Sample project special: 506grre

02-03-11

REVISION OF SECTION 506

GEOGRID REINFORCEMENT FOR THE ROADWAY EMBANKMENT

Section 506 of the Standard Specifications is hereby revised for this project to include the following:

**DESCRIPTION**

This work consists of furnishing and installing geogrid reinforcement material, in accordance with these specifications and in conformity with the lines and grades shown on the plans or established.

**MATERIALS**

Geogrid is a polymer grid structure specifically fabricated for use as a soil reinforcement.

Geogrid reinforcement material shall conform to the following:

**GEOGRID**

|  |  |  |
| --- | --- | --- |
| **Physical Properties** | **Unit** | **\*Characteristic Values** |
| Roll Length | Feet |  |
| Roll Width | Feet |  |
| Roll Weight | Lb |  |
| Mass per Unit Area | oz/sq yd |  |
| Grid Pitch, Transverse Direction | inch |  |
| Grid Pitch, Longitudinal Direction | inch |  |
| **Mechanical Properties** | **Unit** | **Test Method** | **\*Minimum Value** |
| Peak Tensile Strength | lb/ft | ASTM D 4595 |  |
| Tensile Strength at 2% Strain, Machine Direction | lb/ft | ASTM D 4595 |  |
| Tensile Strength at 2% Strain, Cross-Machine Direction | lb/ft | ASTM D 4595 |  |
| Junction Efficiency | percent | GG2 |  |

The geogrid reinforcement shall be composed principally of polypropylene or high density polyethylene.

The geogrid reinforcement shall contain stabilizers or inhibitors to prevent degradation of properties due to ultraviolet light exposure. The geogrid reinforcement shall be inert to all naturally occurring alkaline and acidic soil conditions.

The manufacturer shall furnish certified test reports from an independent laboratory indicating that the material meets the requirements of the specification.

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REVISION OF SECTION 506

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#**CONSTRUCTION REQUIREMENTS**

Geogrid reinforcement shall be installed in accordance with the following:

(a) Delivery, Storage, and Handling. Upon delivery, the Contractor shall check the geogrid to assure the proper material has been received. Special care shall be taken in the handling of geogrids manufactured from polypropylene at temperatures at or below 0 °F.

(b) Granular Fill Placement Under Geogrid. Material placed under the geogrid shall consist of a 1 foot thick layer of Aggregate Base Course (Class 2) compacted to the satisfaction of the Engineer. Acceptance of the compacted layer shall be by visual determination of the Engineer. The surface of this layer shall be roughened to provide an interlocking effect with the geogrid.

(c) Geogrid Installation. Geogrid shall be laid at the proper elevation and alignment as shown on the plans or as directed by the Engineer. Geogrid shall be oriented such that the roll length runs parallel to the roadway alignment.

Parallel rolls shall be overlapped 1 foot. When a new roll is started, a 2 foot overlap shall be made over the end of the previous roll. Care shall be taken to ensure that geogrid sections do not separate at overlaps during construction.

Placement of geogrid around corners will require cutting of geogrid product and diagonal overlapping of same to ensure that excessive buckling of grid material does not occur.

Geogrid material shall be secured to the ground surface by placement of loose fill at the corners and edges or as directed by the Engineer.

(d) Fill Placement Over Geogrid. Tracked construction equipment shall not operate directly upon the geogrid. A minimum fill thickness of 8 inches is required prior to operation of tracked vehicles over the geogrid.

Rubber‑tire equipment may pass over the geogrid at slow speeds, less than 10 mph, if the underlying material is capable of supporting the loads without excessive rutting or causing damage to the mesh. Operators shall avoid sudden braking or sharp turning.

Fill material shall be back‑dumped from trucks riding on top of the reinforced fill and bladed onto the geogrid in such a manner that the fill rolls onto the grid ahead, e.g., by gradually raising dozer blade while moving forward.

Material placed over the geogrid shall be compacted in accordance with the compaction requirements for embankment for this project or as directed. Care shall be taken to assure the geogrid reinforcement is not damaged.

Reinforced backfill shall be compacted to 95 percent of the maximum density as determined by AASHTO T‑99. The moisture content of the backfill material prior to and during compaction shall be uniformly distributed throughout each layer and shall be within two percent of optimum.

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REVISION OF SECTION 506

GEOGRID REINFORCEMENT FOR THE ROADWAY EMBANKMENT

**METHOD** **OF MEASUREMENT**

Geogrid reinforcement will be measured in place by the square yard of surface area, completed and accepted.

**BASIS OF PAYMENT**

The accepted quantities will be paid for at the contract unit price per square yard.

Payment will be made under:

**Pay Item Pay Unit**

Geogrid Reinforcement Square Yard

Payment will be full compensation for all labor, materials, equipment, and other items necessary and incidental to the completion of the work. Additional geogrid for overlaps will not be measured and paid for, but shall be included in the work.

Aggregate Base Course (Class 2) will be paid for as provided in Section 304.

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**INSTRUCTIONS TO DESIGNERS** (delete instructions and symbols from final draft):

**\***The values in the tables are to be determined based on the type of geogrid required for the particular installation on the project.

#The Construction Requirements may need revising to address the particular installation on the project.

For technical assistance with geogrids, contact Staff Materials' Geotechnical Section.