

SECTION 605
UNDER DRAINS, SHEET DRAINS, AND PAVEMENT EDGE DRAINS

605.01 **DESCRIPTION** – Revise this subsection to read as follows:

This work consists of furnishing and installing infiltrators and its related works, and fittings.

605.02 **MATERIAL** – The following materials shall conform to the revised requirements, sections, and subsections:

- a. Geotextile. Non-woven geotextile meeting AASHTO M288, Class 2 Separation requirements.
- b. Granular Backfill. ¾” to 2” washed, crushed, angular, coral limestone aggregate free of fines and organic matter conforming to AASHTO M80, Class E.
- c. Drainage Infiltrator Chamber. Polypropylene Injection Molded Chamber, arched shaped with a corrugated profile having nominal dimensions of 51.0” x 30” x 85.4” (W x H x Installed L) and chamber storage volume of approximately 46.0 cubic feet. End caps and related accessories and fittings shall be as recommended by the manufacturer. Drainage chamber design of profile wall thermoplastic culverts to meet or exceed AASHTO LRFD Bridge Design Specifications with interim specification through 2001. Rated for H20 traffic loads. See drawings for infiltrator chamber details.
- d. Structural Backfill. Structural backfill material shall be compacted coral sub-base course conforming to subsection SCR301.02A, except for the final layer under paved areas in which the final backfill layer shall be compacted coral base course per Subsection SCR 301.02.B.
- e. Lean Concrete (Flowable Fill). Conform with Subsection 614.03.
- f. Polyethylene Vapor Barrier. 6 mil.

CONSTRUCTION REQUIREMENTS

605.03 **GENERAL** – Add the following to the text of this subsection:

- a. Install infiltrator chambers in accordance with the manufacturer’s recommendations.
- b. Infiltrator chamber size and approximate location are shown on the plans. Determine the final location and length in the field.

- c. Do not install underdrain material until the Contracting Officer (CO) has accepted the final location and length.
- d. Excavate and backfill according to Section 209. Excavation shall be unclassified regardless of the material encountered.
- e. Make smooth the trench surfaces by removing all projections that may damage the geotextile. Replace geotextile damaged during installation. Make repairs according to the manufacturer's recommendations.
- f. Do not permit soil or other foreign material to enter the infiltrator system. Plug the upgrade end of installation.

605.04

PLACING UNDERDRAIN – Add the following to the text of this subsection:

I: Infiltrator Chamber:

A. Excavation and Preparation

- a. Excavate the designated area and make level the exposed foundation sub-grade. Excavate at least one extra foot around the perimeter to allow for proper fit and adequate compaction.
- b. Excavated area must free of standing water. Dewatering measures must be taken if required. Maintain positive drainage of the excavation.
- c. Prepare the chamber bed's foundation sub-grade soil by scarifying it 6 to 8 inches, moisten as necessary, and compact the foundation sub-grade to 95% of its maximum relative density. If soft areas are encountered or if the exposed foundation sub-grade is unsuitable, refer to Section 209 for recommendation action.
- d. Place the AASHTO M288 Class 2 non-woven filter fabric over the prepared foundation sub-grade. The filter fabric must overlap at least 2 feet where the edges of the fabric meet.
- e. Place AASHTO M288 Class 2 non-woven filter fabric around the perimeter of the excavated bed. The fabric is required over the top of the entire chamber system after the 6" thickness of washed coral angular stones are placed over the chambers.
- f. Perforated pipe outlet underdrains may be located within the one-foot aggregate stone perimeter. Install the perforated pipe outlet underdrains if shown in the drawings.
- g. Place the washed, crushed, coral angular stone foundation material over the entire bottom surface of the prepared bed.
- h. Compact the washed coral angular stones to the thickness indicated on the plans to 95% of its maximum dry density to achieve a flat, unyielding surface.

B. Installing the Chambers

- a. Temporary layout the header/manifold system.
- b. Set first chamber of each row aligned with their inlet pipes if applicable. A minimum of 6 inch clear spacing, measured between the feet of chamber row is required. Separate chambers and inlet fittings as necessary to maintain the 6 inches clear space between chamber rows.
- c. Per the manufacturer's recommendations, cut an opening for the inlet piping in the end caps at the indicated invert in the drawings.
- d. Insert the distribution pipes into the end caps.
- e. Commence building the chamber bed by orientating the chambers such that the end labeled "Build Rows in This Direction" is the closest to the bed's edge and that the arrows point in the direction of the build. Maintain a minimum 6-inch separation between chamber rows.
- f. Construct the chamber bed by joining the chambers lengthwise in rows. Attach chambers by overlapping the end corrugation of the last chamber in the row. Do not overlap more than one corrugation.
- g. Lift the end of the last chamber a few inches off the ground. With the curved face of the end cap facing outward, place the end cap into the chamber's end corrugation. End caps are required only at the beginning and the end of each row of chambers.

C. Placement of Washed, Stone, Aggregate

- a. Place the washed, crushed, coral angular stones in accordance with manufacturer's recommendations.
- b. The 6-inch minimum clear spacing must always be maintained when placing the stones.
- c. Construction vehicle must not exceed the manufacturer's recommendation.
- d. Anchor chambers by carefully ladling angular stone directly over the centerline of the chambers. Evenly distribute the stone to minimize chamber movement.
- e. After the chamber are anchored, continue to place the stone, surrounding the chambers and filling the perimeter areas to a minimum of 6 inches over the top of the chambers or as otherwise noted on the plans. Repeat the process until all chambers are laid and covered.
- f. Cover the entire installation area with the filter fabric by taking the fabric from the perimeter and laying it over the top of the stone. The filter fabric must overlap at least 2 feet where the edges of the fabric meet.
- g. Unless otherwise detailed in the drawings, place the approved coral limestone backfill material in 8-inch minimum loose layer and compact to

95 percent of its relative density. Repeat this process until the specified grade is achieved.

- h. Where indicated on the plan s, place polyethylene vapor barrier on top of geotextile fabric and construct lean concrete (flowable fill) barrier. See plans for details.

605.08 **MEASUREMENT** – Revise this subsection to read as follows:

Measure the Section 605 items listed in the bid schedule according to Subsection 109.0-2 and the following as applicable.

- a. Measure infiltrators by linear feet, installed complete, including excavation, geo-textile, infiltrator chambers and accessories, granular bedding and backfill, structural fill and lean concrete (flowable fill).

605.09 **PAYMENT** – Revise this subsection to read as follows:

The accepted quantities will be paid at the contract price per unit of measurement for the Section 605 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

Payment will be made under:

Pay Item No.	Pay item	Pay Unit
60506	Infiltrator Chamber, includes gravel fill, geotextile, tier pipe and accessories, complete-in-place	Linear Foot

END OF SECTION 605