



# INSTALLATION GUIDELINE



## DRAINTUBE® FTP geocomposite



## Semi-permeable drainage geocomposite

**DRAINTUBE** is manufactured by

**AFITEX-TEXEL Geosynthetics Inc.**

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DATE: 01/06/2022

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## General Description

The product consists of geotextile layers comprised of short synthetic fibers of 100% polypropylene or polyester and a polyethylene geofilm which are needle punched together. Corrugated polypropylene pipes with two perforations per valley at 180-degree spacing and rotated 90 degrees per valley are inserted longitudinally between the geotextile layers during the manufacturing process at uniform intervals. DRAINTUBE<sup>®</sup> FTP is manufactured in Canada.

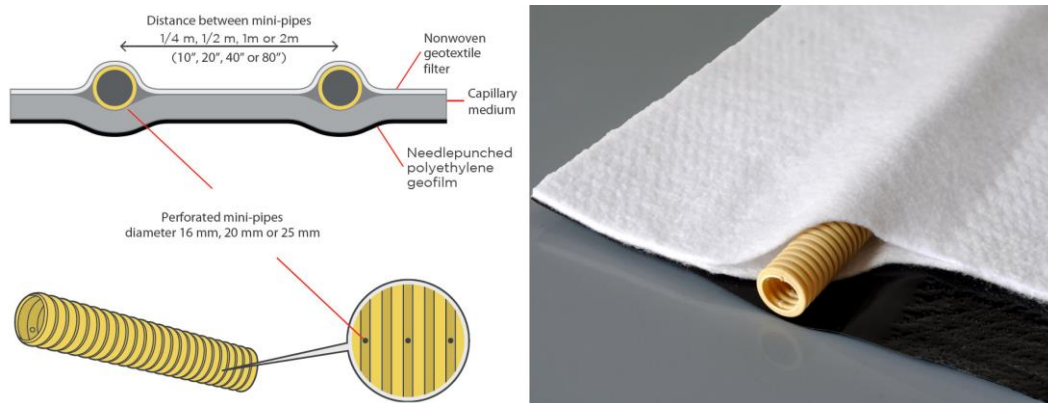
### 1 HANDLIND AND STORAGE

Rolls of DRAINTUBE<sup>®</sup> FTP geocomposite shall be shipped to the job site in a manner that will not cause damage to the rolls. The rolls shall be stored flat on a smooth surface (no wooden pallets) away from dirt, mud and excessive heat. For more detailed handling and storage information, please refer to ASTM D4873. The contractor shall handle the rolls so that they are not damaged in any way.

### 2 INSTALLATION

#### 2.1 DRAINTUBE<sup>®</sup> FTP description

DRAINTUBE<sup>®</sup> FTP geocomposite is supplied on rolls 3.98 m (13 ft.) wide and 75 m (246 ft.) long (figures 1 & 2).



Figures 1: DRAINTUBE<sup>®</sup> FTP structure



**Figure 2: DRAINTUBE<sup>®</sup> FTP packaging**

## **2.2 Putting into place**

DRAINTUBE<sup>®</sup> FTP is unrolled on a base which has been graded and compacted to the required elevation (figures 3 & 4). Ensure that the product is properly oriented.



**Figure 3: Rolls of DRAINTUBE<sup>®</sup> FTP**



**Figure 4: DRAINTUBE<sup>®</sup> FTP installation**

For steep slopes, the geocomposite must be properly anchored. For slopes longer than the length of a roll, overlaps shall be shingled down the slope and/or in the direction that backfilling will occur.

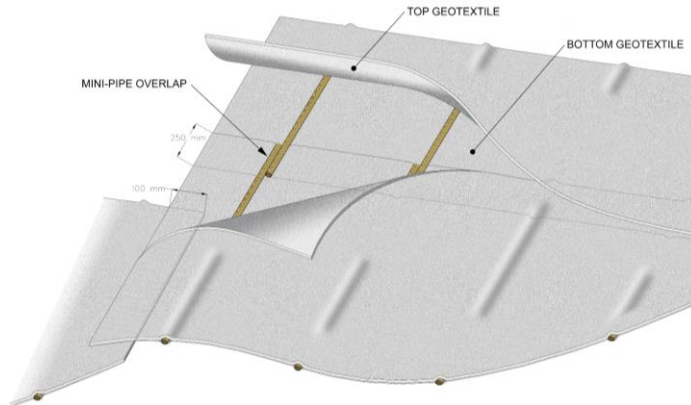
Protect underlying layers from damage during placement of the geocomposite. Use sandbags or equal to weigh down the geocomposites prior to backfilling to prevent displacement by the wind.

### 2.3 Transverse Connections (at the end of a roll)

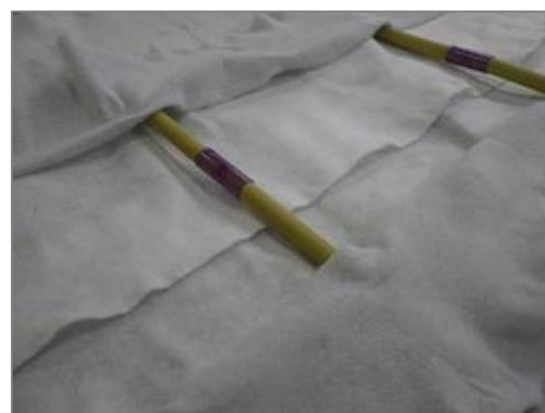
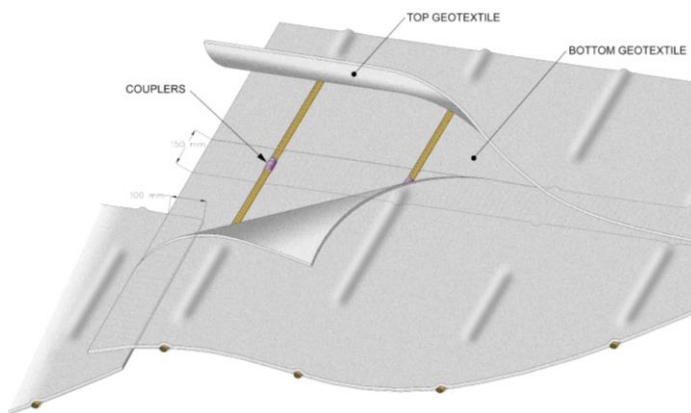
Connection at the leading or terminating edge of the DRAINTUBE® FTP shall be overlapped such that the upper geotextile layer can be rolled back 150 mm (6 in.) minimum and the end of the next roll inserted into the opening. Mini-pipes may be either overlapped by 250 mm (10 in.) minimum (figures 5) or connected using snap coupler fittings supplied by the geocomposite manufacturer (figures 6). Connection method requirements shall be at the engineers' discretion. Mechanical connections are recommended under high compressive loads.

Overlapped geotextiles shall be secured using sewn seams, welds (hot air or flame) or additional overlap.

The mini-pipes of the geocomposite must always be maintained between the geotextile layers to prevent contamination by soil particles.



**Figures 5: Transverse connections without couplers**



**Figures 6: Transverse connections with couplers**

## 2.4 Side by Side Connections

Connections along the side of the DRAINTUBE<sup>®</sup> FTP roll shall be overlapped 100 mm (4 in.) minimum and shall be secured using welds or additional overlap (figure 7). Connection method requirements shall be at the direction of the engineer.

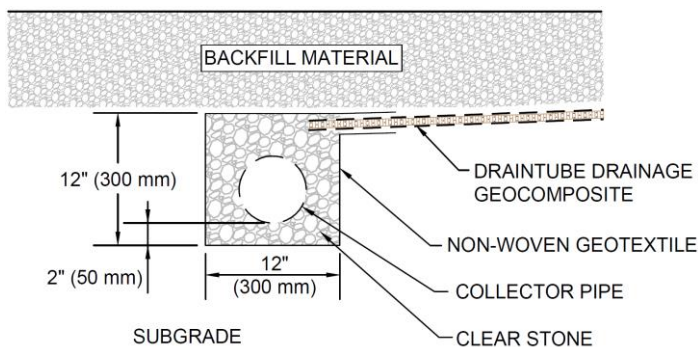


Figure 7: Side by side connections

## 3 TERMINATION

### 3.1 Connection to a collector trench

Connection to a collector trench requires an overlap of a minimum of 200 mm (8 in.) and a geotextile cover (figures 8).



Figures 8: Connection to a collector trench

### 3.2 Termination in a ditch

To terminate in a ditch, DRAINTUBE<sup>®</sup> FTP should be unrolled to the edge of the ditch (figure 9).

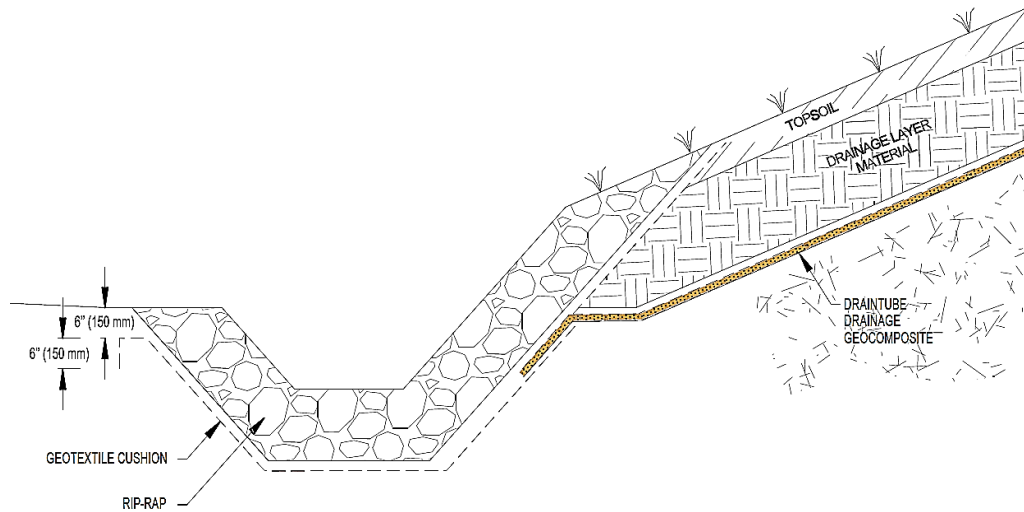


Figure 9: Termination in a ditch

### 3.3 Connection to interceptor drains

Connection to an interceptor drain may be made with or without a drainage trench (figure 10). The connection should be at the direction of the engineer.

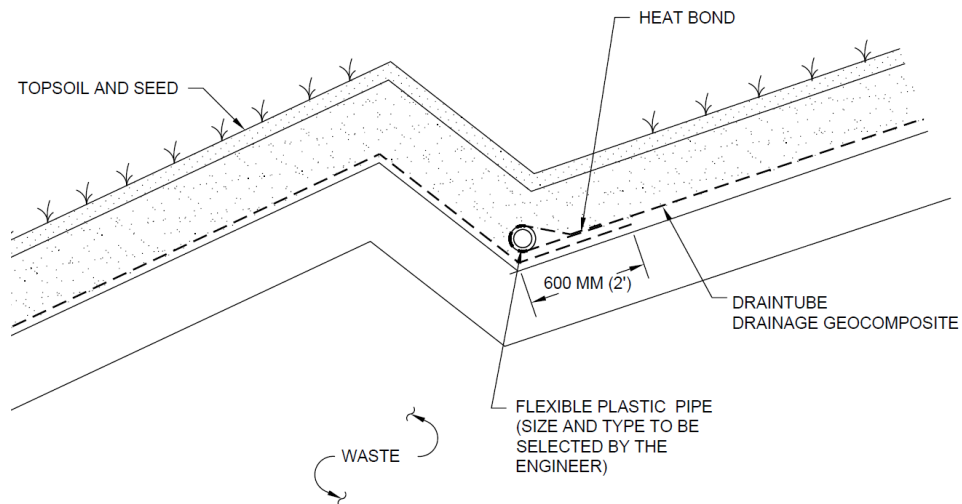
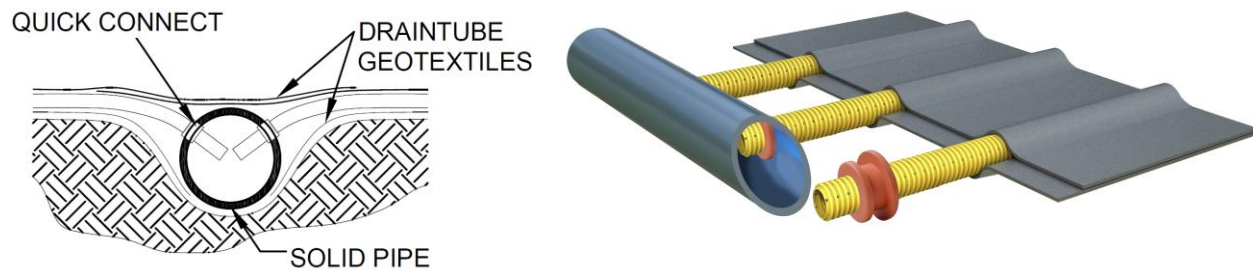


Figure 10: Typical cross section for interceptor drain connection

### 3.4 Quick Connect system

DRAINTUBE® FTP can be connected directly to a collector drain using the Quick Connect system (figures 11 & 12).



Figures 11: Quick Connect system



Figure 12: Connection to a plain drain with Quick Connect

## 4 REPAIR

Prior to covering the deployed DRAINTUBE® FTP drainage geocomposite, each roll shall be inspected for damage. Any rips, tears or damaged areas on the geocomposite shall be repaired.

If a section of pipe is damaged during installation, add a piece of undamaged pipe of the same diameter next to the damaged pipe, extending a minimum of 150 mm (6 in.) beyond each end of the damaged section of pipe.

If the geotextile is ripped or torn, install an undamaged piece of the same material under the hole that extends a minimum of 150 mm (6 in.) beyond the hole in all directions to ensure that protection of the geomembrane is maintained.



If the area to be repaired is more than 50 percent of the width of the panel, then the damaged area shall be cut out and replaced with undamaged material. Damaged geotextile shall be replaced by the same type of geotextile.

## **5 UPPER LAYERS INSTALLATION**

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### **5.1 *Geosynthetic installation***

DRAINTUBE<sup>®</sup> FTP shall not stay uncovered for more than 14 days after deployment.

Low ground pressure All-Terrain Vehicle (ATV) that exerts a maximum load of 6 psi may be used on DRAINTUBE<sup>®</sup> FTP. It shall be operated to avoid abrupt stops, starts, and/or turns. ATV tires shall be clean, and no passengers are allowed on the ATV. No other equipment shall be operated on the top surface of the geocomposite drainage layer without permission from the Engineer.

Geosynthetic is to be installed without displacing the DRAINTUBE<sup>®</sup> FTP (figure 13).



**Figure 13: Upper geosynthetic layer placement**

### **5.2 *Backfill placement***

The geocomposite drainage layer shall be covered with the specified material within 14 days of deployment. The backfill shall be free of foreign matter which could damage the geocomposite drainage layer. Backfill may usually be placed directly on DRAINTUBE<sup>®</sup> FTP (figures 14). Care should be taken to avoid displacement of the geocomposite.



**Figures 14: Backfilling**

The backfill shall not be dropped directly onto the drainage geocomposite from a height greater than 1 meter (3 ft.). The backfill shall be pushed over the geocomposite drainage layer in an upward tumbling motion that prevents wrinkles in the drainage layer.

Low ground pressure All-Terrain Vehicle (ATV) that exerts a maximum load of 6 psi may be used on DRAINTUBE® FTP. It shall be operated to avoid abrupt stops, starts, and/or turns. ATV tires shall be clean and no passengers are allowed on the ATV. No other equipment shall be operated on the top surface of the geocomposite drainage layer without permission from the Engineer.

The contractor must maintain a minimum of 300 mm (12 in.) of backfill between DRAINTUBE® FTP and the backfill equipment or use adapted lightweight equipment. Heavy equipment like dumpers shall operate on access roads with a minimum thickness of 1 m (3 ft.) above the DRAINTUBE® FTP.

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