

ITEM 494

GEOTEXTILES

494.1 Description. This item specifies geotextile fabric to be used in pavements or erosion control as herein specified or as called for on the drawings or as directed by the Engineer.

494.2 Material. The Geotextile fabric and the threads used in joining Geotextiles by sewing shall be manmade long-chain synthetic polymer fibers, composed of at least 95% by weight of polyolefins or polyesters that form a durable woven or non-woven mat of uniform quality such that the filaments or yarns retain their dimensional stability relative to each other, including selvages. They provide separation, water proofing and stress relieving membrane within the pavement structure.

There are three classes of geotextile fabric:

- Class 1 is specified for more severe or harsh installation conditions where there is a greater potential damage
- Class 2 and 3 are specified for less severe conditions

General Requirements:

- Fabric fibers are continuous and randomly oriented throughout the fabric.
- The fabric is mildew resistant and rot-proof and it is satisfactory for use in a wet soil and aggregate environment.

Geotextiles used for separation, stabilization, subsurface drainage, temporary silt fence, paving fabric and permanent erosion control shall satisfy AASHTO M288-00 "Geotextile Specification for Highway Applications" requirements, and shall meet the following minimum physical property values:

<u>PROPERTIES</u>	<u>TEST METHOD</u>	<u>VALUE</u>					
		Class 1		Class 2		Class 3	
		Elongation <50 %	Elongation ≥50%	Elongation <50 %	Elongation ≥50%	Elongation <50 %	Elongation ≥50 %
Ultra-Violet Stability (Strength Retained)	ASTM D 4355	50% after 500h of exposure		50% after 500h of exposure		50% after 500h of exposure	
Trapezoid Tear (N)	ASTM D 4533	500	350	400	250	300	180
Grab Tensile Strength (N) **	ASTM D 4632	1400	900	1100	700	800	500

Puncture (N)	Resistant	ASTM D 4833	500	350	400	250	300	180
Sewn Seam (N)	Strength	ASTM D 4884	1260	810	990	630	720	450
Permittivity (sec ⁻¹)		ASTM D 4491	0.05		0.02-0.7*			
Melting Point	***	ASTM D 276						
Ultimate Elongation %	***	ASTM D 4632						
Apparent Size	Opening	ASTM D 4751						
Mass Per Unit Area		ASTM D 5261						
Asphalt Retention		ASTM D 6140						

- * Permittivity shall be as specified in the bid documents in accordance with tables 2, 3, 4, 5 and 6 of AASHTO M288-00 as per the requirements of various applications.
- ** Opening size shall be as specified in the bid documents in accordance with tables 2, 3, 4, 5 and 6 of AASHTO M288-00 as per the requirements of various applications.
- *** These shall be as specified in the bid documents/construction notes in accordance with tables 1 and 7 of AASHTO M288-00 as per the requirements of various applications.

Notes:

1. Conformance to specification property requirements shall be based on ASTM D 4759.
2. All numeric values represent the minimum average roll values (i.e. the average of test results from any sample roll in a lot shall equal or exceed the minimum values). Lots shall be sampled according to ASTM D 4354.

494.3

Packaging Requirements:

- Provide fabric in the length and width specified on the plans or in the bid documents.
- Wind fabric onto suitable cylindrical forms or cores to aid in handling and unrolling.
- Package fabric individually in a suitable container to protect the geotextile from damage due to ultraviolet light and moisture during normal storage and handling.

- Identify each roll with a tag or label affixed to the outside or the roll on one end the following information: unique roll number, serially designated; manufacturer's lot number or control numbers, if any; name of fabric manufacturer; brand name of the product; manufacturer's style or catalog designation of the fabric, if any; roll width (inches); roll length (feet).

494.4 Submittal Requirement. When requested by the Engineer, the Contractor shall provide samples of the geosynthetics for testing. The test results will be used to verify that the physical properties specified in this specification have been met. The cost of the testing will be paid for by Harris County. The contractor shall also submit manufacturer's recommended installation method for geotextile installation based on its designated application.

Quality Assurance/Quality Control. Should any individual sample selected at random from 100 rolls, or fraction thereof, fail to meet any specification requirement, then that roll will be rejected. Two additional samples will be taken, one from each of two other rolls selected at random from the same 100-roll lot, or fraction thereof. If either of these two additional samples fails to comply with any portion of the specification, then the entire quantity of rolls selected by that sample will be rejected.

494.5 Placing. The geotextile shall be placed in accordance with the specifications of the various applications.

494.6 Measurement. The geotextile fabric shall be measured in place by the square yard of material, furnished and placed as shown in the plans. Waste and overlap shall not be included in this measurement.

494.7 Payment.

- A. Payment for geotextile, complete in place shall be made at the contract unit price of the specified class per square yard, which price shall include all costs of materials, and labor to place it in position.
- B. Where the bid sheet specifies FOB the job, the materials shall be transported to the job site specified on the bid sheet and paid for by the square yard.
- C. When the Project Manual, plans or other specifications indicate the use of geotextile as incidental to another pay item, no direct payment for the material will be made.

There are line code(s), description(s) and unit(s) for this item.

SUMMARY SHEET
ITEM 494
GEOTEXTILE

Other Specifications Required

None

Reference Standard

1. ASTM D276-00a Standard Test Methods for Identification of Fibers in Textiles
2. ASTM D4354-99(2004) Standard Practice for Sampling of Geosynthetics for Testing
3. ASTM D4355-02 Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus
4. ASTM D4491-99a(2004) Standard Test Methods for Water Permeability of Geotextiles by Permittivity
5. ASTM D4533-04 Standard Test Method for Trapezoid Tearing Strength of Geotextiles
6. ASTM D4632-91(2003) Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
7. ASTM D4751-04 Standard Test Method for Determining Apparent Opening Size of a Geotextile
8. ASTM D4759-02 Standard Practice for Determining the Specification Conformance of Geosynthetics
9. ASTM D4833-00 Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
10. ASTM D4884-96(2003) Standard Test Method for Strength of Sewn or Thermally Bonded Seams of Geotextiles
11. ASTM D 5261-92 Standard Testing Method for Measuring Mass per Unit Area of Geotextiles
12. ASTM D6140-00 Standard Test Method to Determine Asphalt Retention of Paving Fabrics Used in Asphalt Paving for Full-Width Applications
13. AASHTO M288-00 Geotextile Specifications for Highway Applications
14. TXDOT DMS 6200 (2004) Filter Fabric

Description

This item discusses the furnishing of Geotextile fabric.

Payment

Paid for by the square yards or square feet.

DO NOT INCLUDE THIS SHEET IN THE CONTRACT SPECIFICATIONS.