

ITEM 494

GEOTEXTILES

494.1 Description. This Item shall govern for 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 percent 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:

PROPERTIES

TEST METHOD

VALUE

		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 Resistant (N)	ASTM D 4833	500	350	400	250	300	180
Sewn Seam Strength (N)	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 Opening Size**	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 Item 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.

END OF ITEM 494