

SECTION 02620

SUBSURFACE DRAINAGE (NATURAL TURF STRIP DRAINS)

PART 1 – GENERAL

1.01 SUMMARY

- A. Section includes: Strip Drains for Natural Turf System
- B. Related Sections:
 - 1. Section 02610 – Pipe and Fittings
 - 2. Section 02720 – Storm Sewer Systems

1.02 REFERENCES

- A. American Standard for Testing and Materials (ASTM)
 - 1. ASTM D-1621 Standard Test Method for Compressive Strength of drainage Core
 - 2. ASTM D-4716 Standard Test Method for Determining Flow Rate of underdrain
 - 3. ASTM D-4491 Standard Test Method for Determining Permeability of Geotextile
 - 4. ASTM D-4833 Standard Test Method for Determining Puncture Resistance of Geotextile
 - 5. ASTM D-3786 Standard Test Method for Determining Burst Strength of Geotextile
 - 6. ASTM D-4751 Standard Test Method for Determining Apparent Opening Size of Geotextile
 - 7. ASTM D-4355 Standard Test Method for Determining Ultraviolet Resistance

1.03 DEFINITIONS

- A. Terms – Taken from ASTM D-4439
 - 1. Geotextile: Any permeable textile used with foundations, soil, rock, earth, or any other geotechnical material, as an integral part of man-made product, structure, or system.
 - 2. Normal Direction: Direction perpendicular to the plane of a geotextile.
 - 3. Permittivity: Volumetric flow rate of water per unit cross sectional area per unit head under laminar flow conditions, in the normal direction through a geotextile.
 - 4. Permeability: Rate of flow of a liquid under a differential pressure through a material.
 - 5. Transmissivity: Flow or amount of liquid water per foot of material width passing through composite system at certain maximum soil pressure against geotextile at defined hydraulic gradient.

1.04 SUBMITTALS

- A. Product Data: Manufacturer's product data and installation instructions.
- B. Samples: Submit minimum 6" long samples of full product width.

- C. Test Reports: Submit test reports from an independent testing laboratory to verify that product meets or exceeds specified physical properties.

1.05 QUALITY ASSURANCE

- A. Pre-installation conference: Prior to scheduling work, a pre-installation conference shall be held among all pertinent trades, contractor, and manufacturer to discuss the proper installation procedures.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Packaging and shipping: Provide materials in original unopened containers with manufacturer's labels intact and legible.
- B. Acceptance at site:
 - 1. Unload materials and check for damage.
 - 2. Damaged materials determined by visual inspection will not be accepted.
 - 3. Remove rejected materials from site immediately.
- C. Storage and protection.
 - 1. Store materials in dry area in manufacturer's protective packaging.
 - 2. Store materials under cover, off ground and protect from extended sunlight.

PART 2 – PRODUCTS

2.01 MANUFACTURED UNITS

- A. Acceptable manufacturers:
 - 1. Products specified as standard of quality (J-DRain SWD-6, SWD-12) manufactured by:
JDR ENTERPRISES, INC., 292 South Main Street, Suite 200,
Alpharetta, Georgia 30009. Telephone: 800.843-7569 or
770.442-1461. Fax: 770.664-7951. Website: www.j-drain.com
 - 2. J-DRain Fittings and Connections:
 - a. End-Outlet Fitting: For connecting J-DRain SWD to collection pipe
 - b. T-Connector: For installing a T or Y in J-DRain SWD
 - c. Splice-Connector: For splicing J-DRain SWD
 - d. Side-Outlet: For installing intermediate outlet in J-DRain SWD
 - e. End-Cap: For covering ends or terminations
 - 3. Physical Properties – Drainage Core
 - a. Flow Rate: 30 gpm/ft width a gradient = .1
 - b. Compressive Strength: 9,500 psf
 - 4. Physical Properties – Geotextile
 - a. Puncture: 65 lbs.
 - b. Mullen Burst: 210 psi
 - c. AOS: 70 U. S. Sieve
 - d. Permeability of geotextile: 140 gpm/sf
 - e. Ultraviolet resistance: 70% at 500 hours
 - 5. J-DRain SWD - roll properties:
 - a. Roll Length: 165 ft.
 - b. Roll Width: 6 in and 12 in.
 - c. Roll Weight: 30 lbs and 60 lbs.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verifications of site conditions:
 - 1. Verify that site is properly prepared for installation of strip drains.
 - 2. Verify that drainage scheme is properly marked on field with chalk line or spray paint. This scheme designates precisely where trenches are to be dug.

3.02 TRENCHING

- A. All trenches should be dug 2" to 4" wide. The depth of the trench will depend on the selected product height. The depth is consistently 6 inches deeper than the product width, i.e. 6 inch wide product – 12 inch depth. Provide a minimum of .5 % slope.
- B. All soil excavation should be discarded and not be placed back into trench as backfill.
- C. All loose soil should be removed from bottom of trenches.
- D. Check bottoms of trenches to maintain proper slope.

3.03 INSTALLING DRAINAGE SYSTEM

- A. Unroll J-DRain SWD along the trenches providing End-Caps, Splices, T-Connectors and End-Outlets where needed. Cut and insert strip drain fully into fittings and tape in place. Use fittings provided by manufacturer.
- B. Insert assembly into the bottom of trench making certain to reach trench bottom. Alternate wood stakes on 6' centers along the sides of the trench to hold strip drain in place and centered while backfilling. Stakes can be removed after backfilling.
- C. Install complete system prior to backfilling, i.e., Strip drain, End-Caps, T-Connectors, End-Outlets and Splices. Connect all end-outlets to collection pipes using standard pipe fittings.

3.04 SAND BACKFILLING

- A. Use a clean well graded sand for backfilling. Avoid fines passing 80 U. S. Sieve.
- B. Place sand backfill into trench over top of strip drain while allowing sand to flow on either side of the strip drain.
- C. Compact sand and refill trench if necessary.

End of Section