

ITEM 607.99050208 - PRECAST CONCRETE NOISE BARRIER/RETAINING WALL SYSTEM, EXPOSED AGGREGATE FINISH

DESCRIPTION:

This work shall consist of furnishing and erecting a noise barrier/retaining wall system at the locations indicated on the plans, as follows:

1. Providing holes to receive H-Piles (Holes paid for under other items)
2. Excavation for precast concrete lagging/wall panel installation
3. Installation of precast concrete piles in holes
4. Backfilling of holes with concrete and reinforced concrete
5. Installation of precast concrete lagging/wall panels
6. Installation of precast concrete cap
7. Backfilling as shown on the plans

This work shall also include all wall system layout adjustments required to avoid any interferences with utility lines

MATERIALS:

Requirements - Precast concrete noise barrier/retaining wall units shall meet the requirements of Section 704-03 except as noted herein.

Concrete used in panels, piles and caps shall have a minimum compressive strength of 42 MPA at 28 days. The manufacturer shall maintain, at the manufacturing site, a copy of the mix design used.

Coarse aggregate used for the exposed aggregate finish shall be crushed gravel with a Type CA 1 gradation or equal, approved by the Materials Bureau. Gravel shall not be darker than the Value 6 of the Hue 10 YR of the Munsell Rock-Color Chart or approved equal. Details of the test methods may be obtained from the Materials Bureau.

Preformed seals shall be Williams Panel Seal No. 11 from series 3000 ozone resistant material or approved equal.

Caulk and backer rods - Caulk shall meet the requirements of Section 705-06 of the Standard Specifications. Backer rods shall be polyethylene conforming to ASTM D3204, Type I.

Grout shall meet the requirements of Section 701-05 of the Standard Specifications. Color of grout shall match the exposed color of the wall system.

Reinforcing steel for the precast panels and piles shall be galvanized and meet the requirements

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of Section 709-11 of the Standard Specifications.

Bar splices, when required, shall meet the requirements of Section 709-10.

Wire fabric for concrete reinforcement shall be galvanized in accordance with ASTM A123. Fabrication, including bending of the fabric, shall be performed prior to galvanizing.

Joints - All joints between pile and panel shall be tongue and groove. Piles and panels shall be chamfered or have square angle corners as detailed on the plans. No space of any kind, including for lifting fittings, shall be allowed in the finished face of wall panel. Pile and panel joints shall be grouted or caulked as detailed on the plans. Any space shall be sealed to the satisfaction of the Engineer.

Repair (Panels, Caps, and Piles)

Repair procedures proposed for use on areas with exposed aggregate finish must be approved by the Materials Bureau before being used.

Erection

Cast-in-place concrete used to backfill precast concrete piles shall be Class G, meeting the requirements of Section 555 of the Standard Specifications.

Reinforcing steel used in concrete backfill shall meet the requirements of Section 556 of the Standard Specifications.

CONSTRUCTION DETAILS:

The contractor shall submit shop drawings for approval to the Engineer 30 days before fabrication commences. The precast concrete noise barrier/retaining wall system shall be installed in the position and manner indicated on the plans and as approved by the Engineer. The allowable deviation for vertical shall be 12.5mm in 3 meters.

A. Pile Erection - Concrete piles shall be set in holes and shall be temporarily secured to assure true line and grade prior to concrete backfilling of holes. Care shall be taken to insure that the hole is free from dirt or other foreign material. The concrete backfill shall be of such consistency to insure that the entire void between the concrete piles and the wall of the hole is completely filled. Holes shall then be backfilled with concrete. Reinforcing steel shall be provided in concrete backfill as shown on the plans. The holes shall be backfilled prior to the erection of the precast concrete lagging/wall panel.

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The precast concrete lagging/wall panel shall be installed between the concrete piles to the elevations shown on the plans. The panels shall be placed on undisturbed soil or fill as noted in the plans. The excavation for the precast concrete lagging/wall panel installation shall meet the requirements of Section 206 of the Standard Specifications.

B. Backfill - Before backfilling, the Engineer shall inspect the concrete piles and lagging/wall panel for any damage and any remedial work shall be accomplished at this time as ordered by the Engineer. Backfilling shall be in accordance with the details and typical sections shown on the plans.

METHOD OF MEASUREMENT:

The erection of the noise barrier/retaining wall system shall be measured by the number of square meters of barrier/wall satisfactorily completed in accordance with this specification and as approved by the Engineer. The number of square meters shall be computed using the following payment lines:

Upper payment lines shall be set at the elevations or heights as shown on the plans or as ordered by the Engineer.

Lower payment line shall be the bottom elevation of each panel including the portion below finished grade. Concrete piles that will be placed below the bottom of lagging/wall panel shall not be included in this measurement.

Longitudinal payment lines shall be the outer extremities of the wall.

BASIS OF PAYMENT:

The unit price bid per square meter shall include the cost of furnishing all labor, materials, equipment and tools necessary to complete the work with the exception of providing holes to receive piles. Holes are paid for under separate items. Doors in noise barrier/retaining wall system, sealant and excavations required to locate existing utility lines are paid for under separate items. Concrete backfilling, reinforcing steel, excavation, disposal of surplus materials and the cost incurred in the event of royalties shall be included in the unit price of this item.