

## **TRIP REPORT FAIRVIEW ROAD EFRD SITE – INFILTRATION TESTING**

### **1.0 PURPOSE**

This Trip Report presents the field data and results of double-ring soil infiltration tests conducted to support the design of a stormwater management system at the Fairview Road EFRD site located in Wallace Township, Chester County, Pennsylvania as part of the Pennsylvania Pipeline Project (PPP) for Sunoco Pipeline, LP. One surface test (IT-A) was performed at the site. The test location is listed by coordinates (latitude and longitude) in Table 1 and shown on the attached figure.

### **2.0 FIELD ACTIVITIES**

The infiltration test was conducted by Greg Ritson of Rettew, Inc., on September 27, 2016. The test location was positioned in the field using a handheld, WAAS-enabled GPS unit. Table 1 provides the coordinates of the test location. The test was located in a wooded area, approximately 35 feet east of Fairview Road.

The infiltration test was performed in accordance with the procedure specified in the 2006 Pennsylvania Stormwater Best Management Practices (BMP) Manual. The test location was prepared with hand tools and care was taken to minimize disturbance of the soil surface to be tested. Double-ring infiltrometers were used for testing and consisted of 12-inch diameter and 6-inch diameter sections of steel casing, each 7 inches in height. After digging to the target depth, the test surface was leveled, and loose soil and debris were removed. The rings were driven a minimum of 2 inches into the soil. The infiltration test depth is presented in Table 1.

The test location was pre-soaked for 1 hour. The test was then conducted with measurements at 10-minute or 30-minute intervals, based on the observed water level drop during the last half of the pre-soak period. Pre-soak and test information was recorded on an infiltration test data sheet; a copy of the test data sheet is attached to this report.

During the testing, the weather was sunny, approximately 70 degrees Fahrenheit, and no precipitation was observed during the time of testing. Rainfall within the previous 48 hours was 0.29 inches.

A hand auger was utilized to characterize the soil, determine the depth to bedrock, if encountered, and inspect for evidence of the seasonal high water table near the test area. The field team was unable to hand auger deeper than 24 inches below ground surface due to the presence of gravel and cobble sized rock. Descriptions of the soil were documented on a field log, which was based on the form example in the BMP manual. A copy of the soil log is attached to this report.

## **3.0 RESULTS**

### **3.1 Soil Description**

Soils encountered generally consisted of a thin (up to approximately 6 inches) dark brown (7.5YR 3/2) silt clay topsoil/surface layer which included a few small roots with rock content ranging up to 15% of cobble sized rock fragments. This topsoil/surface layer was underlain by two illuvial layers consisting of a strong brown (7.5YR 5/6) silt clay with clay increasing with depth. The lower illuvial lay contained roughly 35% cobble sized rock fragments. Bedrock was not encountered.

Seasonal high water was not observed at the testing location, nor was any mottling observed.

According to United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey data, the soil type for the test locations is mapped as follows:

- Gladstone Gravelly Silt Loam - (GdC soil symbol) with 8-15 percent slopes; with low runoff and is well drained.

### **3.2 Infiltration Tests Results**

Table 1 summarizes the infiltration rate (inches per hour) calculated from the test data. The infiltration rate presented in Table 1 was calculated from the average water level drop of the last four stabilized readings measured in the inner ring.

The pre-soak test result for IT-A indicated a low infiltration rate, requiring a 30 minute test cycle.

**Table 1**  
**Summary of Infiltration Test Results**  
**Fairview Road ME2 EFRD**  
**Wallace Township, Chester County, PA**  
**Sunoco PPP**

Test Location (IT-)	Location Data		Test Depth (inches)	Infiltration Test Result (inches/hour)
	LATITUDE	LONGITUDE		
IT-A	40.1018587°	- 075.7558787°	6	0.50

# Figure 1

Infiltration Testing Location  
Fairview Road ME2 EFRD  
Soil Type: Gladstone Gravelly Loam (GdC)  
Chester County, PA

**Legend**  
📌 Infiltration Test



## **ATTACHMENTS**

## SOIL LOGS



# Soil Log

Tested By: Greg Ritson (Rettew)

Project: SUNOCO PPP

Project No.: 112 IC 05958

Test Pit: FairView Road

Date: 9/27/2016

Elevation: \_\_\_\_\_

Equipment

Used: sharp shooter

Geology: \_\_\_\_\_

Soil Type: \_\_\_\_\_

Land Use: \_\_\_\_\_

Weather: \_\_\_\_\_

**Additional Comments**

Horizon	Upper Boundary	Lower Boundary	Soil Textural Class	Type, Size, Coarse Fragments, etc.	Soil Color	Color Patterns	Pores, Roots, Rock Structure	Depth to Bedrock	Depth to Water	Comments
A	0	6"	Sil	weak, fine, SBK friable	7.5YR 3/2	-	common fine & med. cobbly (15%)	-	-	-
B	6"	24"	Sil	moderate, medium, SBK friable	7.5YR 5/6	-	few fine & med. roots	-	-	increase in clay content
B/c	24"+	-	-	-	-	-	very cobbly (35%)	-	-	denser fines

Horizon:	USDA Definition	Soil Textural Class	Boundary	Notes:
O	Organic debris	Use ternary diagram from US Department of Agriculture Soil Conservation Service	Use depth and classification	
A	Dark colored, mixed mineral organic matter		Classification as Follows:	
B	Maximum accumulation of silicate clay minerals		Abrupt	
C	Weathered parent material		Clear	
R	Layer of consolidated rock beneath the soil		Gradual	
			Diffuse	

Table based on: Sample soil log located on page 12 of the Pennsylvania Stormwater Best Management Practices Manual  
 USDA Definitions located from: [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/edu/?cid=nrcs142p2\\_054308](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/edu/?cid=nrcs142p2_054308)

**INFILTRATION TEST DATA SHEETS**

