

Uwall SYSTEM SPECIFICATIONS:

I. GENERAL:

- A. The owner or owner's representative is responsible for reviewing and verifying that the actual site conditions are as described prior to and during construction.*
- B. The contractor is responsible to layout the location of the face of the bottom block course and the wall alignment.*
- C. All plan dimensions must be verified by the contractor. The project engineer must be notified of any discrepancies before the contractor begins with work.*
- D. Structures such as building footings, swimming pools, retaining walls, storage or solid panel fencing must be kept clear such that the load is not placed between a line projected behind the wall from the founding level at 1V : 1H and the wall.*
- E. Precautions must be taken where other building work, service trenches, garden beds, etc. may be excavated in front of the wall.*
- F. If the top of the reinforced fills is to be planted, plants with root systems that may adversely affect the facing units shall not be used.*

II. REINFORCED FILL:

- A. Fill material in the reinforced soil structure shall be granular and non-expansive and comply with the design parameters specified on the drawings. The material shall be capable of being compacted in accordance with the specified requirements to form a stable mass of fill.*
- B. Fill material in the facing blocks and in the reinforced soil structure shall be free from organic matter, plastic, metal, rubber or other synthetic material inorganic contaminants, dangerous or toxic material, or material susceptible to combustion. The pH value of the fill shall be between 5 and 10.*
- C. Fill material shall be placed in layers that are no more than one foot, and each layer shall be thoroughly compacted to not less than 95% of the maximum dry density for standard compaction in accordance with ASTM D1557. The fill moisture content shall be within $\pm 2\%$ of the optimum moisture content for compaction.*
- D. The placement and compaction of fill material shall be completed in stages to follow closely the erection of the Uwall units and placement of geogrid reinforcing elements.*
- E. Construction vehicles and equipment weighing more than 1,100 lbs. shall be kept more than five feet away from the facing Uwall. Fill material closer than five feet behind the facing wall may be compacted using hand operated mechanical equipment, such as a vibrating plate, trench compactor or similar.*
- F. Where geogrid layers overlap such as at convex wall curves, provide a minimum of 2" of fill between the geogrid layers.*

III. REINFORCING ELEMENTS (WHEN REQUIRED):

A. Geogrid reinforcing elements to be stored, transported, handled and placed to the manufacturer's specification. They shall not be damaged or displaced during placement and compaction of the fill. Vehicles shall not be operated directly above reinforcing elements that are not covered by at least 4" of fill.

B. The geogrid soil reinforcement shall be laid behind the Uwall units and horizontally on compacted fill. The strong axis of the grid shall be laid perpendicular to the wall face. The next course of units shall be placed. Pull geogrid taut, and anchor geogrid to compacted backfill prior to placing backfill. Slack in the geogrid shall be removed.

C. Do not allow fresh concrete, cement powder or lime to come into contact with the reinforcing elements.

IV. DRAINAGE:

A. Provide a drainage layer directly behind the face of the unit and between the stems. (12" thick layer of 3/4" crushed aggregate)

B. All subsurface drains to have outlets at low point and a positive drainage path. Provide subsoil drainage pipes with flushing points at high points and intermediate points.

V. DESIGN ASSUMPTIONS:

A. The design is based on soil parameters, foundation conditions, groundwater conditions, and loadings stated in the relevant specifications. Should actual conditions vary from those assumed; the project engineer should be notified prior to construction to determine if redesign of the proposed structure is required.

B. Uwall assumes no liability for interpretation of subsurface conditions suitability of soil design parameters, and subsurface groundwater conditions.

C. Uwall engineering is responsible for overturning, sliding, applied bearing pressure, geogrid strength and pullout. Slip circle/ global stability, bearing capacity, settlement, scour, temporary cut slope stability and site drainage are the responsibility of others.

VI. FOUNDATIONS:

A. Bearing capacity is controlled by general shear, maximum permissible eccentricity ratio (soil), $e/L = 0.25$

B. Foundation excavation shall extend to undisturbed natural deposits. All existing topsoil, loose material, fill, organic soil and other soft or unstable foundation soils shall be removed from the area to be occupied by the wall and replaced with crushed stone or compacted retaining wall backfill. Remove unsuitable foundation soils to the lateral limits extending beyond the wall a distance equal to the depth of fill required below the wall plus (1) one foot.

C. Soft, wet and otherwise unsuitable soil should be brought to the attention of the engineer.

D. Upon completion on the excavation, the natural subgrade shall be compacted by a minimum of 4 passes using a vibratory compactor. If ledge is encountered, loose rock should be removed and replaced with 3/4" crushed stone.

E. The foundation soil shall be examined by the engineer to ensure that the actual foundation soil strength meets or exceeds the assumed design strength. Soil not meeting the required strength shall be excavated and replaced with approved material.

F. Wall embedment at toe of wall = varies per contract plan.

VII. DESIGN PARAMETERS:

A. Design of the reinforced soil structures are based upon the following parameters:

1. Reinforced fill:

The infill soil material shall be free of debris and consist of either of the following inorganic soil types according to their USCS designations (GP, GW, SW, SP, SM, ML, CL)

2. Effective internal friction angle = 34°

3. Effective Cohesion = N/A

VIII. WALL INSTALLATION:

A. A complete set of approved construction drawings and contract specifications shall be on site at all times during construction of the retaining wall. The contractor is responsible to follow the specifications and drawings.

B. Install base course of blocks on prepared foundation leveling pad. Ensure the base course is level side to side and plumb. Adjust blocks as required to provide a straight and level base course.

C. The following tolerances are recommended:

1. Vertical control: ± 3/4" over 10ft (± 1 3/4" max.)

2. Horizontal control: same as vertical

3. Rotation from the plan batter: +2 degrees, -0 degrees

D. Geogrid shall be rolled out perpendicular to the facing units. Install geogrid in full length pieces. Pull geogrid tight and secure to hold tension on geogrid. Install drainage and backfill material on grid taking precautions to keep geogrid tight.

E. Tracked construction equipment shall not be operated directly on the geogrid reinforcement. A minimum backfill cover of 6" is required for operation of tracked vehicles over the geogrid reinforcement. Turning of tracked vehicles should be kept to a minimum to prevent tracks from displacing the fill and/or geogrid reinforcement. Rubber-tired vehicles may pass over the geogrid reinforcement at speeds less than 10 MPH. Sudden braking and sharp turning shall be avoided.

F. Retaining wall backfill shall be placed from the back of the wall face toward the ends of the geogrid to promote proper tensioning.

G. At the end of each workday, backfill surface shall be graded away from the wall face a minimum of 2% slope. The backfill surface shall be compacted with a smooth drum roller to minimize ponding of water and saturation of the backfill. A temporary soil berm shall be constructed near the crest of the MSE structure to prevent surface water runoff from overtopping the structure.

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