

## **TRIP REPORT**

### **HOPELAND ROAD VALVE 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 Hopeland Road Valve site located in Heidelberg Township, Lebanon County, Pennsylvania, as part of the Pennsylvania Pipeline Project (PPP) for Sunoco Pipeline, LP. One shallow 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 Mark Mengel and Kevin Schwab of Tetra Tech, Inc., on October 5, 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 field on relatively flat terrain on the east side of Hopeland 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 10-inch and 6-inch sections of steel casing, each 10 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 cloudy, approximately 60 degrees Fahrenheit, and no precipitation was observed during the time of testing. Additionally, less than 0.5 inches of precipitation was observed 24 hours prior to testing.

A hand auger was utilized to characterize the soil, determine the depth to bedrock, if encountered, and inspect for evidence of seasonal high water table near the test area. This was completed from the ground surface down to two feet below the target infiltration test depth. 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 brown (7.5YR 4/3) fine to medium granular silt loam top soil/surface layer underlain by a reddish brown (2.5YR 4/4) sandy clay illuvial layer with small to medium sub-rounded to rounded quartzite pebbles. Clay content in this illuvial layer increased with depth. Minimal small roots were observed in the underlying soil horizons. Rounded pebbles are assumed to originate from a local red conglomerate parent material. Bedrock was not observed.

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:

- Ungers Loam - (UnC soil symbol) with 8-15 percent slopes; with medium runoff and 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 indicated a low infiltration rate, requiring a 30 minute test cycle.

**Table 1**  
**Summary of Infiltration Test Results**  
**Hopeland Road Valve**  
**Heidelberg Township, Lebanon County, PA**  
**Sunoco PPP**


Test Location (IT-)	Location Data		Test Depth (inches)	Infiltration Test Result (inches/hour)
	LATITUDE	LONGITUDE		
IT-A	40.2855027°	- 076.2438928°	2	1.10



# Figure 1

Infiltration Testing Location  
Hopeland Road Valve  
Soil Type: Ungers Loam (UnC)  
Lebanon County, PA

Legend

 Infiltration Test





## **ATTACHMENTS**

## SOIL LOGS



TETRA TECH

Soil LogTested By: KAS Kevin SchenabProject: Hopland Rd. Sunoco PPP Project No.: 112 LC 05458Test Pit: IT-A Shallow Date: 10/5/16

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

Equipment  
Used: \_\_\_\_\_

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

Land Use: Ag FieldWeather: cloudyAdditional 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	15"	silt loam	fine-med granular	7.5YR <sup>4</sup> / <sub>3</sub>	even	5% small to med pebble size quartzites (rounded)			+ rock sand
B	15"	28 1/4"	sandy clay loam	SAA	2.5YR <sup>4</sup> / <sub>4</sub>	even	15% small-med pebble sized quartzites (rounded)			slight increase in clay with depth

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: Abrupt	
B	Maximum accumulation of silicate clay minerals		Clear	
C	Weathered parent material		Gradual	
R	Layer of consolidated rock beneath the soil		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**





**Tetra Tech, Inc.**

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