

TECHNICAL SPECIFICATIONS  
FOR  
FIELD DRAINS

1. Description

This work shall consist of the construction of field drains composed of stone, washed gravel, crushed slag, or a combination of any one of these materials and filter cloth. They shall be constructed in accordance with these Specifications, on prepared foundations at the locations shown on the Plans, and in reasonably close conformity to the lines and grades indicated thereon, or as directed by the Engineer. The work shall include all necessary excavation and backfill, together with such work and materials as may be necessary to complete the work as shown on the Plans.

2. Materials

Materials used in this construction shall meet the following requirements:

- (a) Filter cloth shall meet the requirements of Section 36.0, Paragraph 2(d), City of Knoxville Standard Specifications for Geotextiles.
- (b) Aggregates for field drains shall be crushed stone, gravel, slag or a combination meeting the gradation as follows:

<u>Sieve Size</u>	<u>Total Percent Passing by Weight</u>
3"	100
2 ½"	90 - 100
2"	35 - 70
1 ½"	0 - 15
¾"	0 - 5

The aggregate shall meet the quality requirements of ASTM D692.

3. Equipment

All equipment necessary for the satisfactory performance of the work shall be on the project and approved by the Engineer before construction will be permitted to begin.

4. Construction Requirements

- (a) Trenches shall be excavated at the location indicated on the plans and to the detailed depth and width. The sides and bottom of the trenches shall be prepared to a relatively smooth condition free of sharp objects, obstructions, depressions and debris which might damage the filter cloth during installation.

- (b) The material removed from the trench shall be removed from the area and disposed of outside of the rights-of-way at locations obtained by the Contractor unless the Engineer authorizes its disposition within designated locations.
- (c) The filter cloth shall be placed with the long dimension parallel to the center line of the channel and shall be laid loosely without wrinkles or creases. When more than one width of filter cloth is necessary, the joints shall be overlapped a minimum of 12 inches. Securing pins with washers shall be inserted through both strips of overlapped material and into the material beneath, until the washer bears against the cloth and secures it firmly to the base material. These securing pins shall be inserted through the overlapped cloth at not greater than 2 feet intervals along a line through the midpoint of the overlap.
- (d) The cloth shall be protected at all times during construction from contamination by surface runoff and any cloth so contaminated shall be removed and replaced with uncontaminated cloth at the Contractor's expense. Any damage to the cloth during its installation for subsurface drainage structures shall be replaced by the Contractor at his own expense. Stone overlaying the cloth shall not be dropped on the cloth from a height greater than three feet. The cloth shall be placed such that the downstream edges overlap the upstream edges.
- (e) The filter cloth shall be installed in such a manner that all splice joints are provided with a minimum overlap of three (3) feet. The overlap of the closure at the top of the trench shall be as indicated on the Plans and secured with mechanical ties.
- (f) Field splices of filter cloth shall be anchored with securing pins as directed to insure the required overlap is maintained. Care shall be taken during the aggregate filler placement operation to prevent damage to the filter cloth. To repair a torn, punctured, or otherwise damaged section, a piece of filter cloth is cut large enough to cover the damaged area and overlap all around the damaged area a minimum of 12 inches.
- (g) The aggregate shall be placed in 6 inch layers and each layer compacted by the use of vibratory compactor to the satisfaction of the Engineer before making the filter cloth closure at the top of the trench.

5. Method of Measurement

Field drains will be measured for payment by the linear foot along the centerline of the trench, and from end to end of trench, complete in place.

6. Basis of Payment

Accepted quantities of field drain measured as specified above will be paid at the Contract unit price per linear foot, complete in place. Such payment shall be full compensation for all excavation, materials, backfill, and all incidentals necessary to complete the construction, in accordance with the Plans and Specifications.