SECTION 1: GENERAL TECHNICAL NOTES

1.01 Description:

The work shall consist of furnishing and constructing modular Ridgerock Block and Gridlock Geogrid, or equivalent, retaining wall systems in accordance with this technical scope of work and in reasonably close conformity with the lines, grades, and dimensions shown on the Grading and Drainage Plan for Heath Springs Soccer Complex, by Woolpert Inc., Sheet No. L-500, Project No. 80703, dated July 29, 2020.

1.02 Work Included:

A. Furnishing Ridgerock segmental concrete facing and cap units, or equivalent, as shown on the construction drawings.

B. Furnishing Gridlock structural geogrid reinforcement, or equivalent, as shown on the construction drawings.

C. Storing, cutting and placing structural geogrid reinforcement and geomembrane as specified herein and as shown on the construction drawings.

D. Excavation, placement and compaction of unit wall fill and backfill material as specified herein and as shown on the construction drawings.

E. Placement of subdrain systems as shown on the construction drawings.

F. Erection of Ridgerock segmental concrete units, or equivalent and placement of structural geogrid.

1.03 Reference Documents:

A. American Association of State Highway and Transportation Officials (AASHTO)
- T-99 Moisture-Density Relations of Soils Using a 5.5 Pound Rammer in a 12-inch Drop
- T-180 Moisture-Density Relations of Soils Using a 10 Pound Rammer in a 18-inch Drop

B. American Society for Testing and Materials Standards (ASTM)
- C-33 Specification for Concrete Aggregates
- C-140 Methods of Sampling and Testing Concrete Masonry Units
- C-150 Specification for Portland Cement
- C-1372 Standard Specifications for Segmental Retaining Wall Units
- D-422 Method for Particle Size Analysis of Soils
- D-698 Method for Laboratory Compaction Characteristics of Soils Using Standard Effort
- D-732 Shear Strength of Plastic by the Punch Tool Method
- D-790 Flexural Properties Testing of Plastic
- D-1557 Method for Laboratory Compaction Characteristics of Soils Using Modified Effort
- D-1558 Method for Density and Unit Weight of Soil in-Place by the Sand Cone Method
- D-6938 Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods
- D-4253 Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table
- D-4254 Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density
- D-4595 Tensile Properties of Geotextiles by The Wide-Width Strip Method
- D-6637 Standard Test Method for Determining Tensile Properties of Geogrids by the Single or Multi-Rib Tensile Method
- D-6706 Standard Test Method for Measuring Geosynthetic Pullout Resistance in Soil

C. Federal Highway Administration (FHWA)
Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slope Design and Construction Guidelines, March 2001, FHWA-NHI-00-043.

D. National Concrete Masonry Association (NCMA)
NCMA Design Manual for Segmental Retaining Walls
NCMA SRWU-1 Connection Strength between Geosynthetics and Segmental Concrete Units
NCMA SRWU-2 Shear Strength between Segmental Concrete Units

E. Woolpert, Inc., Grading and Drainage Plan, Heath Springs Soccer Complex, Sheet No. L-500, Project No. 80703, dated July 29, 2020.

F. Terracon Consultants, Inc., Geotechnical Engineering Report, Boyd Faile Road Athletic Complex, Heath Springs, South Carolina, Project No. 71205129, Dated August 21, 2020.

G. Where specifications and reference documents conflict, the Engineer shall make final determination of the applicable document.

1.04 Special Provisions:

A. The designs presented herein are based on wall profiles, soil parameters, foundation conditions and loadings stated in documentation as outlined in Section 1.03, Items E and F, and Section 4.01. The retaining wall design is based on the use of RidgeRock facing units and GridLok geogrid reinforcement. An equivalent wall system as referenced herein shall have equal or better block to block and block to geogrid connection shear strength.

B. The reinforced backfill to be used in the wall construction must meet specific engineering requirements as outlined in this Technical Scope of Work. The suitability of on-site materials for use in the MSE wall construction, as specified herein, should be determined prior to construction.

C. The Contractor shall be responsible for the cost of all means of subsoil improvement; cost of additional subsoil exploration; and for all labor tools, equipment and incidentals necessary to complete the work.

D. The Contractor shall be responsible for complying with all federal, state and local requirements for execution of the work, including local building inspection and current OSHA excavation regulations.

E. Prior to undertaking any grading or excavation of the site, the Contractor shall confirm the location of proposed retaining wall and all underground features, including utility locations within the area of construction.

F. All work undertaken in the construction of the retaining wall are subject to the quality control/assurance and special inspection provisions outlined in Section 3.11.

G. Construction of wet utilities including but not limited to water lines and landscape irrigation should not be permitted within the reinforced backfill or retained zones of the wall system.

H. Where there is potential for conflict between geogrids and other construction in the project, Terracon should be afforded the opportunity to review construction documents and make a determination on the appropriate course of action. Under no circumstances should geogrid reinforcement be cut or severed, unless otherwise explicitly indicated in these construction documents. Any severed or damaged reinforcement without recommendation of Terracon shall be rejected at no cost to Terracon or the Owner.

I. Grading plans indicate light poles/fixtures may be constructed behind the wall. Terracon has assumed foundations for these structures will be designed by others such that no lateral loading is transferred to MSE wall facing or reinforcement. Terracon should be notified if this assumption is incorrect.

J. Terracon has completed engineering design of the proposed retaining wall, including internal stability and local external stability where applicable, based upon the information provided to us as outlined above.

K. Any changes in planned grading, locations of structures or changes in wall profiles should be brought to the attention of Terracon for modification of the wall designs as necessary.

L. Verify all dimensions and grades prior to wall construction.

SECTION 2: MATERIALS

2.01 Definitions:

A. Structural Geogrid – a Gridlock geogrid, or equivalent, formed by a regular network of integrally connected tensile elements with apertures of sufficient size to allow interlocking with surrounding soil, rock, or earth and function primarily as reinforcement.

B. Geomembrane – a very low permeability synthetic membrane.

C. Segmental Concrete Facing Units – Ridgerock segmental concrete facing, or equivalent, machine made from portland cement, water and mineral aggregates.

D. Cap Unit – a Ridgerock segmental concrete cap unit, or equivalent.

E. Subdrain – a combined system of slotted pipe, drainage composite, geotextile fabric and gravel, provided for internal drainage behind or below the reinforced backfill.

F. Unit Fill/Drainage Layer – granular fill which is within and directly behind the segmental concrete facing units.

G. Post Foundation System - a 12" diameter post fence foundation system, used to facilitate fence/ railing installation.

H. Reinforced Backfill – compacted soil which is within the reinforced soil volume as outlined on the plans.

I. Foundation Soil – compacted or in-situ soil beneath the entire wall.

J. Leveling Pad – a level compacted gravel or non-reinforced concrete footing upon which the first course of segmental concrete facing units are placed.

K. Engineer – Terracon Consultants, Inc. – Phoenix, AZ.

L. Geotechnical Engineer – Terracon Consultants, Inc. – Charlotte, NC.

2.02 Structural Geogrids:

A. The geogrids shall be GridLok structural geogrid, or equivalent, as shown on the plans, or geogrid of equivalent long term design and connection strength with the segmental concrete facing, consisting of regular grid structure of high tenacity polyester multifilament yarns woven in tension and finished with PVC coating.

B. The manufacturer shall provide the certification that the ultimate strength of the geogrid as per ASTM D8637 is equal to or greater than the ultimate strength called for on the drawings.

Geogrid Type GridLok	Ultimate Strength (lb./ft)	Long Term Design Strength (lb./ft)
370	3700 plf	1881 plf

C. An engineering report with connection strength capacity between geogrids and segmental facing units shall be provided prior to construction. The report shall certify that the connection capacity between geogrids and segmental facing units meets or exceeds the following minimum strengths:

Connection Equation Fit Parameter	GridLok 370 Peak Connection	GridLok Serviceability Connection
Intercept (lb/ft)	1090	685
Slope	20°	11°
Maximum	2097	1265

2.03 Geomembrane:

A. The geomembrane shall be Enviro EL6030 as shown on the plans, or equivalent, consisting of spun-bound 100% continuous filament polyester needle punched engineering fabric.

B. The minimum physical properties of the geotextile will include the following:
1. Thickness (ASTM D5199) – 30 mils
2. Tensile Strength (ASTM D638) – 141 psi
3. Puncture Resistance (ASTM D4833) - 53 lbs.

C. The manufacturer shall furnish the Engineer with written certification that all geomembrane used for construction meets or exceeds the minimum properties required.

2.04 Segmental Concrete Facing Units:

A. The segmental concrete facing units shall be manufactured by Ridgerock Retaining Walls Inc. licensed producers. An alternative block type may be utilized.

B. Segmental concrete facing units shall have a minimum 28-day compressive strength of 3000 psi and a maximum absorption of 13 pcf as determined in accordance with ASTM C-140. The units shall have adequate freeze/thaw protection and meet the requirements of ASTM C-1262.

C. Segmental concrete facing unit dimensions shall not differ more than 1/8 inch, except for height, which shall not differ more than 1/16 inch, as measured in accordance with ASTM C-140.

D. Segmental concrete facing units shall be interlocked by means of the geogrid or other mechanical connection.

E. Cap adhesive shall meet the requirements of the retaining wall supplier.

F. Finish and Appearance

1. All units shall be sound and free of cracks or other defects that would interfere with the proper placing and/or the unit or significantly impair the strength or performance of the construction. Minor cracks incidental to the usual method of manufacture, or minor chipping resulting from shipment and delivery, are not grounds for rejection.

2. The exposed surfaces of units shall be free of chips, cracks or other imperfections when viewed from a distance of 10 feet under diffused lighting.

Faces of segmental concrete facing units shall be tri-surfaced with outer left and right surfaces being machined and center surface being rough textured from hard splitting. Imitation raked surfaces will not be permitted.

Sampling and Testing

1. Sample and test units for compressive strength and absorption in accordance with the applicable provisions of ASTM Method C-140. Compressive strength test specimens shall conform to the saw-cut coupon provisions of section 5.2.4 of ASTM C-140 with the following exceptions:

a. Coupons shall have a minimum thickness of 1-1/2 inches (38.1 mm).

H. Color

1. Block samples, indicating available colors, shall be provided to the Owner/developer for color selection prior to construction.

2.05 Base Leveling Pad Materials and Unit Fill for Block:

A. Base Leveling Pad Material: Material for leveling pad shall consist of compacted sand, gravel, crushed rock or any combination thereof (use soil types GP, GW, SW, SP or SM), a minimum of 8 inches in thickness, constructed to the minimum dimensions shown on the construction drawings. Non-reinforced concrete may also be used.

B. Unit Fill: Fill for units shall consist of clean 1" minus free-draining well graded crushed stone or granular fill, meeting the requirements of the following gradation tested in accordance with ASTM D-422:

Sieve Size	Percent Passing
1 inch	100
3/4 inch	75 - 100
No. 4	0 – 10
No. 50	0 – 5

C. Drainage fill shall be placed within the cores of, between, and behind the units as indicated on the design drawings. Not less than 1.3 cubic foot (0.036 m³), of drainage fill shall be used for each square foot (0.093 m²) of wall face unless otherwise specified.

2.06 Reinforced Wall Backfill:

A. Reinforced backfill shall consist of suitable granular materials meeting the following gradation as determined in accordance with ASTM D-422:

Sieve Size	Percent Passing
1 inch	100
No. 4	20 – 100
No. 40	0 – 60
No. 200	0 – 35

The plasticity index of the fine fraction shall be less than 10.

If hand compaction methods are utilized in any portion of the wall backfill, the maximum particle size shall be limited to 3-inches.

B. USCS soil types CL, CH, ML, or MH shall not be used in any portion of the wall backfill including retained materials placed beyond the reinforced zones.

C. All reinforced backfill materials shall also have the minimum engineering properties shown in Section 4.01, Item A.

D. All backfill materials, whether on-site or imported, shall be approved by the Engineer prior to construction.

E. Test results of all proposed backfill materials, whether on-site or imported, shall be submitted to the Engineer for approval prior to construction.

2.07 Subdrain:

A. Geotextile used for subdrain construction shall be non-woven needle-punched fabric such as Mirafi 160N or equivalent.

B Drain pipe shall be 4-inch diameter slotted PVC or HDPE such as ADS Drainguard or approved equivalent.

C. Gravel shall be clean 3/4-inch minus free draining stone or crushed rock with no more than 5% passing a U.S. No. 200 sieve.

2.08 Post Foundation System:

A Post foundation system used for pedestrian restraint posts shall be a polypropylene sleeve such as Sleeve-It™ SD-1.

B. The Sleeve-It™ SD-1 product shall be evenly spaced no farther apart than 8 feet on centers in any case.

C. Use of the Sleeve-It™ SD-1 system is limited to the following fencing applications without consideration of wind loading:

1. 8-foot high and under chain link fences
2. 6-foot high and under wood fence with gaps between boards
3. 6-foot high and under balustrade PVC, steel, aluminum or wrought iron fences.

D. For other fencing systems not meeting the criteria above, contact the Sleeve-It™ system manufacturer to determine suitability.

2.09 Delivery, Storage, Handling:

A Structural Geogrid and Fabrics

1. Contractor shall check the units upon delivery to ensure that the proper materials have been received upon delivery.
2. All geogrids shall be stored above 20°F (-29°C).
3. Contractor shall prevent excessive mud, wet cement, epoxy, and like material which may affix themselves to the gridwork, from coming in contact with the geogrid material.
4. Rolled geogrid material may be laid flat or stood on end for storage.
5. Geogrids and geotextiles shall be stored according to manufacturer's recommendations.

B Segmental Concrete Facing Units

1. Contractor shall check the units upon delivery to ensure that proper materials have been received.
2. Contractor shall prevent excessive mud, wet cement, epoxy, and like materials from coming in contact with and affixing to the units.
3. Contractor shall protect the units from damage (i.e. cracks, chips, spalls). Damaged units shall be evaluated for usage in the wall according to ASTM C-90 and ASTM C-1372.

SECTION 3: EXECUTION

3.01 Construction:

A. The excavation shall be carried to the lines and grades shown on the construction drawings and to the extent necessary to place structural geogrid at the required embedment lengths. Contractor shall be careful not to disturb base or existing soils/fills beyond the lines shown except for that necessary to comply with applicable safety regulations.

B. Excavations will be made in a manner which will not disturb the existing construction on the site. Contractor will provide protection or will construct the wall in such a manner to maintain the integrity of existing improvements during construction.

C. In-situ materials excavated from the location of the retaining wall shall be stockpiled on-site at locations designated by the Owner and in locations which will not interfere with the execution of the work.

3.02 Subgrade Preparation:

A. Subgrade shall be excavated as required for placement of the leveling pad as shown on the construction drawings, or as directed by the Geotechnical Engineer.

B. Subgrade shall be examined by the Geotechnical Engineer to confirm that the actual foundation conditions meet or exceed design assumptions. As a minimum, soil shall be proof-rolled before construction proceeds. Subgrade conditions not meeting the required strength shall be removed and replaced with acceptable material.

C. Over-excavated areas shall be replaced with compacted granular backfill material or soils approved by the Geotechnical Engineer to the lines and grade shown on the construction drawings.

D. Granular backfill shall be placed in loose lifts not exceeding 10 inches in thickness, compacted to a minimum of 95 percent of the maximum density as determined by AASHTO T-99 or ASTM D-698. The moisture content of the backfill prior to, and during compaction shall be uniformly distributed throughout each layer and shall be within a range of 2% below, to 2% above optimum moisture content.

3.03 Base Leveling Pad:

A. Leveling Pad materials shall be placed as shown on the plans, upon undisturbed soils or compacted subgrade, to a minimum depth of 8 inches.

B. Leveling Pad materials shall be compacted to provide a level hard surface on which to place the first course of units. Leveling Pad materials shall be compacted to a minimum of 95 percent of the maximum density as determined by AASHTO T-99 or ASTM D-698. The moisture content of the backfill material prior to and during compaction shall be uniformly distributed throughout each layer and shall be within a range of 2% below, to 2% above optimum moisture content. If a well-defined maximum density curve cannot be generated by impact compaction in the laboratory, the backfill shall be compacted to a minimum of 75 percent of relative density as determined by ASTM D-4253 and D-4254.

C. Leveling Pad shall be prepared to ensure complete contact of retaining wall units with the base.

D. Provided that compaction is maintained, leveling pad materials may be extended linearly beyond the profiles shown on the plans to accommodate full-sized facing units.

3.04 Segmental Concrete Facing Unit Installation:

A. All materials shall be installed at the elevations and orientations shown on the plans. The first course segmental concrete facing units shall be placed on top of and in full contact with the leveling pad. The units shall be checked for proper elevation and alignment.

B. The segmental concrete facing units shall be installed adjacent to each other along the alignment of the wall. Proper alignment may be achieved with the aide of a string line or offset from baseline.

C. Fill the Ridgerock segmental concrete facing units with unit fill.

D. Extend the unit fill a minimum of 12 inches behind the segmental concrete facing units.

E. All excess material shall be swept from the top of the units prior to installing the next course. Each course shall be completely filled prior to proceeding to next course.

F. Offset the second course of Ridgerock segmental concrete facing units, and all those thereafter forward, so that the Ridgerock connector engages the two lower Ridgerock course. Repeat the above procedure until the proper height is achieved. Repeat procedure to the extent of wall height.

G. Terminate the end of the wall by turning the units on a radius into the embankment or tapering the top of wall with the ground slope.

3.05 Cap Installation:

A. Place the Cap Unit over the top course of retaining wall units.

B. Saw cut the block as needed.

C. Use a high strength cap adhesive to affix the cap unit to the wall.

3.06 Subdrain Construction:

A. Subdrains shall be constructed at the rear of the excavation and directly behind the segmental facing units to the lines, grades and dimensions shown on the plans.

B. Subdrains should be sloped and drained through weep holes in the face of the wall at a maximum of 30 feet on center.

3.07 Structural Geogrid Installation:

A. Geogrid shall be oriented with the highest strength axis perpendicular to the wall alignment.

B. Geogrid reinforcement shall be placed at the elevation(s) and to the extent(s) shown on the construction drawings or as directed by the Engineer.

C. The geogrid soil reinforcement shall be laid horizontally on compacted backfill. The geogrid shall be pulled taut and anchored prior to backfill placement on the geogrid. No tensioning of the geogrid materials shall be required.

D. Geogrid reinforcements shall be continuous throughout their embedment length(s). Spliced connections between shorter pieces of geogrid will not be allowed.

E. Tracked construction equipment shall not be operated directly upon the geogrid reinforcement. A minimum fill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Tracked vehicle turning should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid.

F. No changes to geogrid layout, including, but not limited to, length, geogrid type, or elevation, shall be made without the approval of the Engineer.

3.08 Post Foundation System Installation:

A. Place the Sleeve-It™ SD-1 Systems at locations of fence posts or railings supports at a maximum spacing of 8 feet on centers.

B. Assemble and Install Sleeve-It™ SD-1 Systems per manufacturer's recommendations.

C. Prepare a level area approximately 24" wide by 36" deep behind the wall face. The prepared area should be 24" below the proposed top of wall not including the cap stone.

D. Place the Sleeve-It™ unit on the level surface in an upright position with the front edge of the unit flush against the back of the wall. Multiple units should be spaced in accordance with fence specifications no longer than 8 feet on centers.

E. Encapsulate and stabilize the Sleeve-It™ unit by placing and compacting sufficient backfill material layers as required. Slit the geogrid perpendicular to the wall face just enough to fit around the base of the unit while ensuring the geogrid remains properly attached to the wall. Continue the backfilling process until the material reaches the top of the tower. Do not remove the perforated lid until ready to place post. Do not step on perforated lid, as this could cause serious bodily injury.

F. Punch the perforated lid using a mallet or hammer to expose the inside of the Sleeve-It™ unit. Detached lids can be left inside the unit or discarded prior to pouring the infill material.

G Place post through the exposed area and rest of the flat ground suface area inside the Sleeve-It™ cavity. Ensure that the post is upright and level and hold in place while carefully pouring infill material such as concrete through the exposed cavity. Follow guidelines as specified by infill supplier. Concrete is highly recommended as infill material.

3.09 Reinforced Backfill Placement

A. Reinforced backfill shall be placed, spread, and compacted in such a manner that minimizes the development of slack in the geogrid.

B. Reinforced backfill shall be placed and compacted in lifts not to exceed 6 inches where hand compaction is used, or 8-10 inches where heavy mechanical compaction equipment is used.

C. Reinforced backfill shall be compacted to a minimum of 95 percent of the maximum density as determined by AASHTO T-99 or ASTM D-698. The moisture content of the backfill material prior to and during compaction shall be uniformly distributed throughout each layer and shall be within a range of 2% below, to 2% above optimum moisture content. If a well-defined maximum density curve cannot be generated by impact compaction in the laboratory, the backfill shall be compacted to a minimum of 75 percent of relative density as determined by ASTM D-4253 and D-4254.

D. Reinforced backfill shall be compacted in all areas to the lines and grades shown on the plans including all sloped areas above.

E. Only lightweight hand-operated compaction equipment shall be allowed within 4 feet of the face of the wall.

3.10 Site Drainage:

A. At the end of each day's operation, the Contractor shall slope the last lift of reinforced backfill away from the wall facing to rapidly direct runoff away from the wall face.

B. The Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.

C. Finished grading at the top of the wall should provide positive drainage away from the retaining wall system to prevent infiltration of water into retained soils which may increase lateral pressures on the structure.

3.11 Quality Assurance:

A. Quality Assurance and Special Inspection for the project, shall be conducted in accordance with the applicable portions of the Uniform Building Code, International Building Code and the Building Construction and Safety Code, NFPA 5000, or as required by the governing building department.

B. All Special Inspectors shall be under the supervision of a registered engineer.

C. Testing and inspection services shall be performed only by trained and experienced personnel and experienced technicians currently qualified in the work they are to perform.

D. If Special Inspection is provided by anyone other than the Engineer of Record, the qualifications of all special inspectors shall be reviewed and approved by the Engineer of Record.

E. All work requiring Special Inspection shall be made available and remain accessible and exposed until it is observed by the Special Inspector.

F. Duties of the Special Inspector:

1. The Special Inspector shall observe the work requiring special inspection for performance with the approved design drawings and specifications.

2. The Special Inspector shall furnish inspection reports to be kept at the site for use by the Building Official, the Contractor and the Engineer of Record. If Special Inspection is provided by anyone other than the Engineer of Record, reports shall be submitted to the office of the Engineer of Record on a weekly basis. All discrepancies shall be brought to the attention of the Contractor for correction, then if uncorrected, to the design authority and the Building official.

3. Upon completion of the assigned work, the Special Inspector shall complete and sign a final report certifying that to the best of his knowledge, the work is in conformance with the approved plans and specifications, and the applicable workmanship provisions of the code.

H. The following Special Inspection Schedule provides the types, extents and frequency of specific items requiring special inspections and structural tests as part of this project:

SPECIAL INSPECTION SCHEDULE

Areas requiring special inspection	Frequency: Continuous	Frequency: Periodic	Comments
SPECIAL CASES (1705.1)			
Geogrid & Geomembrane	X		Special inspection shall be made of the type, location, orientation and extent of geogrid placement in each wall.
Segmental Concrete Facing Unit Installation	X		Special inspection shall be made of the location, orientation and extent of the segmental concrete facing unit placement in the wall.
Subdrain Installation		X	Special inspection shall be made of the placement and extent of the subdrain system within the wall.
SOILS (1705.6)			
Excavations		X	Verify excavations are extended to proper depth and have reached proper material.
Field Density		X	In accordance with ASTM D-6938 or ASTM D-1556. • Subgrade – One test every 500 to 1000 square feet of subgrade area. • Base Leveling Pad – One test every 100 lineal feet of wall length. • Reinforced Backfill – One test every 500 to 1000 square feet of backfill per lift.
Moisture-Density Relationships		X	In accordance with AASHTO or ASTM criteria as specified for subgrade, base leveling pad, and reinforced backfill.
Gradation Analysis		X	In accordance with ASTM D-422. • Unit Fill – One test every 75 cubic yards of material. • Wall Backfill – One test every 150 cubic yards of material.
Wall Backfill	X		Verify use of proper materials, densities and lift thickness during placement and compaction of reinforced backfill.

SECTION 4: DESIGN NOTES FOR RETAINING WALL SYSTEM

4.01 Design Parameters:

A. Design of the reinforced soil structure is based on the following parameters:

Wall Segment	Friction Angle	Cohesion	Unit Weight
Reinf. Backfill	32°	0 psf	125 pcf
Ret. Backfill	30°	0 psf	120 pcf
Foundation	25°	100 psf	110 pcf

Internal Stability of Wall
Minimum Factor of Safety on Geogrid Strength 1.5
Minimum Factor of Safety on Geogrid Pullout 1.5
Minimum Factor of Safety on Connections (Peak Load Criterion) .. 1.5
Percent Coverage of Geogrid 100%

B. External Stability
Minimum Factor of Safety Against Base Sliding 1.5
Minimum Factor of Safety Against Overturning 2.0
Minimum Factor of Safety for Bearing Capacity 2.0
Minimum Factor of Safety (Global Stability) 1.5
Uniform Surcharge (Traffic) ..... 250 psf
Uniform Surcharge (Pedestrian) ..... 50 psf
Backfill Slope ..... None

C. Factor of Safety Seismic Conditions ... 0.75x5sds FS

D. Hydrostatic Loading ..... None

E. Seismic Acceleration Coefficient (A) 0.145g
Pseudo-Static Seismic Coefficient (k) 0.074

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SOUTH CAROLINA
REGISTERED
No. 24293
11/16/2020
METE M. PROSER

Lancaster County, South Carolina
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200 Boyd Faile Road
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Revisions:

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RW-2

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