

# Memorandum

**To:** Mark Sadler and Hanna Lintukorpi, City of Everett  
**From:** Erin Murray and Adia Jumper, Floyd|Snider  
**Date:** March 11, 2020  
**Project No:** COEv-Env1  
**Re:** **Utility Property Swale Test Pit Sampling Results Memorandum**

## INTRODUCTION

This technical memorandum was prepared on behalf of the City of Everett (City) to present the results of the swale sampling activities conducted in October 2019 on the Utility Property, located at 2600 Federal Avenue, in Everett, Washington. The objective of the October 2019 sampling was to inform whether there is contaminated soil that requires excavation and offsite disposal prior to filling and abandonment of the swale. The sampling was also conducted to ensure that the data are appropriate for both an evaluation against applicable industrial criteria and for profiling for waste characterization if offsite disposal is necessary.

The soil sampling was conducted in October 2019 in accordance with the 2019 Swale Sampling and Analysis Plan (SAP) memorandum (Floyd|Snider 2019). A summary of the investigation objectives, the sampling scheme, field sampling methods and protocols, and analytical results are summarized in this soil sampling results memorandum.

## SUMMARY OF FIELD ACTIVITIES

Sampling was conducted on October 3, 2019. In order to characterize the swale soil, four test pit locations were selected along the swale (Figure 1). Test pits were dug via backhoe by City staff, just north of the standing water on the side slope of the swale. Three of the test pits (TP-2 through TP-4) extended down to approximately 6 feet below ground surface (bgs). At location TP-1, only the top 0- to 2-foot sample was collected because groundwater was encountered at 2 feet bgs. This was the only location where groundwater was encountered; all samples collected in this event represent unsaturated conditions.

At each test pit location, the soil removed by the backhoe was screened for signs of contamination in accordance with the SAP. Field screening was completed through the use of a photoionization detector and observations of the presence of staining and odor. Field screening indications at all locations and depths were negative, so sampling proceeded as follows.

At each location, samples were collected at 2-foot intervals from the soil surface down to the final excavation surface. Each sample was homogenized and submitted for analysis of the following applicable Kimberly-Clark contaminants of concern, as shown in Table 1:

- Diesel- and heavy oil-range total petroleum hydrocarbons (TPH) by NWTPH-Dx
- Metals (antimony, arsenic, copper, lead, nickel, and zinc) by U.S. Environmental Protection Agency (USEPA) Method 6020B and USEPA 7471 for mercury
- Carcinogenic polycyclic aromatic hydrocarbons (cPAHs) by USEPA Method 8270D

At TP-2, the top 0- to 2-foot sample was collected and analyzed for the following additional analytes for potential waste characterization purposes:

- Semivolatile organic compounds (SVOCs) by USEPA Method 8270D
- Volatile organic compounds (VOCs) by USEPA Method 8260C
- Resource Conservation and Recovery Act 8 metals (arsenic, barium, cadmium, chromium [total], lead, mercury, selenium, silver) by Method 6020B and USEPA 7471 for mercury.

Samples were collected in accordance to Floyd|Snider's standard guidelines for shallow soil sampling (Attachment 2 of the SAP) and placed into appropriate containers for lab analysis by Analytical Resources, Inc., and the Everett Environmental Laboratory (laboratory at the Waste Water Treatment Plant) for metals. All excavated test pit soil was backfilled into the test pit locations after sample collection.

### **Decontamination Procedures**

Following procedures in the SAP, all field equipment that contacted any sample material was decontaminated prior to collection of the next sample.

### **Field Quality Assurance and Quality Control**

In accordance with the SAP, one field duplicate was collected and submitted for analysis. Additionally, one rinsate blank quality control sample was collected upon the completion of sample processing. The results of the data quality review are summarized in the Data Assurance/Quality Review section of this memorandum.

## **RESULTS**

This section summarizes field observations, analytical data, and comparison to screening levels.

### **Field Observations**

Upon arrival at the site, approximately 1 foot of standing water was observed at the bottom of the swale. Due to the standing water, sample locations were shifted just north of the bottom of the swale, on the side slope of the swale in order to avoid flooding of the test pits.

TP-3 was dug right at the edge of the standing water and became flooded soon after collection of the 0- to 2-foot interval sample. To avoid water from pouring into the test pits, the remaining locations were placed slightly northward on the slope of the swale.

The soil samples consisted primarily of silty sand with trace gravel and organic matter in the top 4 feet. At about 4 feet bgs, sand in the swale became siltier and denser as locations became closer to the East Waterway.

While digging TP-2, the excavator bucket broke an 8-inch concrete pipe at approximately 3 feet bgs. The pipe, which ran from east to west, appeared to contain a small amount of water. City personnel were notified and came to the site to inspect the broken pipe in order to provide further direction. It was determined that the pipe was abandoned and the water likely came from groundwater, indicating that the pipe did not need to be repaired at that time. Excavation continued once City approval was received. When the removal action is being completed, the inactive pipe will be plugged and abandoned according to the methods described in Appendix C of the Kimberly-Clark Work Plan for the second interim action (Aspect 2019) and in coordination with Kimberly-Clark, who is implementing the Interim Action.

Large chunks of concrete were present from 1.5 to 2 feet bgs at locations TP-2 and TP-4, and shell fragments and wood debris were noted in the 4- to 6-foot intervals at these locations. The concrete fragments in the swale are construction debris, and their origin is unknown to the City.

At all locations, a geotextile fabric was present approximately 6 inches beneath a layer of quarry spalls.

No evidence of chemical impacts (e.g., odor, sheen) were observed in any of the soil samples.

Photographs of the test pit excavations are presented in Attachment 1.

### **Analytical Results**

The soil data were compared to the screening levels included in Table 1 of the SAP. The screening levels consist of Model Toxic Control Act (MTCA) Method A Industrial cleanup levels or the unsaturated industrial land use screening level presented in Aspect Consulting's Remedial Investigation Data Report for the Kimberly-Clark Mill Site (Aspect 2014).

Although there were some detections for TPH and cPAH, there were no exceedances at any of the sample locations. Metals were detected in every sample, with elevations of the screening levels for select metals at each sample location. The metal exceedances at each sample location are shown in Figure 1.

Metals with screening level exceedances include arsenic, copper, nickel, and zinc. Each of these metals have screening levels that are based on background concentrations. The background values are specific to Puget Sound and are from the Washington State Department of Ecology's (Ecology's) 1994 *Natural Background Soil Metals Concentrations in Washington State*, with the

exception of arsenic; for arsenic, MTCA established 20 milligrams per kilogram (mg/kg) as background (Washington Administrative Code 173-340-900 Table 740-1). In summary, results at each location are as follows:

- At TP-1, the nickel concentration was only 49 mg/kg in the 0- to 2-foot interval, slightly greater than the screening level of 48 mg/kg.
- TP-2 exceedances include arsenic, copper, nickel, and zinc in the top 4 feet. The 4- to 6-foot interval at TP-2 bounded the impacted soil with no metal exceedances.
- TP-3 exceedances include copper and zinc in the 0- to 2-foot interval and copper, nickel, and zinc in the 4- to 6-foot interval. The 2- to 4-foot interval of TP-3 had no exceedances.
- At TP-4, copper and zinc exceedances were only within the top 2 feet. The impacted soil at TP-4 is bounded by the 2- to 6-foot interval, which had no exceedances.

#### **DATA ASSURANCE/QUALITY REVIEW AND ENVIRONMENTAL INFORMATION MANAGEMENT SYSTEM SUBMITTAL**

A Compliance Screening (Stages 1 & 2A) data quality review was performed on TPH, VOCs, SVOCs, and metals data resulting from laboratory analysis. The analytical data were validated in accordance with USEPA's *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA 2017a) and/or *National Functional Guidelines for Organic Superfund Data Review* (USEPA 2017b). A total of 11 soil and 2 quality control water samples were submitted in two sample delivery groups (SDGs). SDG 19J0091 was submitted to Analytical Resources, Inc., in Tukwila, Washington, for chemical analysis by NWTPH-Dx, USEPA 8260C, and USEPA 8270D. SDG 54676 was submitted to City of Everett Environmental Laboratory, in Everett, Washington, for chemical analysis by USEPA 6020B and USEPA 7471. For all SDGs, the analytical holding times were met, and the method blanks had no detections greater than the reporting limits. The matrix spike (MS), MS duplicate (MSD), laboratory control sample (LCS), LCS duplicates (LCSD), and surrogate recoveries, MS/MSD, and LCS/LCSD relative percent differences all met USEPA requirements. Data are determined to be of acceptable quality for use as reported by the laboratory, with some laboratory qualifiers being updated to conform to the final qualifiers used for data table reporting and database storage.

All data will be submitted to Ecology's Environmental Information Management (EIM) system in coordination with the Ecology Project Manager for the Kimberly-Clark Site, Andy Kallus.

This information has been provided to Kimberly-Clark for their inclusion in the Remedial Investigation/Feasibility Study.

#### **REFERENCES**

Aspect Consulting (Aspect). 2014. *Remedial Investigation Data Report, Kimberly-Clark Worldwide Site Upland Area*. 29 September.

\_\_\_\_\_. 2019. *Work Plan for Second Interim Action, Kimberly-Clark Worldwide Site Upland Area, Everett, Washington*. 30 January.

Floyd|Snider. 2019. *Swale Sampling and Analysis Plan Memorandum*. To Mark Sadler, City of Everett, from Kate Snider and Erin Murray, Floyd|Snider. 12 September.

U.S. Environmental Protection Agency (USEPA). 2017a. *National Functional Guidelines for Inorganic Superfund Methods Data Review*. Prepared by the Office of Superfund Remediation and Technology Innovation. EPA-540-R-2017-001/OLEM 9355.0-135. January.

\_\_\_\_\_. 2017b. *National Functional Guidelines for Organic Superfund Methods Data Review*. Prepared by the Office of Superfund Remediation and Technology Innovation. EPA-540-R-2017-002/OLEM 9355.0-136. January.

#### **LIST OF ATTACHMENTS**

Table 1	Soil Analytical Results for Swale Samples on Utility Property
Figure 1	Swale Test Pit Exceedances
Attachment 1	Photograph Log

**Table**

**Table 1**  
**Soil Analytical Results for Swale Samples on Utility Property**

Location				TP-1	TP-2				TP-3				TP-4		
Sample ID				TP-1-0-2FT	TP-2-0-2FT	TP-2-2-4FT	TP-2-4-6FT	TP-3-0-2FT	TP-3-2-4FT	TP-3-4-6FT	TP-3X-4-6FT	TP-4-0-2FT	TP-4-2-4FT	TP-4-4-6FT	
Depth (feet bgs)				0-2	0-2	2-4	4-6	0-2	2-4	4-6	4-6	0-2	2-4	4-6	
Sample Date				10/03/2019	10/03/2019	10/03/2019	10/03/2019	10/03/2019	10/03/2019	10/03/2019	10/03/2019	10/03/2019	10/03/2019	10/03/2019	
Analytes	CAS No.	Units	Applicable Industrial Soil Screening Level <sup>(1)</sup>												
<b>Metals</b>															
Antimony	7440-36-0	mg/kg	1,400	0.25 U	1.3	0.78 JQ	0.25 U	0.99 JQ	0.25 U	0.25 U	0.25 U	0.47 JQ	0.25 U	0.25 U	
Arsenic	7440-38-2	mg/kg	20 <sup>(2)</sup>	3.6	<b>27</b>	8.3	5.8	20	6.1	10	11	12	6.8	7.1	
Copper	7440-50-8	mg/kg	36 <sup>(2)</sup>	24	<b>51</b>	<b>44</b>	27	<b>38</b>	26	<b>55</b>	<b>58</b>	<b>50</b>	29	29	
Lead	7439-92-1	mg/kg	1,000	6.1	50	130	7.2	32	4.2	8.4	10	40	5.7	10	
Mercury	7439-97-6	mg/kg	0.1 <sup>(3)</sup>	0.046	0.071	0.043	0.056	0.06	0.035	0.081	0.082	0.071	0.043	0.044	
Nickel	7440-02-0	mg/kg	48 <sup>(2)</sup>	<b>49</b>	47	<b>55</b>	44	36	41	<b>58</b>	<b>60</b>	44	36	38	
Zinc	7440-66-6	mg/kg	85 <sup>(2)</sup>	50	<b>300</b>	<b>630</b>	59	<b>150</b>	64	81	85	<b>160</b>	54	67	
<b>Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)</b>															
Benzo(a)anthracene	56-55-3	mg/kg	--	0.067 U	0.02 JQ	0.067	0.067 U	0.023 JQ	0.067 U	0.067 U	0.067 U	0.068	0.067 U	0.05 JQ	
Chrysene	218-01-9	mg/kg	--	0.067 U	0.041 JQ	0.078	0.067 U	0.041 JQ	0.067 U	0.067 U	0.067 U	0.09	0.067 U	0.06 JQ	
Total benzofluoranthenes	56832-73-6	mg/kg	--	0.036 JQ	0.078	0.11	0.067 U	0.061 JQ	0.067 U	0.067 U	0.067 U	0.2	0.067 U	0.093	
Benzo(a)pyrene	50-32-8	mg/kg	--	0.067 U	0.024 JQ	0.06 JQ	0.089	0.023 JQ	0.067 U	0.067 U	0.067 U	0.093	0.067 U	0.056 JQ	
Indeno(1,2,3-c,d)pyrene	193-39-5	mg/kg	--	0.067 U	0.067 U	0.034 JQ	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.042 JQ	0.067 U	0.067 U	
Dibenzo(a,h)anthracene	53-70-3	mg/kg	--	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.028 JQ	0.067 U	0.067 U	
cPAH TEQ <sup>(4)</sup>	--	mg/kg	3.2 <sup>(3)</sup>	0.047 J	0.041 J	0.085 J	0.1	0.039 J	0.047 U	0.047 U	0.047 U	0.13 J	0.047 U	0.078 J	
<b>Total Petroleum Hydrocarbons (TPH)</b>															
Diesel- and oil-range TPH	--	mg/kg	2,000	110 U	130 U	240	130 U	130 U	130 U	150 U	150 U	280	130 U	140 U	

Notes:

-- Not applicable.

**BOLD/RED** Detected concentration exceeds the applicable screening level.

1 Values are MTCA Method A Industrial cleanup levels unless otherwise noted.

2 Values are specific to Puget Sound and are from Ecology's 1994 *Natural Background Soil Metals Concentrations in Washington State*, with the exception of arsenic; for arsenic, MTCA established 20 mg/kg as background (WAC 173-340-900 Table 740-1).

3 Value is the industrial screening level based on protection of groundwater to surface water.

4 Calculation of Total cPAH TEQ concentration is performed using the California Environmental Protection Agency 2005 toxic equivalent factors as presented in Table 708-2 of WAC 173-340-900. Calculation is performed using detected cPAH concentrations plus one-half the detection limit for cPAHs that were not detected.

Abbreviations:

- bgs Below ground surface
- CAS Chemical Abstracts Service
- mg/kg Milligrams per kilogram
- MTCA Model Toxics Control Act
- TEQ Toxic equivalent

Qualifiers:

- J Analyte was detected, concentration is considered to be an estimate.
- JQ Analyte was detected between the method detection limit and reporting limit, concentration is considered to be an estimate.
- U Analyte was not detected at the given reporting limit.

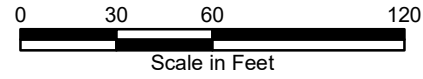
**Figure**





**Legend**

- Soil Does Not Contain Elevated COC Concentrations
- Soil Does Contain Elevated COC Concentrations
- City of Everett Property Boundary



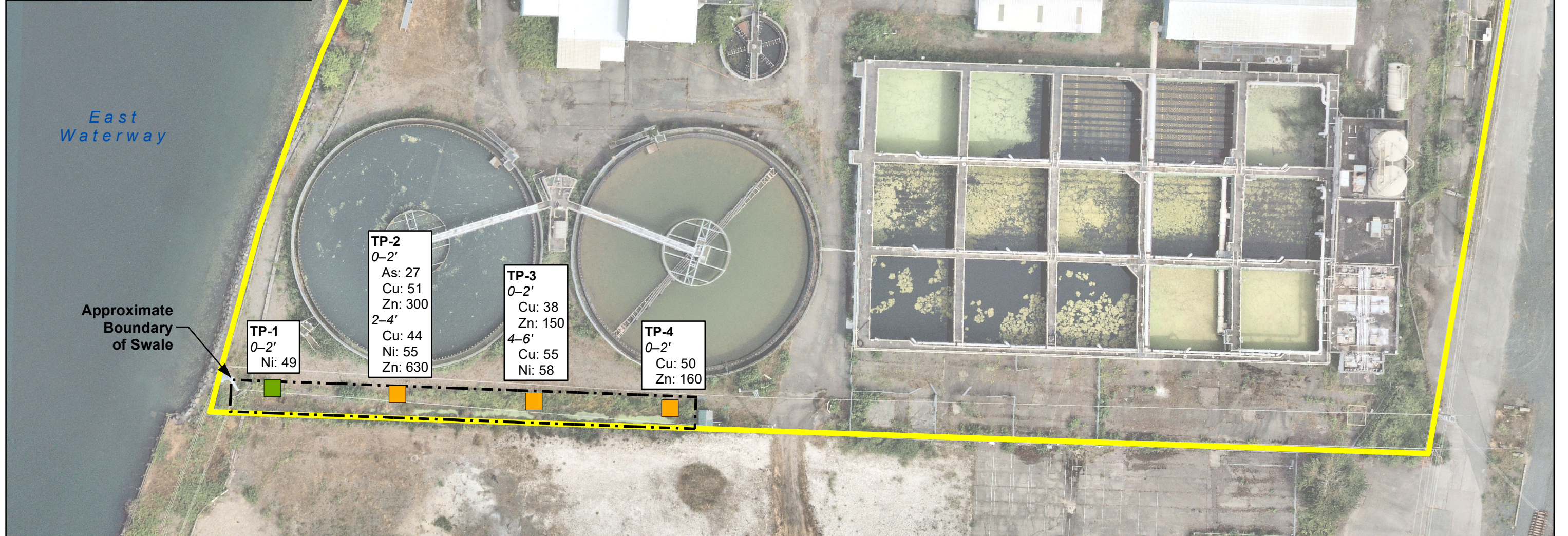
Notes:  
 · All units are in mg/kg.  
 · Inset basemap obtained from Esri, accessed 2019.  
 · Orthoimagery obtained from Nearmap, 2019.

Abbreviations:  
 As = Arsenic  
 bgs = Below ground surface  
 COC = Contaminant of concern  
 Cu = Copper  
 mg/kg = Milligrams per kilogram  
 Ni = Nickel  
 Zn = Zinc

**Label Key**

**Location ID**  
 Depth (feet bgs)  
 Analyte and Exceeded Result (mg/kg)

**TP-2**  
 2-4'  
 Zn: 630



**TP-2**  
 0-2'  
 As: 27  
 Cu: 51  
 Zn: 300  
 2-4'  
 Cu: 44  
 Ni: 55  
 Zn: 630

**TP-3**  
 0-2'  
 Cu: 38  
 Zn: 150  
 4-6'  
 Cu: 55  
 Ni: 58

**TP-4**  
 0-2'  
 Cu: 50  
 Zn: 160

**TP-1**  
 0-2'  
 Ni: 49

Approximate Boundary of Swale

**Attachment 1**  
**Photograph Log**



Photograph 1. TP-1 following 0- to 2-foot interval sample; the 2- to 4-foot interval flooded as soon as it was excavated. Note quarry spalls on surface.



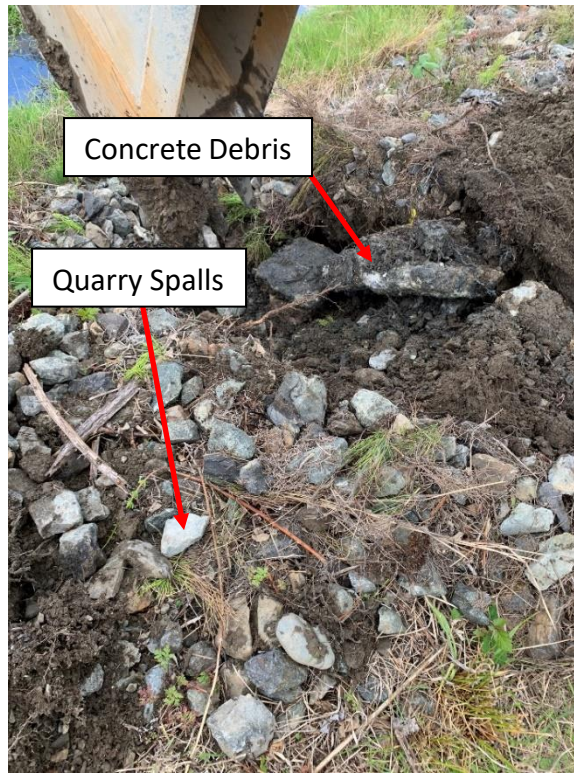
Photograph 2. TP-2 at total depth of 6 feet. Remains of broken east to west pipe visible at 3 feet bgs.



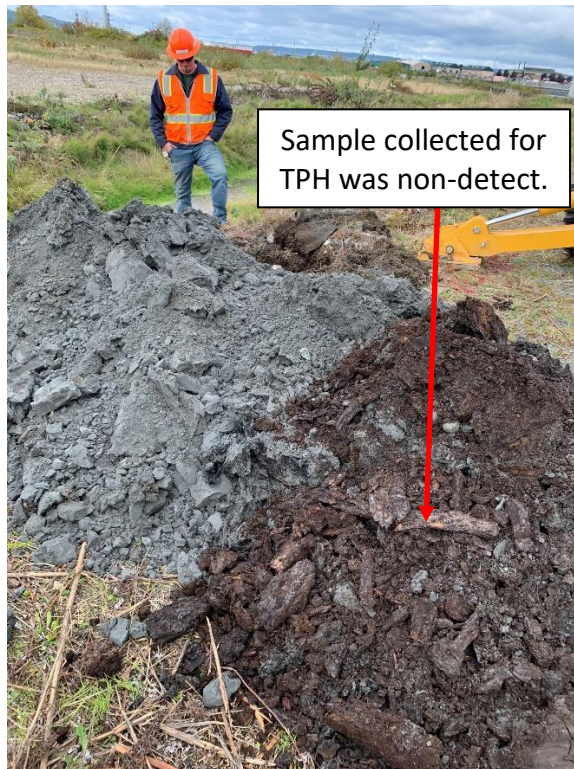
Photograph 3. Piece of pipe removed during excavation of TP-2.



Photograph 4. TP-3 at total depth of 6 feet.



Photograph 5. Concrete debris and quarry spalls visible at 2 feet bgs at TP-4.



Photograph 6. Silty sand (2 to 4 feet bgs) and wood debris (4 to 6 feet bgs) removed during TP-4 excavation.