

**1706 – ABUTMENT STRIP DRAIN**

**SECTION 1706**

**ABUTMENT STRIP DRAIN**

**1706.1 DESCRIPTION**

The abutment strip drain is a prefabricated geocomposite system used to provide drainage behind abutment backwalls, wing walls, retaining walls or under slopes.

**1706.2 REQUIREMENTS**

**a. General.** The system is preformed using a lightweight, high impact polymeric core with an attached geotextile (filter fabric). The composite polymer core is bonded to the geotextile at intervals not exceeding 1 1/8 inch in any direction. The preformed system permits the flow of water through the core. The geotextile fabric is thermal (heat) bonded or fungicide glue bonded to the polymeric core. The composite product sheets or rolls have a minimum width of 3 feet with a minimum area of 40 square feet. Store and handle the system in accordance with manufacturer's recommendations, except that in no case may geotextile be exposed to direct sunlight, ultraviolet rays, temperature greater than 140°F, mud, dirt, dust, and debris. Do not use any core section that becomes torn or punctured. All material delivered to the project must meet or exceed the physical requirements based on minimum average roll or sheet values in **TABLE 1706-1**.

| <b>TABLE 1706-1: COMPOSITE SYSTEM PROPERTIES</b>   |                    |                    |
|--|--------------------|--------------------|
| <b>Property</b>  | <b>Requirement</b> | <b>Test Method</b> |
| Thickness (mils)   | 250 min., 500 max  | ASTM D 1777        |
| Peel Strength (lbs/ft)   | 5 minimum          | ASTM D 1876        |
| Transmissivity (gals/min/ft) at hydraulic gradient of 1.0 and minimum normal stress of ½ the crush strength of the core. | 10 minimum         | ASTM D 4716        |

**b. Core.** The core is a lightweight polymer plastic composition of either polystyrene, polyethylene, polypropylene, or PVC, with a convexity structure and complies with **TABLE 1706-2**.

| <b>TABLE 1706-2: CORE PROPERTIES</b> |                    |                    |
|--------------------------------------|--------------------|--------------------|
| <b>Property</b>                      | <b>Requirement</b> | <b>Test Method</b> |
| Std. Crush Strength:                 |                    |                    |
| Wall Drain (lbs/sq ft)               | Min. 10,000        | ASTM D 1621        |
| Slope Drain (lbs/sq ft)              | Min. 18,000        | ASTM D 1621        |
| Deflections (%)                      | Max. 20            | ASTM D 1621        |
| Thickness (mils)                     | Min. 230           | ASTM D 1777        |

**c. Geotextile Filter Fabric.** Provide fabric that complies with AASHTO M 288 for subsurface drainage geotextiles with properties for Class 2 geotextile with elongation greater than or equal to 50%, and percent in-situ soil passing the No. 200 sieve of greater than 50%.

NOTE: Use backfill soils with a liquid limit less than 50.

**1706.3 TEST METHODS**

Test the composite and individual components according to the standards cited in **subsection 1706.2**.

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### 1706.4 PREQUALIFICATION

For prequalification, supply samples of the finished product from production to the KDOT Engineer of Tests for testing and evaluation. Submit separate samples of the core material and the filter fabric. All samples must be 10 feet long by nominal roll width. Submit a manufacturer's or independent laboratory test report addressing the properties in **subsection 1706.2**.

When it becomes available, test results for the product will be accepted from the AASHTO National Transportation Product Evaluation Program (NTPEP) without submitting samples. Forward an official copy of the test report to the Bureau Chief of Materials and Research for evaluation. Prequalification will be based on satisfactory compliance of NTPEP results with this specification.

If the KDOT test or NTPEP results comply with **subsection 1706.2**, the name of the product will be placed on a list of prequalified products maintained by the Bureau of Materials and Research. No geocomposite drainage system will be used on KDOT projects unless it has been prequalified.

Verification samples will be taken at the rate of 2 per source, per district, per year, and forwarded to the Materials and Research Center for evaluation. Failure of any verification sample to comply with this specification may be cause for removal of the manufacturer from the prequalified list.

### 1706.5 BASIS OF ACCEPTANCE

Prequalification as specified in **subsection 1706.4** (note verification sample requirement).

Receipt and approval of a Type C certification as specified in **DIVISION 2600**.

A visual inspection in the field for damage and to verify compliance with these specifications.