SECTION 02074

GEOCOMPOSITE SHEET FOR SUBDRAINAGE SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Geocomposite sheet installed in the following locations:
   1. Over below-grade vertical walls to relieve hydrostatic pressure.
   2. Over below-grade vertical waterproofed walls to protect waterproofing membrane from backfill.
   3. Over waterproofing under horizontal pedestrian plaza slabs to drain storm water and protect waterproofing membrane from paving materials.
   4. Over waterproofing in planters to drain water and protect waterproofing membrane from planting materials.
   5. Under slabs indicated for relief of hydrostatic pressure.
   6. Other locations indicated on drawings.

1.2 RELATED SECTIONS

A. Section 02300 - Earthwork, for backfilling.

B. Section 02620 - Subdrainage, for drainage piping or tile.

C. Section 07120 - Fluid Applied Waterproofing.

D. Section 07130 - Sheet Waterproofing.

E. Section 07170 - Bentonite Waterproofing.

F. Section 15145 - Plumbing Piping, for roof drains.

1.3 REFERENCES

A. ASTM D 1621 - Standard Test Method for Compressive Properties of Rigid Cellular Plastics.

B. ASTM D 3786 - Standard Test Method for Hydraulic Bursting Strength of Knitted Goods & Nonwoven Fabrics - Diaphragm Bursting Strength Tester Method.

C. ASTM D 4491 - Standard Test Method for Water Permeability of Geotextiles by Permittivity.

D. ASTM D 4632 - Standard Test Method for Breaking Load and Elongation of Geotextiles.

E. ASTM D 4716 - Standard Test Method for Constant Head Hydraulic Transmissivity (In-Plane Flow) of Geotextiles and Geotextile Related Products.

F. ASTM D 4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile.

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Show compliance with the Contract Documents. Include manufacturer's installation instructions.

C. Samples: 6 inch by 6 inch, of each type used.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver all materials in manufacturer's unopened packages with all labels intact.

B. Unload materials and check for damage. Remove damaged, rejected materials from site immediately.

C. Store geocomposite sheet in dry area in manufacturer's protective packaging. Cover opened, partial packages to protect from oil, dirt and UV exposure.

D. Geocomposite sheet will become more rigid and less impact- resistant below 25 degrees F. Handle with extra care at low ambient air temperature conditions.

1.6 SCHEDULING AND SEQUENCING

A. Install geocomposite sheet just prior to installation of covering materials and cover promptly to avoid damage.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Provide products manufactured by Greenstreak Plastic Products Co., Inc., St. Louis, MO, 63122.

Phone: (314) 225-9400 or (800) 325-9504. Fax: (314) 225-9854 or (800) 551-5145.

2.2 MATERIALS

A. Normal Duty Geocomposite Sheet for Vertical Applications: Greenstreak "SHEETDRAIN No. 884."
   1. Core: High impact polystyrene formed with dimpled drain area.
      a. Flow rate in accordance with ASTM D 4716 (at 3600 psi and i=1): 20.0 gpm/ft width, minimum.
      b. Compressive strength in accordance with ASTM D 1621: 15,000 psf, minimum.
   2. Fabric: Non-woven needle punched polypropylene, 4 ounce filter fabric, with UV stabilizers.
      a. Grab tensile in accordance with ASTM D 4632: 100 lbs, minimum.
      b. Grab elongation in accordance with ASTM D 4632: 35 percent.
      c. Mullen burst in accordance with ASTM D 3786: 215 psi, minimum.
      d. Puncture strength in accordance with ASTM D 4833: 55 lb, minimum.
      e. Apparent opening in accordance with ASTM D 4751: 70 US Std sieve.
      f. Permittivity in accordance with ASTM d 4491: 90 gpm/sf, minimum.
   3. Thickness:
      a. Composite: 0.42 inch.
      b. Core: 0.38 inch.
      c. Fabric: 0.040 inch.

B. Heavy Duty Geocomposite Sheet for Vertical Applications: Greenstreak "SHEETDRAIN HS No. 880."
   1. Core: High impact polystyrene formed with dimpled drain area.
      a. Flow rate in accordance with ASTM D 4716 (at 3600 psi and i=1): 5.0 gpm/ft width, minimum.
      b. Compressive strength in accordance with ASTM D 1621: 25,000 psf, minimum.
   2. Fabric: Non-woven needle punched polypropylene, 4 ounce filter fabric, with UV stabilizers.
      a. Grab tensile in accordance with ASTM D 4632: 100 lbs, minimum.
      b. Grab elongation in accordance with ASTM D 4632: 35 percent.
      c. Mullen burst in accordance with ASTM D 3786: 215 psi, minimum.

d. Puncture strength in accordance with ASTM D 4833: 55 lb, minimum.
e. Apparent opening in accordance with ASTM D 4751: 70 US Std sieve.
f. Permittivity in accordance with ASTM d 4491: 90 gpm/sf, minimum.

3. Thickness:
a. Composite: 0.25 inch.
b. Core: 0.21 inch.
c. Fabric: 0.027 inch.

C. Geocomposite Sheet for Horizontal Applications: Greenstreak "DECKDRAIN No. 886."
1. Core: High impact polystyrene formed with dimpled drain area.
a. Flow rate in accordance with ASTM D 4716 (at 3600 psi and i=1): 20.0 gpm/ft width, minimum.
b. Compressive strength in accordance with ASTM D 1621: 20,000 psf, minimum.

2. Fabric: Woven polypropylene, 6.5 ounce filter fabric.
a. Grab tensile in accordance with ASTM D 4632: W 300 lbs, F 200 lbs, minimum.
b. Grab elongation in accordance with ASTM D 4632: W 30 percent, F 23 percent.
c. Mullen burst in accordance with ASTM D 3786: 450 psi, minimum.
d. Puncture strength in accordance with ASTM D 4833: 120 lb, minimum.
e. Apparent opening in accordance with ASTM D 4751: 30/50 US Std sieve.
f. Permittivity in accordance with ASTM d 4491: 50 gpm/sf, minimum.

3. Thickness:
a. Composite: 0.43 inch.
b. Core: 0.38 inch.
c. Fabric: 0.044 inch.

D. Adhesives: The following types of adhesives are acceptable:
1. General construction grade adhesives compatible with dampproofing/waterproofing compound.
2. Pressure sensitive adhesive.
3. Mastic used for waterproofing membrane application.

E. Furring Strips: Preservative-treated lumber. See Section 06100 - Rough Carpentry.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that indicated components of waterproofing system have been installed.

B. Verify that horizontal applications have sufficient slope to drain.

C. Verify that collection piping has sufficient slope to drain.

D. Verify that invert elevation of collection pipe is below construction joint in vertical subgrade structure.

E. Do not begin until substrates are dry, dew and frost free, and free of dust or other materials which prevent adhesion of sheet to substrate.

F. Submit written notification of unacceptable conditions or substrates.

3.2 INSTALLATION

A. Install geocomposite sheet to drain water to drains and/or piping indicated on drawings.

B. To splice, overlap two rows of dimples and mechanically interlock with rubber mallet. Lap excess fabric a minimum of 3 inches and secure as necessary with adhesive. Shingle laps in the direction of flow.

C. Face fabric towards hydrostatic source and face core towards subgrade structure.

D. Adhere geocomposite sheet to substrate using adhesive.

E. Fasten geocomposite sheet to furring strips using mechanical fasteners, as recommended by manufacturer.

F. At terminations of geocomposite sheet, roll and tuck excess fabric to back of core to prevent intrusion of soils into core.

G. At subdrainage piping, lap additional sheet drain fabric over and around collection pipe. Place geocomposite sheet behind perimeter collection pipe.

H. Promptly cover sheet to protect from damage by wind and ultraviolet.

I. Repair tears and punctures in fabric with new filter fabric adhered over damaged area.

J. Verify that backfill is performed in compacted lifts. Sequence tall applications requiring bands of geocomposite sheet with backfill to accommodate vertical movement of sheet during compaction.

END OF SECTION