Part 1: General

1.1 Scope

Work includes furnishing and installing Geowall dry stack modular (DSM) concrete block units to the heights and lengths designated on the construction drawings and as specified herein.

1.2 Related Work

A. 033053 – Miscellaneous Cast-in-Place Concrete
B. 036000 – Grouting

1.3 Referenced Standards

A. AASHTO GSSB-1- M – Guide Specifications for Structural Design of Sound Barriers.
B. ASTM C140 – Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units.
C. ASTM A 615 grade 60 – Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
D. NCMA – 13-1A – Sound Transmission Class Ratings for Concrete Masonry Walls; National Concrete Masonry Association.

1.4 Delivery, Storage, and Handling

A. Contractor shall check the materials upon delivery to assure that proper materials have been received.
B. Contractor shall store products off the ground on pallets in manufacturer's unopened packaging until ready for installation.
C. Contractor shall protect the materials from damage once on site. Damaged materials shall not be incorporated into the fence wall application.

Part 2: Materials

2.1 Geowall DSM Units

A. System units shall be Geowall DSM products fabricated by authorized licensed manufacturer.
B. System units shall be manufactured to ASTM C90 with a minimum 28 day compressive strength of 3000 psi. and a minimum absorption rate of 8%. Overall width, height and length dimensions shall not differ by more than +/- 1/8" from the specified dimensions.
C. All sampling and testing shall conform to ASTM C 140 "Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units."

2.2 Cast in Place Concrete Footings

A. All footing excavations must be approved by the engineer prior to footing construction.
B. Concrete used to construct footings must have a minimum compressive strength of 3000 psi.

2.3 Reinforcing Steel

A. Reinforcing bars shall conform to ASTM A615 grade 60.

2.4 Concrete Grout

A. Concrete grout for walls shall be 4000 psi, and shall contain an efflorescence controlling admixture. Target slump for grout placement is 6"minimum.

2.5 Geowall DSM Alignment Pin

A. DSM Alignment Pins shall be of high density polyethylene (HDPE) as provided by Basalite Concrete Products.

2.6 Construction Adhesive

A. Exterior grade construction adhesive used in pilaster construction and placement of caps shall be used.

2.7 Shimming Material

A. Shimming materials when used must be of non-degradable material.

2.8 Base Material

A. Leveling non-shrink grout may be used up to max 1-1/2" thickness under dry stack masonry units on top of the concrete base. Sand leveling is not allowed.

Part 3: Execution

3.1 Excavation

A. Excavate to the lines and grades shown on the construction drawings.
B. Over excavation shall not be paid for and replacement with compacted fill and/or wall system components will be required at the contractor's expense.
C. Excavated trench must include 1/2" to 1-1/2" allowance for base leveling pad.

3.2 Cast in Place Footing Construction

A. Construct and place reinforcing steel as specified in design, ensuring proper concrete coverage.
B. Extreme care shall be taken when installing vertical steel to ensure proper alignment and spacing. Variations in block products may require adjustment in vertical spacing.
C. Pour footing as detailed in construction plans and design. Top of footing level should be at elevations such that a minimum 1/2" and a maximum 1- 1/2" base leveling pad can be placed.

3.3 Base Leveling Course

A. Place first course of units on leveling non-shrink grout and check alignment and level. Ensure proper grade for appropriate wall height and alignment with vertical footing steel.

B. Ensure that all units are in full contact with grout leveling pad. Proper compaction of leveling grout may be necessary to minimize settlement. This can usually be obtained with hand stamping, depending upon moisture content.
C. Allow proper curing time of 12-24 hours before further DSM unit installation on top of base course. Minimal unit installations may be performed if weather permits increased curing time.

3.4 Geowall DSM Unit Installations

A. Stack Geowall DSM units to appropriate heights as designed or to limits of grouting lifts.
B. Place horizontal reinforcing steel as wall is constructed per design requirements. Horizontal bars in Geowall DSM walls do not require overlap splices, but splices are acceptable.

C. As wall is constructed, block alignment performed in 4’ lifts or as needed. Lift leveling using shims or wedges applied as needed.
D. Pin placement may require pin-hole cleanout.
E. Cut Geowall DSM units with motor-driven saws to provide clean, sharp, un-chipped edges. Cut units as required to provide a continuous pattern and to fit adjoining construction. Where possible, use full-size units without cutting.

3.5 Geowall DSM Wall Grout and Cap Installation

A. Vertical steel reinforcement placement will be centered in block cells and in accordance with plans and specifications. Alignment will be ensured as vertical bars are placed in-between horizontal bars.
B. Vertical rebar will span height of wall to 2” from top of wall, with overlap minimums as indicated by plan detail.
C. Maximum height of grout lift is 8’. To ensure grout placement, appropriate indentations cut below grade level in base course can be used.
D. Excess concrete grout must be cleaned from top of grout lift. Any grout spillage must be cleaned from wall surface.
E. Caps shall be installed with a exterior grade construction adhesive. Grinding may be required where necessary to ensure level.