

**PART 1: GENERAL**

**1.01 Related Work**

Review contract documents for requirements that affect work of this section. Specific sections that directly relate to work of this section include, but are not limited to:

- Section 02315 - Excavation & Backfill
- Section 02630 - Storm Drainage Pipe

**System Description**

The subsurface drainage system should consist of the Hydraway™ geocomposite drain and outlet pipes of the type, size, and dimensions in accordance with these specifications and project plans, or as directed by the project engineer. The drain consists of a structured high-density polyethylene (HDPE) perforated core that is thermally bonded to a geotextile filter fabric. The drain should be lightweight and flexible, have minimal “memory” when placed in horizontal position, and be sufficiently durable to withstand automated and/or manual installation procedures.

**PART 2: PRODUCTS**

**2.01 Geocomposite Subsurface Drain System Acceptable Manufacturers**

For subsurface drainage  
Hydraway is manufactured by:  
Intech Anchoring Systems  
Caseyville, IL 62232  
United States  
Telephone: 800-223-7015  
Fax: 618-398-5722  
Email: info@hydraway.net

**Components**

The drain consists of a structured high-density polyethylene (HDPE) perforated core that is thermally bonded to a geotextile filter fabric. The drain should be lightweight and flexible, have minimal “memory” when placed in horizontal position, and be sufficiently durable to withstand automated and/or manual installation procedures.

1. Core - High Density Polyethylene (HDPE)
  - A. Length: 150 inches\*
  - B. Width: 6 or 12 inches\*

- C. Depth: 1-inch minimum
- \*Custom lengths and widths can be ordered
2. Geotextile Fabric - Tencate - Mirafi® 140N
    - A. 4.5 ounce minimum
    - B. Thermally bonded to the core
  3. Accessories
    - A. Couplers, ends, and outlet adapters as required and recommended by the manufacturer
  4. Geocomposite subsurface drainage system shall meet the following ASTM standards as a minimum:

ASTM Standards

*Core*

- ASTM D-1621 Standard Test Methods for Compressive Properties of Rigid Cellular Plastics
- ASTM D-4716 Standard Method for Constant Head Hydraulic Flow Transmissivity (in-plane flow) of Geotextiles and Geotextile Related Products
- ASTM D-1876 Standard Test Method for Peel Resistance of Adhesives (T-Peel Test)

**Core Material Requirements**

Product	Average Test Value	ASTM Test Method
Compressive strength at maximum deflection of 20%	11,400 lbs/ft <sup>2</sup>	D1621
Flow rate at 10 psi and gradient of 0.1	21 gpm/ft width	D4716
Peel strength (fabric to core)	50 lbs/ft width	D1876

*Geotextile Fabric (4.5 oz Tencate-Mirafi® 140N)*

- ASTM D-4632 Standard Test Method for Grab Breaking Load and Elongation of Textiles
- ASTM D-4491 Standard Test Method for Water Permeability of Geotextiles by Permittivity
- ASTM D-4751 Standard Test Method for Determining Apparent Opening Size of a Geotextile

**Geotextile Fabric Requirements**

Product	Average Test Value	ASTM Test Method
Elongation	50%	D4632
Grab Tensile	120 lbs	D4632
Permeability	135 gal/min/ft <sup>2</sup>	D4491
Apparent Opening Size	70 U.S. Std. Sieve	D4751

# Sub-Surface Drainage

## PART 3: EXECUTION

### 3.03 Installation/Quality Assurance

#### Installation Equipment

All equipment necessary and required for the proper construction of the drainage system should be in working condition and approved by the engineer. The contractor should also provide equipment to obtain proper compaction as needed.

#### Installation and Backfill

- Geocomposite drain

#### *Vertical installation*

In vertical installations of geocomposite for natural turf fields or highway edge drains, the contractor should do all necessary excavation at the location and depth shown on the plans. The trench width for Hydraway shall be 4" to 6" at a depth that is specified by the designing engineer. The engineer should determine the depth of removal needed and type of clean granular backfill to be used.

The geocomposite drain shall connect to the outlet/collector pipes or may daylight for discharge by gravity. Fittings shall connect the geocomposite drain to the PVC pipe in accordance with the drain manufacturer's recommendations at locations specified by the project plans.

The amount of trench to be excavated should not exceed the amount that can be installed and backfilled in one working day.

#### *Horizontal installation*

In horizontal installations, there is a top and bottom to Hydraway. The top is the grid of the core, and the bottom is the dimpled points of the core. This helps to protect the drain during the initial placement and compaction of the clean rock or clean, free-flowing backfill.

Until 6 inches of compacted backfill is placed on the field, all wheeled traffic should be kept off the drainage lines. Once a minimum of 3 to 4 inches of gravel is placed, then tracked equipment can drive across the Hydraway lines. After 6 to 9 inches of gravel is placed and compacted, wheeled equipment can be driven on the field. After 6 to 9 inches of cover is placed, wheeled equipment can be driven over the drainage locations.

All necessary splices are to be made with connections furnished by the manufacturer or approved by the engineer in accordance with the project specifications. The geocomposite drain and connectors should be inspected prior to backfill being placed. If the drain is found to be out of alignment or damaged, it should be removed and replaced as directed by the engineer.

#### Shipping and Storage

The Hydraway Drainage System is packaged and shipped in an opaque wrap that protects the material from dust and ultraviolet light. The manufacturer recommends that the material remain wrapped or protected from exposure to ultraviolet light and from contamination until it is installed. Hydraway shall be protected from temperatures greater than 140°F.

Each roll, or shipping unit, of drain shall be marked with a tag or other identification label showing the product type and number and the date of manufacture.