

203-R-816 EMBANKMENT CONSTRUCTION WITH LIGHTWEIGHT AGGREGATE

(Adopted 03-20-26)

The Standard Specifications are revised as follows:

SECTION 203, AFTER LINE 1162, INSERT AS FOLLOWS:

203.23.3 Lightweight Aggregate Embankment

When shown on the plans, lightweight aggregate, LWA, of the type specified shall be used to construct the embankment. The LWA shall be either expanded shale or foamed glass in accordance with 904.08 and that same material shall be used throughout the embankment unless otherwise shown on the plans.

(a) General Requirements

The grade shall be prepared in accordance with 203.09. A layer of geotextile of the type shown on the plans and in accordance with 918.02 shall be placed on the prepared grade. The LWA shall not be placed in standing water or mixed with soil or other aggregate. LWA shall be placed in lifts a maximum of 12 in. thick by tracked equipment that does not crush the LWA. Construction equipment that in the determination of the Engineer causes crushing of the LWA shall immediately be removed from the embankment. The LWA shall be compacted as specified for the material below. Excessive compaction shall be avoided to minimize crushing of the LWA.

Lateral underdrains shall be installed at the bottom of LWA embankments. Lateral underdrains shall be trenched into the embankment after it has reached an elevation at least 2 ft above existing ground. The bottom of the trench shall be at the top of existing ground with adjustment made for the slope of the drain. The trench shall be located within 2 ft of the toe of slope. The trench shall be backfilled with the LWA material used for the embankment and mechanically compacted to meet the compaction requirements herein. Lateral underdrains shall be 6 in. diameter Type 4 pipe in accordance with 715.02(d) and shall be enclosed in geotextile for underdrains in accordance with 918.02. Lateral underdrains shall be spaced a maximum of 100 ft longitudinally along the centerline of the embankment, shall outlet into the roadside ditch on each side of the embankment, shall extend a minimum of 8 ft horizontally into the embankment, and shall be sloped at a minimum of 0.2%.

Underdrain outlet protectors in accordance with 718.06 shall be installed at the outlet end of each lateral underdrain.

Each lift of LWA embankment shall extend transversely over the entire area and be kept smooth and uniform. The LWA shall be encapsulated with the same geotextile used on the prepared grade and encased with sandy clay loam, clay loam, silty clay loam, or silty clay in accordance with 903.02. The encasement shall be 12 in. in depth, with 6 in. of material suitable for the growth of vegetation, measured perpendicular to the face of the slope, and constructed in accordance with 203.09. The LWA and soil encasement shall be constructed concurrently.

The LWA embankment shall be constructed to an elevation 2 ft below the bottom of the subgrade unless otherwise shown on the plans. The remainder of the embankment and subgrade shall be constructed with structure backfill or aggregate in accordance with 211

and 207. The same geotextile as that used on the prepared grade shall be used to separate the top of the LWA embankment from the structure backfill or aggregate.

(b) Expanded Shale

Each lift shall be compacted using a vibratory roller weighing no more than 10 t. Four roller passes at the lowest frequency shall be performed per lift. The placement of the expanded shale shall be performed with equipment that does not crush the expanded shale.

(c) Foamed Glass Aggregate

Foamed glass aggregate, FGA, shall be compacted using a walk-behind plate compactor. Four passes of the walk-behind plate compactor shall be used to compact each FGA lift.

SECTION 203, AFTER LINE 1461, INSERT AS FOLLOWS:

(l) Blank

(m) Measurement of Lightweight Aggregate as Borrow

LWA of the specified material will be measured by the ton in accordance with 109.01(b). Geotextiles will be measured in accordance with 214.05.

SECTION 203, AFTER LINE 1561, INSERT AS FOLLOWS:

LWA expanded shale or foamed glass will be paid for at the contract unit price per ton.

SECTION 203, AFTER LINE 1566, INSERT AS FOLLOWS:

Geotextiles of the type specified will be paid for in accordance with 214.06.

SECTION 203, AFTER LINE 1584, INSERT AS FOLLOWS:

LWA, Expanded Shale.....	TON
LWA, Foamed Glass.....	TON

SECTION 203, BEGIN LINE 1632, DELETE AS FOLLOWS:

~~The cost of geotextiles shall be included in the cost of other pay items.~~

SECTION 203, AFTER LINE 1638, INSERT AS FOLLOWS:

The costs for the use of LWA in embankment construction, including but not limited to encasement, additional erosion and sediment control measures, lateral underdrains, underdrain outlets, and all incidentals shall be included in the cost of other pay items in this section.