

compressive strength of 100 psi minimum based on the manufacturer's certification. Certification shall include the actual test data for each mixture to be used.

**314.02.03 Analysis.** Chemical analysis of the fly ash used in the mixture conducted by the Contractor shall conform to U.S. EPA EP Toxicity Standards. An analysis shall be conducted on fly ash from each stockpile whenever the coal source is changed, replenished or when fly ash from a different source is used. The results of the analysis shall be submitted to the Engineer for approval prior to using the mixture.

**314.03 CONSTRUCTION.** Placement of the flowable backfill material shall conform to the manufacturer's recommendations or as directed by the Engineer. Utility trenches shall be backfilled full depth to the top of the subgrade using the mixture as specified in the Contract Documents or as directed by the Engineer.

The mixture shall fill all voids during the backfill operation.

The backfilled utility cut shall be protected from freezing and traffic for 24 hours. Paving operations shall not begin for at least 24 hours after backfilling is completed and has been approved by the Engineer.

The Contractor shall keep detailed records of all flowable backfill placed. Records shall include the source of the fly ash, date placed, the location, depth, and the quantity used. These records shall be submitted to the Engineer.

**314.04 MEASUREMENT AND PAYMENT.** Flowable Backfill for Utility Cuts will be measured and paid for at the Contract unit price per cubic yard. The payment will be full compensation for all material, labor, equipment, tools, and incidentals necessary to complete the work.

## SECTION 315 — INFILTRATION TRENCHES

**315.01 DESCRIPTION.** This work shall consist of installing infiltration trenches as specified in the Contract Documents or as directed by the Engineer.

### 315.02 MATERIALS.

Class I Riprap	901.02
PVC Pipe, Schedule 40	905
Geotextile, Class as specified	921.09
Stone	M 43 No. 2

**315.03 CONSTRUCTION.** Infiltration trenches shall not be placed in service until all of the contributing drainage area has been stabilized to the satisfaction of the Engineer. Heavy equipment and traffic shall be restricted from the proposed infiltration trench location.

**315.03.01 Excavation.** Excavated material shall be removed from the trench site. Trench walls and bottom shall be free of protruding objects that could damage the geotextile. When necessary, the trench walls shall be sloped. The bottom dimensions and stone depth shall be as specified in the Contract Documents. The side walls of the trench shall be roughened. The bottom of the trench shall be graded flat. Refer to 402.03.01 for excavated material.

**315.03.02 Installation.** Geotextile shall be placed on the sides of the trench and the top of the No. 2 stone. The bottom of the trench shall not be covered with geotextile. The geotextile for the sides of the trench shall overlap the top geotextile by 6 to 8 in. The top geotextile shall extend the full width and length of the trench. All longitudinal joints in the top geotextile shall overlap a minimum of 6 in. The upstream roll shall overlap the downstream roll by a minimum of 2 ft for a shingled effect.

An observation well shall be placed vertically in the longitudinal center of each infiltration trench using 6 in. diameter perforated PVC pipe, Schedule 40. The pipe shall be placed on a base plate at the bottom of the trench. The well shall be capped using a threaded PVC fitting and a vandal proof sewer cap. The cap shall be set 6 in. above ground level with the depth of the trench marked on the cap. The well shall have a plastic collar with ribs to prevent rotation when removing the cap. When soil capping is used, the observation well shall be constructed of perforated PVC pipe within the No. 2 stone and non-perforated pipe through the soil capping.

All stone shall be clean and free of all soil and fines. The No. 2 stone shall be placed in 12 in. lifts with no compaction. Care shall be taken to prevent soil and fines from intermixing with the stone aggregate. All contaminated stone aggregate shall be removed and replaced with uncontaminated stone aggregate at no additional cost to the Administration. The trench shall be capped with a 12 in. minimum depth of stone or soil as specified in the Contract Documents.

**315.04 MEASUREMENT AND PAYMENT.** Infiltration Trenches will be measured and paid for at the Contract unit price per cubic yard. The payment will be full compensation for all excavation, stone, capping, riprap, geotextile, PVC pipe, fittings, cap, and for all material, labor, equipment, tools, and incidentals necessary to complete the work.