

SECTION 625

DESIGN, SUPPLY AND INSTALLATION OF WELDED WIRE WALL

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625.01 SCOPE

This work shall consist of Welded Wire Retaining Wall constructed in accordance with these specifications and in reasonably close conformity with the lines, grades, design and dimensions shown on the plans or established by the Engineer. The wall shall be a Hilfiker Retaining Wall or an approved equal. The design life for the wall must be a minimum of 75 years.

625.02 MATERIALS

625.02.01 Wire Reinforcement and Cap Mesh

Wire mesh for facing shall be formed by a 90-degree bend of the soil wire reinforcement mesh and shall have a pre-bent tie to connect to the soil reinforcing mesh above. The reinforcing mesh shall be shop fabricated of cold drawn steel wire conforming to the minimum requirements of ASTM A-82 and shall be welded into the finished mesh fabric in accordance with ASTM-A185. Fabric for the Welded Wire Retaining Wall shall be hot dip galvanized (2.0oz/SF, ASTM A-123) (605 g/m²). Any damage done to the mesh galvanization prior to installation shall be repaired in an acceptable manner and provide a galvanized coating comparable to that provided by ASTM A-123.

625.02.02 Backing Materials

Where required, as shown on the plans, steel backing mat shall be W5 vertical x W2.5 horizontal (min.) (.258" [6.4mm] x .178" [4.5mm] nom. Dia.) welded wire fabric meeting ASTM A-185 and galvanized in accordance with either a), b) or c) in paragraph 2.1.

Where required, as shown on the plans, geotextile filter cloth shall be utilized to retain the soil as approved by the Engineer.

625.03 Select Granular Backfill Materials

As shown on the plans, select granular backfill materials for the Welded Wire Retaining Wall structure shall be reasonably free from organic and otherwise deleterious materials and shall conform to the following gradation limits as determined by ASTM D-422:

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Sieve Size	Percent Passing
152.4 mm	100
76.1 mm	100 - 75
75 µm (0.075 mm)	0 - 25

*If the percent passing the 75 µm sieve is greater than 15 percent, the backfill must conform to all of the following additional requirements.

- The Plasticity Index (P.I.), as determined by ASTM D-4318, shall not exceed 6.
- The fraction finer than 15 µm (0.015 mm), as determined by ASTM D-422 (AASHTO T-88) shall not exceed 15 percent.
- The material shall exhibit an angle of internal friction of not less than 34 degrees, as determined by the standard direct shear test (ASTM D-3080-72) (AASHTO T-236), utilizing a sample of the material compacted to 90% percent of ASTM D-1557-92, at optimum moisture content.

In addition, backfill materials shall also meet the following corrosion requirements:

Resistivity	≥ 3000 ohm-cm (Min)	(CA-DOT 643)
pH	5.0 to 10.0	(CA-DOT 643)
Chlorides	<200 mg/kg (ppm)	(CA-DOT 422)
Sulfates	< 1000 mg/kg (ppm)	(CA-DOT 417)

Backfill not conforming to this specification shall not be used without written consent of the Engineer.

The frequency of sampling of Select Granular Backfill necessary to assure gradation shall be directed by the Engineer.

625.04 Construction Requirements

625.04.01 Wall Excavation

Wall excavation shall be in accordance with the requirements of general specifications and in reasonably close conformity with the limits and construction stages shown on the plans.

625.04.02 Foundation Preparation

The foundation for the structure shall be graded level for a width equal to or exceeding the length of the reinforcement mat or as shown on the plans. Prior to wall construction, the foundation, if not in rock, shall be compacted, as directed by the Engineer.

Any foundation soils found to be unsuitable shall be removed and replaced, as directed by the Engineer.

625.04.03 Welded Wire Retaining Wall Erection

Wire mesh reinforcement mats, and applicable facing materials, shall be placed in successive horizontal lifts in the sequence shown on the plans as backfill placement proceeds. Vertical tolerance (plumbness) and horizontal alignment tolerance shall not exceed 38mm when measured at the junction of the wire facing and soil reinforcement along a 3m straight edge.

The overall vertical tolerance of the wall (top and bottom) after construction of the cast-in-placed concrete facing shall not exceed 13mm per 3m of wall height.

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625.04.04

Backfill Placement

Backfill placement shall closely follow erection of each course of reinforcement mats. Backfill shall be placed in such a manner as to avoid any damage or disturbance to the wall materials or misalignment of the facing. Any wall materials which become damaged or disturbed during backfill placement shall be either removed and replaced at the Contractor's expense or corrected, as directed by the Engineer.

Backfill shall be compacted to 95 % of the maximum density as determined by ASTM D-1557-92 (AASHTO T-99 Method C or D).

The moisture content of the backfill material prior to and during compaction shall be uniformly distributed throughout each layer. Backfill material shall have a placement moisture content less than or equal to the optimum moisture content. Backfill material with a placement content in excess of the optimum moisture content shall be removed and reworked until the moisture content is uniformly acceptable throughout the entire lift. The optimum moisture content shall be determined in accordance with ASTM D-1557-92.

Backfill shall be placed in complete horizontal lifts. The maximum lift thickness after compaction shall not exceed 300mm. The Contractor shall decrease this lift thickness, if necessary, to obtain the desired density.

Compaction within 900mm of the back face of the wall facing shall be achieved by at least three (3) passes of a lightweight mechanical tamper, roller or vibratory system. No soil density tests shall be taken within this area.

At the end of each day's operation, the Contractor shall slope the last level of backfill away from the wall facing to rapidly direct run-off of rainwater away from the wall face. In addition, the Contractor shall not allow surface run-off from adjacent areas to enter the wall construction.

625.05 Measurement for Payment

The unit of measurement for wall erection will be the square meters, rounded to one decimal place, of wall surface area complete and in place.

625.06 Basis of Payment

Payment shall include compensation for all labour and materials and equipment-use required to prepare the wall foundation, place the reinforcement mats, position the backing mats and screens as shown on the plans. Backfill material shall be paid for in accordance with Section 206 Grading of Cuts, 403 Excavation for Foundations or Section 207 "Borrow" as the case may be but any additional requirements for backfilling shall be considered compensated for in the contract price for the welded wire wall. Excavation required to provide a level surface for the wall shall be paid for under Item No. 6 of the Unit Price Table: Excavation for Foundations.