

210 Structure Backfill

210.1 Description

- (1) This section describes furnishing backfill materials and backfilling excavations for bridges, box culverts, retaining walls, and structural plate pipes and pipe arches.

210.2 Materials

210.2.1 General Requirements

- (1) Conform to the definitions under [301.2](#). Furnish virgin materials consisting of either sand-sized particles or sand-sized particles mixed with gravel, crushed gravel, or crushed stone. Do not use crushed concrete or reclaimed asphalt.
- (2) Ensure that the material provided has a liquid limit less than or equal to 25 and a plasticity index less than or equal to 6. The contractor may substitute type A for type B material.

210.2.2 Gradation

- (1) Furnish granular backfill material with a gradation conforming to the following:

- For the entire sample, conform to the following gradation limits:

PERCENT PASSING BY WEIGHT		
SIEVE	TYPE A	TYPE B
3-inch	100	100
No. 4	25 - 100	25 - 100

- For the portion of the sample passing the No. 4 sieve, conform to the following gradation limits:

PERCENT PASSING BY WEIGHT		
SIEVE	TYPE A	TYPE B
No. 4	100	100
No. 40	0 - 75	—
No. 100	0 - 15	—
No. 200	0 - 8.0	0 - 15.0

210.2.3 Sampling and Testing

- (1) The department will sample and test material according to the following:

Aggregate Sampling	WTM R90
Mineral finer than No. 200 sieve	WTM T11
Aggregate Gradation	WTM T27
Liquid limit.....	WTM T89
Plasticity index and plastic limit	AASHTO T90

210.2.4 Source

- (1) Except as specified for materials used from roadway excavation under [104.8](#), the contractor is responsible for negotiating with property owners to obtain granular material.
- (2) Remove the granular material and restore the pit to a final condition as specified for final cleanup and material disposal under [104.9](#) and [208.3](#).
- (3) In addition to removing the topsoil, substantially remove any overburden of soil, or earthy materials passing the No. 200 sieve before excavating the granular material.
- (4) Restore the site by replacing or disposing of the removed overburden and ensure that disposal sites are neatly constructed.

210.3 Construction

- (1) Place and compact as specified in [206.3.13](#). If structure backfill is specified for other applications, place and compact as specified for those applications.

210.4 Measurement

- (1) The department will measure the Backfill Structure bid items by the ton or cubic yard acceptably completed. The department will only include material placed within the limits and in the places the plans show, the contract designates, or the engineer directs. For minor quantities, the engineer may measure by the cubic yard in the vehicle. The department may convert the measurement between weight and volume as specified in [109.1](#).
- (2) For measurement by the cubic yard, the department will determine volume in its final position.
- (3) For measurement by the ton, the department will determine weight based on contractor-provided tickets submitted daily. Submit tickets as specified in [109.1.4.2](#). For material with more than 7 percent

moisture, the department will reduce the ticket weight by the weight of water exceeding 7 percent. The department will determine moisture content as a percent of dry weight.

210.5 Payment

- (1) The department will pay for measured quantities at the contract unit price under the following bid items:

<u>ITEM NUMBER</u>	<u>DESCRIPTION</u>	<u>UNIT</u>
210.1100	Backfill Structure Type A	CY
210.1500	Backfill Structure Type A	TON
210.2100	Backfill Structure Type B	CY
210.2500	Backfill Structure Type B	TON

- (2) Payment for the Backfill Structure bid items is full compensation for providing structure backfill. The department will pay for the Backfill Structure bid items as specified in 209.5 for Backfill Granular except; if the contractor substitutes type A for type B material as allowed under [210.2](#), the department will pay at the contract unit price for Backfill Structure Type B.