Project Name:
Project Number:

Section 02740

Specification for Geogrid Base Reinforcement of Flexible Pavement Structures

1. GENERAL

1.1 SECTION INCLUDES

A. Geogrid for use as reinforcement of base or subbase layers of flexible pavement structures.

1.2 RELATED SECTIONS

A. Section 02050 - Basic Site Materials and Methods
B. Section 02100 - Site Remediation
C. Section 02200 - Site Preparation
D. Section 02300 - Earthwork
E. Section 02700 - Bases, Ballasts, Pavements, and Appurtenances

1.3 UNIT PRICES

A. Method of Measurement: By the square yard (or square meter - as indicated in contract documents) including seams, overlaps, and wastage.

B. Basis of Payment: By the square yard (or square meter - as indicated in contract documents) installed.

1.4 REFERENCES

A. AASHTO Standards
   1. T88 - Particle Size Analysis of Soils
   2. T90 - Determining the Plastic Limit and Plasticity Index of Soils
   3. T99 - The Moisture-Density Relations of Soils Using a 5.5lb (2.5 kg) Rammer and a 12in (305 mm) Drop.
   4. AASHTO Guide for Design of Pavement Structures, 1993.

B. American Society for Testing and Materials (ASTM):
   1. D123 - Standard Terminology Relating to Textiles
   2. D4354 - Practice for Sampling of Geogrids for Testing
   3. D4355 - Test Method for Deterioration of Geogrids from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus)
   4. D4439 – Standard Terminology for Geogrids

5. D4759 - Practice for Determining the Specification Conformance of Geogrids
6. D4873 - Guide for Identification, Storage, and Handling of Geogrid Rolls & Samples
7. D6637 - Standard Test Method for Determining the Tensile Properties of Geogrids by the Single Rib or Multi-Rib Tensile Method

C. Federal Highway Administration (FHWA) - Geogrid Design and Construction Guidelines, Publication No. FHWA HI-95-038, May 1995.

D. Geogrid Accreditation Institute (GAI) - Laboratory Accreditation Program (LAP)

E. International Standards Organization (ISO) - 9001:2015

1.5 DEFINITIONS

A. Minimum Average Roll Value (MARV): Property value calculated as typical minus two standard deviations. Statistically, it yields a 97.7 percent degree of confidence that any sample taken during quality assurance testing will exceed value reported.

1.6 SUBMITTALS

A. Submit the following:
1. Certification: The contractor shall provide to the Engineer a certificate stating the name of the manufacturer, product name, style number, and chemical composition and other pertinent information to fully describe the geogrid. The Certification shall state that the furnished geogrid meets MARV requirements of the specification as evaluated under the Manufacturer's quality control program. The Certification shall be attested to by a person having legal authority to bind the Manufacturer.

2. Quality Standards: The contractor shall provide to the Engineer the Manufacturer’s Quality Control Plan along with current GAI-LAP and ISO 9001:2015 certificates.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. The Manufacturer shall have the following credentials:

a. Geogrid Accreditation Institute (GAI) - Laboratory Accreditation Program(LAP)

b. ISO 9001:2015 Quality Management System

1.8 DELIVERY, STORAGE, AND HANDLING

A. Geogrid labeling, shipment, and storage shall follow ASTM D4873. Product labels shall clearly show the manufacturer or supplier name, style name, and roll number.

B. During storage, geogrid rolls shall be elevated off the ground and adequately covered to protect them from the following: site construction damage, precipitation, extended ultraviolet radiation including sunlight, chemicals that are strong acids or strong bases, flames including welding sparks, excess temperatures, and any other environmental conditions that may damage the physical property values of the geogrid.

2. PRODUCTS

2.1 MANUFACTURERS

A. TenCate Geogrids Americas
365 South Holland Drive
Pendergrass, GA, USA 30567
1-800-685-9990
1-706-693-2226
www.tencategeo.us

2.2 MATERIALS

A. Reinforcement Geogrid:

1. Polymers used in the manufacture of geogrids shall consist of long-chain synthetic polymers, composed of at least 95 percent by weight of polyolefins, polyesters, or polyamides. They shall be formed into a stable network such that the ribs, filaments or yarns retain their dimensioned stability relative to each other, including selvages.

2. The geogrid shall meet the requirements of Table 1. All numeric values in Table 1 represent MARV in the specified direction.

TABLE 1 - FLEXIBLE PAVEMENT REINFORCEMENT GEOGRID

Property	Test Method	Units	Required Value	
Reinforcement Properties			MD	CD
Tensile Strength @ 2% Strain	ASTM D6637	lbs/ft (kN/m)	411 (6.0)	617 (9.0)
Tensile Strength @ 5% Strain	ASTM D6637	lbs/ft (kN/m)	809 (11.8)	1343 (19.6)
Survivability Index Values			MD	CD
Ultimate Tensile Strength	ASTM D6637	lbs/ft (kN/m)	1316 (19.2)	1974 (28.8)
Ultraviolet Stability (after 500 hrs)	ASTM D4355	%	100	

3. Approved geogrids are as follows:

Mirafi® BXG120

2.3 QUALITY CONTROL

A. Manufacturing Quality Control: Testing shall be performed at an on-site laboratory accredited by GAI-LAP for tests required for the geogrid, at frequency meeting or exceeding ASTM D4354.

B. Ultraviolet Stability shall be verified by an independent laboratory on the geogrid or a geogrid of similar construction.

3. EXECUTION

3.1 See Manufacturer's Installation guidelines provided in the submittal.

END OF SECTION