

Section 02621

GEOTEXTILE

PART 1 GENERAL

1.01 SUMMARY

This Section includes Geotextile, also called filter fabric, in applications including pipe embedment wrap, around exterior of tunnel liner, around foundations of pipeline structures, and slope stabilization.

1.02 MEASUREMENT AND PAYMENT

A. Unit Prices.

1. No separate payment will be made for Work performed under this Section. Include cost of Work in unit prices for Work requiring geotextile.
2. Refer to Section 01270 – “Measurement and Payment” for unit price procedures.

1.03 REFERENCES

- A. AASHTO M 288 - Standard Specification for Geotextile Specification for Highway Applications.
- B. ASTM D 3786 - Standard Test Method for Bursting Strength of Textile Fabrics – Diaphragm Bursting Strength Tester Method.
- C. ASTM D 4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
- D. ASTM D 4533 - Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
- E. ASTM D 4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
- F. ASTM D 4751 - Standard Test Method for Determining Apparent Opening Size of Geotextile.
- G. ASTM D 4833 - Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products.

1.04 SUBMITTALS

- A. Conform to requirements of Section 01330 – “Submittal Procedures”.

- B. Submit standard manufacturer's catalog sheets and other pertinent information, for approval, prior to installation.
- C. Submit installation methods, as part of Work plan for tunneling or for excavation and backfill for utilities. Obtain approval from Project Manager for filter fabric material and proposed installation method prior to use of filter fabric.

1.05 RELATED REQUIREMENTS

- A. Section 01270 – “Measurement and Payment”
- B. Section 01330 – “Submittal Procedures”
- C. Section 02317 – “Excavation and Backfill for Utilities”
- D. Section 02517 – “Water Line in Tunnels”
- E. Section 02425 – “Tunnel Excavation and Primary Liner”

1.06 – 1.13 NOT USED

PART 2 PRODUCTS

2.01 MANUFACTURER(S) (NOT USED)

2.02 MATERIALS AND/OR EQUIPMENT

- A. Provide geotextile (filter fabric) designed for use in geotechnical applications. Filter fabric shall provide permeable layer or media while retaining soil matrix.
- B. Use fabric which meets physical requirements for Class A subsurface drainage installation conditions as defined in AASHTO M 288 and as specified in Paragraph 2.02.C, Properties
- C. PROPERTIES
  - 1. Material: Nonwoven, nonbiodegradable, fabric consisting of continuous chain polymer filaments or yarns, at least 85 percent by weight polyolefins, polyesters or polyamide, formed into dimensionally stable network.
  - 2. Chemical Resistance: Inert to commonly encountered chemicals and hydrocarbons over pH range of 3 to 12.
  - 3. Physical Resistance: Resistant to mildew and rot, ultraviolet light exposure, insects and rodents.

4. Minimum Test Values:

<b>Property</b>	<b>Value (Min.)</b>	<b>Test Method</b>
Grab Strength	180 lbs.	ASTM D 4632
Trapezoidal Tear Strength	50 lbs.	ASTM D 4533
Puncture Strength	80 lbs.	ASTM D 4833
Mullen Burst Strength	290 psi.	ASTM D 3786
Apparent Opening Size <sup>(1)</sup>	0.25 mm	ASTM D 4751
Permittivity (sec <sup>-1</sup> )	0.2	ASTM D 4491

<sup>(1)</sup> Maximum average roll value.

2.03 – 2.04 NOT USED

**PART 3 EXECUTION**

3.01 – 3.02 NOT USED

**3.03 ERECTION/INSTALLATION APPLICATION AND/OR CONSTRUCTION**

**A. LINE WORK**

Conform use of geotextile with backfill for utilities to Section 02317 – “Excavation and Backfill for Utilities”.

**B. TUNNEL WORK**

1. Use geotextile outside of tunnel primary liner to prevent migration of soil fines into excavated tunnel resulting in voids or settlement. Select geotextile, subject to minimum requirements of Paragraph 2.02, meeting tunnel liner design requirements and installation conditions.
2. Install filter fabric around exterior of primary liner when using steel ribs and lagging. Install backer rods at ribs as required to control migration of fines. Close windows in lagging.
3. Waterlines: Conform to Section 02517 – “Water Line in Tunnels”.

3.04 – 3.10 NOT USED

END OF SECTION