material shall have 100%, by dry weight, passing a 30 (75 mm) sieve and a maximum of 10%, by dry weight, passing a No. 200 (75 μ m) sieve.
- c. *Borrow Type C (Backfill).* This material shall have between 85 and 100% inclusive, by dry weight, passing a 1" (25.0 mm) sieve and a maximum of 25%, by dry weight, passing a No. 200 (75 μ m) sieve.
- d. *Borrow Type D (Cement Stabilization).* This material shall have 100%, by dry weight, passing a 3" (75 mm) sieve and between 8 and 30% inclusive, by dry weight, passing a No. 200 (75 μ m) sieve.
- e. *Borrow Type E (Asphalt Stabilization).* This material shall have 100%, by dry weight, passing a 3" (75 mm) sieve and between 6 and 20% inclusive, by dry weight, passing a No. 200 (75 μ m) sieve. This material shall be non-plastic.
- f. *Borrow Type F (Common Borrow).* This material shall meet the general requirements as specified in [Subsection 209.02](#).
- g. *Borrow Type G (Select Borrow).* This material shall meet any of the grading requirements listed in the following table:

Table 209-A

Type G* (Select Borrow)

<u>Sieve Designation</u>	<u>Sieve Designation</u>	<u>Dry Weight Percent Passing Square Mesh Sieves</u>
<u>U.S. Customary</u>	<u>Metric</u>	

		<i>Grading</i>	<i>Grading</i>	<i>Grading</i>	<i>Grading</i>	<i>Grading</i>	<i>Grading</i>
		<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>V</i>	<i>VI</i>
20	50 mm	100	100	95 - 100	95 - 100	95 - 100	95 - 100
10	25.0 mm	---	75 - 95	85 - 100	85 - 100	85 - 100	85 - 100
3/80	9.5 mm	30 - 65	40 - 75	50 - 85	60 - 100	---	---
No. 4	4.75 mm	25 - 55	30 - 60	35 - 65	50 - 85	55 - 100	70 - 100
No. 10	2.0 mm	15 - 40	20 - 45	25 - 50	40 - 70	40 - 100	55 - 100
No. 40	425 μ m	8 - 20	15 - 30	15 - 30	25 - 45	20 - 50	30 - 70
No. 200	75 μ m	2 - 8	5 - 20	5 - 15	5 - 20	6 - 20	8 - 25

* The fraction passing a No. 200 (75 μ m) sieve shall not be greater than two-thirds of the fraction passing a No.40 (425 μ m) sieve. The fraction passing a No. 40 (425 μ m) sieve shall have a liquid limit not greater than 25 and a plasticity index not greater than 6, when tested according to AASHTO T 89, Modified, and AASHTO T 90, Modified.

CONSTRUCTION METHODS.

209.05 Borrow Sources. The Contractor shall notify the Department' s Materials and Research Section at least ten working days in advance of material being removed from any borrow source so that samples may be obtained and tested prior to use. The limits of approved material within the borrow source and the method of excavation shall be approved by the Department' s Materials and Research Section. The ground surface shall be cleared and grubbed in the manner described under [Section 201](#) and shall be stripped of all unsuitable material, as determined by the Engineer, before the excavation of any borrow. No borrow for the Contract shall be excavated within 100ft (30 m) of the right-of-way lines except with written permission from the Engineer.

The Contractor shall secure any borrow source that is tested, approved, and cross-sectioned for excavation by means of physical control. The method of control shall be based on conditions at the source, but may consist of complete or partial fencing, earth berms, guardrails, or other physical barriers. A gate, chain, cable, or other acceptable device shall be installed across the entrance to the source and secured by padlock. The key to the padlock will be retained by the Department, once the security method is approved.

The Contractor shall submit a physical control plan to the Engineer after the borrow source has been tested and approved, and the overburden removed. The physical control plan must be implemented and approved before the source is cross-sectioned. After excavation is completed, all borrow areas shall be trimmed and left in a neat condition to permit accurate measurement. Where practicable, water shall not collect or stand therein.

209.06 Source Testing. The Department will assist the Contractor in determining the quality and quantity of material from sources it may proposes to use. The Department will perform soil analysis tests on one test boring for each 500 yd; (400 m;) of borrow.

209.07 Placing and Compacting. All borrow under this Section shall be placed and compacted in accordance with the requirements of [Subsection 202.05](#). Placing of Type B hydraulic fill must be approved by the Engineer.

209.08 Utility Backfill. For utility trenches within the roadway, trenches shall be backfilled with material conforming to the requirements of [Subsection 209.04](#), Borrow Type C. If the existing material meets these requirements, it shall be used for utility backfill. For these areas, backfill material shall be compacted to 95% or more of the maximum density according to the requirements of [Subsection 202.05](#) (f). For utility trenches outside the roadway, trenches shall be backfilled with material conforming to the requirements of [Subsection 209.04](#), Borrow Type C, to a height of 12" (300 mm) above the top of the utility, unless directed otherwise. The remaining depth of these utility trenches shall be backfilled with existing material, unless otherwise directed. For these areas, backfill material shall be compacted to 90% or more of the maximum density according to the requirements of [Subsection 202.05](#) (f).

Material for backfilling utility trenches shall be furnished by the Contractor. Materials shall be stockpiled at location(s) mutually agreed upon by the Contractor, the utility, and the Engineer.

The operation of backfilling utility trenches shall be performed by the utility organizations involved and shall conform to the requirements of [Subsection 202.05](#) (c) and (d), except proof rolling will not be required.

Utility companies will be required to remove all excess excavation material from the Project, unless the Engineer directs it to be utilized by the Contractor in the Project.

209.09 Method of Measurement. The quantity of borrow material will be measured in cubic yards (cubic meters) of approved and acceptable borrow material. The volume will be measured at the source, in its original position by cross-sections and computed by the method of average end areas, exclusive of the volume of overburden or stripping.

When requested by the Contractor and approved by the Department in writing, borrow material, which is specified to be measured in cubic yards (cubic meters), may alternatively be weighed and the weight converted to cubic yards (cubic meters). Factors for conversion from weight measurement to volumetric measurement will be determined by the Engineer and shall be agreed to by the Contractor, before the method is used.

Where the Engineer determines it to be impracticable to obtain weight-volume conversion factors for the borrow types specified, 3200 lbs of borrow will be considered equivalent to 1 yd; (1900 kg of borrow will be considered equivalent to 1 m³).

Unless stated otherwise, all borrow material that is to be measured by weight shall be calculated as specified in [Subsection 109.01](#).

209.10 Basis of Payment. The quantity of borrow will be paid for at the Contract unit price per cubic yard (cubic meter). Price and payment will constitute full compensation for clearing, grubbing, stripping, securing the borrow source, excavating, hauling, placing, and compacting the borrow material and for all labor, equipment, tools, and incidentals required to complete the work.

[top](#)