

Special Specification 4058

Sound Walls



1. DESCRIPTION

Furnish materials and construct sound walls as shown on the plans and required by this Item.

2. MATERIALS

Conform to the pertinent requirements of the following standard specification Items:

- Item 420, "Concrete Substructures,"
- Item 421, "Hydraulic Cement Concrete,"
- Item 425, "Precast Prestressed Concrete Structural Members,"
- Item 426, "Post-Tensioning,"
- Item 427, "Surface Finishes For Concrete,"
- Item 440, "Reinforcement for Concrete,"
- Item 441, "Steel Structures,"
- Item 442, "Metal for Structures,"
- Item 445, "Galvanizing,"
- Item 446, "Field Cleaning and Painting Steel," and
- Item 449, "Anchor Bolts."

Provide concrete sound wall panels unless otherwise shown on the plans. Provide concrete sound wall posts.

Provide Class "F" Concrete for cast-in-place components with a compressive strength of 4000 psi minimum.

Provide Class "H" Concrete for precast components with a compressive strength of 5000 psi minimum.

Provide joint fillers, grout, and other incidental materials as shown on the plans or as approved by the Engineer.

3. CONSTRUCTION

3.1 General. Construct sound walls conforming to the design and details shown on the plans and to the pertinent requirements of the following Items:

- Item 424, "Precast Concrete Structural Members (Fabrication),"
- Item 429, "Concrete Structure Repair,"
- Item 447, "Structural Bolting," and
- Item 448, "Structural Field Welding."

Set all posts plumb and firm to the line and grade shown on the plans.

Do not exceed a 1/2 in. horizontal alignment tolerance from post to post. The overall vertical tolerance of the wall (plumb from top to bottom) must not exceed 1/4 in. per 10 ft. of wall height.

- 3.2 Options.** Contractor has the option to furnish any proprietary sound wall system which meets the requirements of this specification and complies with the design criteria shown on the plans. All sound wall systems will utilize drilled shafts with the same spacing, diameter, length and reinforcing steel as shown on the plans. Provide for the use of these systems in accordance with Article 7.5 "Patented Devices, Material, and Processes."
- 3.3 Working Drawings.** Prior to fabrication, prepare and submit working drawings and design calculations for the proposed sound wall system to the Engineer for review and approval following the Department's Guide to Electronic Shop Drawing Submittal process. Submit a set of casting drawings for precast segments and shop drawings for each detail of the plans requiring the use of structural steel, a set of construction drawings and a set of design calculations. Upon completion of construction, submit 1 set of reproducible as-built drawings to the Engineer.
- For sound walls to be built per contract plan, submit casting drawings and construction drawings as described below.
- 3.3.1 Casting Drawings.** Include all information necessary for precasting wall elements in the casting drawings. Casting drawings must reflect the shape and dimension of precast components, the size, quantity, and details of the reinforcing steel, the quantity, type, size, and details of connection and lifting hardware, the size and location of drain openings, and any additional details necessary.
- 3.3.2 Construction Drawings.** Include a numbered wall component layout reflecting field verified horizontal and vertical alignment of the wall. Also include all information needed to erect the wall, including the proposed drilled shaft elevations and lengths, limits of riprap, the type, details, and construction procedure for connecting the wall to the drilled shafts, details necessary to account for change of grade, existing and proposed utilities, and any additional details.
- 3.3.3 Design Calculations.** Provide design calculations that include a summary of design parameters used, including material types, strength values, allowable stresses, assumed loads and load combinations. Submit calculations covering the range of heights and loading conditions on the project.

Provide drawings and design calculations that bear the seal of a licensed professional Engineer who is registered in the State of Texas.

4. MEASUREMENT

This item will be measured by the square foot of front surface area of the sound wall, complete in place.

This is a plans quantity measurement item. The quantity to be paid is the quantity shown in the proposal and unless modified by Article 9.2 "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

Drilled shafts for sound wall foundations will be measured and paid for separately under the appropriate item number.

5. PAYMENT

The work performed and material furnished in accordance with this Item and measured as provided for under "Measurement" will be paid for at the unit price bid for "Sound Wall." This price is full compensation for furnishing and installing all sound wall materials including anchorage into the drilled shaft; for sound wall preparation, hauling and erection; and for equipment, labor, tools, and incidentals.