

Special Specification 4051

Sound Walls



1. DESCRIPTION

Furnish the materials for and construct a sound wall as shown on the plans and required by this specification.

2. MATERIALS

Use materials conforming 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,"
 Item 449, "Anchor Bolts,"
 DMS – 4640 "Chemical Admixtures for Concrete,"
 DMS – 6100 "Epoxies and Adhesives," and
 DMS – 6310 "Joint Sealants and Fillers."

Unless otherwise shown on the plans, construct sound wall panels of concrete. Concrete or steel sound wall posts are allowed. For precast and cast-in-place components, use Class "F" concrete with $f_c = 4000$ psi minimum. For prestressed components, use Class "H" concrete with $f_c = 5000$ psi minimum.

Use Galvanized anchor bolts, nuts and washers. Galvanize or paint exposed steel components with the protection system shown on the plans.

Use approved joint fillers, grout, and other incidental materials as shown on the plans.

3. GENERAL

3.1. Options. Furnish any proprietary sound wall system meeting the requirements of this specification and complying with the design criteria shown on the plans.

3.2. Working Drawings. Prior to fabricating, prepare and submit working drawings and design calculations for the proposed sound wall system for approval. Submit drawings on 11 in. x 17 in. size sheets. Submit 7 sets of casting drawings for precast segments and shop drawings for each detail of the plans requiring the use of structural steel, 7 sets of construction drawings and 2 sets of design calculations. Upon completing construction, submit 1 set of reproducible as-built drawings.

On casting drawings, include all information necessary for precasting wall elements. Ensure casting drawings 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 necessary additional details.

On construction drawings, include a numbered wall component layout reflecting field-verified horizontal and vertical alignment of the wall. Also include on these drawings all information needed to erect the wall, including the type, details, and construction procedure for connecting the wall to the footing, details necessary to account for change of grade, existing and proposed utilities, and any necessary additional details.

Ensure design calculations 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.

Submit only drawings and design calculations bearing the seal of a Professional Engineer who is licensed in the State of Texas.

4. CONSTRUCTION METHODS

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

Do not exceed a horizontal alignment tolerance of 3/4 in. from post to post. Do not exceed 1/2 in. per 10 ft. of wall height for the overall vertical tolerance of the wall (plumb from top to bottom).

5. MEASUREMENT

Sound walls will be measured by the square foot of the surface area measured from the top of the footing to the top of the profile of wall.

6. 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, designing, and installing sound wall materials including footing; anchorage into the supporting members; excavation and backfill; sound wall preparation, hauling and erection; and for labor, tools, equipment and incidentals.