06/30/2021: The Department of Ecology held a public comment period for this work plan from February 11 to March 14, 2021. No changes were made to the work plan after the comment period, therefore Ecology accepts this Public Review Draft as the Final Interim Action Work Plan. The Responsiveness Summary is available in the Public Information Group within the site documents link on the site web page at apps.ecology.wa.gov/gsp/sitepage.aspx?csid=2096

Public Review Draft
Phase III Interim Action Work Plan – Ditch Remediation
for the
Superlon Plastics Site
Tacoma, Washington

Prepared for:

The Chemours Company FC, LLC

and

The White Birch Group LLC

By:

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January 6, 2021

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JEFFREY D. KING

Contents

FIGURES

TABLES

1. Introduction

This Work Plan presents the approach that will be used to conduct an Interim Action (IA) necessary to remediate the drainage ditch that separates the Superlon Plastics Property (Property), located at 2116 Taylor Way, Tacoma, Washington (Figure 1), and the property known as the Holbrook Log Yard, located at 3408 Lincoln Avenue in Tacoma, Washington (Figure 1). The ditch is located on property owned by the Port of Tacoma. The IA area is approximately 400 feet in length and has a maximum width of 65 feet (Figure 2).

This IA Work Plan has been prepared on behalf of the White Birch Group, LLC (White Birch) and the Chemours Company FC, LLC (Chemours). These companies are hereafter referred to as the Companies. The Companies have retained Pacific Environmental and Redevelopment Corporation (PERC) and Pioneer Technologies Corporation (PIONEER) as their authorized agents to complete the work described in this Work Plan. The work will be 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 and PIONEER will oversee this work. The Project Laboratory, if needed, will be ARI Laboratories, Inc. of Tukwila, Washington. Active Construction (ACI) of Puyallup, Washington will be the general contractor.

Under the AO, the Companies are allowed to implement IAs to improve site conditions. Phase I IA's consisted of the demolition of Building B and the removal of Occidental Chemical Waste Water sludge, while the Phase II IA focused on removing the soil beneath the former Building B. The purpose of this IA (i.e., Phase III) is to improve site conditions in a manner that is protective of human health and the environment.

2. Background

Ditch sediment and surface water characterization was previously undertaken and the results were provided to Ecology in the *Technical Memorandum: Phase I and II Remedial Investigation for the Superlon Plastics Site* (PERC/PIONEER 2012). 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 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 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 constituentconcentrations.

The top 6 inches of material in the drainage ditch (i.e. the biologically active zone) are considered to be freshwater sediments. Typically, dominant freshwater wetland vegetation species (cattails and reed canary grass) are observed throughout the ditch. Since the shallow sediments are considered to be freshwater sediments, the sediment concentrations were compared to statewide sediment background concentrations, Freshwater Sediment Cleanup Objectives (SCOs), and Freshwater Sediment Cleanup Screening Levels (SCSLs). These levels were promulgated by Ecology in the Sediment Cleanup User's Manual II (Ecology 2015b).

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 (RELs). Additional soil excavation will be necessary to complete the remediation.

This work will be conducted in a manner consistent with the *Health and Safety Plan for the Superlon Plastics Site* (PERC/PIONEER 2020) and the *Sampling and Analytical Plan & Quality Assurance Project Plan*, Revision 6 (SAP/QAPP) (PERC/PIONEER 2019).

2.1. Characterization of Drainage Ditch Sediment

A ditch sediment and surface water sampling event was conducted by PERC/PIONEER on September 7th and 8th, 2016 and the results were documented in the *Remedial Investigation Phase IV Characterization of Drainage Ditch Sediment Report* (PERC/PIONEER 2017). The sampling event was conducted to characterize the nature and extent of arsenic and lead and the total petroleum hydrocarbons (TPH) in ditch sediment and surface water that remained after remediation of the asphalt tar oil spill. The sample locations are presented in Figure 2 and the analytical results are summarized in Table 1.

Maximum concentrations and SCO/SCSL exceedances for all constituents were primarily located in surface sediment (i.e., 0-0.5 feet below the current ditch surface]). All six samples contained arsenic concentrations greater than the SCO (14 mg/kg). Four of the six samples contained arsenic concentrations greater than the SCSL (120 mg/kg). No samples contained lead concentrations greater than the SCSL (1,300 mg/kg). The maximum concentrations of 4,000 mg/kg and 170 mg/kg for arsenic and lead, respectively, were present in the 0-0.5 foot sample at sample location SD-13. The maximum concentrations of 4,600 and 660 mg/kg for heavy oils and diesel, respectively, were present in the 0-0.5 foot sample at sample location SD-14. The majority of concentrations collected from 0.5 to 8 feet below ground surface (bgs) were non-detect or were detected below background soil concentrations. Residual contamination of heavy oils and diesel above SCLSs/SCOs, from the asphalt tar oil spill, remains in surface sediment in the ditch.

3. Objective and Summary of the Proposed Interim Action

The objectives of the work are to excavate the:

1. Top one foot of the sediment in the ditch in areas where arsenic concentrations exceed the Freshwater SCOs and Freshwater SCSLs promulgated by Ecology in the Sediment Management Standards (Ecology 2013) (see Table 1); and,
2. Eastern berm of the ditch where arsenic and lead concentrations exceed the MTCA industrial cleanup standards for the Port of Tacoma property (Figure 2), hereafter referred to as "berm soil".
3. Remaining berm soil between the Superlon/Port of Tacoma property line and the western limits of the excavations previously conducted on the Superlon Property to remediate arsenic and lead concentrations exceed site-specific RELs (Figure 2).

This IA addresses the arsenic and lead concentrations that are present in the ditch adjacent to the Superlon property that are potentially associated with the Superlon site. Sample SD-15 has constituent concentrations between the SCO and the SCL; however, Sample SD-15 is not included in the IA since it is located up gradient of the Superlon property boundary. The Companies will accomplish the objectives of the Work Plan by implementing the scope of work described below.

4. Required Permits and Approvals

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

- Ecology's approval of this Work Plan;
- US Dept. of Army Nationwide 38 permit. This permit will be obtained through the Joint Aquatic Resource Permit Application (JARPA) process. This permit will also confirm 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 right of way on the north end of the work area; and
- An access agreement from the Port of Tacoma to access the property.

5. Interim Action – Proposed Scope of Work

5.1. Overview

This section presents the approach and methods that will be used to meet the objectives outlined in Section 3. Following the completion of this IA, the Companies will submit a technical memorandum to Ecology documenting the completion of the work. Figure 2 shows the location where the IA activity will occur.

5.2. Excavation and Stockpiling of Sediment and Berm Soils

5.2.1. Current Conditions

The ditch consists of patches of freshwater wetland vegetation species (cattails and reed canary grass), which overlay approximately 6.5 feet of sediment/soil that has collected within the ditch as a result of soil backfilling of the surrounding properties between 1969 and 1973. The sediment consists of clay-rich silt with varying degrees of organics. Prior to the remediation of asphalt tar oil within the ditch in 2015, a thick mat of organic material sat on top of the sediment. This material was removed during the ERM remediation.

Water occurs intermittently within the ditch mostly in the months of November through July.

During the remediation of asphalt tar oil, ERM removed all of the freshwater wetland vegetation leaving the ditch barren as no re-vegetation or planting occurred. It appears that vegetation has regrown to its pre-remediation state naturally.

5.2.2. Excavation Process

In general, the excavation process will be done by excavating the sediment and soil within a series of discrete remedial action units (RAU; see Figure 3). Each RAU will include multiple excavation units (EUs) which will be equal in size to the size of a 12 foot by 6 foot trench box. Trench boxes will not be required to excavate sediment since the depth of excavation is one foot.

The berm soil EUs will be approximately 12 feet long and 6 feet wide and lie perpendicular to the length of the ditch (see Figure 3). They will start at eastern edge of the ditch and extend to the eastern edge of the previously completed excavation of soils on the Superlon Property. Excavation will start on the northwest corner of the excavation limit shown on Figure 2 and continue southeastward to equal to the Superlon's southern property boundary.

The following steps will be used to excavate each RAU:

- The vegetation and duff will be removed from three adjacent EUs;
- The sediment will be excavated as described in section 5.2.4 below; and

- The berm soils will be excavated as described in section 5.2.5 below;
- Once three EUs have been completed, they will be restored as described in section 5.2.8 below and the next three EUs will be started.

5.2.3. Excavation Goals

Sediment: Remediation of the sediment, i.e., the top one foot, will remove all sediment within the biologically active zone in order to meet the sediment cleanup levels at the point of compliance. This sediment will be replaced with soil that meets the sediment standards of 14 mg/kg for arsenic and 360 mg/kg for lead at the point of compliance (see Table 2) and that is consistent with Army Corps of Engineers requirements.

TABLE 2: SEDIMENT EXCAVATION CLEANUP CRITERIA

Media	Level (mg/kg)	Basis	Point of Compliance
SEDIMENT			
Arsenic	14	Freshwater Sediment Cleanup Objective	0-1 foot sediment
Lead	360	Sediment Cleanup Objective	0-1 foot sediment
NWTPH-HO	3,600	Freshwater Sediment Cleanup Objective	0-1 foot sediment
NWTPH-D	340	Freshwater Sediment Cleanup Objective	0-1 foot sediment

Soils underlying the Sediment: The cleanup criteria for arsenic occurring within the soils underlying the sediment (i.e. non-biologically active soils). The arsenic default industrial land use cleanup level is 88 mg/kg and is within the range of the MTCA freshwater sediment cleanup levels. 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. Similarly, the cleanup criteria for NWTPH-HO (2,000 mg/kg) is within the range of MTCA freshwater sediment cleanup levels and is the default industrial land use cleanup level.

Berm Soils: Table 3 lists the cleanup criteria for IA soil. The RELs were established for the Superlon Property (PERC/PIONEER 2014). These RELs will be used as the target concentrations for soils on-property. The target concentration for off-property soils will be the MTCA default cleanup standards for industrial properties.

TABLE 3: SOIL EXCAVATION CLEANUP CRITERIA

Media	Level (mg/kg)	Basis	Point of Compliance
BERM SOILS ON-PROPERTY			
Arsenic	588	Remediation Level	0-15 feet bgs
Lead	750	Remediation Level	0-15 feet bgs
BERM SOILS OFF-PROPERTY			
Arsenic	88	MTCA Industrial Cleanup Level	0-15 feet bgs
Lead	1,000	MTCA Industrial Cleanup Level	0-15 feet bgs
SOIL UNDERLYING THE SEDIMENT			
Arsenic	88	MTCA Industrial Cleanup Level	2-15 feet bgs
Lead	1,000	MTCA Industrial Cleanup Level	2-15 feet bgs
NWTPH-HO	2,000	MTCA Industrial Cleanup Level	2-15 feet bgs
NWTPH-D	2,000	MTCA Industrial Cleanup Level	2-15 feet bgs

5.2.4. Excavation of Sediment

The objective of this phase of the IA will be to:

- Remove the biologically active zone of the sediment (defined as up to 12 inches) of approximately 380 linear feet of the sediment in the ditch in widths varying from 9 feet to 16 feet. Assuming a 10-foot average width and a 1 foot thickness, the estimated volume of sediment to be excavated is 141 cubic yards (CY). This area encompasses all the locations that were discovered during the characterization of the drainage ditch sediment with the exception of location SL-15 (see Figures 2 and 3) which is up-gradient of the Superlon Property boundary (PERC/PIONEER, 2017).

5.2.4.1. Sediment Excavation Methods

The excavation of the sediment will occur by the following method:

For approximately 280 feet of the ditch, located north of sample number SD-13, the sediment will be excavated by reaching the excavator bucket across the Property boundary from the Superlon Property. The additional 100 feet of ditch sediments will be excavated from the east side of the ditch on property owned by the Port of Tacoma (this area is also proposed for remediation under the excavation of berm soils [see section 5.2.5]). This will require the removal and reinstallation of the boundary fence on the Superlon Property and vegetation on the berm. By using this method, no soil will be excavated from the west side of the ditch or have to be trucked across public roadways.

5.2.4.2. Confirmation Sampling of Soil below the Sediment

Confirmation samples will be collected even though the sediment biologically active zone will be removed, the soil used to replace the biologically active zone will meet sediment cleanup standards, and the soil below the sediment zone is already in compliance with default industrial cleanup standards.

Samples of the soil along the base of the ditch excavation will be collected and analyzed (by the on-site XRF laboratory) for arsenic and lead as identified in the QAP/SAPP (PERC/PIONEER, 2019). If excavation goals are not reached, the excavation will be expanded and resampled. The sampling process will follow the procedures identified in the Project SAP/QAPP with the following modification. A composite sample will be collected from the top six inches of soil within each RAU following soil removal. The composite sample will consist of five discrete grab samples randomly selected from the bottom of the excavation using an excavator bucket. The composite will represent a maximum of approximately 60 square feet of the post excavation bottom of the ditch.

5.2.5. Excavation of Berm Soils

The objective of this phase of the IA will be to:

- Remove the berm soils between the edge of the ditch and the Superlon property from the excavation limits identified in Figure 3. This will occur along the Superlon fence line and to a depth equal to the depth of the contaminated soils as determined by sidewall sampling collected during the remediation of on-property soils (see Table 4). The excavation will begin approximately 30 feet northwest of the northwest Superlon property boundary and continue to the edge of the berm equal to the Superlon Property's southeast boundary (approximately 405 feet). The maximum volume anticipated (if using the current elevation for the top of the slope and the current bottom of the ditch plus 6 inches) would be approximately 3,423 CY.

5.2.5.1. Berm Soil Excavation Methods

The excavation of the berm soils will occur by the following method:

The majority of the berm soil will be excavated by reaching the excavator bucket across the Property boundary from the Superlon Property. This method will also be used for any additional length of the ditch that is reachable by the excavator from the Superlon Property. The equipment needed to excavate the soil at the southern 85 feet of the project work area will located on both the Superlon Property and the property owned by the Port of Tacoma (Figure 2). Equipment will be placed on the property owned by the Port of Tacoma if the limit of the excavator cannot be reached from the Superlon Property. This will require the removal and reinstallation of the boundary fence on the Superlon Property and the removal of brush and vegetation on the Port of Tacoma's property. By using this method no soil will have to be trucked across public roadways.

Excavation will occur within trench boxes to control the caving of surrounding soils and to allow for the removal of the soil up to the limits of the previously completed remediation of on-Property soil (i.e. there will not be any soils containing COCs above the target concentrations listed above). The RAUs will be approximately twenty five feet wide, perpendicular to the length of the ditch, and extend to the western edge of the bottom of the ditch. This method will ensure that the excavation remains open so that samples can be collected and backfilling can process as soon as the laboratory confirms that the excavation, in that trench box, is complete. The excavator will not enter the ditch.

5.2.5.2. Confirmation Sampling

Samples of the soil along the base of the excavation and at the northern and southern edges of the berm excavation will be collected and analyzed (by the on-site XRF laboratory) for arsenic and lead as identified in the QAP/SAPP. If excavation goals are not reached, the excavation will be expanded and resampled. The sampling process will follow the procedures identified in the Project SAP/QAPP (PERC/PIONEER, 2019) with the followingmodification.

A composite sample will be collected from the top six inches of soil within each RAU following soil removal. An excavator bucket will be used to collect multiple samples within each EU. A composite sample, made up of five discrete grab samples randomly selected from the soil of each excavator bucket, will be collected. All of the excavator bucket samples collected within an EU will be composited into one sample, following the completion of the EU, and analyzed by the on-property XRF. The sample results from all EUs within an RAU will be used to determine if the RAU is in compliance (95% of the UCL) with Project goals. If the RAU is not in compliance the excavation will be deepened until compliance is achieved.

5.2.6. Stockpiling and Disposal

Once excavated, the sediment/soil will be transported (using a loader) to a stockpile on the Superlon property for storage, until it can be treated and/or designated for disposal at the appropriate landfill. Treated stockpiled sediment/soil will be disposed of at the LRI Landfill in Puyallup, Washington if determined (by TCLP and pH analysis) to be non-hazardous and the ChemWaste Management Landfill in Arlington, Oregon if determined to be hazardous. Non-hazardous untreated sediment/soil will be disposed of at the LRI Landfill in Puyallup, Washington. This process is in accordance with existing protocols for site soil management under the Ecology approved Remedial Designing design report of the remediation of on-property soils at the Superlon Plastics Site.

5.2.7. Ditch Restoration

5.2.7.1. Ditch and Berm Restoration

The ditch and berm will be re-established in a manner consistent with the requirements of the US Corps of Engineers and the Port of Tacoma and Ecology's stormwater regulations. At a minimum the soils in the ditch and berm will be restored in the following manner:

Berm: The berm will be restored using imported soils to match its current grade. Underlying this soil will be either a 1 foot thickness of pond-grade clay or a water retention geotextile. These materials will be added to the sidewall of the excavation nearest the Superlon Property to inhibit water flow from the Superlon Property from the reaching the ditch. The soils will be, at least, common pit run gravel that has been analyzed to ensure that it does not have arsenic and/or lead concentrations above Ecology's unrestricted cleanup standards. Rip Rap, quarry spalls and/or other materials may be added for slope stability or at the request of the US Corps of Engineers, Ecology and/or the Port of Tacoma.

Sediment: The sediment will be restored using the appropriate imported material to ensure the restoration of a viable biologically active zone. This material will also be analyzed to ensure that it does not have arsenic and/or lead concentrations above the cleanup objectives. It is anticipated that this soil will be silt and clay rich fine textured soil or a silt rich loam.

5.2.7.2. Re-vegetation

No re-vegetation was necessary following the remediation of asphalt tar oil due to the rapid recovery of the ditch. However, to facilitate vegetation regrowth, WSDOT stormwater ditch mix will be placed on the banks of the ditch following excavation and sampling.

6. Stormwater controls

The primary stormwater control consideration is preventing any sediment or other contaminants from escaping the worksite either up- or downstream. The following, adapted from typical in-water work practices, will be implemented:

1. Work during the time of lowest flow condition, typically July-August in this region.
2. Isolate the work area with a downstream cofferdam and, if there is flow from upstream, an upstream cofferdam.
    a. The intake basin on Lincoln Avenue will be blocked using either a pipe plug or sandbags and plastic, if constructing a cofferdam in the channel is unfeasible.
    b. If there is flow in the channel from upstream, it must be bypassed around the work area. Unless the planned work can accommodate a gravity-flow bypass pipe in the channel, a bypass pump will be used, with the intake upstream of the upper cofferdam, and the discharge downstream of the lower cofferdam. Energy dissipation will be provided at the point of discharge to avoid scour.
    c. An effective cofferdam will be constructed of sandbags or straw bales covered in plastic sheeting. The plastic will be anchored by sandbags in a trench on the dry side of the cofferdam. A second downstream cofferdam will be installed to provide extra security; any leakage from the first cofferdam will be detected and pumped out prior to the second cofferdam.

d. We do not anticipate any tidal flow or influences. If there is any tidal flow from downstream, the plastic will be anchored with trenched sandbags on both sides to prevent backflow into the worksite.

3. Excess water will be pumped into the existing pond on the Superlon site.
4. When re-watering the work area, the cofferdams will be removed slowly to avoid high-velocity flows. Exposed soils within the work area will be stabilized.

7. Archeological Monitoring

At the Corps of Engineers request, the project will be monitored for archeological resources by Historical Resources Incorporated (HRA) of Seattle, Washington.

8. Decontamination of Equipment and Personnel

Decontamination of personnel and equipment will follow the procedures identified in the Project HASP (PERC/PIONEER 2020).

9. Documentation and Reporting

A technical memorandum will be created to document the completed work. This memorandum will include:

- A description of the work completed, noting any exceptions to the methodology described in this work plan and the results of the sample analyses;
- Documentation recording the disposal of the excavated sediment and soils;
- A photographic record of the processes used and conditions of the ditch prior to and following the work; and
- A figure showing final excavation limits and other features.

10. Schedule

The start of the IA will be scheduled once all permits and approvals have been received. The work will be done in the summer months of 2021.

It is anticipated that approximately 9 weeks will be required to complete the excavation, restoration and analysis phase of the IA. The final report will be issued approximately 45 days following the receipt of the final data.

11. References

Ecology 2013. Washington State Department of Ecology. *Sediment Management Standards, Chapter 173-240 WAC*. March 2013.

Ecology 2015. Washington State Department of Ecology. Spills Program Investigation Summary Form. Gardner-Fields, Inc., asphalt spill. July 23, 2015.

ERM. *Asphalt Removal Completion Report.* August 14, 2015.

PERC/PIONEER 2019. Sampling and Analytical Plan & Quality Assurance Project Plan (SAP/QAPP) revision 6. May.

PERC/PIONEER 2020. *Health and Safety Plan for the Superlon Plastics Site, Tacoma, Washington*. April 2020.

PERC/PIONEER 2012. Pacific Environmental and Redevelopment Corporation and PIONEER Technologies Corporation. *Technical Memorandum: Phase I and II Remedial Investigation for the Superlon Plastics Site.* April 2012.

PERC/PIONEER 2014. Final Feasibility Study for On-Property Soils and Perched Water. December 2014.

PERC/PIONEER 2016. Pacific Environmental and Redevelopment Corporation and PIONEER Technologies Corporation. *Superlon Plastics Site: Remedial Investigation Phase IV Work Plan for Characterization of the Drainage Ditch Soils*. May 2016.

PERC/PIONEER 2017. Pacific Environmental and Redevelopment Corporation and PIONEER Technologies Corporation. *Superlon Plastics Site: Remedial Investigation Phase IV Characterization of the Drainage Ditch Sediment – Results.* February, 2017.

FIGURES:

Legend

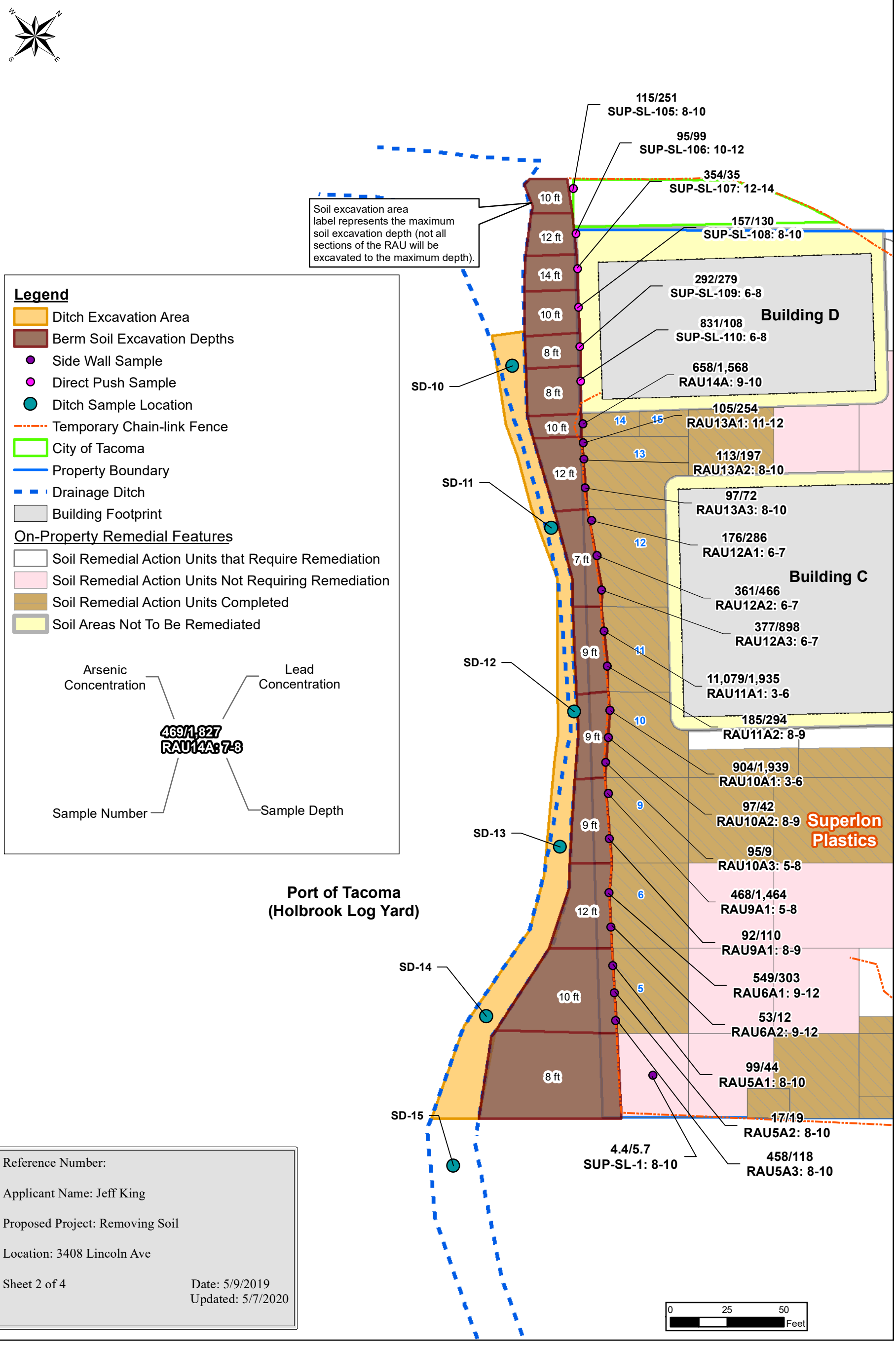
Superlon Plastics Site

0 1,000 2,000 3,000 Feet

PIONEER TECHNOLOGIES CORPORATION

Site Location
Ditch Interim Action Work Plan
Superlon Plastics Site, Tacoma, Washington

Figure 1



Reference Number:

Applicant Name: Jeff King

Proposed Project: Removing Soil

Location: 3408 Lincoln Ave

Sheet 2 of 4

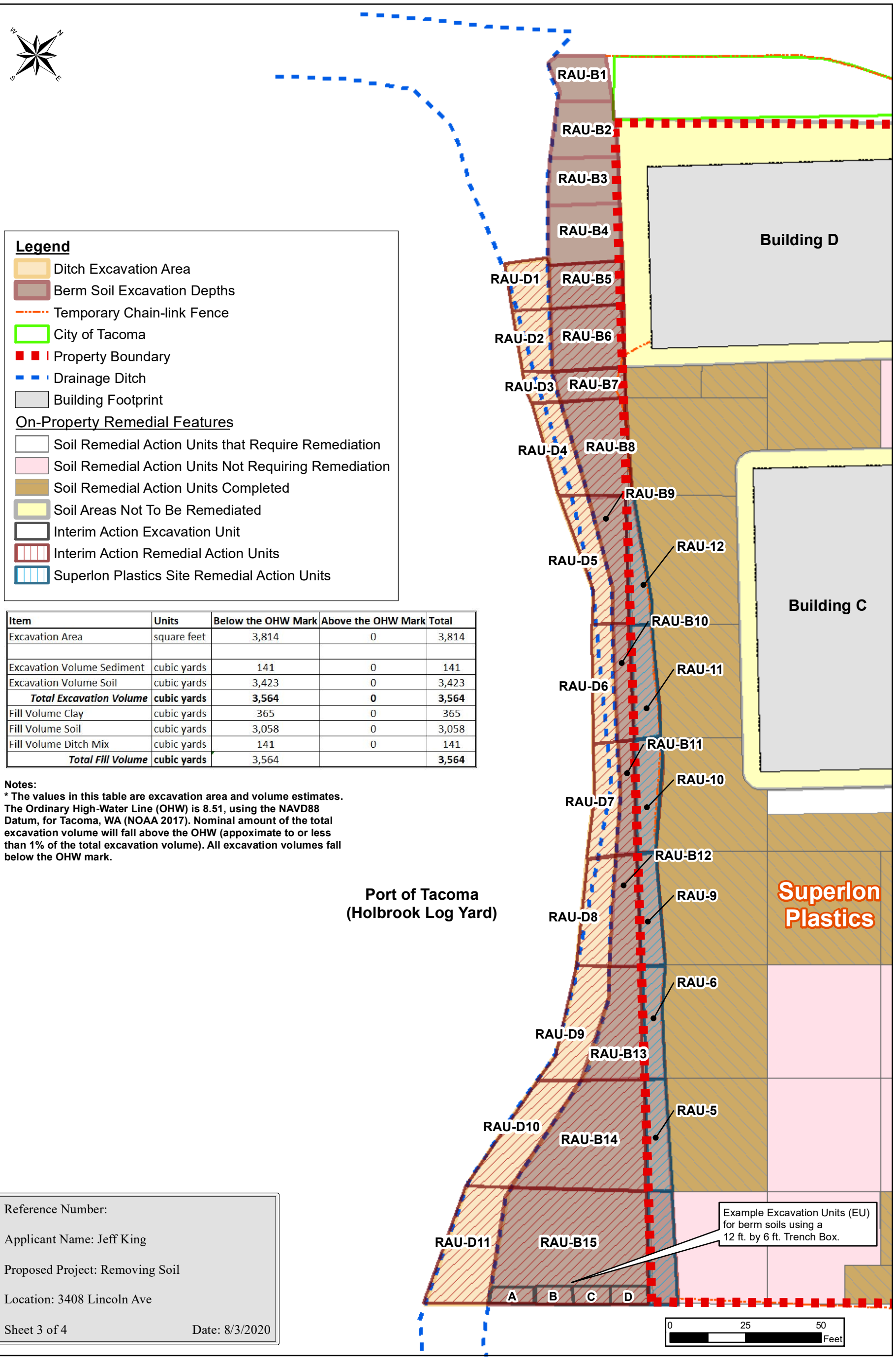
Date: 5/9/2019
Updated: 5/7/2020

PIONEER TECHNOLOGIES CORPORATION

Interim Action Work Area
Ditch Interim Action
Superlon Plastics Site, Tacoma, Washington

Figure 2

Document Path: G:\Projects\SuperlonMaps\2019\Feb\Fig_2_Ditch_Expansion_Areas.mxd; Author: MK; Date Saved: 5/7/2020



Legend

- Ditch Excavation Area
- Berm Soil Excavation Depths
- Temporary Chain-link Fence
- City of Tacoma
- Property Boundary
- Drainage Ditch
- Building Footprint

On-Property Remedial Features

- Soil Remedial Action Units that Require Remediation
- Soil Remedial Action Units Not Requiring Remediation
- Soil Remedial Action Units Completed
- Soil Areas Not To Be Remediated
- Interim Action Excavation Unit
- Interim Action Remedial Action Units
- Superlon Plastics Site Remedial Action Units

Item	Units	Below the OHW Mark	Above the OHW Mark	Total
Excavation Area	square feet	3,814	0	3,814
Excavation Volume Sediment	cubic yards	141	0	141
Excavation Volume Soil	cubic yards	3,423	0	3,423
Total Excavation Volume	**cubic yards**	**3,564**	**0**	**3,564**
Fill Volume Clay	cubic yards	365	0	365
Fill Volume Soil	cubic yards	3,058	0	3,058
Fill Volume Ditch Mix	cubic yards	141	0	141
Total Fill Volume	**cubic yards**	3,564		**3,564**

Notes:
*** The values in this table are excavation area and volume estimates. The Ordinary High-Water Line (OHW) is 8.51, using the NAVD88 Datum, for Tacoma, WA (NOAA 2017). Nominal amount of the total excavation volume will fall above the OHW (appoximate to or less than 1% of the total excavation volume). All excavation volumes fall below the OHW mark.**

Port of Tacoma (Holbrook Log Yard)

Reference Number:

Applicant Name: Jeff King

Proposed Project: Removing Soil

Location: 3408 Lincoln Ave

Sheet 3 of 4 Date: 8/3/2020

PIONEER TECHNOLOGIES CORPORATION

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

Figure 3

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

n

SCALE: 1" = 20'

20 10 0 20 40

CONTOUR INTERVAL = 1'

TYPICAL EXCAVATION
CROSS-SECTION A-A

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

CONCEPTUAL POST-RESTORATION
CROSS-SECTION A-A

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

Reference Number:

Applicant Name: Jeff King

Proposed Project: Removing Soil

Location: 3408 Lincoln Ave

Sheet 4 of 4 Date: 05/07/2020

ESTIMATED EXCAVATION VOLUMES

DITCH 1' SEDIMENT: 141 CY

OVERBURDEN 2': 729 CY

OTHER SOILS: 2,750 CY

REVISIONS

NO.	DESCRIPTION/DATE	BY

LARA G. BARTENHAGEN — STATE OF WASHINGTON — 40111 — REGISTERED PROFESSIONAL ENGINEER

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Land Surveying
Project Management

JEFF KING

SUPERLON PLASTICS

DITCH REMEDIATION EXHIBIT

CITY OF TACOMA WASHINGTON

JOB NO.: 1624-001-009
DWG. NAME: EN-13
DESIGNED BY:
DRAWN BY: DCL
CHECKED BY:
DATE: 05/07/2020
DATE OF PRINT:

EN-13

4 OF 4 SHEETS

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Plotted: 5/7/2020 10:09 AM Plotted By: Jeff Hino

TABLES:

Table 1: Drainage Ditch Constituent Concentrations and Comparison to Background and Sediment Criteria

Sample ID	Media	Date Collected	Sample Top Depth Relative to Ditch Bottom (ft bds)	Sample Bottom Depth Relative to Ditch Bottom (ft bds)	Arsenic (mg/kg)	Lead (mg/kg)	TPH-HO (mg/kg)	TPH-D (mg/kg)	Total Organic Carbon (%)	Grain Size					
										Gravel (%)	Coarse Sand (%)	Medium Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)
SD-SD-10-090816-0-0.5	Sediment	9/8/2016	0	0.5	16	1.9	63 U	32 U	0.29	0.3	0.1	0.3	23.5	61.2	14.6
SD-SD-10-090816-0.5-2	Soil	9/8/2016	0.5	2	3.5 U	2.0	49 U	25 U	--	--	--	--	--	--	--
SD-SD-10-090816-2-4	Soil	9/8/2016	2	4	3.9	2.4	60 U	30 U	--	--	--	--	--	--	--
SD-SD-10-090816-4-6	Soil	9/8/2016	4	6	5.1	2.3	52 U	26 U	--	--	--	--	--	--	--
SD-SD-10-090816-6-8	Soil	9/8/2016	6	8	3.6 U	2.5	--	--	--	--	--	--	--	--	--
SD-SD-11-090716-0-0.5	Sediment	9/7/2016	0	0.5	150	7.3	76 U	38 U	0.81	--	--	--	--	--	--
SD-SD-11-090716-0.5-2	Soil	9/7/2016	0.5	2	18	3.0	67 U	34 U	--	--	--	--	--	--	--
SD-SD-11-090716-2-4	Soil	9/7/2016	2	4	20	3.5	62 U	31 U	--	--	--	--	--	--	--
SD-SD-11-090716-4-6	Soil	9/7/2016	4	6	8.5	4.0	74	29	--	--	--	--	--	--	--
SD-SD-11-090716-6-8	Soil	9/7/2016	6	8	5.2	3.8	--	--	--	--	--	--	--	--	--
SD-SD-12-090716-0-0.5	Sediment	9/7/2016	0	0.5	140	23	85	30 U	0.58	--	--	--	--	--	--
SD-SD-12-090716-0.5-2	Soil	9/7/2016	0.5	2	4.8	4.1	68 U	34 U	--	--	--	--	--	--	--
SD-SD-12-090716-2-4	Soil	9/7/2016	2	4	3.4 U	1.9	57 U	28 U	--	--	--	--	--	--	--
SD-SD-12-090716-4-6	Soil	9/7/2016	4	6	3.8 U	2.4	57 U	28 U	--	--	--	--	--	--	--
SD-SD-12-090716-6-8	Soil	9/7/2016	6	8	3.6 U	2.6	--	--	--	--	--	--	--	--	--
SD-SD-13-090816-0-0.5	Sediment	9/8/2016	0	0.5	4,000	170	530	120	3.9	--	--	--	--	--	--
SD-SD-13-090816-0.5-2	Soil	9/8/2016	0.5	2	10.0	1.8	50 U	25 U	--	--	--	--	--	--	--
SD-SD-13-090816-2-4	Soil	9/8/2016	2	4	3.3 U	1.7 U	53 U	27 U	--	--	--	--	--	--	--
SD-SD-13-090816-4-6	Soil	9/8/2016	4	6	5.4	2.6	59 U	29 U	--	--	--	--	--	--	--
SD-SD-13-090816-6-8	Soil	9/8/2016	6	8	4.6	2.2	--	--	--	--	--	--	--	--	--
SD-SD-14-090816-0-0.5	Sediment	9/8/2016	0	0.5	760	160	4,600	660	3.3	--	--	--	--	--	--
SD-SD-14-090816-0.5-2	Soil	9/8/2016	0.5	2	9.5	2.7	63 U	31 U	--	--	--	--	--	--	--
SD-SD-14-090816-2-4	Soil	9/8/2016	2	4	7.1	1.8 U	50 U	25 U	--	--	--	--	--	--	--
SD-SD-14-090816-4-6	Soil	9/8/2016	4	6	3.5 U	1.9	51 U	26 U	--	--	--	--	--	--	--
SD-SD-14-090816-6-8	Soil	9/8/2016	6	8	3.4 U	2.1	--	--	--	--	--	--	--	--	--
SD-SD-15-090816-0-0.5	Sediment	9/8/2016	0	0.5	110	92	1,200	110	4.3	--	--	--	--	--	--
SD-SD-15-090816-0.5-2	Soil	9/8/2016	0.5	2	4.9	2.1	63 U	32 U	--	--	--	--	--	--	--
SD-SD-15-090816-2-4	Soil	9/8/2016	2	4	3.5 U	2.3	55 U	27 U	--	--	--	--	--	--	--
SD-SD-15-090816-4-6	Soil	9/8/2016	4	6	3.6 U	1.9	59 U	30 U	--	--	--	--	--	--	--
SD-SD-15-090816-6-8	Soil	9/8/2016	6	8	3.4 U	2.0	--	--	--	--	--	--	--	--	--

Sediment Background[1] and Criteria[2]

Criteria	Arsenic (mg/kg DW)	Lead (mg/kg DW)	TPH-HO (mg/kg DW)	TPH-D (mg/kg DW)
Statewide Background for Soil	20	17	N/A	N/A
MTCA Lower Tier Freshwater Sediment Cleanup Objective (SCO)	<14	<360	<3,600	<340
MTCA Freshwater Sediment Sediment Cleanup Level (SCL)	14-120	360-1,300	3,600-4,400	340-510
MTCA Upper Tier Freshwater Sediment Cleanup Screening Level (SCSL)	>120	>1,300	>4,400	>510

[1] Statewide background concentrations. https://fortress.wa.gov/ecy/publications/documents/94115.pdf

[2] Sediment criteria are from the Sediment Cleanup User's Manual II. Ecology 2015. https://fortress.wa.gov/ecy/publications/documents/1209057.pdf

Notes:

-- Sample not analyzed for this constituent

U: Constituent was non-detect; reporting limit is shown

ft bds: feet below ditch surface

MTCA: Model Toxics Control Act

Analytical Laboratory Report is presented in Appendix C.

Table 4: Sidewall Samples and Excavation Depths Along Drainage Ditch

		SUP-SL-1	RAU 5			RAU 6		RAU 9		RAU 10			RAU 11		RAU 12			RAU 13			RAU 14	SL-110	SL-109	SL-108	SL-107	SL-106	SL-105
Top (ft)	Bottom (ft)		A3	A2	A1	A2	A1	A2	A1	A3	A2	A1	A2	A1	A3	A2	A1	A3	A2	A1	A1						
0	1	Occisludge was located at 0-8 ft. Occisludge was excavated and backfilled with clean fill material in 2011.	Boring logs reported no >RELs at 0-8 ft.			Boring logs reported no >RELs at 0-9 ft.		Boring logs reported no >RELs at 0-4 ft.		Boring logs reported no >RELs at 0-2 ft.											No Sample OB	No Sample OB	No Sample OB	No Sample OB	No Sample OB	No Sample OB
1	2																										
2	3									No observable debris to 4 ft.		904/1939	682/1396	11079/ 1935	1634/ 1792	3916/ 1500	1634/ 1792	Boring logs reported soils >RELs at 2-4 ft. only			No observable debris to 6 ft.	452/2,885	43,565/ 32,072	2,864/ 3,021	26/23	85/86	751/324
3	4																										
4	5							303/292	468/1464	95/5	428/9											649/3,303	11,658/ 9,310	12,465/ 11,317	8,795/ 1,164	309/407	1,209/ 1,104
5	6											67/190			377/898	361/466	176/286										
6	7																				469/1,827	831/108	292/279	764/588	619/121	1,179/908	1,112/ 4,380
7	8																										
8	9	4.4/5.7*	458/118	17/19	99/44			92/110	72/468	49/70	97/42		185/294	38/34	16/15							48/46	42/65	157/130	69/25	46/24	115/251
9	10					53/12	549/303											97/72	113/197	234/275	658/1,568						
10	11																				31/88	18/20	17/19	11/47	332/73	95/99	58/193
11	12																	12/23	23/23	105/254							
12	13																					20/24	18/28	14/12	354/35	12/16	16/20
13	14																										
14	15																					20/21	19/18	13/ND	57/21	23/15	14/15
Total Excavation Depth		9 ft.	10 ft.			12 ft.		9 ft.		9 ft.			9 ft.		7 ft.			12 ft.			10 ft.	8 ft.	8 ft.	10 ft.	14 ft.	12 ft.	10 ft.

Legend

Observations

XX/YY Arsenic Concentration at Bottom of Excavation/Lead Concentration at Bottom of Excavation

Samples with Aresenic and/or Lead concentrations >RELs

Proposed excavation limit (will be confirmed by analysis)

* Arsenic and Lead concentrations for boring SUP-SL-1 were reported in the Remedial Investigation Report for On-property Soils and Surface Water at the Superlon Plastics Property, Tacoma, Washington dated September 25, 2013