Phase III Interim Action Summary Report –

Ditch Remediation – Phase II

for the

Superlon Plastics Site
Tacoma, Washington

Prepared for:

The Chemours Company FC, LLC

and

The White Birch Group LLC

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1. INTRODUCTION

This summary report presents the approach that was used in 2022 to conduct phase II of the Phase III Interim Action (IA) at the Superlon Plastics (Superlon) Site (Site). This work was necessary to remediate a section of the industrial stormwater drainage ditch that flows between Lincoln Ave and the property known as the Haub Log Yard, located at 3408 Lincoln Ave in Tacoma, Washington, adjacent to the southwestern boundary of the Site (Figure 1). The section of the ditch remediated in 2022 is located on Port of Tacoma (POT) owned properties at 3208 and 3408 Lincoln Ave, and is within the City of Tacoma right-of-way (COTROW) adjacent to Lincoln Ave (Figure 2). This section of the ditch was approximately 12,900 square feet in size; 446 feet in length with a maximum width of 38 feet (Figure 2, Figure 4).

This IA summary report has been prepared on behalf of the White Birch Group, LLC (White Birch) and the Chemours Company FC, LLC (Chemours). Together, these companies are hereafter referred to as the Companies. The Companies retained Pacific Environmental and Redevelopment Corporation (PERC) and PIONEER Technologies Corporation (PIONEER) as their authorized agents to complete the work described in this summary report. The work was completed in accordance with the State of Washington Model Toxics Control Act (MTCA), Chapter 173- 340 of the Washington Administrative Code (WAC) under Agreed Order (AO) No. DE 5940.

PERC oversaw the work described in this summary report with technical assistance supplied by PIONEER. The contracted laboratory was ARI Laboratories, Inc. of Tukwila, Washington. PERC Construction (PERCCON) of Snohomish, Washington was the general contractor.

2. BACKGROUND

Ditch sediment and surface water characterization was previously conducted at the Site, and the results were provided to Ecology in the *Technical Memorandum: Phase I and II Remedial Investigation for the Superlon Plastics Site* (PERC/PIONEER 2012a). However, conditions changed as a result of Gardner-Fields Products (a roofing and waterproofing products manufacturing business adjacent to the Property) releasing approximately 70,000 gallons of asphalt tar oil into the ditch on February 8, 2015 (Ecology 2015).

Gardner-Fields retained Environmental Resources Management (ERM) to remediate the asphalt tar oil in the ditch, which included the removal of sediment. Post-remediation sediment samples were collected by ERM during the remediation of asphalt tar oil within the ditch. Following ERM's remediation efforts, elevated levels of arsenic (up to 330 milligrams per kilogram [mg/kg]) and lead (up to 350 mg/kg) remained in the ditch (ERM 2015). Further assessment of the drainage ditch was necessary to obtain a better understanding of the current nature of constituent concentrations. PERC and POINEER conducted further investigations with the findings described in section 3.

Remediation of on-property soils adjacent to the ditch occurred in 2018. During that work, some of the confirmation samples taken along the ditch-side sidewall of the excavations contained arsenic and/or lead concentrations above the Site's remediation levels[1] (RELs) of on-property soils and perched water as listed in the Final Feasibility Study for On-Property Soils and Perched Water (PERC/PIONEER 2014). Additional soil excavation was necessary to complete the remediation, and this work was accomplished in the months of July, August and September of 2021 (PERC/PIONEER 2021).

During Phase I of the Ditch Remediation, sidewall samples were collected along the northwestern extent of the excavation limits, within the ditch sediment (towards Lincoln Ave). These sidewall samples contained arsenic and/or lead concentrations above the Site's RELs; therefore, additional soil excavation was necessary to complete the remediation (PERC/PIONEER 2025). This work was completed in August and September of 2022 and is the subject of this report.

[1] Remediation levels are not the same as cleanup levels. A cleanup level defines the concentration of hazardous substances above which a contaminated medium (e.g., soil) must be remediated in some manner (e.g., treatment, containment, institutional controls). A remediation level, on the other hand, defines the concentration (or other method of identification) of a hazardous substance in a particular medium above or below which a particular cleanup action component (e.g., soil treatment or containment) will be used. Remediation levels, by definition, exceed cleanup levels.

3. CHARACTERIZATION OF DRAINAGE DITCH SEDIMENT

The section of the ditch remediated in 2021 was characterized as documented in the *Remedial Investigation Phase IV Characterization of Drainage Ditch Sediment Report* (PERC/PIONEER 2017a). The section of the ditch that was remediated in 2022 was not previously characterized. The approach taken to remediate the section of the ditch documented in this report was to eliminate the pre-remediation sampling and conduct post-remediation confirmation sampling. The results of this sampling are described in the following section.

4. OBJECTIVE AND SUMMARY OF THE PROPOSED INTERIM ACTION – PHASE III OF THE DITCH REMEDIATION

The objectives of the work were to:

- Excavate sediment from surface grade to 3.0 feet below ground surface (ft bgs) in areas of the ditch where arsenic and lead concentrations exceed the Freshwater Sediment Cleanup Objectives (SCOs) promulgated by Ecology in the Sediment Management Standards (Ecology 2013a; see Table 1);[2]
- Confirm the effectiveness of the remediation using confirmation sampling on the base and sidewall of the remediation excavations; and
- Restore the sediment in the ditch.

The Companies accomplished the objectives of the Interim Action Work Plan (Work Plan) by implementing the scope of work described in Section 5 (PERC/PIONEER 2021).

5. REMEDIATION GOALS

5.1 SEDIMENT

The remediation goals for arsenic and lead occurring within the sediment (i.e., the biologically active zone sediment) were the Freshwater SCOs promulgated by Ecology in the Sediment Management Standards (Ecology 2013a; see Table 1).

TABLE 1: SEDIMENT EXCAVATION CLEANUP CRITERIA

SEDIMENT			
Metal	**mg/kg**	**Basis**	**Point of Compliance**
Arsenic	14	Freshwater Sediment Cleanup Objective	0-2 foot sediment
Lead	360	Freshwater Sediment Cleanup Objective	0-2 foot sediment

5.2 SOILS UNDERLYING THE SEDIMENT

The cleanup goals for arsenic and lead occurring within the soils underlying the sediment (i.e., non-biologically active soils) were the industrial land use cleanup levels listed on Table 2. The arsenic MTCA Method C cleanup level is 88 mg/kg, as listed in Ecology's Cleanup Levels and Risk Calculation (CLARC) tables, and is within the range of the Sediment Management Standards freshwater SCO and SCSLs (Ecology 2013a and 2013b). In addition, the ditch is surrounded by property that is used for industrial purposes and where arsenic and lead are present due to the historical filling activities.

[2] Background concentrations for freshwater sediment have not been established (Sediment Cleanup User's Manual (SCUM) Ecology 2021).

TABLE 2: SEDIMENT EXCAVATION CLEANUP CRITERIA – Soils underlying sediment			
SOIL UNDERLYING THE SEDIMENT			
Metal	**mg/kg**	**Basis**	**Point of Compliance**
Arsenic	88	MTCA Method C Cleanup Level	2-15 feet bgs
Lead	1,000	MTCA Method A Cleanup Level for Industrial Properties	2-15 feet bgs

6. DEVIATIONS FROM THE WORK PLAN

The following deviations from the Work Plan occurred during remediation:

The ditch vegetation was not cut into chips per the Work Plan. Instead, the cattails and reed canary grass was laid and pressed down, and the temporary access road was built on top of the laid down vegetation. This was done to provide a barrier between the temporary access road and the sediment.

Sediment and the underlying soils were routinely excavated to 4.5-5.5 feet bgs rather than the three-foot target depth. This was due to the higher-than-expected concentrations of lead and/or arsenic in the sediment. In addition, the project start date was delayed due to administrative problems. This late start date resulted in the need for a more time-efficient method in order to meet the very short work period between the actual start date and the date required for re-vegetation.

The aforementioned change in remediation methodology led to more sediment removal than would have been required with a more systemic approach. Approximately 3,881 cubic yards (CY) of sediments/soils were excavated and disposed of off-site rather than the 3,564 CY estimated in the Work Plan.

6.1. TOTAL PETROLEUM HYDROCARBONS (TPHs) IN SOILS

Although unexpected, soils containing petroleum (i.e., TPH) were encountered in RAU D23 through RAU D28. Following the remediation of these RAUs, the north and south sidewalls of the final excavations were sampled to determine if the soils adjacent to the Haug Log Yard retaining wall and Lincoln Ave still contained TPH concentrations greater than the remediation goals. TPH was not encountered in the biologically active zone. The results of this analysis are discussed in section 13.2, and the laboratory data reports are attached as Appendix 1.

Figure 7: TPH-Impacted Soil Found in Ditch Sediment

7. SCOPE OF WORK

7.1. SITE PREPARATION AND PRE-CONSTRUCTION

7.1.1. PRE-REMEDIATION PERMITTING AND APPROVALS

The following permits and approvals were obtained prior to the initiation of work:

- Ecology's approval of the Work Plan;
- US Dept. of Army Nationwide 38 permit. This permit was obtained through the Joint Aquatic Resource Permit Application (JARPA) process. This permit also confirmed the absence of other wetland/habitat constraints/requirements for permits from the City of Tacoma (COT) or Washington State Department of Fish and Wildlife (WDFW);
- A work order from the COT to conduct work within the COT right-of-way on the north end of the work area; and
- An access agreement from the Port of Tacoma to access the property.

7.1.2. TEMPORARY ACCESS ROAD

An access road was constructed inside the ditch in order to access the southwestern section of the ditch. This was done so that personnel and heavy equipment could be placed inside the ditch and not on either Lincoln Ave or the Haub Log yard. This temporary road was constructed to:

- Gain access to the southwestern section of the ditch;
- Allow for work to commence prior to the sediment being dry enough to hold equipment;
  Prevent any disturbances to the traffic on Lincoln Ave or the operations at the Haub Log Yard;
- Greatly diminish the possibility of accidental spillage of contaminated material onto Lincoln Ave or the Haub Log yard; and
- Ensure that personnel were safe by avoiding working near public roads.

Clean imported two inch screened gravel borrow (approved by Ecology) was used to create the temporary access road over the sediment and ditch vegetation. The temporary access road was placed in the center of the ditch and was approximately 15 feet wide. The imported soil used to construct the road was excavated along with the underlying sediment/soil and disposed of at the LRI Landfill in Puyallup, WA.

Figure 8: Temporary Access Road Inside the Ditch

7.1.3. PRE-CONSTRUCTION SURVEY

The ditch was surveyed by ESM Consulting Engineers prior to the start of work to determine the existing topography of the side of the ditch and the top of the sediment within the ditch (see Figure 4). It should be noted that the topography within the ditch indicants a drainage flow to the south prior to

the start of the remediation rather than toward Lincoln Ave as expected. This survey was used to re-create the pre-remediation topography during post-remediation restoration.

7.1.4. STORMWATER CONTROLS

The primary stormwater control consideration was to prevent any sediment or contaminants from escaping the worksite either up- or downstream. Adapted from typical in-water work practices, work was completed during the time of lowest flow condition in this region. Stormwater controls consisted of the installation of cofferdams, in accordance with the Work Plan. Cofferdam were installed at each end of the planned excavation area. The cofferdams were constructed of sand bags and stacked two feet higher than the expected high-water level. The edges of the cofferdams were underlain and covered with tarp and compacted clay to prevent seepage. Excess water was pumped into the existing infiltration pond at the Site and a baker tank was on site during the entirety of phase II remediation to provide additional storage capacity. The cofferdams were slowly removed following completion of the work to avoid high-velocity flows. Catch basin inserts (i.e., inlet protection) were installed in the catch basins on Lincoln Ave that are directly parallel to the section of the ditch that was remediated.

8. EXCAVATION AND STOCKPILING OF SEDIMENT SOILS

8.1. CONDITIONS PRIOR TO REMEDIATION

The ditch consisted of sediment/soil with patches of freshwater wetland vegetation species (e.g., cattails and reed canary grass). The sediment/soil collected within the ditch as a result of either soil backfilling of the surrounding properties between 1969 and 1973, or the runoff from these soils. The sediment consisted of clay-rich silt with varying degrees of organics.

Water was present within the ditch at the start of the remediation process. This water was controlled via the installation of cofferdams and the pumping of the water into the on-Property infiltration pond. This water was collected and analyzed, and determined to be within the disposal limits during Phase I of the Ditch Remediation. Dry weather was encountered throughout most of the remediation of the ditch, with approximately 0.3 inches of rainfall during the remediation period. These weather conditions resulted in the evaporation of most of the water in the ditch, leaving the ditch mostly dry for excavation. Once the ditch was dry, water was only encountered at depths greater than 2 feet bgs in a limited number of excavations. This water was primarily from drains alongside the ditch and from seepage from the sides of the excavations rather than in-place in the excavation.

8.2. GENERAL DESCRIPTION OF SOIL CHARACTERISTICS

The following is a general description of Site soil characteristics. Any additional observations are listed in section 12, under the description of work completed in each RAU.

8.2.1. DITCH LITHOLOGY:

Throughout the remediation of ditch sediment, based upon the absence and presence of vegetation, the biologically active zone was observed to be up to two feet thick.[3] The ditch sediment and underlying soil consisted of up 6-inches of fine sediment overlaying clay- rich silt with a high degree of marine grass (original tide flats) to approximately 2 feet. This was judged to be the biologically action zone (Figure 9). Under the top two feet was black clay- rich silt (original tide flats).

[3] The observed biologically active zone of up to two feet bgs was below the redox layer (which Ecology's 2021 SCUM uses to define the lower bounds of the biologically active zone) and extended into the underlying black (anaerobic) sediment.

Figure 9: Cross Section of Sediments Showing Biologically Active Zone to Two Feet

8.3. REMEDIAL ACTION UNITS

In general, the excavation process was completed by excavating sediment and soil within a series of discrete remedial action units (RAUs; see Figure 2). Each RAU included multiple smaller excavation units (EUs) which were roughly equal in size to the size of a 12-foot by 8-foot trench box. Sediment EUs were excavated perpendicular to the length of the ditch.

8.4. GENERAL EXCAVATION PROCESS AND FINDINGS

In general, the remediation process occurred in the following manner:

1. The RAU boundary was marked;
2. The size, number, and target depth of the EUs were determined;
3. The initial target depth of soil, as established by previous characterization data, was excavated, sampled, and stockpiled to await analysis and designation for disposal. No excavated soil was used as backfill during this program;
4. The base, and, if necessary, sidewalls of the EU were sampled; The sample was sent to the on-site laboratory for analysis; and
5. Depending on the analytical results, the excavation was either backfilled or the excavation was deepened until either remediation goals were met or the project's excavation limits were reached.

8.4.1. EXCAVATION PROCESS

The remediation was started in the southwestern section of the ditch near the entrance to the Haub Log Yard, and progressed in a northeastern direction until the area outlined in the Work Plan was completed. The last section to be remediated was the easternmost edge of the ditch that was not remediated during the initial phase. The method of excavation activities is summarized below.

The excavator operated from the temporary access road constructed within the ditch (see Section 7.1.2), the eastern bank of the ditch, or on the Superlon Property. The excavator did not enter unprepared sediment, POT property uplands, or Lincoln Ave.

Excavated sediment/soil was transported via a rotating crawler dump which travelled on the access pad, the eastern bank of the ditch, or on the Superlon Property. The rotating crawler dump did not enter unprepared sediment, POT property uplands, or Lincoln Ave. Sediment (and the access road associated with the EU being excavated) was excavated to the depth required to meet cleanup goals, as determined by confirmation sampling. No sediment/soil was trucked across public roadways.

Trench boxes and/or steel sheets were used to control caving of the sidewalls and to ensure that the excavator could remove all of the contaminated sediment/soil. Due to time limitations, sediment was excavated in four- to five-foot lifts and the upper six inches of the excavation bottom was sampled. If the bottom sample contained arsenic and/or lead at concentrations greater than the remediation goals, the excavation was deepened an additional one foot and the resulting new bottom of the excavation was sampled. This continued until either the remediation goals were met, or the project excavation limits were reached.

The approximate volume of sediment and underlying soils excavated and disposed of off-site was 3,881 CY. The final excavation limits were those described in the Work Plan. Additional information related to the excavation of sediment in each RAU is presented in section 12.

The southern excavation boundary was limited by the presence of the Haub Log Yard retaining wall. Excavation in the southward direction was stopped when the possibility of undermining the wall was present. The northern excavation boundary was limited by the presence of Lincoln Ave. Excavation in the northward direction was stopped when the possibility of undermining the road was present.

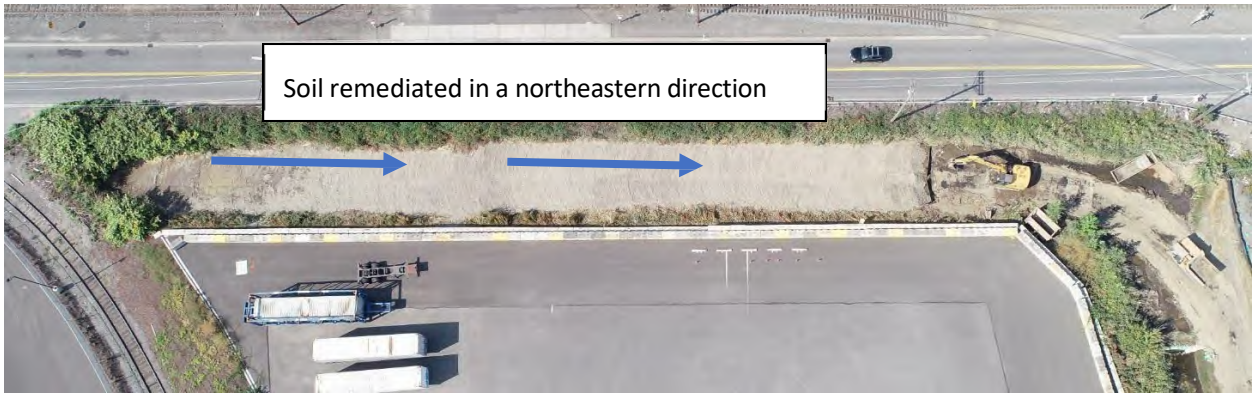


Figure 10: Direction of Remediation

Figure 11: Southwestern Excavation Limit

Figure 12: Northeastern Excavation Limit

Figure 13: Use of a Trench Box and Steel Sheeting to Ensure that All Impacted Soils Are Removed and to Prevent Caving.

Figure 14: Excavation Process

8.4.2. STOCKPILING AND DISPOSAL

Once excavated, the sediment was transported (using a crawler dump) to a stockpile at the Site for storage, treatment, and disposal at the appropriate landfill. All stockpiled sediment and soil were treated and analyzed for leachability and pH for lead and arsenic (by toxicity characteristic leaching procedure [TCLP] and pH analysis). TPH analysis was also conducted for soils excavated in RAUs containing visible TPH (by TPH-DX, TPH-HCID). The data was presented to, and approval was obtained from, the Tacoma Pierce County Health Department prior to disposal at the LRI Landfill in Puyallup, Washington.

This stockpiling and disposal process is in accordance with existing protocols for site soil management under the Ecology approved Remedial Design report for the remediation of on-property soils at the Site (PERC/PIONEER 2017b).

9. CONFIRMATION SAMPLING

9.1. CONFIRMATION SAMPLING OF SEDIMENT

Samples of the soil resident in the base of the excavation and on the southwestern and northeastern edges of each RAU were collected and analyzed (by the on-site XRF laboratory) for arsenic and lead as identified in the Superlon project SAP/QAPP (PERC/PIONEER, 2019).

If necessary, excavations of sediment soils were deepened until the soil samples collected in the bottoms of the excavations met remediation goals. The lateral excavation limits were defined by the edges of the RAU. Typically, if excavation goals were not achieved at the edge of the RAU, the excavation was expanded and resampled. If, however, an extension of the excavation had the potential of undermining the retaining wall on the Haub Log yard (extensions to the southwest) or Lincoln Ave (extensions to the northeast) additional excavation was not continued. A sample representing the soil at the excavation limits was taken and analyzed. The results of the analyses are listed in section 13.

The sampling process for the base of the excavation followed the procedures identified in the Superlon project SAP/QAPP (PERC/PIONEER, 2019) with the following modification. A composite sample was collected from the upper-most six inches of soil within each EU following soil excavation. The composite sample consisted of five discrete grab samples randomly selected from the bottom of the excavation using an excavator bucket. The composite sample represented a maximum of approximately 60 square feet of the post excavation bottom of the EU. Typically, a minimum of five EU samples were collected from each RAU. The analytical results from these EU samples were averaged to calculated the representative concentrations of lead and arsenic in each RAU. The analytical data and calculated representative concentrations for the sediment RAUs are presented in section 12.

9.2. SIDEWALL SAMPLES

Samples of the soil along the northeastern and southwestern edges of the sediment excavations were collected and analyzed (by the on-site XRF laboratory) for concentrations of arsenic and lead. Analyses for TPHs were also conducted on the sidewall samples containing visible oil (i.e., TPH). TPH analyses were done by ARI Laboratories, Inc. of Tukwila, Washington using methods NWTPH-DX and NWTPH-HCID.

Excavation side wall samples were collected and analyzed in order to (1) guide the expansion of the excavation, (2) assess the concentrations of lead and arsenic that would remain under the retaining wall on the Haub Log Yard and adjacent to Lincoln Ave, and (3) determine if the remediation activities were successful in remediating the sediment in the ditch.

Sidewall samples were collected from intervals of the sidewalls that held the highest potential for exceedances of the remediation goals. Sample locations were biased toward intervals with visual debris or unnatural soil characteristics (color, staining, etc.), or, in the absence of visual indicators, toward intervals with the highest concentrations as determined by analytical data obtained during excavation. The sampling process followed the procedures identified in the Superlon project SAP/QAPP (PERC/PIONEER 2019). A composite sample was collected from the target area within each EU following soil removal. The composite sample consisted of five discrete grab samples randomly selected from the sidewall using an excavator bucket. The sidewall sample data is presented in section 13. Figure 6 shows the locations of any exceedances of the remediation goals.

10. RESTORATION

10.1. BACKFILLING – BERM

Following the completion of the remediation of the ditch, the berm along the ditch was reconstructed to match pre- existing conditions (i.e., conditions prior to the construction of the temporary access road; Figure 5). The berm was sloped to match pre-construction topography using clean, imported two-inch screened gravel. Following the correct sloping of the berm, an imported topsoil was placed over the imported two-inch screened gravel, and the area was hydroseeded. All backfill materials were sampled and analyzed for concentrations of arsenic and lead prior to placement. These concentrations are summarized in Table 3 below.

TABLE 3: Lab Results for Backfilling Products

Location	Arsenic (mg/kg)	Lead (mg/kg)
Clay	0.638	9.270
Two-Inch Screened Gravel Borrow	ND	4.350
Sediment	4.400	3.030
Topsoil	4.010	4.780
Hydroseed	<2.5	<1.5

10.1.1. COMMERCIALLY IMPORTED TOPSOIL

A Bio-Retention Topsoil Mix was used to help facilitate growth of the hydroseed mix. This soil was obtained from Corliss Resources of Sumner, Washington.

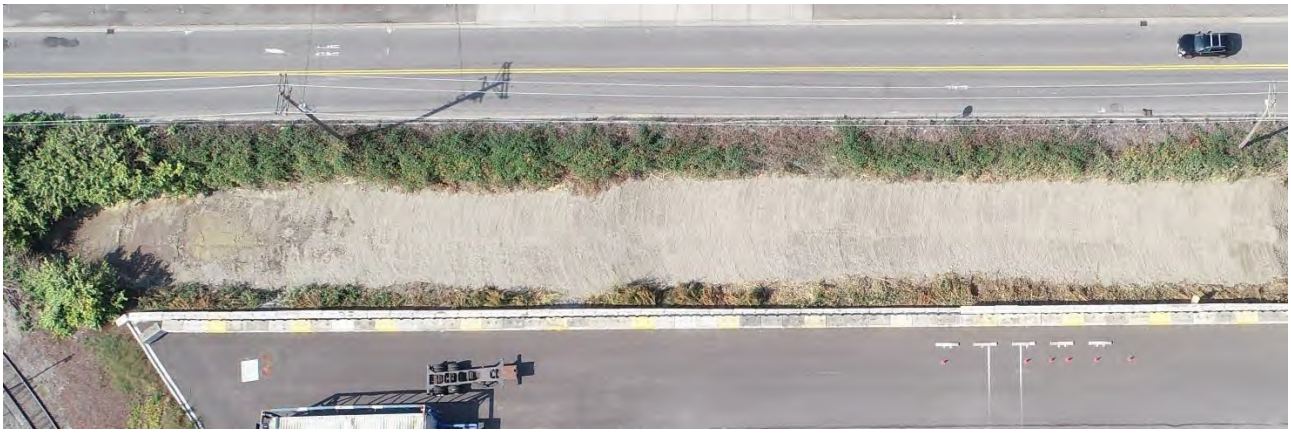
10.1.2. HYDROSEED

The application of the hydroseed was done by Bag Lady Incorporated (a commercial landscaper in Puyallup, Washington) on September 30, 2022. The hydroseed mix used was the Washington State Department of Transportation (WSDOT) seed mix without clover.

Figure 15: Aerial View 11 Days After Hydroseeding

10.2. BACKFILLING - SEDIMENT EXCAVATIONS

Restoration of the sediment excavation was done in three layers. The bottom of the excavation was replaced by 1 foot of imported pond grade clay in order to replace the clay-rich silt that was removed during the excavation. Following the addition of 1 foot of clay, 1-2.5 feet (depending on the depth of the overall excavation) of imported 2" screened gravel borrow was placed in the excavation. All sediment removed in the top two feet was replaced by a Streambed Sediment mix obtained from Corliss Resources (specifications included in Appendix 2).



10.4. Figure 16: Completed Ditch Bed Restoration

10.3. RE-VEGETATION OF THE DITCH BED

No re-vegetation was necessary following the remediation and restoration of the sediment in the ditch bottom.

11. ARCHEOLOGICAL MONITORING

Daily monitoring for archeological resources was conducted by Historical Research Associates (HRA) of Seattle, Washington. HRA's report is attached as Appendix 2. HRA did not detect or discover any historically significant objects.

12. RAU-SPECIFIC EXCAVATION FINDINGS AND RESULTS

The soil was similar across all RAUs, but debris types and staining varied in each RAU. Observations that were atypical are listed below.

12.1. OBSERVATIONS AND ANALYTICAL RESULTS BY RAU

RAU-D12

OBSERVATIONS SPECIFIC TO THIS RAU:

No significant differences in soil type from general description. Ditch sediment with organics to two feet bgs (cattail and grass roots to one foot, deeper roots to two feet) underlain by clay-rich silt. Excavated to the edge of the previous remediation excavation boundary (2021).

CONFIRMATION DATA – BOTTOM OF EXCAVATION

TABLE 4: Analytical Data - Bottom Samples RAU D12

RAU	EU	DEPTH (ft bgs)	DATE SAMPLED	Arsenic (mg/kg)	Lead (mg/kg)
RAU D12	A1	5-5.5	9/27/2022	15	17
RAU D12	B1	5-5.5	9/27/2022	8	ND
RAU D12	C1	5-5.5	9/27/2022	ND	12
RAU D12	D1	5-5.5	9/27/2022	ND	15
RAU D12	E1	5-5.5	9/27/2022	ND	12
Average Concentration				**5**	**12**

PHOTOGRAPHS OF THE EXCAVATION

Figure 17: Bottom of RAU D12

RAU-D13

OBSERVATIONS SPECIFIC TO THIS RAU:

No significant differences in soil type from general description. Ditch sediment with organics to two feet bgs (cattail and grass roots to one foot, deeper roots to two feet) underlain by clay-rich silt.

CONFIRMATION DATA – BOTTOM OF EXCAVATION

TABLE 5: Analytical Data - Bottom Samples RAU D13

RAU	EU	DEPTH (ft bgs)	DATE SAMPLED	Arsenic (mg/kg)	Lead (mg/kg)
RAU D13	A1	5-5.5	9/26/2022	7	12
RAU D13	B1	5-5.5	9/26/2022	ND	16
RAU D13	C1	5-5.5	9/26/2022	7	19
RAU D13	D1	5-5.5	9/26/2022	ND	ND
RAU D13	E1	5-5.5	9/26/2022	ND	16
Average Concentration				**3**	**13**

PHOTOGRAPHS OF THE EXCAVATION

Figure 18: Bottom of RAU D13

NOTE: Three-foot thickness of clay-rich silt bottom

RAU-D14

OBSERVATIONS SPECIFIC TO THIS RAU:

No significant differences in soil type from general description. Ditch sediment with organics to two feet bgs (cattail and grass roots to one foot, deeper roots to two feet) underlain by clay-rich silt.

CONFIRMATION DATA – BOTTOM OF EXCAVATION

TABLE 6: Analytical Data - Bottom Samples RAU D14

RAU	EU	DEPTH (ft bgs)	DATE SAMPLED	Arsenic (mg/kg)	Lead (mg/kg)
RAU D14	A1	5-5.5	9/22/2022	ND	14
RAU D14	B1	5-5.5	9/22/2022	7	20
RAU D14	C1	5-5.5	9/22/2022	ND	15
RAU D14	D1	5-5.5	9/23/2022	8	15
RAU D14	E1	5-5.5	9/23/2022	ND	12
Average Concentration				**3**	**16**

PHOTOGRAPHS OF THE EXCAVATION

Figure 19: Bottom and Southwestern Sidewall of RAU D14

RAU-D15

OBSERVATIONS SPECIFIC TO THIS RAU:

No significant differences in soil type from general description. Ditch sediment with organics to two feet bgs (cattail and grass roots to one foot, deeper roots to two feet) underlain by clay-rich silt.

CONFIRMATION DATA – BOTTOM OF EXCAVATION

TABLE 7: Analytical Data - Bottom Samples RAU D15

RAU	EU	DEPTH (ft bgs)	DATE SAMPLED	Arsenic (mg/kg)	Lead (mg/kg)
RAU D15	A1	5.5-6	9/21/2022	12	13
RAU D15	B1	5.5-6	9/22/2022	ND	12
RAU D15	C1	5.5-6	9/22/2022	ND	10
RAU D15	D1	5.5-6	9/22/2022	8	18
RAU D15	E1	5.5-6	9/22/2022	ND	22
Average Concentration				**4**	**15**

PHOTOGRAPHS OF THE EXCAVATION

Figure 20: Bottom of RAU D15

RAU-D16

OBSERVATIONS SPECIFIC TO THIS RAU:

No significant differences in soil type from general description. Ditch sediment with organics to two feet bgs (cattail and grass roots to one foot, deeper roots to two feet) underlain by clay-rich silt.

The EU E1 was only able to be remediated to four feet due to sloughing on the northeastern sidewall. The excavation was not able to be deepened in order to prevent a power pole on Lincoln Ave from being compromised.

CONFIRMATION DATA – BOTTOM OF EXCAVATION

TABLE 8: Analytical Data - Bottom Samples RAU D16

RAU	EU	DEPTH (ft bgs)	DATE SAMPLED	Arsenic (mg/kg)	Lead (mg/kg)
RAU D16	A1	5.5-6	9/21/2022	7	18
RAU D16	B1	5.5-6	9/21/2022	14	16
RAU D16	C1	5.5-6	9/21/2022	17	88
RAU D16	D1	5-5.5	9/21/2022	36	21
RAU D16	E1	4.5-5	9/21/2022	282	547
Average Concentration				**72**	**138**

PHOTOGRAPH OF THE EXCAVATION

Figure 21: Bottom and Northeastern Sidewall of RAU D16

RAU-D17

OBSERVATIONS SPECIFIC TO THIS RAU:

No significant differences in soil type from general description. Ditch sediment with organics to two feet bgs (cattail and grass roots to one foot, deeper roots to two feet) underlain by clay-rich silt.

CONFIRMATION DATA – BOTTOM OF EXCAVATION

TABLE 9: Analytical Data - Bottom Samples RAU D17

RAU	EU	DEPTH (ft bgs)	DATE SAMPLED	Arsenic (mg/kg)	Lead (mg/kg)
RAU D17	A1	5.5-6	9/20/2022	ND	20
RAU D17	B1	5.5-6	9/20/2022	ND	20
RAU D17	C1	5.5-6	9/20/2022	19	25
RAU D17	D1	5.5-6	9/21/2022	ND	ND
RAU D17	E1	5.5-6	9/21/2022	ND	20
Average Concentration				**4**	**17**

PHOTOGRAPH OF THE EXCAVATION

Figure 22: Bottom RAU D17

RAU-D18

OBSERVATIONS SPECIFIC TO THIS RAU:

No significant differences in soil type from general description. Ditch sediment with organics to two feet bgs (cattail and grass roots to one foot, deeper roots to two feet) underlain by clay-rich silt.

CONFIRMATION DATA – BOTTOM OF EXCAVATION

TABLE 10: Analytical Data - Bottom Samples RAU D18

RAU	EU	DEPTH (ft bgs)	DATE SAMPLED	Arsenic (mg/kg)	Lead (mg/kg)
RAU D18	A1	5.5-6	9/19/2022	ND	17
RAU D18	B1	5.5-6	9/19/2022	14	16
RAU D18	C1	5.5-6	9/19/2022	9	ND
RAU D18	A2	5.5-6	9/20/2022	ND	10
RAU D18	B2	5.5-6	9/20/2022	15	16
RAU D18	C2	5.5-6	9/20/2022	ND	18
Average Concentration				**7**	**13**

PHOTOGRAPH OF THE EXCAVATION

Figure 23: Bottom of RAU D18

RAU-D19

OBSERVATIONS SPECIFIC TO THIS RAU:

No significant differences in soil type from general description. Ditch sediment with organics to two feet bgs (cattail and grass roots to one foot, deeper roots to two feet) underlain by clay-rich silt.

CONFIRMATION DATA – BOTTOM OF EXCAVATION

TABLE 11: Analytical Data - Bottom Samples RAU D19

RAU	EU	DEPTH (ft bgs)	DATE SAMPLED	Arsenic (mg/kg)	Lead (mg/kg)
RAU D19	A1	5.5-6	9/15/2022	ND	20
RAU D19	B1	5.5-6	9/15/2022	8	16
RAU D19	C1	5.5-6	9/15/2022	ND	17
RAU D19	A2	5.5-6	9/15/2022	ND	12
RAU D19	B2	5.5-6	9/15/2022	ND	12
RAU D19	C2	5.5-6	9/15/2022	ND	ND
Average Concentration				**2**	**13**

PHOTOGRAPH OF THE EXCAVATION

Figure 24: Bottom of RAU D19

RAU-D20

OBSERVATIONS SPECIFIC TO THIS RAU:

No significant differences in soil type from general description. Ditch sediment with organics to two feet bgs (cattail and grass roots to one foot, deeper roots to two feet) underlain by clay-rich silt

CONFIRMATION DATA – BOTTOM OF EXCAVATION

TABLE 12: Analytical Data - Bottom Samples RAU D20

RAU	EU	DEPTH (ft bgs)	DATE SAMPLED	Arsenic (mg/kg)	Lead (mg/kg)
RAU D20	A1	5.5-6	9/12/2022	ND	15
RAU D20	B1	5.5-6	9/12/2022	ND	20
RAU D20	C1	5.5-6	9/12/2022	7	ND
RAU D20	A2	5.5-6	9/14/2022	ND	12
RAU D20	B2	5.5-6	9/14/2022	14	ND
RAU D20	C2	5.5-6	9/14/2022	ND	21
Average Concentration				**4**	**12**

PHOTOGRAPHS OF THE EXCAVATION

Figure 25: Bottom of RAU D20

RAU-D21

OBSERVATIONS SPECIFIC TO THIS RAU:

No significant differences in soil type from general description. Ditch sediment with organics to two feet bgs (cattail and grass roots to one foot, deeper roots to two feet) underlain by clay-rich silt.

CONFIRMATION DATA – BOTTOM OF EXCAVATION

TABLE 13: Analytical Data - Bottom Samples RAU D21

RAU	EU	DEPTH (ft bgs)	DATE SAMPLED	Arsenic (mg/kg)	Lead (mg/kg)
RAU D21	A1	5.5-6	9/8/2022	7	15
RAU D21	B1	5.5-6	9/8/2022	7	17
RAU D21	C1	5.5-6	9/8/2022	ND	ND
RAU D21	A2	5.5-6	9/9/2022	ND	23
RAU D21	B2	5.5-6	9/9/2022	8	15
RAU D21	C2	5.5-6	9/9/2022	ND	16
Average Concentration				**4**	**15**

PHOTOGRAPH OF THE EXCAVATION

Figure 26: Bottom of RAU D21

RAU-D22

OBSERVATIONS SPECIFIC TO THIS RAU:

No significant differences in soil type from general description. Ditch sediment with organics to two feet bgs (cattail and grass roots to one foot, deeper roots to two feet) underlain by clay-rich silt.

CONFIRMATION DATA – BOTTOM OF EXCAVATION

TABLE 14: Analytical Data - Bottom Samples RAU D22

RAU	EU	DEPTH (ft bgs)	DATE SAMPLED	Arsenic (mg/kg)	Lead (mg/kg)
RAU D22	A1	5-5.5	9/7/2022	ND	19
RAU D22	B1	5-5.5	9/7/2022	9	12
RAU D22	C1	5-5.5	9/7/2022	ND	10
RAU D22	A2	5.5-6	9/7/2022	8	17
RAU D22	B2	5.5-6	9/7/2022	7	16
RAU D22	C2	5.5-6	9/7/2022	ND	15
Average Concentration				**4**	**15**

PHOTOGRAPHS OF THE EXCAVATION

Figure 27: Bottom and Sidewalls of RAU D22

RAU-D23

OBSERVATIONS SPECIFIC TO THIS RAU:

No significant differences in soil type from general description. Ditch sediment with organics to two feet bgs (cattail and grass roots to one foot, deeper roots to two feet) underlain by clay-rich silt. Black oil (TPH) was discovered and sampled in the southwestern and northeastern sidewalls of the excavation between 2 to 5 feet bgs. The TPH analytical data is listed on Table 37 in section 13.

CONFIRMATION DATA – BOTTOM OF EXCAVATION

TABLE 15: Analytical Data - Bottom Samples RAU D23

RAU	EU	DEPTH (ft bgs)	DATE SAMPLED	Arsenic (mg/kg)	Lead (mg/kg)
RAU D23	A1	5-5.5	9/1/2022	7	12
RAU D23	B1	5.5-6	9/1/2022	8	14
RAU D23	C1	5-5.5	9/1/2022	ND	14
RAU D23	A2	5-5.5	9/1/2022	ND	ND
RAU D23	B2	5-5.5	9/1/2022	14	ND
RAU D23	C2	5-5.5	9/1/2022	ND	12
Average Concentration				**5**	**9**

PHOTOGRAPH OF THE EXCAVATION

Figure 28: Bottom of RAU D23

RAU-D24

OBSERVATIONS SPECIFIC TO THIS RAU:

No significant differences in soil type from general description. Ditch sediment with organics to two feet bgs (cattail and grass roots to one foot, deeper roots to two feet) underlain by clay-rich silt. Black oil (TPH) was discovered and sampled in the southwestern and northeastern sidewalls of the excavation between 2 to 5 feet bgs. The TPH analytical data is listed on Table 37 in section 13.

CONFIRMATION DATA – BOTTOM OF EXCAVATION

TABLE 16: Analytical Data - Bottom Samples RAU D24

RAU	EU	DEPTH (ft bgs)	DATE SAMPLED	Arsenic (mg/kg)	Lead (mg/kg)
RAU D24	A1	5-5.5	8/30/2022	ND	13
RAU D24	B1	5-5.5	8/30/2022	19	18
RAU D24	C1	5-5.5	8/30/2022	ND	13
RAU D24	A2	5-5.5	8/31/2022	ND	17
RAU D24	B2	5-5.5	8/31/2022	ND	12
RAU D24	C2	5-5.5	8/31/2022	ND	10
RAU D24	A3	5-5.5	8/31/2022	ND	17
RAU D24	B3	5-5.5	8/31/2022	16	13
RAU D24	C3	5-5.5	8/31/2022	ND	18
Average Concentration				**4**	**15**

PHOTOGRAPHS OF THE EXCAVATION

Figure 29: Bottom and Sidewalls of RAU D24

RAU-D25

OBSERVATIONS SPECIFIC TO THIS RAU:

No significant differences in soil type from general description. Ditch sediment with organics to two feet bgs (cattail and grass roots to one foot, deeper roots to two feet) underlain by clay-rich silt. Black oil (TPH) was discovered and sampled in the southwestern and northeastern sidewalls of the excavation between 2 to 5 feet bgs. The TPH analytical data is listed on Table 37 in section 13.

CONFIRMATION DATA – BOTTOM OF EXCAVATION

TABLE 17: Analytical Data - Bottom Samples RAU D25

RAU	EU	DEPTH (ft bgs)	DATE SAMPLED	Arsenic (mg/kg)	Lead (mg/kg)
RAU D25	A1	5-5.5	8/26/2022	ND	10
RAU D25	B1	5-5.5	8/26/2022	19	12
RAU D25	C1	5-5.5	8/26/2022	ND	15
RAU D25	D1	5-5.5	8/26/2022	11	17
RAU D25	E1	5-5.5	8/26/2022	ND	16
RAU D25	A2	5-5.5	8/29/2022	ND	10
RAU D25	B2	5-5.5	8/29/2022	123	25
RAU D25	C2	5-5.5	8/29/2022	ND	19
Average Concentration				**20**	**16**

PHOTOGRAPHS OF THE EXCAVATION

Figure 30: Bottom of RAU D25

Figure 31: Southwestern Sidewall of RAU D25

AU-D26

OBSERVATIONS SPECIFIC TO THIS RAU:

No significant differences in soil type from general description. Ditch sediment with organics to two feet bgs (cattail and grass roots to one foot, deeper roots to two feet) underlain by clay-rich silt. Black oil (TPH) was discovered and sampled in the southwestern and northeastern sidewalls of the excavation between 2 to 5 feet bgs. The TPH analytical data is listed on Table 37 in section 13.

CONFIRMATION DATA – BOTTOM OF EXCAVATION

TABLE 18: Analytical Data - Bottom Samples RAU D26

RAU	EU	DEPTH (ft bgs)	DATE SAMPLED	Arsenic (mg/kg)	Lead (mg/kg)
RAU D26	A1	5-5.5	8/22/2022	9	16
RAU D26	B1	5-5.5	8/22/2022	ND	18
RAU D26	C1	5-5.5	8/23/2022	9	10
RAU D26	D1	5-5.5	8/23/2022	ND	12
RAU D26	E1	5-5.5	8/24/2022	12	18
Average Concentration				**6**	**15**

PHOTOGRAPHS OF THE EXCAVATION

Figure 32: Bottom of RAU D26

Figure 33: Southwestern and Northeastern Sidewall of RAU D26

RAU-D27

OBSERVATIONS SPECIFIC TO THIS RAU:

No significant differences in soil type from general description. Ditch sediment with organics to two feet bgs (cattail and grass roots to one foot, deeper roots to two feet) underlain by clay-rich silt. Black oil (TPH) was discovered and sampled in the southwestern and northeastern sidewalls of the excavation between 2 to 5 feet bgs. The TPH analytical data is listed on Table 37 in section 13.

CONFIRMATION DATA – BOTTOM OF EXCAVATION

TABLE 19: Analytical Data - Bottom Samples RAU D27

RAU	EU	DEPTH (ft bgs)	DATE SAMPLED	Arsenic (mg/kg)	Lead (mg/kg)
RAU D27	A1	5-5.5	8/16/2022	69	37
RAU D27	B1	5-5.5	8/16/2022	72	18
RAU D27	C1	5-5.5	8/15/2022	52	21
RAU D27	A2	5-5.5	8/17/2022	43	20
RAU D27	C2	5-5.5	8/17/2022	75	22
Average Concentration				**63**	**24**

PHOTOGRAPHS OF THE EXCAVATION

Figure 34: RAU D27

RAU-D28

OBSERVATIONS SPECIFIC TO THIS RAU:

No significant differences in soil type from general description. Ditch sediment with organics to two feet bgs (cattail and grass roots to one foot, deeper roots to two feet) underlain by clay-rich silt. Black oil (TPH) was discovered and sampled in the southwestern and northeastern sidewalls of the excavation between 2 to 5 feet bgs. The TPH analytical data is listed on Table 37 in section 13.

The most southwestern sidewall sample of this RAU was not able to be collected due to a risk of undermining the entrance to the Haub Log Yard.

CONFIRMATION DATA – BOTTOM OF EXCAVATION

TABLE 20: Analytical Data - Bottom Samples RAU D28

RAU	EU	DEPTH (ft bgs)	DATE SAMPLED	Arsenic (mg/kg)	Lead (mg/kg)
RAU D28	A1	4-4.5	8/8/2022	46	23
RAU D28	B1	4-4.5	8/8/2022	42	23
RAU D28	C1	5-5.5	8/9/2022	52	36
RAU D28	D1	4-4.5	8/9/2022	81	30
RAU D28	E1	5-5.5	8/9/2022	75	17
Average Concentration				**60**	**26**

PHOTOGRAPH OF THE EXCAVATION

Figure 35: Bottom of RAU D28

13. EXCAVATION SIDEWALL SAMPLING

To evaluate the effectiveness of the remediation activities, sidewall samples of the excavation limits were collected and analyzed to determine in-place concentrations of arsenic and lead.

13.1. SIDEWALL SAMPLE ANALYTICAL RESULTS – ARSENIC AND LEAD

The data received from the on-site laboratory of the sidewall samples is presented below. Samples listed as "west sidewall" and "south sidewall" are samples collected from the soils adjacent to the retaining wall on the Haub Log Yard. The samples listed as "north sidewall" are samples collected from the soils adjacent to Lincoln Ave.

TABLE 21: Analytical Data - Sidewall Samples RAU D12

RAU	Location	Top of Interval (ft bgs)	Bottom of Interval (ft bgs)	Date Sampled	Arsenic (mg/kg)	Lead (mg/kg)
RAU A1	West Sidewall - Western Excavation Boundary	0	2.5	9/27/2022	431	284
RAU A1	West Sidewall - Western Excavation Boundary	2.5	5	9/27/2022	47	18
RAU B1	West Sidewall - Western Excavation Boundary	0	2.5	9/27/2022	400	189
RAU B1	West Sidewall - Western Excavation Boundary	2.5	5	9/27/2022	43	13

TABLE 22: Analytical Data - Sidewall Samples RAU D13

RAU	Location	Top of Interval (ft bgs)	Bottom of Interval (ft bgs)	Date Sampled	Arsenic (mg/kg)	Lead (mg/kg)
RAU A1	West Sidewall - Western Excavation Boundary	0	2.5	9/26/2022	1,136	3,392
RAU A1	West Sidewall - Western Excavation Boundary	2.5	5	9/26/2022	135	40
RAU B1	West Sidewall - Western Excavation Boundary	0	2.5	9/26/2022	639	375
RAU B1	West Sidewall - Western Excavation Boundary	2.5	5	9/26/2022	255	56

TABLE 23: Analytical Data - Sidewall Samples RAU D14

RAU	Location	Top of Interval (ft bgs)	Bottom of Interval (ft bgs)	Date Sampled	Arsenic (mg/kg)	Lead (mg/kg)
RAU A1	West Sidewall - Western Excavation Boundary	0	2.5	9/23/2022	152	275
RAU A1	West Sidewall - Western Excavation Boundary	2.5	5	9/23/2022	53	47
RAU B1	West Sidewall - Western Excavation Boundary	0	2.5	9/23/2022	66	26
RAU B1	West Sidewall - Western Excavation Boundary	2.5	5	9/23/2022	243	386

TABLE 24: Analytical Data - Sidewall Samples RAU D16						
RAU	**Location**	**Top of Interval (ft bgs)**	**Bottom of Interval (ft bgs)**	**Date Sampled**	**Arsenic (mg/kg)**	**Lead (mg/kg)**
RAU A1	North Sidewall - North Excavation Boundary	0	2.5	9/22/2022	133	563
RAU A1	North Sidewall - North Excavation Boundary	2.5	5.5	9/22/2022	808	1,064
RAU B1	North Sidewall - North Excavation Boundary	0	2.5	9/22/2022	166	177
RAU B1	North Sidewall - North Excavation Boundary	2.5	5.5	9/22/2022	33	56
RAU C1	North Sidewall - North Excavation Boundary	0	2.5	9/22/2022	226	384
RAU C1	North Sidewall - North Excavation Boundary	2.5	5.5	9/22/2022	80	142
RAU D1	North Sidewall - North Excavation Boundary	0	2.5	9/22/2022	494	531
RAU D1	North Sidewall - North Excavation Boundary	2.5	5	9/22/2022	1,369	3,718
RAU E1	North Sidewall - North Excavation Boundary	0	2.5	9/21/2022	2,790	300
RAU E1	North Sidewall - North Excavation Boundary	2.5	4.5	9/21/2022	6,867	16,453

TABLE 25: Analytical Data - Sidewall Samples RAU D17						
RAU	**Location**	**Top of Interval (ft bgs)**	**Bottom of Interval (ft bgs)**	**Date Sampled**	**Arsenic (mg/kg)**	**Lead (mg/kg)**
RAU E1	North Sidewall - North Excavation Boundary	0	2.5	9/21/2022	7,085	602
RAU E1	North Sidewall - North Excavation Boundary	2.5	5.5	9/21/2022	1,712	2,533
RAU A1	South Sidewall - South Excavation Boundary	0	2.5	9/21/2022	107	55
RAU A1	South Sidewall - South Excavation Boundary	2.5	5.5	9/21/2022	110	38

TABLE 26: Analytical Data - Sidewall Samples RAU D18						
RAU	**Location**	**Top of Interval (ft bgs)**	**Bottom of Interval (ft bgs)**	**Date Sampled**	**Arsenic (mg/kg)**	**Lead (mg/kg)**
RAU C1	North Sidewall - North Excavation Boundary	0	2.5	9/19/2022	538	896
RAU C1	North Sidewall - North Excavation Boundary	2.5	5.5	9/19/2022	99	126
RAU C2	North Sidewall - North Excavation Boundary	0	2.5	9/20/2022	485	273
RAU C2	North Sidewall - North Excavation Boundary	2.5	5.5	9/20/2022	239	116
RAU A1	South Sidewall - South Excavation Boundary	0	2.5	9/19/2022	50	34
RAU A1	South Sidewall - South Excavation Boundary	2.5	5.5	9/19/2022	2,572	2,325
RAU A2	South Sidewall - South Excavation Boundary	0	2	9/20/2022	92	78
RAU A2	South Sidewall - South Excavation Boundary	2.5	5.5	9/20/2022	1,527	2,867

TABLE 27: Analytical Data - Sidewall Samples RAU D19						
RAU	**Location**	**Top of Interval (ft bgs)**	**Bottom of Interval (ft bgs)**	**Date Sampled**	**Arsenic (mg/kg)**	**Lead (mg/kg)**
RAU C1	North Sidewall - North Excavation Boundary	0	2.5	9/15/2022	775	445
RAU C1	North Sidewall - North Excavation Boundary	2.5	5.5	9/15/2022	147	53
RAU C2	North Sidewall - North Excavation Boundary	0	2.5	9/19/2022	1,151	386
RAU C2	North Sidewall - North Excavation Boundary	2.5	5.5	9/19/2022	60	70
RAU A1	South Sidewall - South Excavation Boundary	0	2.5	9/15/2022	762	1,440
RAU A1	South Sidewall - South Excavation Boundary	2.5	5.5	9/15/2022	4,147	4,913
RAU A2	South Sidewall - South Excavation Boundary	0	2	9/19/2022	368	461
RAU A2	South Sidewall - South Excavation Boundary	2.5	5.5	9/19/2022	4,189	4,295

TABLE 28: Analytical Data - Sidewall Samples RAU D20						
RAU	**Location**	**Top of Interval (ft bgs)**	**Bottom of Interval (ft bgs)**	**Date Sampled**	**Arsenic (mg/kg)**	**Lead (mg/kg)**
RAU C1	North Sidewall - North Excavation Boundary	0	2.5	9/12/2022	8,392	221
RAU C1	North Sidewall - North Excavation Boundary	2.5	5.5	9/12/2022	476	26
RAU C2	North Sidewall - North Excavation Boundary	0	2.5	9/14/2022	585	244
RAU C2	North Sidewall - North Excavation Boundary	2.5	5.5	9/14/2022	23	29
RAU A1	South Sidewall - South Excavation Boundary	0	2.5	9/12/2022	625	659
RAU A1	South Sidewall - South Excavation Boundary	2.5	5.5	9/12/2022	122	109
RAU A2	South Sidewall - South Excavation Boundary	0	2	9/14/2022	777	2,269
RAU A2	South Sidewall - South Excavation Boundary	2.5	5.5	9/14/2022	1,658	1,930

TABLE 29: Analytical Data - Sidewall Samples RAU D21						
RAU	**Location**	**Top of Interval (ft bgs)**	**Bottom of Interval (ft bgs)**	**Date Sampled**	**Arsenic (mg/kg)**	**Lead (mg/kg)**
RAU C1	North Sidewall - North Excavation Boundary	0	2.5	9/8/2022	360	122
RAU C1	North Sidewall - North Excavation Boundary	2.5	5.5	9/8/2022	104	66
RAU C2	North Sidewall - North Excavation Boundary	0	2.5	9/9/2022	166	189
RAU C2	North Sidewall - North Excavation Boundary	2.5	5.5	9/9/2022	48	24
RAU A1	South Sidewall - South Excavation Boundary	0	2.5	9/8/2022	84	75
RAU A1	South Sidewall - South Excavation Boundary	2.5	5.5	9/8/2022	3,041	4,790
RAU A2	South Sidewall - South Excavation Boundary	0	2	9/9/2022	41	47
RAU A2	South Sidewall - South Excavation Boundary	2.5	5.5	9/9/2022	1,243	1,205

TABLE 30: Analytical Data - Sidewall Samples RAU D22						
RAU	**Location**	**Top of Interval (ft bgs)**	**Bottom of Interval (ft bgs)**	**Date Sampled**	**Arsenic (mg/kg)**	**Lead (mg/kg)**
RAU C1	North Sidewall - North Excavation Boundary	0	2.5	9/7/2022	57	43
RAU C1	North Sidewall - North Excavation Boundary	2.5	5	9/7/2022	2,425	5,282
RAU C2	North Sidewall - North Excavation Boundary	0	2.5	9/7/2022	75	167
RAU C2	North Sidewall - North Excavation Boundary	2.5	5.5	9/7/2022	34	73
RAU A1	South Sidewall - South Excavation Boundary	0	2.5	9/7/2022	55	119
RAU A1	South Sidewall - South Excavation Boundary	2.5	5	9/7/2022	212	149
RAU A2	South Sidewall - South Excavation Boundary	0	2	9/7/2022	75	85
RAU A2	South Sidewall - South Excavation Boundary	2.5	5.5	9/7/2022	322	76

TABLE 31: Analytical Data - Sidewall Samples RAU D23						
RAU	**Location**	**Top of Interval (ft bgs)**	**Bottom of Interval (ft bgs)**	**Date Sampled**	**Arsenic (mg/kg)**	**Lead (mg/kg)**
RAU C1	North Sidewall - North Excavation Boundary	0	2.5	9/1/2022	196	202
RAU C1	North Sidewall - North Excavation Boundary	2.5	5	9/1/2022	302	169
RAU C2	North Sidewall - North Excavation Boundary	0	2.5	9/6/2022	140	61
RAU C2	North Sidewall - North Excavation Boundary	2.5	5	9/6/2022	179	116
RAU A1	South Sidewall - South Excavation Boundary	0	2.5	9/1/2022	862	2,170
RAU A1	South Sidewall - South Excavation Boundary	2.5	5	9/1/2022	65	51
RAU A2	South Sidewall - South Excavation Boundary	0	2	9/6/2022	769	814
RAU A2	South Sidewall - South Excavation Boundary	2.5	5	9/6/2022	230	262

TABLE 32: Analytical Data - Sidewall Samples RAU D24						
RAU	**Location**	**Top of Interval (ft bgs)**	**Bottom of Interval (ft bgs)**	**Date Sampled**	**Arsenic (mg/kg)**	**Lead (mg/kg)**
RAU C1	North Sidewall - North Excavation Boundary	0	2.5	8/30/2022	131	102
RAU C1	North Sidewall - North Excavation Boundary	2.5	5	8/30/2022	53	25
RAU C2	North Sidewall - North Excavation Boundary	0	2.5	8/31/2022	103	98
RAU C2	North Sidewall - North Excavation Boundary	2.5	5	8/31/2022	500	633
RAU C3	North Sidewall - North Excavation Boundary	0	2.5	9/1/2022	74	105
RAU C3	North Sidewall - North Excavation Boundary	2.5	5	9/1/2022	239	142
RAU A1	South Sidewall - South Excavation Boundary	0	2.5	8/30/2022	68	24
RAU A1	South Sidewall - South Excavation Boundary	2.5	5	8/30/2022	ND	30
RAU A2	South Sidewall - South Excavation Boundary	0	2	8/31/2022	761	921
RAU A2	South Sidewall - South Excavation Boundary	2.5	5	8/31/2022	535	470
RAU A3	South Sidewall - South Excavation Boundary	0	2	9/1/2022	116	78
RAU A3	South Sidewall - South Excavation Boundary	2.5	5	9/1/2022	154	334

TABLE 33: Analytical Data - Sidewall Samples RAU D25						
RAU	**Location**	**Top of Interval (ft bgs)**	**Bottom of Interval (ft bgs)**	**Date Sampled**	**Arsenic (mg/kg)**	**Lead (mg/kg)**
RAU C1	North Sidewall - North Excavation Boundary	0	2.5	8/26/2022	127	149
RAU C1	North Sidewall - North Excavation Boundary	2.5	5	8/26/2022	19	21
RAU C2	North Sidewall - North Excavation Boundary	0	2.5	8/29/2022	131	99
RAU C2	North Sidewall - North Excavation Boundary	2.5	5	8/29/2022	7	12
RAU A1	South Sidewall - South Excavation Boundary	0	2.5	8/26/2022	718	780
RAU A1	South Sidewall - South Excavation Boundary	2.5	5	8/26/2022	123	156
RAU A2	South Sidewall - South Excavation Boundary	0	2	8/29/2022	156	43
RAU A2	South Sidewall - South Excavation Boundary	2.5	5	8/29/2022	926	820

TABLE 34: Analytical Data - Sidewall Samples RAU D26						
RAU	**Location**	**Top of Interval (ft bgs)**	**Bottom of Interval (ft bgs)**	**Date Sampled**	**Arsenic (mg/kg)**	**Lead (mg/kg)**
RAU B1	North Sidewall - North Excavation Boundary	0	2.5	8/22/2022	476	58
RAU B1	North Sidewall - North Excavation Boundary	2.5	5	8/22/2022	11	ND
RAU D1	North Sidewall - North Excavation Boundary	0	2.5	8/23/2022	322	124
RAU D1	North Sidewall - North Excavation Boundary	2.5	5	8/23/2022	615	147
RAU E1	North Sidewall - North Excavation Boundary	0	2.5	8/25/2022	268	89
RAU E1	North Sidewall - North Excavation Boundary	2.5	5	8/25/2022	322	180
RAU A1	South Sidewall - South Excavation Boundary	0	2.5	8/22/2022	315	422
RAU A1	South Sidewall - South Excavation Boundary	2.5	5	8/22/2022	11	20
RAU C1	South Sidewall - South Excavation Boundary	0	2.5	8/23/2022	362	163
RAU C1	South Sidewall - South Excavation Boundary	2.5	5	8/23/2022	1,672	1,414
RAU E1	South Sidewall - South Excavation Boundary	0	2	8/25/2022	378	315
RAU E1	South Sidewall - South Excavation Boundary	2.5	5	8/25/2022	788	1,046

TABLE 35: Analytical Data - Sidewall Samples RAU D27						
RAU	**Location**	**Top of Interval (ft bgs)**	**Bottom of Interval (ft bgs)**	**Date Sampled**	**Arsenic (mg/kg)**	**Lead (mg/kg)**
RAU C1	North Sidewall - North Excavation Boundary	0	2.5	8/15/2022	616	262
RAU C1	North Sidewall - North Excavation Boundary	2.5	5	8/15/2022	35	29
RAU C2	North Sidewall - North Excavation Boundary	0	2.5	8/17/2022	173	97
RAU C2	North Sidewall - North Excavation Boundary	2.5	5	8/17/2022	54	22
RAU A1	South Sidewall - South Excavation Boundary	0	2.5	8/16/2022	378	390
RAU A1	South Sidewall - South Excavation Boundary	2.5	5	8/16/2022	13	20
RAU A2	South Sidewall - South Excavation Boundary	0	2	8/17/2022	227	97
RAU A2	South Sidewall - South Excavation Boundary	2.5	5	8/17/2022	27	24

TABLE 36: Analytical Data - Sidewall Samples RAU D28						
RAU	**Location**	**Top of Interval (ft bgs)**	**Bottom of Interval (ft bgs)**	**Date Sampled**	**Arsenic (mg/kg)**	**Lead (mg/kg)**
RAU A1	North Sidewall - North Excavation Boundary	0	2	8/10/2022	ND	ND
RAU C1	North Sidewall - North Excavation Boundary	0	2	8/10/2022	283	ND
RAU C1	North Sidewall - North Excavation Boundary	2	4	8/10/2022	ND	18
RAU C1	North Sidewall - North Excavation Boundary	4	5	8/10/2022	ND	ND
RAU D1	South Sidewall - South Excavation Boundary	0	2	8/10/2022	242	180
RAU D1	South Sidewall - South Excavation Boundary	2	4	8/10/2022	371	ND
RAU E1	South Sidewall - South Excavation Boundary	0	2	8/10/2022	343	ND
RAU E1	South Sidewall - South Excavation Boundary	2	4	8/10/2022	74	ND
RAU E1	South Sidewall - South Excavation Boundary	4	5	8/10/2022	ND	20

13.2. SIDEWALL SAMPLE ANALYTICAL RESULTS – TPH

The results of the excavation sidewall sampling reported no concentrations exceeding the MTCA Method A cleanup level of 2,000 mg/kg in the underlying soils (Table 37).

TABLE 37: Analytical Data - TPH				NWTPH-DX		NWTPH-HCID		
RAU	**Location**	**Sampling Interval (ft bgs)**	**Date Sampled**	**Diesel Range Organics**	**Motor Oil Range Organics**	**Gasoline Range Organics**	**Diesel Range Organics**	**Motor Oil Range Organics**
D23 A1	South Sidewall	2.5-5	9/1/2022	<50	<250	ND	ND	ND
D23 C1	North Sidewall	2.5-5	9/1/2022	<50	<250	ND	ND	ND
D23 A2	South Sidewall	2.5-5	9/6/2022	<50	<250	ND	ND	ND
D23 C2	North Sidewall	2.5-5	9/6/2022	<50	<250	ND	ND	ND
D24 A1	South Sidewall	2.5-5	8/30/2022	<50	<250	ND	ND	ND
D24 C1	North Sidewall	2.5-5	8/30/2022	<50	<250	ND	ND	ND
D24 A2	South Sidewall	2.5-5	8/31/2022	<50	<250	ND	ND	ND
D24 C2	North Sidewall	2.5-5	8/31/2022	<50	<250	ND	ND	ND
D24 A3	South Sidewall	2.5-5	9/1/2022	<50	<250	ND	ND	ND
D24 C3	North Sidewall	2.5-5	9/1/2022	<50	<250	ND	ND	ND
D25 A1	South Sidewall	2.5-5	8/26/2022	<50	<250	ND	ND	ND
D25 C1	North Sidewall	2.5-5	8/26/2022	<50	<250	ND	ND	ND
D25 A2	South Sidewall	2.5-5	8/29/2022	<50	<250	ND	ND	ND
D25 C2	North Sidewall	2.5-5	8/29/2022	<50	<250	ND	ND	ND
D26 A1	South Sidewall	2.5-5	8/22/2022	<50	<250	ND	ND	ND
D26 B1	North Sidewall	2.5-5	8/22/2022	<50	<250	ND	ND	ND
D26 C1	South Sidewall	2.5-5	8/23/2022	<50	<250	ND	ND	ND

TABLE 37: Analytical Data – TPH (continued)				NWTPH-DX			NWTPH-HCID	
RAU	**Location**	**Sampling Interval (ft bgs)**	**Date Sampled**	**Diesel Range Organics**	**Motor Oil Range Organics**	**Gasoline Range Organics**	**Diesel Range Organics**	**Motor Oil Range Organics**
D26 D1	North Sidewall	2.5-5	8/23/2022	<50	<250	ND	ND	ND
D26 E1	South Sidewall	2.5-5	8/25/2022	<50	<250	ND	ND	ND
D26 E1	North Sidewall	2.5-5	8/25/2022	<50	400	ND	ND	D
D27 A1	South Sidewall	2.5-5	8/16/2022	<50	<250	ND	ND	ND
D27 C1	North Sidewall	2.5-5	8/15/2022	<50	<250	ND	ND	ND
D27 A2	South Sidewall	2.5-5	8/17/2022	<50	<250	ND	ND	ND
D27 C2	North Sidewall	2.5-5	8/17/2022	<50	<250	ND	ND	ND
D28 C1	North Sidewall	2-4	8/10/2022	<50	<250	ND	ND	ND
D28 D1	South Sidewall	2-4	8/10/2022	<50	330	ND	ND	D
D28 E1	South Sidewall	2-4	8/10/2022	<50	<250	ND	ND	ND

14. DECONTAMINATION OF EQUIPMENT AND PERSONNEL

Decontamination of personnel and equipment followed the procedures identified in the Superlon project HASP (PERC/PIONEER 2020).

15. CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER WORK

Whereas the remediation of sediment and berm soils did remove soils above the remediation levels in all of the excavated RAUs, soil and sediment with concentrations of lead and/or arsenic remain above remediation goals in selected excavation sidewalls. This data largely occurs in areas that will require the removal of overlying structures (the Haub Log Yard retaining wall and Lincoln Ave). Samples taken in the southwestern most sediment sidewalls contain concentrations of lead and/or arsenic above remediation goals but were not accessible to remediation equipment.

16. REFERENCES

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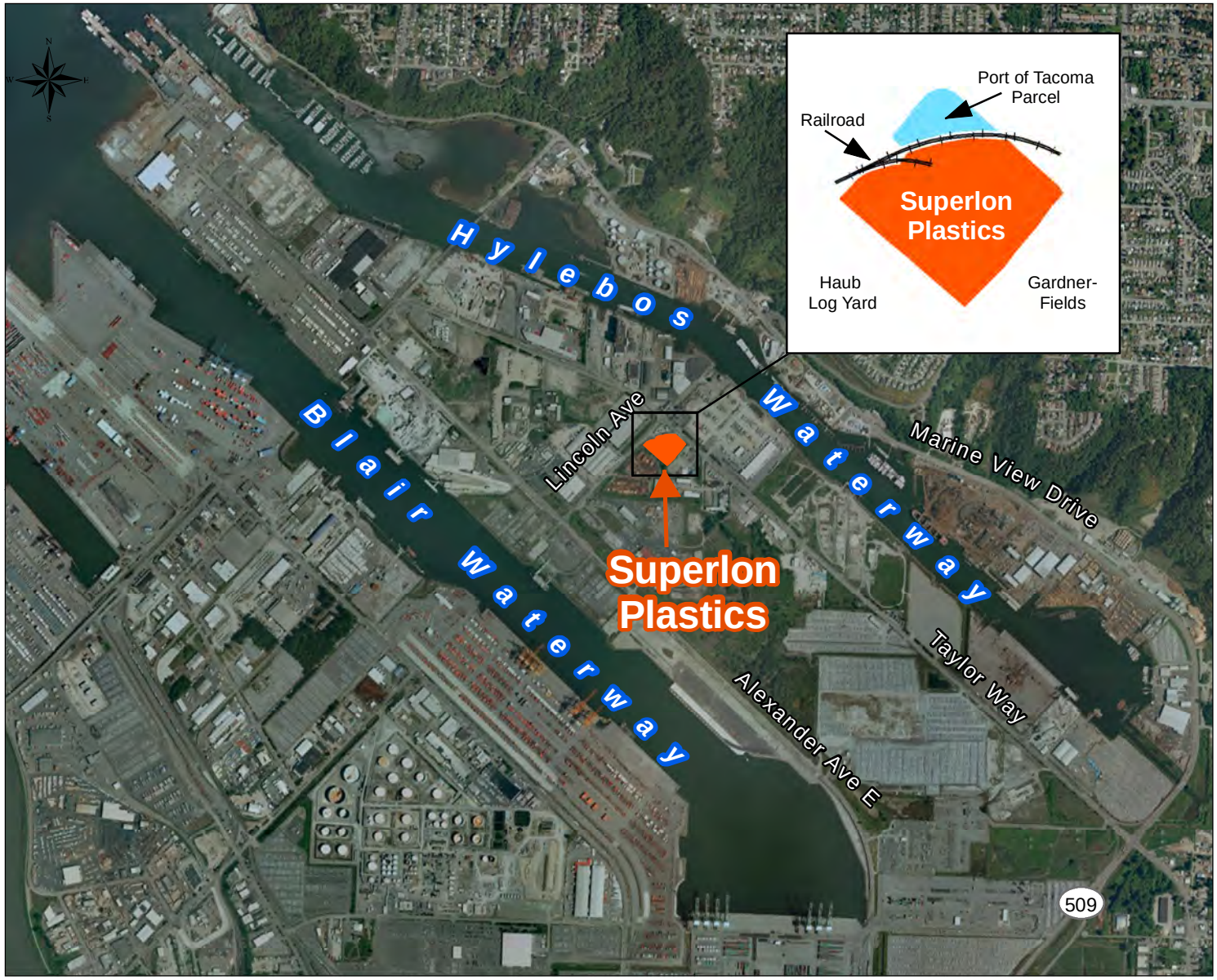
FIGURES



Legend

Superlon Plastics Site

0 750 1,500 3,000 Feet

PIONEER TECHNOLOGIES CORPORATION

Site Location
Superlon Plastics Site
Tacoma, Washington

PERC

Figure 1

Wyse Logistics
(3401 Lincoln Ave)

PNW the Northwest Co.
(2000 Taylor Way)

Lincoln Avenue
City of Tacoma ROW

Port of Tacoma
(3408 Lincoln Ave)

Access Drive

Building D

Superlon Plastics

Legend

Interim Action Work Areas
- Previously Remediated (June through Dec. 2021)
- Expanded Interim Action Remedial Action Units
- Drainage Ditch

Site Features
- Property Boundary
- Building Footprint
- Soil Remedial Action Units Completed
- Soil Areas Not To Be Remediated

Other Features
- City of Tacoma Right of Way Boundary
- Parcel Boundaries

RAU-D28 29.7' 27.5' 17.8'
RAU-D27 36.6' 37.2' 35.2'
RAU-D26 37.3' 37.0' 32.4'
RAU-D25 36.4' 36.9' 31.8'
RAU-D24 37.0' 36.9' 31.7'
RAU-D23 37.2' 37.4' 25.9'
RAU-D22 37.3' 37.5' 21.9'
RAU-D21 37.5' 37.5' 22.6'
RAU-D20 37.2' 37.0' 25.0'
RAU-D19 36.9' 37.0' 23.7'
RAU-D18 33.6' 33.5' 23.5'
RAU-D17 15.6' 21.5' 11.6'
RAU-D16 11.1' 15.2' 7.9'
RAU-D15 36.9' 30.3' 33.4' 28.7'
RAU-D14 12.8' 10.4' 19.0' 15.7'
RAU-D13 16.3' 22.9' 17.0' 20.3'
RAU-D12 13.8'
RAU-D1
RAU-D2
RAU-D3
RAU-B1
RAU-B2
RAU-B3
RAU-B4
RAU-B5
RAU-B6
RAU-B7

Notes:
-All features and lengths are approximate.
-The additional ditch segment was delinated based on visual interpretation from an aerial photograph from 2021.
-RAUs may be adjusted in the field as appropriate.
-Estimated excavation area = 12,870 ft^2
-Estimated excavation volume = 25,740 ft^3

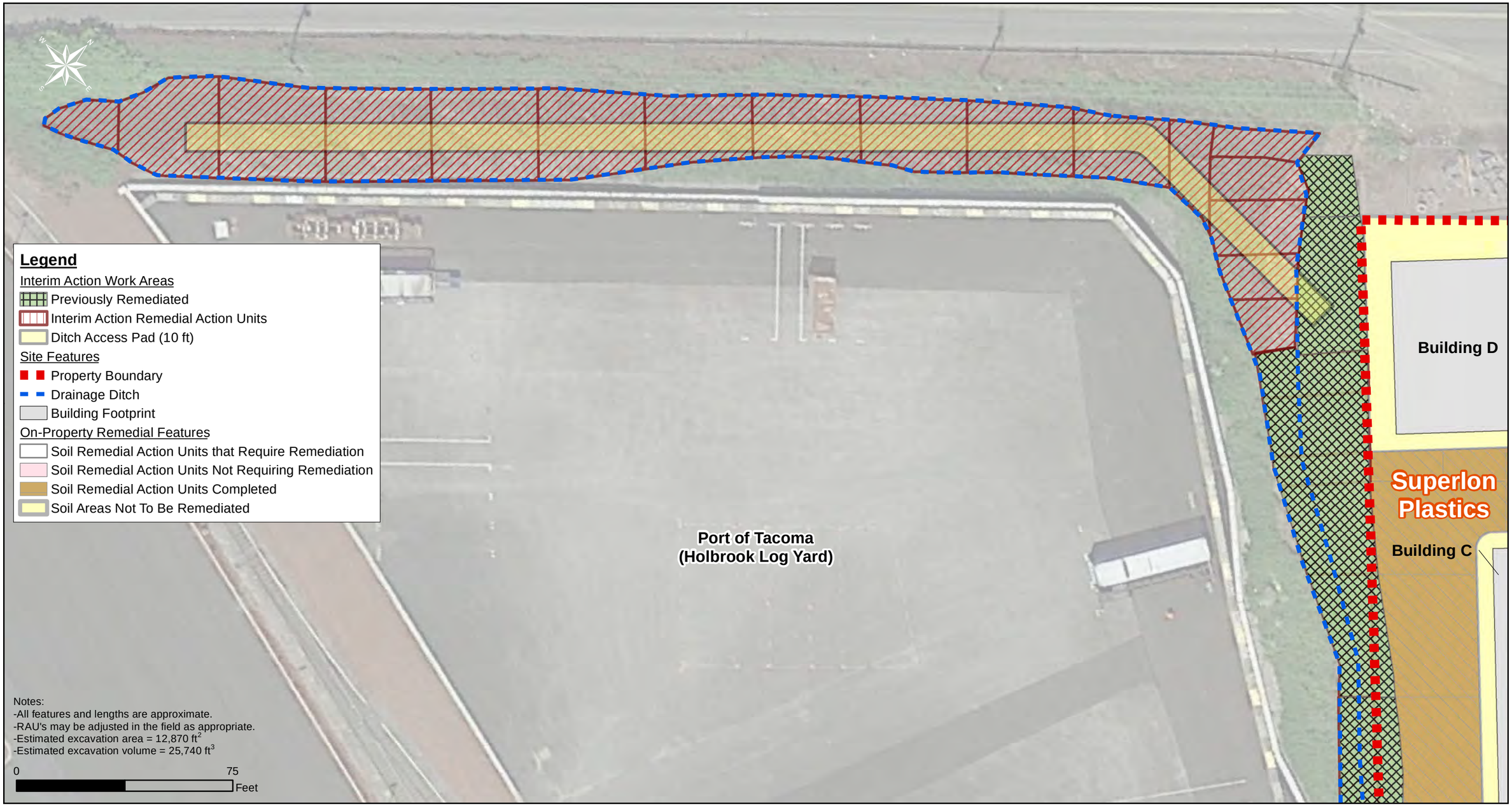
0 50 100
Feet

PIONEER TECHNOLOGIES CORPORATION

Interim Action RAU and EU Work Areas
Ditch Interim Action
Superlon Plastics Site, Tacoma, Washington

Figure 2

Document Path: G:\Projects\Superlon\Maps\2021\November\Figure 2 - Interim Action RAU and EU Work Areas Template.mxd; Author: AR; Date Saved: 1/31/2022



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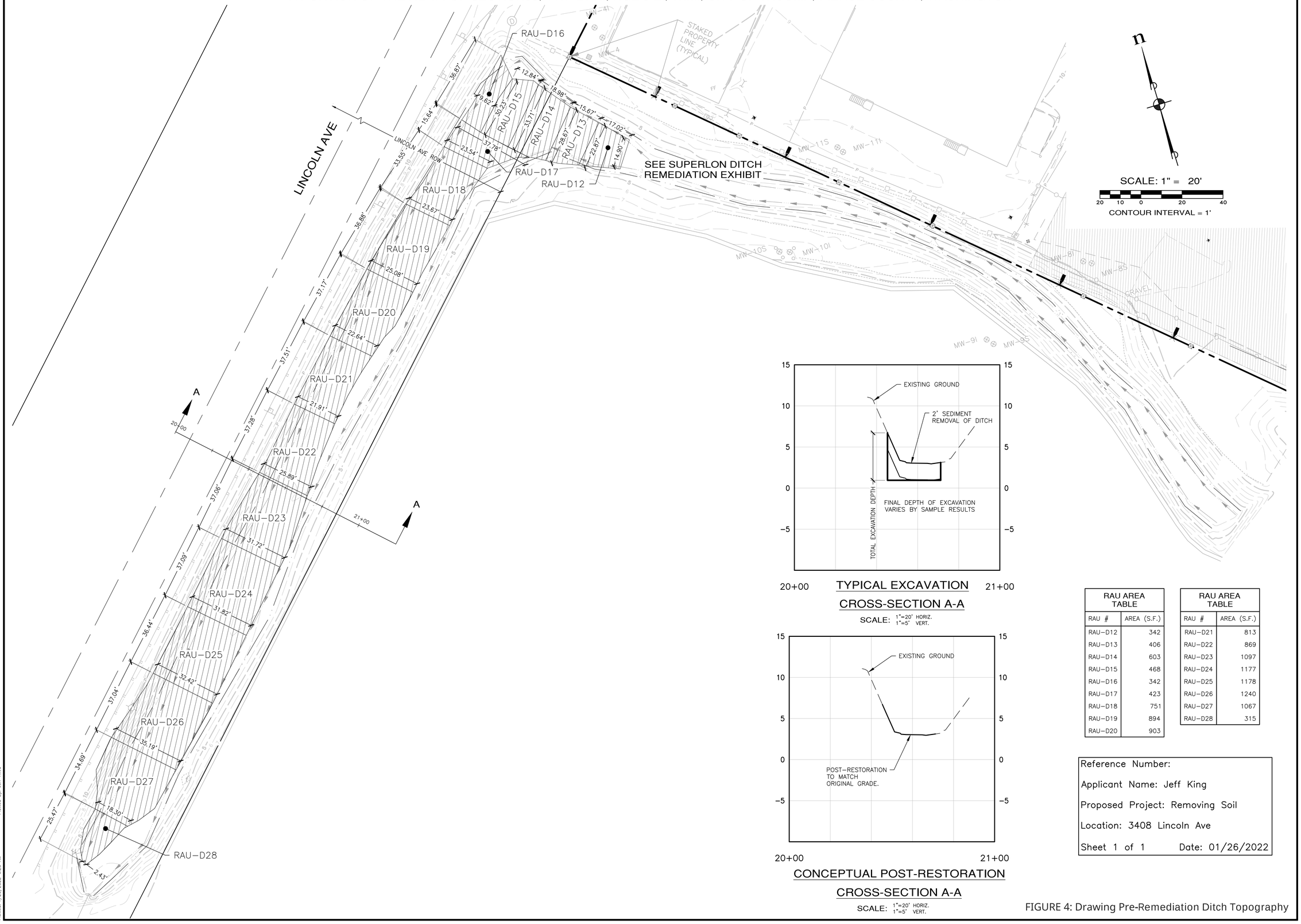
Remediation Completed
Access Pad Location
Superlon Plastics Site, Tacoma, Washington

Figure 3

Document Path: G:\Projects\SuperlonMaps\2021\November\Figure 3 - Interim Action Work Area & Access Pad.mxd; Author: AR; Date Saved: 11/16/2021

A PORTION OF THE NE 1/4 OF SECTION35, TWP 21 N., RGE 3 E., W.M., CITY OF TACOMA, PIERCE COUNTY, WASHINGTON



SCALE: 1" = 20'

20 10 0 20 40

CONTOUR INTERVAL = 1'

20+00 TYPICAL EXCAVATION 21+00

CROSS-SECTION A-A

SCALE: 1"=20' HORIZ. 1"=5' VERT.

20+00 21+00

CONCEPTUAL POST-RESTORATION

CROSS-SECTION A-A

SCALE: 1"=20' HORIZ. 1"=5' VERT.

RAU AREA TABLE	
RAU #	AREA (S.F.)
RAU–D12	342
RAU–D13	406
RAU–D14	603
RAU–D15	468
RAU–D16	342
RAU–D17	423
RAU–D18	751
RAU–D19	894
RAU–D20	903

RAU AREA TABLE	
RAU #	AREA (S.F.)
RAU–D21	813
RAU–D22	869
RAU–D23	1097
RAU–D24	1177
RAU–D25	1178
RAU–D26	1240
RAU–D27	1067
RAU–D28	315

Reference Number:

Applicant Name: Jeff King

Proposed Project: Removing Soil

Location: 3408 Lincoln Ave

Sheet 1 of 1 Date: 01/26/2022

FIGURE 4: Drawing Pre-Remediation Ditch Topography

REVISIONS		
NO.	DESCRIPTION/DATE	BY

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Civil Engineering
Public Works
Land Planning
Landscape Architecture
Land Surveying
Project Management

JEFF KING

SUPERLON PLASTICS

LINCOLN AVENUE DITCH REMEDIATION EXHIBIT

CITY OF TACOMA WASHINGTON

JOB NO.:	1624-001-009
DWG. NAME:	EN-14
DESIGNED BY:	
DRAWN BY:	DCL
CHECKED BY:	
DATE:	01/26/2022
DATE OF PRINT:	

EN-14

1 OF 1 SHEETS

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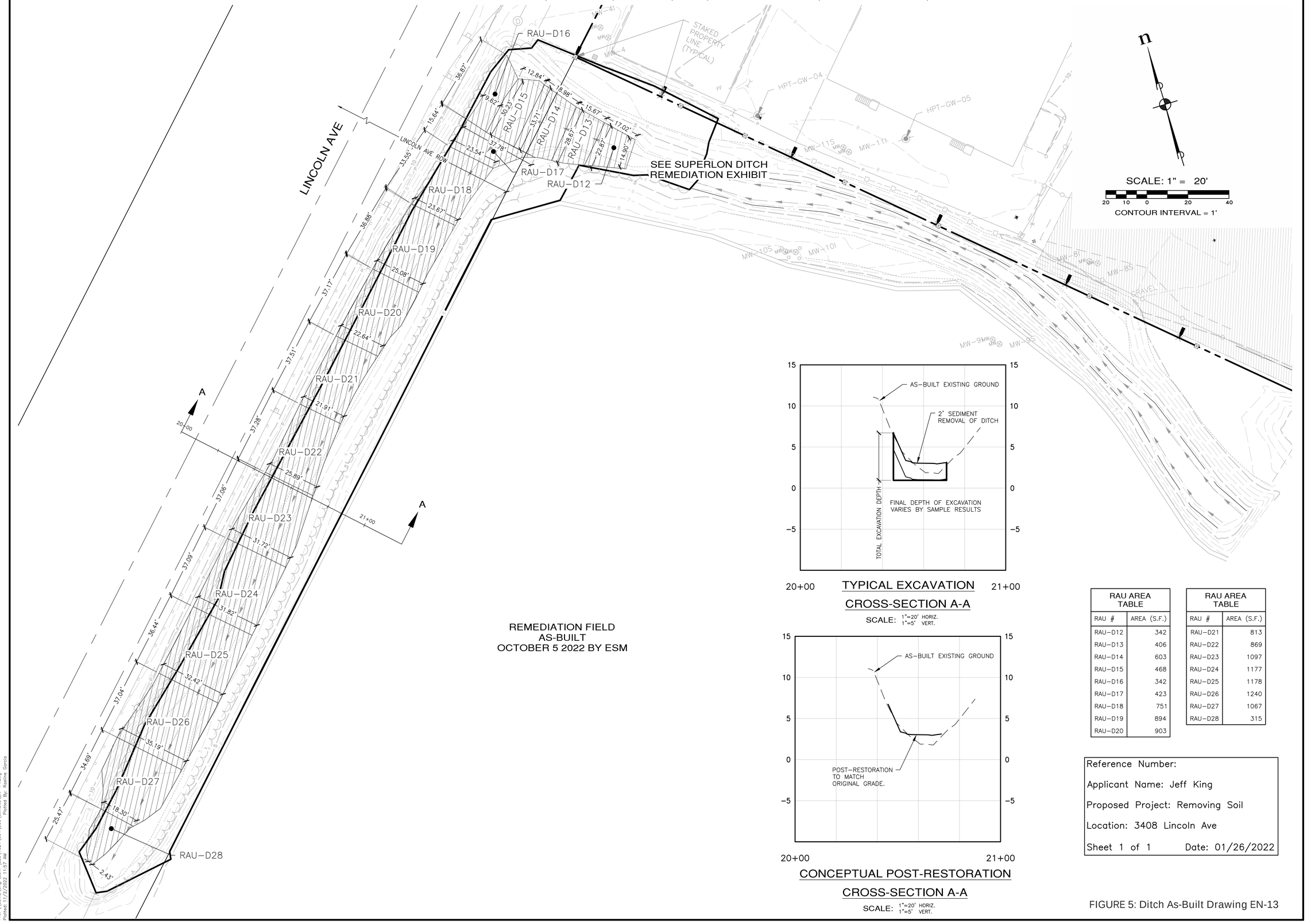

SCALE: 1" = 20'

20 10 0 20 40

CONTOUR INTERVAL = 1'

REMEDIATION FIELD
AS-BUILT
OCTOBER 5 2022 BY ESM

20+00 TYPICAL EXCAVATION 21+00

CROSS-SECTION A-A

SCALE: 1"=20' HORIZ.
1"=5' VERT.

20+00 21+00

CONCEPTUAL POST-RESTORATION

CROSS-SECTION A-A

SCALE: 1"=20' HORIZ.
1"=5' VERT.

RAU AREA TABLE	
RAU #	AREA (S.F.)
RAU–D12	342
RAU–D13	406
RAU–D14	603
RAU–D15	468
RAU–D16	342
RAU–D17	423
RAU–D18	751
RAU–D19	894
RAU–D20	903

RAU AREA TABLE	
RAU #	AREA (S.F.)
RAU–D21	813
RAU–D22	869
RAU–D23	1097
RAU–D24	1177
RAU–D25	1178
RAU–D26	1240
RAU–D27	1067
RAU–D28	315

Reference Number:

Applicant Name: Jeff King

Proposed Project: Removing Soil

Location: 3408 Lincoln Ave

Sheet 1 of 1 Date: 01/26/2022

FIGURE 5: Ditch As-Built Drawing EN-13

REVISIONS		
NO.	DESCRIPTION/DATE	BY

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ESM
Civil Engineering
Public Works
Land Planning
Landscape Architecture
Land Surveying
Project Management

JEFF KING

SUPERLON PLASTICS

CITY OF TACOMA LINCOLN AVENUE DITCH REMEDIATION EXHIBIT WASHINGTON

JOB NO.:	1624-001-009
DWG. NAME:	EN-14
DESIGNED BY:	
DRAWN BY:	DCL
CHECKED BY:	
DATE:	11/02/2022
DATE OF PRINT:	

FIGURE 5 (EN-14)

1 OF 1 SHEETS

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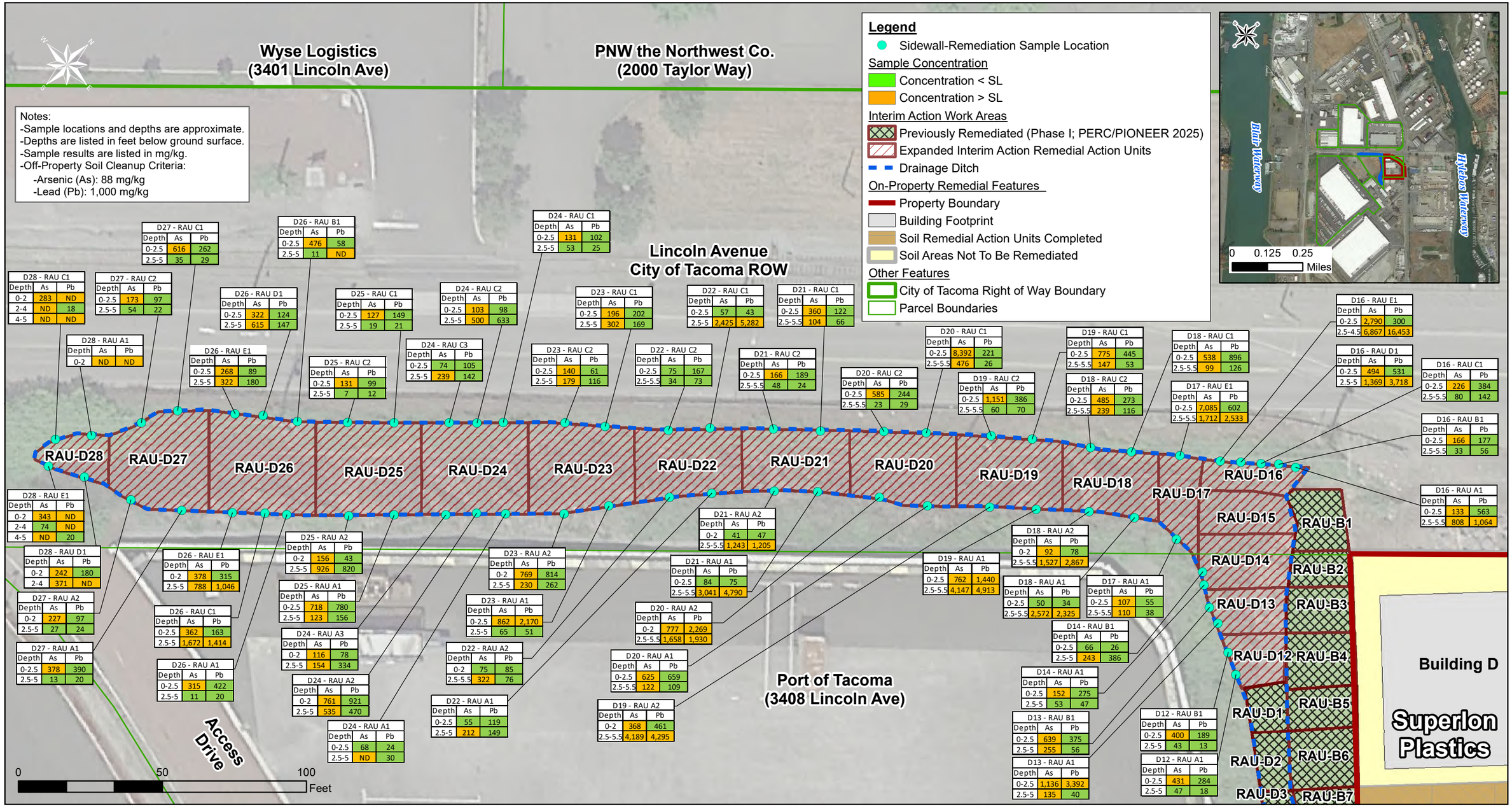

D28 - RAU C1		
Depth	As	Pb
0-2	283	ND
2-4	ND	18
4-5	ND	ND

D27 - RAU C2		
Depth	As	Pb
0-2.5	173	97
2.5-5	54	22

D27 - RAU C1		
Depth	As	Pb
0-2.5	616	262
2.5-5	35	29

D26 - RAU B1		
Depth	As	Pb
0-2.5	476	58
2.5-5	11	ND

D24 - RAU C1		
Depth	As	Pb
0-2.5	131	102
2.5-5	53	25

D28 - RAU A1		
Depth	As	Pb
0-2	ND	ND

D26 - RAU D1		
Depth	As	Pb
0-2.5	322	124
2.5-5	615	147

D25 - RAU C1		
Depth	As	Pb
0-2.5	127	149
2.5-5	19	21

D24 - RAU C2		
Depth	As	Pb
0-2.5	103	98
2.5-5	500	633

D23 - RAU C1		
Depth	As	Pb
0-2.5	196	202
2.5-5	302	169

D22 - RAU C1		
Depth	As	Pb
0-2.5	57	43
2.5-5	2,425	5,282

D21 - RAU C1		
Depth	As	Pb
0-2.5	360	122
2.5-5.5	104	66

D20 - RAU C1		
Depth	As	Pb
0-2.5	8,392	221
2.5-5.5	476	26

D19 - RAU C1		
Depth	As	Pb
0-2.5	775	445
2.5-5.5	147	53

D18 - RAU C1		
Depth	As	Pb
0-2.5	538	896
2.5-5.5	99	126

D16 - RAU E1		
Depth	As	Pb
0-2.5	2,790	300
2.5-4.5	6,867	16,453

D16 - RAU D1		
Depth	As	Pb
0-2.5	494	531
2.5-5	1,369	3,718

D16 - RAU C1		
Depth	As	Pb
0-2.5	226	384
2.5-5.5	80	142

D16 - RAU B1		
Depth	As	Pb
0-2.5	166	177
2.5-5.5	33	56

D16 - RAU A1		
Depth	As	Pb
0-2.5	133	563
2.5-5.5	808	1,064

D28 - RAU E1		
Depth	As	Pb
0-2	343	ND
2-4	74	ND
4-5	ND	20

D28 - RAU D1		
Depth	As	Pb
0-2	242	180
2-4	371	ND

D27 - RAU A2		
Depth	As	Pb
0-2	227	97
2.5-5	27	24

D27 - RAU A1		
Depth	As	Pb
0-2.5	378	390
2.5-5	13	20

D26 - RAU E1		
Depth	As	Pb
0-2	378	315
2.5-5	788	1,046

D26 - RAU C1		
Depth	As	Pb
0-2.5	362	163
2.5-5	1,672	1,414

D26 - RAU A1		
Depth	As	Pb
0-2.5	315	422
2.5-5	11	20

D26 - RAU E1		
Depth	As	Pb
0-2.5	268	89
2.5-5	322	180

D25 - RAU C2		
Depth	As	Pb
0-2.5	131	99
2.5-5	7	12

D25 - RAU A2		
Depth	As	Pb
0-2	156	43
2.5-5	926	820

D25 - RAU A1		
Depth	As	Pb
0-2.5	718	780
2.5-5	123	156

D24 - RAU A3		
Depth	As	Pb
0-2	116	78
2.5-5	154	334

D24 - RAU A2		
Depth	As	Pb
0-2	761	921
2.5-5	535	470

D24 - RAU A1		
Depth	As	Pb
0-2.5	68	24
2.5-5	ND	30

D24 - RAU C3		
Depth	As	Pb
0-2.5	74	105
2.5-5	239	142

D23 - RAU C2		
Depth	As	Pb
0-2.5	140	61
2.5-5	179	116

D23 - RAU A2		
Depth	As	Pb
0-2	769	814
2.5-5	230	262

D23 - RAU A1		
Depth	As	Pb
0-2.5	862	2,170
2.5-5	65	51

D22 - RAU A2		
Depth	As	Pb
0-2	75	85
2.5-5.5	322	76

D22 - RAU A1		
Depth	As	Pb
0-2.5	55	119
2.5-5	212	149

D22 - RAU C2		
Depth	As	Pb
0-2.5	75	167
2.5-5.5	34	73

D21 - RAU C2		
Depth	As	Pb
0-2.5	166	189
2.5-5.5	48	24

D21 - RAU A2		
Depth	As	Pb
0-2	41	47
2.5-5.5	1,243	1,205

D21 - RAU A1		
Depth	As	Pb
0-2.5	84	75
2.5-5.5	3,041	4,790

D20 - RAU A2		
Depth	As	Pb
0-2	777	2,269
2.5-5.5	1,658	1,930

D20 - RAU A1		
Depth	As	Pb
0-2.5	625	659
2.5-5.5	122	109

D19 - RAU A2		
Depth	As	Pb
0-2	368	461
2.5-5.5	4,189	4,295

D20 - RAU C2		
Depth	As	Pb
0-2.5	585	244
2.5-5.5	23	29

D19 - RAU C2		
Depth	As	Pb
0-2.5	1,151	386
2.5-5.5	60	70

D19 - RAU A1		
Depth	As	Pb
0-2.5	762	1,440
2.5-5.5	4,147	4,913

D18 - RAU A2		
Depth	As	Pb
0-2	92	78
2.5-5.5	1,527	2,867

D18 - RAU A1		
Depth	As	Pb
0-2.5	50	34
2.5-5.5	2,572	2,325

D18 - RAU C2		
Depth	As	Pb
0-2.5	485	273
2.5-5.5	239	116

D17 - RAU A1		
Depth	As	Pb
0-2.5	107	55
2.5-5.5	110	38

D17 - RAU E1		
Depth	As	Pb
0-2.5	7,085	602
2.5-5.5	1,712	2,533

D14 - RAU B1		
Depth	As	Pb
0-2.5	66	26
2.5-5	243	386

D14 - RAU A1		
Depth	As	Pb
0-2.5	152	275
2.5-5	53	47

D13 - RAU B1		
Depth	As	Pb
0-2.5	639	375
2.5-5	255	56

D13 - RAU A1		
Depth	As	Pb
0-2.5	1,136	3,392
2.5-5	135	40

D12 - RAU B1		
Depth	As	Pb
0-2.5	400	189
2.5-5	43	13

D12 - RAU A1		
Depth	As	Pb
0-2.5	431	284
2.5-5	47	18

PIONEER TECHNOLOGIES CORPORATION

Sidewall Sample Results with Exceedances
Ditch Interim Action
Superlon Plastics Site, Tacoma, Washington

Figure 6

APPENDENCES

APPENDIX 1: TPH LABORATORY ANALYTICAL DATA

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 11, 2022

Kenny King Project Manager
Pacific Environmental Redevelopment Corporation
8424 E Meadow Lake Drive
Snohomish, WA 98290

Dear Mr King:

Included are the results from the testing of material submitted on October 5, 2022 from the Superlon Plastics, F&BI 210049 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Jeffery King
PRC1011R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 5, 2022 by Friedman & Bruya, Inc. from the Pacific Environmental Redevelopment Corporation Superlon Plastics, F&BI 210049 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Pacific Environmental Redevelopment Corporation
210049 -01	SO-D23A1-SSW-2.5-5
210049 -02	SO-D23C1-NSW-2.5-5
210049 -03	SO-D23A2-SSW-2.5-5
210049 -04	SO-D23C2-NSW-2.5-5
210049 -05	SO-D24A1-SSW-2.5-5
210049 -06	SO-D24C1-NSW-2.5-5
210049 -07	SO-D24A2-SSW-2.5-5
210049 -08	SO-D24C2-NSW-2.5-5
210049 -09	SO-D24A3-SSW-2.5-5
210049 -10	SO-D24C3-NSW-2.5-5
210049 -11	SO-D25A1-SSW-2.5-5
210049 -12	SO-D25C1-NSW-2.5-5
210049 -13	SO-D25A2-SSW-2.5-5
210049 -14	SO-D25C2-NSW-2.5-5
210049 -15	SO-D26A1-SSW-2.5-5
210049 -16	SO-D26B1-NSW-2.5-5
210049 -17	SO-D26C1-SSW-2.5-5
210049 -18	SO-D26D1-NSW-2.5-5
210049 -19	SO-D26E1-SSW-2.5-5
210049 -20	SO-D26E1-NSW-2.5-5
210049 -21	SO-D27A1-SSW-2.5-5
210049 -22	SO-D27C1-NSW-2.5-5
210049 -23	SO-D27A2-SSW-2.5-5
210049 -24	SO-D27C2-NSW-2.5-5
210049 -25	SO-D28C1-NSW-2-4
210049 -26	SO-D28D1-SSW-2-4
210049 -27	SO-D28E1-SSW-2-4

All quality control requirements were acceptable.

Date of Report: 10/11/22
Date Received: 10/05/22
Project: Superlon Plastics, F&BI 210049
Date Extracted: 10/06/22
Date Analyzed: 10/06/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID

Results Reported on a Dry Weight Basis
Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 56-165)
SO-D23A1-SSW-2.5-5 210049-01	ND	ND	ND	128
SO-D23C1-NSW-2.5-5 210049-02	ND	ND	ND	138
SO-D23A2-SSW-2.5-5 210049-03	ND	ND	ND	124
SO-D23C2-NSW-2.5-5 210049-04	ND	ND	ND	123
SO-D24A1-SSW-2.5-5 210049-05	ND	ND	ND	126
SO-D24C1-NSW-2.5-5 210049-06	ND	ND	ND	122
SO-D24A2-SSW-2.5-5 210049-07	ND	ND	ND	121
SO-D24C2-NSW-2.5-5 210049-08	ND	ND	ND	116
SO-D24A3-SSW-2.5-5 210049-09	ND	ND	ND	128
SO-D24C3-NSW-2.5-5 210049-10	ND	ND	ND	129
SO-D25A1-SSW-2.5-5 210049-11	ND	ND	ND	129

ND - Material not detected at or above 20 mg/kg gas, 50 mg/kg diesel and 250 mg/kg heavy oil.

Date of Report: 10/11/22
Date Received: 10/05/22
Project: Superlon Plastics, F&BI 210049
Date Extracted: 10/06/22
Date Analyzed: 10/06/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID

Results Reported on a Dry Weight Basis
Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 56-165)
SO-D25C1-NSW-2.5-5 210049-12	ND	ND	ND	129
SO-D25A2-SSW-2.5-5 210049-13	ND	ND	ND	128
SO-D25C2-NSW-2.5-5 210049-14	ND	ND	ND	131
SO-D26A1-SSW-2.5-5 210049-15	ND	ND	ND	130
SO-D26B1-NSW-2.5-5 210049-16	ND	ND	ND	127
SO-D26C1-SSW-2.5-5 210049-17	ND	ND	ND	132
SO-D26D1-NSW-2.5-5 210049-18	ND	ND	ND	135
SO-D26E1-SSW-2.5-5 210049-19	ND	ND	ND	131
SO-D26E1-NSW-2.5-5 210049-20	ND	ND	D	127
SO-D27A1-SSW-2.5-5 210049-21	ND	ND	ND	114
SO-D27C1-NSW-2.5-5 210049-22	ND	ND	ND	122

ND - Material not detected at or above 20 mg/kg gas, 50 mg/kg diesel and 250 mg/kg heavy oil.

Date of Report: 10/11/22
Date Received: 10/05/22
Project: Superlon Plastics, F&BI 210049
Date Extracted: 10/06/22
Date Analyzed: 10/06/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID

Results Reported on a Dry Weight Basis
Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 56-165)
SO-D27A2-SSW-2.5-5 210049-23	ND	ND	ND	124
SO-D27C2-NSW-2.5-5 210049-24	ND	ND	ND	125
SO-D28C1-NSW-2-4 210049-25	ND	ND	ND	115
SO-D28D1-SSW-2-4 210049-26	ND	ND	D	134
SO-D28E1-SSW-2-4 210049-27	ND	ND	ND	124
Method Blank 02-2421 MB	ND	ND	ND	126
Method Blank 02-2416 MB2	ND	ND	ND	119

ND - Material not detected at or above 20 mg/kg gas, 50 mg/kg diesel and 250 mg/kg heavy oil.

Date of Report: 10/11/22
Date Received: 10/05/22
Project: Superlon Plastics, F&BI 210049
Date Extracted: 10/06/22
Date Analyzed: 10/06/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 48-168)
SO-D23A1-SSW-2.5-5 210049-01	<50	<250	124
SO-D23C1-NSW-2.5-5 210049-02	<50	<250	129
SO-D23A2-SSW-2.5-5 210049-03	<50	<250	128
SO-D23C2-NSW-2.5-5 210049-04	<50	<250	126
SO-D24A1-SSW-2.5-5 210049-05	<50	<250	117
SO-D24C1-NSW-2.5-5 210049-06	<50	<250	114
SO-D24A2-SSW-2.5-5 210049-07	<50	<250	116
SO-D24C2-NSW-2.5-5 210049-08	<50	<250	132
SO-D24A3-SSW-2.5-5 210049-09	<50	<250	116
SO-D24C3-NSW-2.5-5 210049-10	<50	<250	118

Date of Report: 10/11/22
Date Received: 10/05/22
Project: Superlon Plastics, F&BI 210049
Date Extracted: 10/06/22
Date Analyzed: 10/06/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 48-168)
SO-D25A1-SSW-2.5-5 210049-11	<50	<250	116
SO-D25C1-NSW-2.5-5 210049-12	<50	<250	116
SO-D25A2-SSW-2.5-5 210049-13	<50	<250	130
SO-D25C2-NSW-2.5-5 210049-14	<50	<250	112
SO-D26A1-SSW-2.5-5 210049-15	<50	<250	124
SO-D26B1-NSW-2.5-5 210049-16	<50	<250	114
SO-D26C1-SSW-2.5-5 210049-17	<50	<250	127
SO-D26D1-NSW-2.5-5 210049-18	<50	<250	117
SO-D26E1-SSW-2.5-5 210049-19	<50	<250	131
SO-D26E1-NSW-2.5-5 210049-20	<50	400	128

Date of Report: 10/11/22
Date Received: 10/05/22
Project: Superlon Plastics, F&BI 210049
Date Extracted: 10/06/22
Date Analyzed: 10/06/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 48-168)
SO-D27A1-SSW-2.5-5 210049-21	<50	<250	127
SO-D27C1-NSW-2.5-5 210049-22	<50	<250	122
SO-D27A2-SSW-2.5-5 210049-23	<50	<250	115
SO-D27C2-NSW-2.5-5 210049-24	<50	<250	118
SO-D28C1-NSW-2-4 210049-25	<50	<250	133
SO-D28D1-SSW-2-4 210049-26	<50	330	135
SO-D28E1-SSW-2-4 210049-27	<50	<250	131
Method Blank 02-2422 MB	<50	<250	112
Method Blank 02-2423 MB	<50	<250	120

Date of Report: 10/11/22
Date Received: 10/05/22
Project: Superlon Plastics, F&BI 210049

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 210049-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	104	100	73-135	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	100	74-139

Date of Report: 10/11/22
Date Received: 10/05/22
Project: Superlon Plastics, F&BI 210049

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 210049-21 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	100	100	73-135	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	116	74-139

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

210049

SAMPLE CHAIN OF CUSTODY

10/05/22 BOS

Page # 1 of 3 (WP)

Report To Kenny King
Company PERC Pacific Environmental Redevelopment Corporation
Address 8424 E Meadow Lake Drive
City, State, ZIP Snohomish, WA 98290
Phone (425) 346-0921 Email KKing@perc-nw.com

SAMPLERS (*signature*)

PROJECT NAME: Superlon Plastics
PO#

REMARKS
Project Specific RLs - Yes / No

INVOICE TO

TURNAROUND TIME
(Standard Turnaround)
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Archive Samples
Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	NWTPH-HCID	NWTPH-Dx				Notes
						ANALYSES REQUESTED											
SO-D23A1-SSW-2.5-5	01	9/1/22	9:21	SOIL	1							✓	✓				
SO-D23C1-NSW-2.5-5	02	9/1/22	9:21	SOIL	1							✓	✓				
SO-D23A2-SSW-2.5-5	03	9/1/22	14:24	SOIL	1							✓	✓				
SO-D23C2-NSW-2.5-5	04	9/1/22	14:24	SOIL	1							✓	✓				
SO-D24A1-SSW-2.5-5	05	8/29/22	15:15	SOIL	1							✓	✓				
SO-D24C1-NSW-2.5-5	06	8/29/22	15:15	SOIL	1							✓	✓				
SO-D24A2-SSW-2.5-5	07	8/30/22	15:40	SOIL	1							✓	✓				
SO-D24C2-NSW-2.5-5	08	8/30/22	15:40	SOIL	1							✓	✓				
SO-D24A3-SSW-2.5-5	09	8/31/22	14:00	SOIL	1							✓	✓				
SO-D24C3-NSW-2.5-5	10	8/31/22	14:00	SOIL	1							✓	✓				

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kenny King	Kenny King	PERC	10/5/22	8:33
Received by:	Nhan Phan	Nhan Phan	FEBI	10/5/22	1050
Relinquished by:					
Received by:			Samples received at 20°C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

210049

SAMPLE CHAIN OF CUSTODY 10/05/22

Page # 2 of 3 (1sp)

Report To Kenny King
Company PERC Pacific Environmental Redevelopment Corporation
Address 8424 E Meadow Lake Drive
City, State, ZIP Snohomish, WA 98290
Phone (425) 346-0721 Email KKing@perc-nw.com

SAMPLERS (*signature*)

PROJECT NAME: Superior Plastics
PO #

REMARKS
Project Specific RLs - Yes / No

INVOICE TO

TURNAROUND TIME
(Standard Turnaround)
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Archive Samples
Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	NWTPH-HCID	NWTPH-Dx				Notes
						ANALYSES REQUESTED											
SO-D25A1-SSW-2.5-5	11	8/26/22	11:20	SOIL	1							✓	✓				
SO-D25C1-NSW-2.5-5	12	8/26/22	11:20	SOIL	1							✓	✓				
SO-D25A2-SSW-2.5-5	13	8/29/22	9:15	SOIL	1							✓	✓				
SO-D25C2-NSW-2.5-5	14	8/29/22	9:15	SOIL	1							✓	✓				
SO-D26A1-SSW-2.5-5	15	8/22/22	11:55	SOIL	1							✓	✓				
SO-D26B1-NSW-2.5-5	16	8/22/22	11:55	SOIL	1							✓	✓				
SO-D26C1-SSW-2.5-5	17	8/23/22	10:59	SOIL	1							✓	✓				
SO-D26D1-NSW-2.5-5	18	8/23/22	10:59	SOIL	1							✓	✓				
SO-D26E1-SSW-2.5-5	19	8/24/22	15:05	SOIL	1							✓	✓				
SO-D26E1-NSW-2.5-5	20	8/24/22	15:05	SOIL	1							✓	✓				

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kenny King	Kenny King	PERC	10/5/22	8:33
Received by:		Nhan Phan	Fe BI	10/5/22	1050
Relinquished by:					
Received by:			Samples received at 20 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

210049

SAMPLE CHAIN OF CUSTODY

10/05/22

 (pp)

Report To Kenny King
Company PERC Pacific Environmental Redevelopment Corporation
Address 8424 E Meadow Lake Drive
City, State, ZIP Snohomish, WA 98290
Phone (425) 346-0921 Email KKing@perc-nw.com

SAMPLERS (*signature*)

PROJECT NAME: Superlon Plastics

PO #

REMARKS

Project Specific RLs - Yes / No

INVOICE TO

TURNAROUND TIME
Standard Turnaround
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Archive Samples
Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	NWTPH-HCID	NWTPH-Dx				Notes
SO-D27B1-SSW-2.5-5	21	8/11/22	9:59	SOIL	1							✓	✓				
SO-D27C1-NSW-2.5-5	22	8/15/22	14:44	SOIL	1							✓	✓				
SO-D27A2-SSW-2.5-5	23	8/17/22	10:07	SOIL	1							✓	✓				
SO-D27C2-NSW-2.5-5	24	8/16/22	15:17	SOIL	1							✓	✓				
SO-D28C1-NSW-2-4	25	8/9/22	7:45	SOIL	1							✓	✓				
SO-D28D1-SSW-2-4	26	8/9/22	14:38	SOIL	1							✓	✓				
SO-D28E1-SSW-2-4	27	8/9/22	14:38	SOIL	1							✓	✓				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Kenny King	Kenny King	PERC	10/5/22	8:33
Received by: Nhan Phan	Nhan Phan	FedEx	10/5/22	1052
Relinquished by:				
Received by:		Samples received at 2.0 °C		

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APPENDIX 2: ARCHAEOLOGICAL MONITORING REPORT FOR THE SUPERLON PHASE III DITCH REMEDIATION

Archaeological Monitoring Report for the Superlon Phase III Ditch Remediation Project, Tacoma, Washington

Submitted to:
Pacific Environmental & Redevelopment Corporation (PERC)

Submitted by:
Historical Research Associates, Inc.
Taylor Harriman, MA

Seattle, WA
March 13, 2023

Historical Research Associates, Inc.

This project was implemented by HRA Principal Investigator Lynn Compas, MA, who meets the Secretary of the Interior's professional qualifications standards for archaeology. This report is intended for the exclusive use of the Client and its representatives. It contains results concerning archaeological monitoring. This report should be submitted to the appropriate state and local review agencies.

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1. Introduction

White Birch, LLC (White Birch), E. I. DuPont de Nemours and Company (DuPont), and the Chemours Company FC, LLC (Chemours), are conducting an interim action pursuant to the Washington State Model Toxics Control Act (MTCA) at 2116 Taylor Way, Tacoma, Washington. The property is owned by White Birch and is currently used by Superlon Plastics, Inc. This 3.1-acre area is located near the tip of the Blair-Hylebos Peninsula, on the Commencement Bay delta, in Section 35 of Township 21 North, Range 3 East, on the Tacoma North (1994), WA 7.5-minute U.S. Geological Survey (USGS) topographic quadrangle map.

In 2010, Pacific Environmental and Redevelopment Corporation (PERC) contracted with Historical Research Associates, Inc. (HRA), to conduct a cultural resources assessment of the property, including a review of the available documentary sources, archaeological and historic property inventories, and photographic documentation of the project area, resulting in preparation of a technical report (Kachmarsky et al. 2010). In 2021, HRA was contracted again to create an archaeological monitoring and inadvertent discovery plan (MIDP) for Phase 3 remediation of the portion of the ditch that separates the Superlon Plastics property from an adjacent parcel to the southwest owned by Port of Tacoma (Port), and to conduct archaeological monitoring in that portion of the ditch. HRA then drafted an archaeological monitoring report based on the 2021 work (Durkin 2022). In 2022, the project was expanded to include portions of Port-owned properties at 3208 and 3408 Lincoln Avenue and within the City of Tacoma right-of-way adjacent to the road, west of the area monitored in 2021. This report represents the results of the archaeological monitoring that occurred in 2022.

1.1 Project Description

PERC is conducting an interim action to remediate a drainage ditch between Port and Superlon Plastics properties located at 2116 Taylor Way, as well as at 3208 and 3408 Lincoln Avenue in Tacoma, Washington (Figure 1-1 and Figure 1-2). Ditch sediment and surface water characterization in 2012 led to cleanup of tar oil from the drainage ditch. Post-remediation sediment sampling found elevated levels of arsenic and lead remain in the ditch, and the current remediation effort will recover these contaminants from the bottom of the ditch and from the ditch's sidewalls.

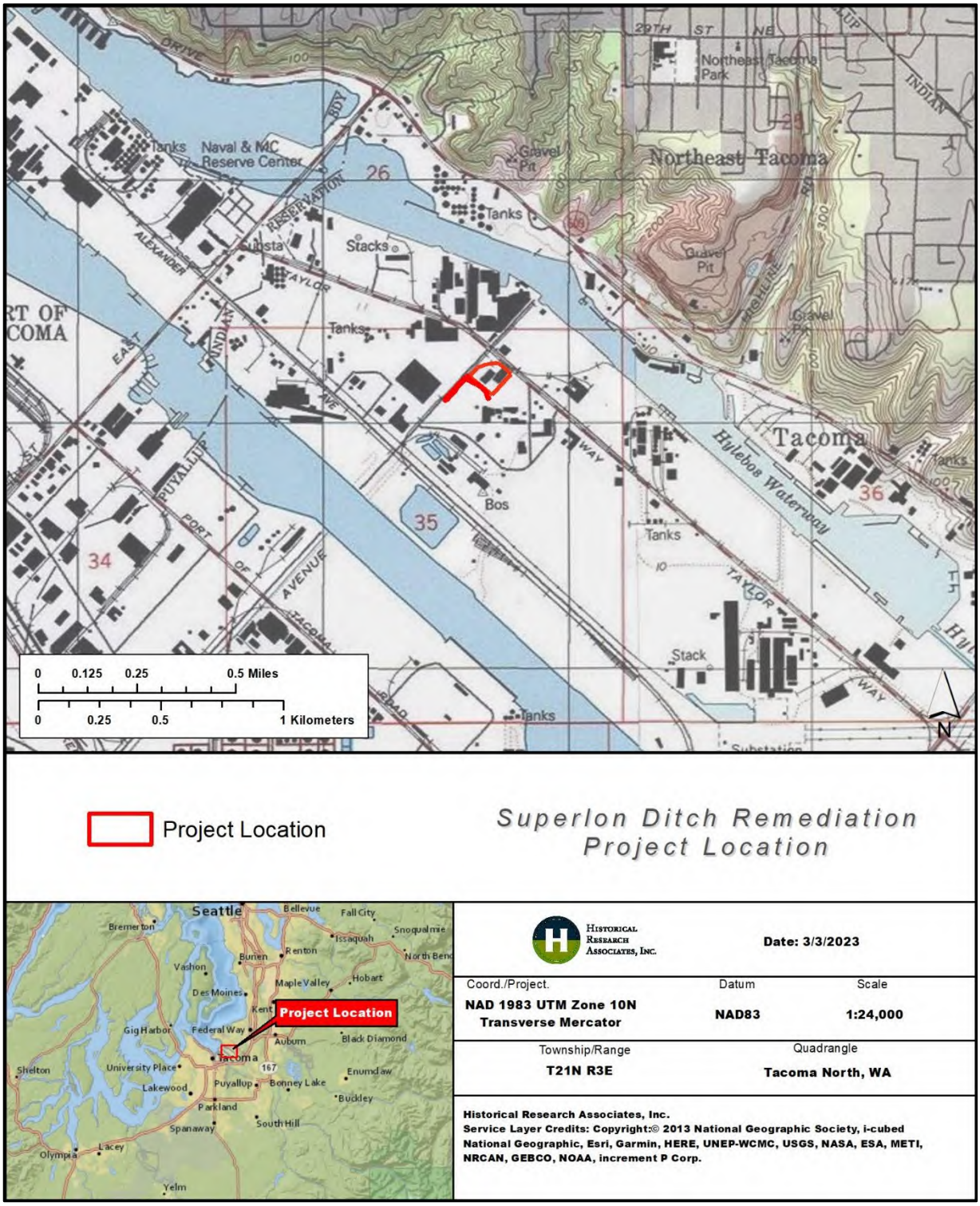

Figure 1-1. Project area and vicinity.

Figure 1-2. Aerial map of the project area and vicinity.

1.2 Regulatory Context

Although the project is required to comply with a host of Washington state and federal environmental laws, the project is being performed under the State Environmental Policy Act (SEPA). The project requires a Joint Aquatic Resource Permit from the U.S. Army Corps of Engineers (USACE), and therefore, the procedures herein are meant to comply with applicable federal and state laws and regulations, particularly 36 CFR 800.13 of regulations implementing the National Historic Preservation Act of 1966, as amended, and applicable Washington state laws, particularly Archaeological Sites and Resources (RCW 27.53) and Indian Graves and Records (RCW 27.44).

1.3 Area of Potential Effects

The area of potential effects (APE) for the project is generally bounded by Lincoln Avenue to the northwest and Taylor Way to the northeast, including portions of Port-owned properties at 3208 and 3408 Lincoln Avenue, and is within the City of Tacoma right-of-way adjacent to the road. The expanded area is approximately 12,900 square feet (ft) in size; 446 ft long and a maximum width of 38 ft. South of the APE is a log yard owned by the Port. The drainage ditch that will be remediated separates the log yard from the Superlon Plastics parcel and Lincoln Avenue. To the southeast, the property is bordered by a roofing and waterproofing manufacturing building. Archaeological monitoring was focused solely on the remediation of the ditch area.

2. Background Research

Background research for this project can be found in *Archaeological Monitoring and Inadvertent Discovery Plan for Superlon Phase III Ditch Remediation, Tacoma, Washington* (HRA 2021) and in *Archaeological Reconnaissance and Historic Property Inventory for the Superlon Plastics Site, City of Tacoma, Pierce County, Washington*, for information prior to 2010 (Kachmarsky et al. 2010).

3. Environmental Context

The reader is directed to *Archaeological Reconnaissance and Historic Property Inventory for the Superlon Plastics Site, City of Tacoma, Pierce County, Washington* for the environmental, cultural, and historic background of the project vicinity (Kachmarsky et al. 2010).

4. Procedures for Archaeological Monitoring

Archaeological monitoring for this project followed the procedures established in *Archaeological Monitoring and Inadvertent Discovery Plan for Superlon Phase III Ditch Remediation, Tacoma, Washington* (HRA 2021). The relevant procedures from that plan include:

1. Archaeological monitoring took place during ground-disturbing activities associated with remediation of the ditch sediments that have the potential to affect native soils.

2. PERC arranged for a professional archaeologist who meets the Secretary of the Interior's qualifications (36 CFR Part 61; required by the State of Washington in RCW 27.53.030.8) to provide oversight for all cultural resources-related activities. The archaeologist on site was 40-hour HAZWOPER certified.

3. Prior to the commencement of construction activities, the archaeologist briefed the on-site supervisor and equipment operators about cultural resource issues. The monitoring archaeologist explained the purpose of the work, how it will be conducted, and what crew members can help watch for.

4. The monitoring archaeologist recorded daily activities on a Daily Record Form and in a field notebook and took overview photographs of monitored locations as well as more detailed photographs of these locations, work in progress, and any cultural materials.

5. The monitoring archaeologist followed instructions from PERC's on-site representative or construction contractor in matters pertaining to safety.

6. During excavation, the archaeological monitor examined soils from excavation profiles and back-dirt piles. Equipment included, as appropriate, a shovel, trowel, and screen of ¼-inch mesh. The archaeologist watched for precontact or historic-period artifacts or layers/lenses of organic material or shell, and organically enriched midden soils that might indicate past human use.

7. PERC informed the construction contractor or machine operator about the archaeologist's monitoring work, and made provisions, within its agreement with them, for work stoppage, when applicable, for inspection of possible finds. PERC's on-site lead authorized the archaeologist to stop ground disturbance periodically, as needed, for a closer examination of exposed soils. Excavation was suspended until the archaeological monitor had an opportunity to inspect the sediments.

5. Monitoring Results

HRA archaeologists Taylor Harriman, MA, and Justin Butler, BA, conducted archaeological monitoring for the project periodically between August 1 and September 27, 2022. Lynn Compas, MA, who meets the Secretary of the Interior's professional qualifications standards for archaeology, supervised Mr. Butler.

An HRA archaeologist was present for all ground-disturbing activities that occurred in potentially native soils within the project area. The archaeological monitor observed the sediments and documented the activities using a digital camera and field notebook. The HRA monitor observed no significant, intact, precontact or historic-period archaeological deposits during ground-disturbing activities for the project.

The work in 2022 began with pre-characterization testing throughout the length of the ditch paralleling Lincoln Avenue in the western portion of the project area to determine the extent of soil contamination (Figure 5-1). During this process, a sandbag dam was installed at the northern end of the ditch to keep the work area drained (Figure 5-2), and a temporary access road was constructed within the ditch to access the southernmost extent of contaminated sediments (Figure 5-3). The road was constructed in sections, with pre-characterization testing conducted at intervals to determine the extent of contamination southward within the ditch (Figure 5-4). The testing indicated the entire length of ditch along Lincoln Avenue was contaminated and would require remediation per the parameters of the project. The access road was extended to the southern end of the ditch along Lincoln Avenue, and excavation for the project began in discrete remedial action units (RAU). Within each RAU, excavation began with vegetation removal, then sediments within the ditch were removed until the soil test results met the predetermined cleanup levels (Figure 5-5 through Figure 5-11). Each RAU included multiple excavation units (EU), and work only continued to the next unit once cleanup within a RAU was completed. The process involved testing newly exposed sediments for contamination before excavation to a greater depth continued. Therefore, monitoring occurred sporadically throughout the day while test results were being processed. Excavated soils were stored and treated on site before being removed. Once excavation within a RAU was completed, the ditch and sidewalls were reconstructed using imported clean soils and gravel, and the road was decommissioned and removed with the contaminated soils as work progressed (Figure 5-12).

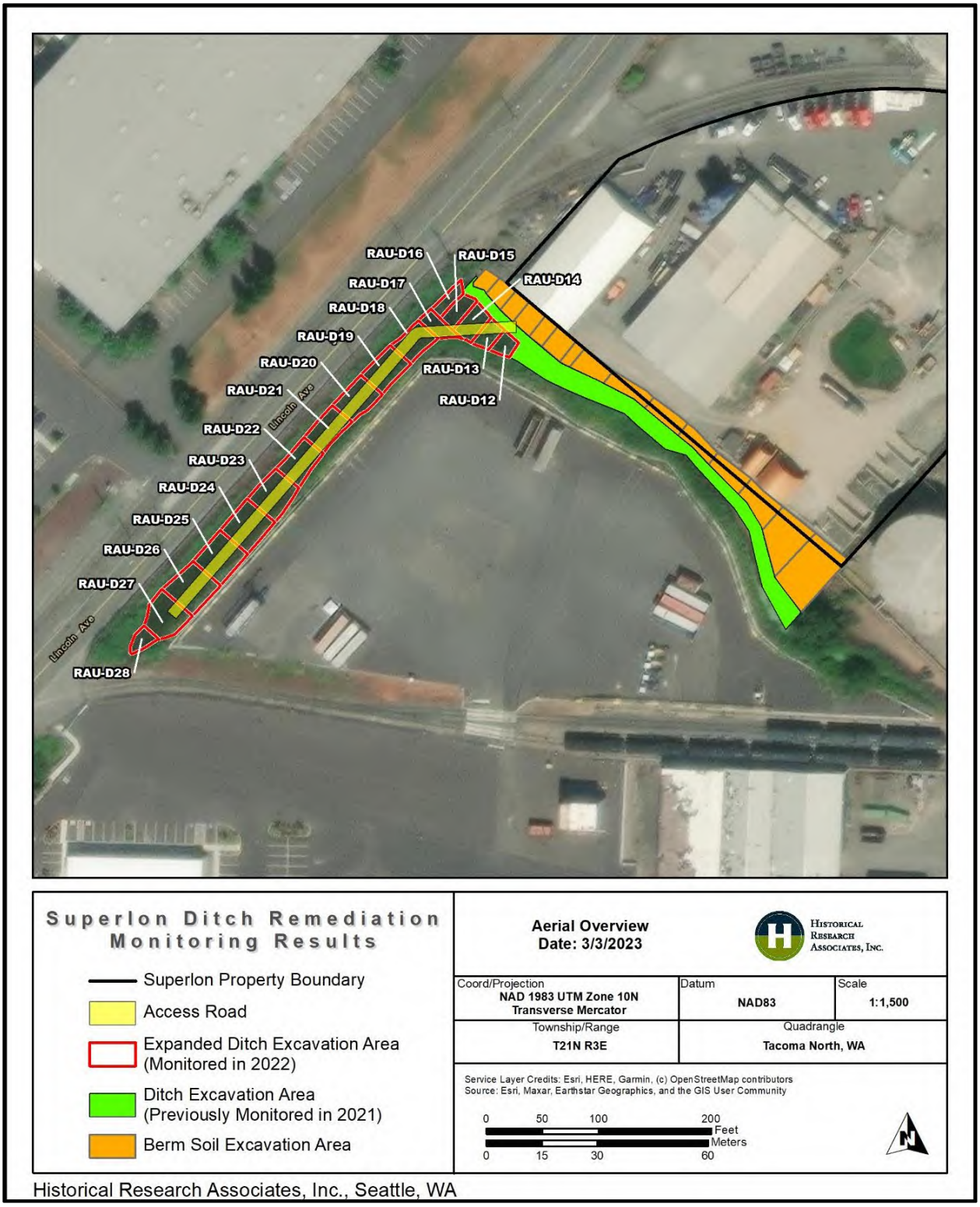

Figure 5-1. 2022 monitoring results.

Figure 5-2. Overview of sandbag dam and access road construction in the northern portion of the APE, view west.

Figure 5-3. Overview of access road within the length of ditch along Lincoln Avenue, view southwest.

Figure 5-4. Overview of pre-characterization testing within RAU D-25, view southwest.

Figure 5-5. Overview of RAU D-28 during remediation clean up, view southwest.

Figure 5-6. Overview of excavation within RAU D-27 during remediation clean up, view southwest.

Figure 5-7. Overview of excavation within RAU D-24 during remediation clean up, view northeast.

Figure 5-8. Overview of excavation within RAU D-19 during remediation clean up. Blackened sediments visible at bottom of unit, view northwest.

Figure 5-9. Overview of beginning excavations within RAU D-18 during remediation clean up, view northwest.

Figure 5-10. Overview of excavation within RAU D-14 during remediation clean up, view north.

Figure 5-11. Overview of excavation within RAU D-14 during remediation clean up, view east.

Figure 5-12. Overview of ditch along Lincoln Avenue following remediation and reconstruction, view northeast.

Ground disturbance included excavation of the soils within the bottom and lower sidewalls of the ditch for remediation in discrete RAU. RAU 28–18 measured on average 37 ft wide and 24 ft long. RAU 17–12 were much more irregular in size, but generally measured 13–37 ft wide and 10–37 ft long. The depth of excavation in each RAU was dependent on the level of contamination recorded in the field and varied from approximately 4 to 6 ft below the surface. Excavations began with the removal of surface vegetation along the sides of the access road and within the current RAU (see Figure 5-8). This was followed by excavation of approximately 2 ft of sediment and then pre-characterization testing (see Figure 5-7). If contamination was present, then another 2 ft of sediment was removed, and testing continued until a depth was reached where minimal contamination was present (see Figure 5-9).

The soils within the ditch were typically a loose, dark brown sandy silt with very low gravel content and many organics to a depth of approximately 2 ft below surface (bs) overlying a slightly compact, grayish-black silt with very low gravel content to a depth of approximately 4–5 ftbs. In some areas, deposits of wet, fine gray to bluish-gray silt with very low gravel content were observed to depths of 3–5 ftbs. Deposits of sticky, black silty sands typically with a sheen and likely associated with petroleum contamination were observed throughout the ditch at depths ranging from 2–5.5 ftbs. Aquifer deposits consisting of a loose, medium–coarse black sand was observed throughout the project area at depths greater than 5 ftbs. Once excavations reached these aquifer deposits, work was halted to avoid further contamination and disruption to the ecosystem. The observed sediments were very wet in the southwestern half of the ditch with RAU often filling up with water during excavation (see Figure 5-4); however, observed sediments grew increasingly dry as work continued northeast.

The HRA monitor identified no precontact or historic-period archaeological materials during the monitoring. A moderate amount of modern debris was observed during the monitoring, including a concrete form for a culvert; a propane tank; two 8-foot-long, 8 by 8 inch milled wooden beams; wooden debris; chunks of concrete; and various plastic bottles and wrappers. This modern debris was observed to depths of approximately 3–4 ftbs; however, no cultural materials were observed once the aquifer sands were reached during excavation.

6. Conclusions and Recommendations

An HRA archaeologist was present for ground-disturbing activities within or near native soils associated with the Superlon Phase III Ditch Remediation Project between August 1 and September 27, 2022. The HRA monitor identified no precontact or historic-period archaeological materials during the monitoring. HRA recommends that monitoring continue to take place on further excavation that occurs within or near native soils.

7. References

Durkin, Brian

2022 *Archaeological Monitoring Report for the Superlon Phase III Ditch Remediation Project, Tacoma, Washington*. Historical Research Associates, Inc., Seattle, Washington. Prepared for Pacific Environmental and Redevelopment Corporation, Snohomish, Washington.

Historical Research Associates

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