SECTION 02620

SUBSURFACE DRAINAGE
(SYNTHETIC TURF UNDERDRAINS)

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes: Underdrains for Synthetic 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 of Geotextile

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 the 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 MVP-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. Splice Connector: For splicing J-DRain MVP-12
      b. End Cap: For covering ends or terminations

   3. Physical Properties – Drainage Core
      a. Flow Rate: 30 gpm/ft width @ gradient = .1
      b. Compressive Strength: 11,400 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. Roll properties:
    a. Roll Length: 165 ft.
    b. Roll Width: 12 in.
    c. Roll Weight: 60 lbs.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verifications of site conditions:
    1. Verify that site is properly prepared for installation of underdrains.
    2. Geotextile should be in place over graded and compacted soil.
    3. Side line trenches should be in place and ready to receive underdrains.

3.02 INSTALLATION

A. Place and install underdrains starting at center of field and unrolling toward sideline at designated locations on field and follow the outlined spacing between underdrains.

B. At sideline, insert underdrains into sideline trench for transporting collected water into sideline trench.

C. Splice underdrains with manufacturer's splice fitting and tape in place.

D. Loosely place aggregate fill on top of underdrains to temporarily hold in place.

3.03 BACKFILLING AGGREGATE FILL

A. A minimum 4" cover of aggregate should be placed over underdrains prior to permitting direct heavy equipment traffic.

B. Establish final grade prior to placing turf.