

Field Preparation and Subsurface Drainage

Contractor Qualifications

- A. A specialty contractor whose main business is the construction of athletic fields.
- B. Qualifying Contractor must have a Certified Field Builder as a full time employee on staff and available to the Owner and Architect throughout the duration of the project.
- C. Qualifying Contractor must own or lease specialized equipment for the laser grading of the project including: a laser controlled, hydraulically activated land plane capable of $\frac{1}{4}$ " of accuracy for fine grading, LGP tractors or equipment specifically equipped for use with the land plane, disc harrows and other specialized sports field equipment as needed.
- D. Has built a minimum of ten (10) crushed stone foundation and drainage systems for the installation of a synthetic turf infill systems.
 1. A list of projects for qualification including the name, location, type of project and current contact information for the Owner and Architect must be submitted no later than fourteen (14) days before the bid date for approval by the Architect.
 2. To Qualify the crushed stone foundation and drainage systems must have been completely built by the qualifying contractor using their own forces and not by a subcontractor of the qualifying contractor.
 3. Projects completed by employees while in the employment of other than the qualifying contractor are not admissible for qualification.
 4. Projects submitted for qualification must be a minimum of 72,000 sf.

Filter Fabric

Non woven polypropylene. Acceptable products:

1. Mirafi 140 or approved equal

Drainage Layer Media

- A. General:
 1. Approval Required: Drainage Layer Media shall be subject to the approval of the Architect at all times.
 2. Drainage Layer Media shall comply with GDOT Specification Section xxx and shall be cleaned of and free of all deleterious materials as defined therein.
- B. In addition to complying with the above specifications, provide Drainage Layer media aggregate conforming to the following:

1. Stone Drainage Layer: Washed crushed stone or gravel (granite) meeting the following gradation:

Percentage passing size:

1 1/2"	100%
1"	95-100%
3/4"	80-100%
1/2"	60-80%
3/8"	30-50%
#4	20-40%
#8	10-30%
#16	7-25%
#40	5-17%
#200	0-4%

2. Stone Choker Layer: Washed crushed stone or gravel (granite) meeting the following gradation:

1/2"	100%
3/8"	95-100%
#4	70-85%
#8	45-60%
#16	25-40%
#40	2-12%
#200	0-3%

Drainage System

- A. Geocomposite Drain Tile: 12" width roll Hydraway 2000, manufactured by Hydraway Drainage Systems (800-223-7015) or approved equal.
- B. Perforated drain: Advanced Drainage Systems (ADS) N-12, smooth interior wall corrugated, perforated class II (slot), polyethylene pipe. Diameters as shown on the Drawings. Furnish complete with bends, adapters, couplings, collars, fittings and joint materials as shown on the Drawings.

Other Materials

All other materials, not specifically described but required for a complete and proper installation, shall be as selected by the Contractor subject to the approval of the Architect.

Testing

- A. Test drainage layer material for compliance with specified characteristics and bridging compatibility.
- B. A minimum of three (3) initial samples of both media types will be provided by the Contractor for testing and approval by the Architect.

Field Preparation

- A. Excavate to a depth exposing firm sub grade material to allow for drainage layer and synthetic turf installation to a finished elevation as shown on the Drawings.
- B. Grade areas to a slope of 0.5% from center as shown on the drawings. Bring all areas to uniform grade allowing for the drainage layer and synthetic turf installation. Maintain positive drainage on all surfaces.
- C. Subsurface preparation:
 - 1. Scarifying: After the site has been cleared, stripped, grubbed, undercut and excavated to the specified depths for recompaction, scarify to a depth of six (6) inches and compact to the specified requirements.
 - 2. Leveling: Remove all ruts, hummocks and other uneven surfaces prior to placement of fill.
 - 3. Laser grade areas as shown on the Drawings and bring areas to a uniform grade. Allow for placement of the drainage layer and synthetic turf installation. Maintain positive drainage on all surfaces. Finish subgrade elevations to provide a consistent depth of the stone drainage layer. Subgrade shall be $\pm \frac{1}{2}$ " of specified depth.
 - 4. The final subgrade surface shall be approved by the Architect prior to the installation of the drainage layer media.
- D. Trenching/Subgrade Shaping:
 - 1. Perform all trenching and subgrade shaping as required for installation of drainage system as shown on the Drawings.
 - 2. Trench and shape as shown on the Drawings as required for joining, backfilling and compacting.
 - 3. Depth: as required to provide the elevations as shown on the Drawings. Where elevations are not shown, trench and shape to sufficient depth to provide positive system drainage.
 - 4. Undercutting: Where excavation is carried below proper elevations, backfill with material approved by the Architect and compact to provide a firm and stable subgrade meeting the approval of the Architect and at no additional cost to the Architect or Owner.

Subsurface Drainage System

- A. Filter Fabric:

1. Install filter fabric as detailed on the Shop Drawings providing a minimum of eighteen (18) inches of overlap onto the adjacent surface
2. Secure fabric overlap to adjacent surfaces using methods approved by the fabric manufacturer to avoid opening of joints.

B. Drainage System:

1. Install pipe in accordance with the manufacturer's instructions as well as any specified herein.
2. Install pipe as detailed and shown on the Drawings, true to line and grade.
3. Install couplings and fittings as required or detailed within the Drawings.
4. Terminate pipe as detailed on Drawings.
5. Install geocomposite drain tile as detailed and within manufacturers specifications.

C. Stone Drainage Layer:

1. Place drainage media as detailed and required carefully as not to disturb or damage the Geocomposite drain tile.
2. Install to assure complete coverage of pipe. Leave no voids and compact to prevent settlement.
3. Stone Drainage Layer must be laser graded to assure a consistent and planarity.

D. Stone Choker Layer Fill:

1. Place drainage media as detailed and required.
2. Final grade must be achieved by laser grading to achieve a consistent depth and planarity of the finished surface assuring positive drainage.
3. The Stone Choker Layer must be rolled and compacted while maintaining the proper elevations and planarity as specified within the contract documents and Drawings.
4. Contractor to schedule and inspection of the stone base for elevation and planarity with the synthetic turf manufacturer. Stone base must vary no more than ¼" in ten (10') feet.
5. Synthetic turf manufacturer/Installer must give final approval of the stone base in writing.
6. Contractor will be responsible for any and all additional work to the stone base if not within specifications as set forth within the Contract Documents and Drawings.

E. Testing:

1. Double ring infiltration test (ASTM 3385-03) will be performed by the Owners testing agent on the finished subgrade prior to installation of the synthetic turf. Owner, or Owner's Representative, to certify subsurface drainage was successfully tested prior to installing synthetic turf. Certification shall be signed by Owner, or Owner's Representative. Stone base should infiltrate (or percolate) greater than ten (10") inches per hour.

Treatment After Completion of Grading

- A. After final grading is complete and approved by the Architect, permit no further grading except with the approval of and inspection by the Architect.

- B. Use all means necessary to prevent erosion or damage to the completed areas of the project during construction and until final acceptance of the work.