GeoEngineers

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July 29, 2024

Sound Transit c/o South County Transit Partners
401 South Jackson Street
Seattle, Washington 98104-2826

Attention: Susan Penoyar

Subject: Revised Remedial Investigation Work Plan – Addendum No. 1
Y Pay Mor Drycleaners Site
Federal Way, Washington
King County Parcel No. 2423200050
VCP Number: NW3265
File No. 4082-039-03

Introduction

This letter documents revised proposed supplemental explorations for the Site remedial investigation (RI) as an addendum to the "Remedial Investigation Work Plan, Federal Way Link Extension Parcel FL358, Y Pay Mor Drycleaner Site, 2210 South 320th Street, Federal Way, Washington" dated December 22, 2021 (RI Work Plan) and associated Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP). The Site is identified in Washington State Department of Ecology (Ecology) databases as Facility Site Identification (FSID) No. 2518, and Cleanup Site Identification (CSID) No. 3180. The Y Pay Mor Site is located on King County Parcel No. 2423200050, identified by Sound Transit as Federal Way Link Extension (FWLE) Parcel FL358. The boundary of the former Y Pay Mor Drycleaner (Space A-6) is shown on Figures 1 and 2. The Y Pay Mor Site is defined by the extent of chlorinated volatile organic compounds (CVOCs) in soil and groundwater exceeding Model Toxics Control Act (MTCA) Cleanup Levels. Sound Transit enrolled in Ecology's Voluntary Cleanup Program (VCP) (No. NW3265) in Spring 2020. This revised RI Work Plan includes changes to the well location for FL358-MW19 requested by Ecology on July 24, 2024.

The proposed supplemental RI explorations are intended to address the following Site characterization data gaps:

- Defining the western and southwestern lateral extent of vinyl chloride exceedances in groundwater.
- Evaluating the downgradient portion of the groundwater plume including CVOC concentrations in soil and groundwater, soil physiochemical properties, and the estimated hydraulic conductivities and groundwater velocity.

- Collecting additional data to evaluate the seasonal variability of groundwater elevations and gradients; trends in the CVOC plume size, location, and orientation over time; and the rate and spatial variability of contaminant natural attenuation in groundwater.

This addendum describes the following:

- Additions to the monitoring well network.
- Revisions to the monitoring well sampling program.
- Revisions to the aquifer testing program.

The proposed modifications are discussed further in the following sections.

Monitoring Well Network

A total of eight new permanent monitoring wells (FL358-MW15 to FL358-MW22) will be installed west, south, northwest and southwest of the Y Pay Mor groundwater contaminant plume. The proposed wells, the purpose of each well, and the planned exploration boring soil sample analyses are presented in Tables 1 and 2. The locations of the proposed new wells are shown on Figures 2 and 3. Each boring will be extended to a depth corresponding to the top of the confining silt layer. The wells are planned to be installed with the bottom of the well screen positioned at the top of the confining silt layer.

The proposed borings will be completed using hollow-stem auger (HSA) drilling methods and constructed with a 20-foot-long well screen, as described in the SAP update in Appendix A. The proposed wells will be developed and surveyed in general accordance with procedures described in the 2021 RI Work Plan SAP and QAPP.

In addition to the installation of new wells, the existing wells will be redeveloped as a preventative maintenance measure to remove any sediment buildup in the wells.

Monitoring Program

The revised groundwater monitoring program and associated analytical methods are described in Table 2; proposed changes are summarized below. Groundwater monitoring will be completed in general accordance with procedures described in the 2021 RI Work Plan SAP and QAPP.

- **Add New Monitoring Wells to the Groundwater Monitoring Program.** The eight new monitoring wells discussed above will be incorporated into the routine groundwater monitoring program. Chemical analyses planned for groundwater samples from the proposed new wells will be similar to the analytical testing program completed for groundwater samples from the existing wells, as shown in Table 2.
- **Add Monitoring Events.** Quarterly groundwater monitoring was completed in 2023 and will continue throughout 2024. The groundwater monitoring program after 2024 may be modified depending on Site characterization data available at that time.
- **Monitored Natural Attenuation (MNA) Parameters.** Sulfate and chloride analyses will be added to the analytical program for groundwater samples collected from the 11 existing monitoring wells and the

eight proposed new monitoring wells. Dehalococcoides (DHC) content in groundwater was measured in March 2023 in existing wells. A measurement of bacterial content including DHC will be completed on select wells in 2024.

Aquifer Tests

Three slug tests will be performed on wells FL358-MW13, FL358-MW18, and FL358-MW22 following installation of the proposed new wells. The slug test locations were selected to evaluate the hydraulic conductivity in the downgradient areas of the CVOC plume and will be completed during the wet season (approximately October through May) to document aquifer conditions during the months with higher relative groundwater levels. The slug tests will be completed in general accordance with procedures described in the 2021 RI Work Plan SAP.

Closing

We appreciate your continued coordination and technical assistance at the Y Pay Mor Site as Sound Transit pursues cleanup of the Site under the VCP.

Sincerely,
GeoEngineers, Inc.

Katy R. Ataktürk, LG
Environmental Scientist

Tricia S. DeOme, LHG
Environmental Geologist

Dana L. Carlisle, PE
Principal Environmental Engineer

KRA:TSD:DLC:ch

Attachments:
Table 1. Summary of Proposed New Monitoring Wells
Table 2. Summary of Monitoring Well Network and Planned Analyses
Figure 1. Vicinity Map
Figure 2. Site Plan
Figure 3. Proposed Additional Wells
Attachment A. Revisions to 2021 RI Work Plan Sampling and Analysis Plan (SAP)

Table 1

Summary of Proposed New Monitoring Wells

FL358 Y Pay Mor RI Work Plan Addendum

Federal Way, Washington

Proposed Monitoring Well Identification	Diameter of Well	Purpose	Final Ground Surface Elevation Based on Construction Plans[1]	Anticipated Elevation at Base of Boring (feet)[2]	Anticipated Boring Depth[2] (feet bgs)	Anticipated Screened Interval[2] (feet bgs)
FL358-MW15	2-inch	Evaluate northwestern extent of PCE in groundwater (FL358-MW13) and PCE, TCE, and cis-DCE in soil (boring 358-B3)	433	395	38	18 to 38
FL358-MW16	2-inch	Evaluate the western extent of vinyl chloride in groundwater (FL358-MW12)	433	395	38	18 to 38
FL358-MW17	2-inch	Evaluate groundwater conditions and western extent of vinyl chloride in groundwater and (FL358-MW7 and FL358-MW12) and cis-DCE in soil (boring 358-B15)	434	395	39	19 to 39
FL358-MW18	2-inch	Evaluate groundwater conditions and western extent of vinyl chloride in groundwater and (FL358-MW7 and FL358-MW12) and cis-DCE in soil (confirmation sample 358-PEX-71)	435	395	40	20 to 40
FL358-MW19	2-inch	Evaluate groundwater conditions and western extent of vinyl chloride (FL358-MW10)	437	395	42	22 to 42
FL358-MW20	2-inch	If vinyl chloride is detected in FL358-MW17 through FL358-MW19, this monitoring well is intended to evaluate the western extent of vinyl chloride	434	395	39	19 to 39
FL358-MW21	2-inch	If vinyl chloride is detected in FL358-MW17 through FL358-MW19, this monitoring well is intended to evaluate the extent of western extent of vinyl chloride	435	395	40	20 to 40
FL358-MW22	2-inch	If vinyl chloride is detected in FL358-MW17 through FL358-MW19, this monitoring well is intended to evaluate the western extent of vinyl chloride	430	395	35	15 to 35

Notes:

[1] Ground surface elevation after final grading is based on F200 Federal Way Link Extension Contract number RTA/CN 0009-17 Civil Roadway Paving and Grading Plan S 317th Street and 23rd Avenue South (Package S3.15).

[2] Each boring will be extended to a depth corresponding to the top of the confining silt layer. The wells are planned to be installed with a 20-foot-long well screen with the bottom of the well screen positioned at the top of confining silt layer. The depths and elevations shown are anticipated based on surrounding conditions.

Elevation datum is NAVD88

bgs = below ground surface

PCE = tetrachloroethene

TCE = trichloroethene

cis-DCE = 1,2-cis-dichloroethene

Table 2

Summary of Monitoring Well Network and Planned Analyses

FL358 Y Pay Mor RI Work Plan Addendum

Federal Way, Washington

Location Identification[1]	Installation Date	Exploratory Method	Soil Analysis[2]		Groundwater Analysis[3]				Slug Test
			VOCs[4]	Physiochemical Properties[5]	VOCs[4]	Dissolved Gases[6]	MNA Parameters[7]	Bacterial Analysis[8]	
Existing Remedial Investigation Wells (Shannon & Wilson 2022)									
FL358-MW5A	06/22/2022	Sonic	Completed in 2022	--	Quarterly			QuantArray®	Completed in 2022
FL358-MW5B	06/21/2022		Completed in 2022	Completed in 2022				--	Completed in 2022
FL358-MW6	06/21/2022		Completed in 2022	Completed in 2022				--	Completed in 2022
FL358-MW7	06/20/2022		--	--				--	--
FL358-MW8	06/15/2022		Completed in 2022	--				--	--
FL358-MW9	06/16/2022		Completed in 2022	--				--	--
FL358-MW10	06/13/2022		--	--				--	--
FL358-MW11	06/14/2022		--	--				QuantArray®	--
FL358-MW12	06/20/2022		--	--				--	--
FL358-MW13	06/14/2022		--	--				--	Planned in 2024
FL358-MW14	06/15/2022		Completed in 2022	--				--	Completed in 2022
Proposed Additional Remedial Investigation Wells									
FL358-MW15	--	Hollow Stem Auger	Sample at Elevations: - 410 feet - 405 feet - 400 feet - bottom of boring	--	Quarterly			--	--
FL358-MW16	--		--	--				--	--
FL358-MW17	--		Sample at Elevations: - 405 feet - 400 feet - bottom of boring	--				--	--
FL358-MW18	--		Sample at Elevations: - 405 feet - 400 feet - bottom of boring	Samples within organic silt layer (if encountered), shallow water-bearing unit, and the deeper confining unit (if encountered)				QuantArray®	Planned in 2024
FL358-MW19	--		--	--				--	--
FL358-MW20	--		--	--				--	--
FL358-MW21	--		--	--				--	--
FL358-MW22	--		--	--				--	Planned in 2024

Notes:

[1] Approximate monitoring well locations are shown on Figures 2 and 3.

[2] Quality control and quality assurance procedures will be in accordance with the Quality Assurance Project Plan in the 2021 Remedial Investigation Work Plan.

[3] Groundwater analysis was completed in 2023 and March and June 2024. Groundwater analysis is planned in September and December 2024. Additional analyses may be completed in 2025 as necessary. Quality control and quality assurance procedures will be in accordance with the Quality Assurance Project Plan in the 2021 Remedial Investigation Work Plan.

[4] The volatile organic compounds (VOCs) that will be analyzed in soil and groundwater include tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, 1,1-dichloroethene, and vinyl chloride. VOCs will be analyzed by United Stated Environmental Protection Agency (EPA) method 8260.

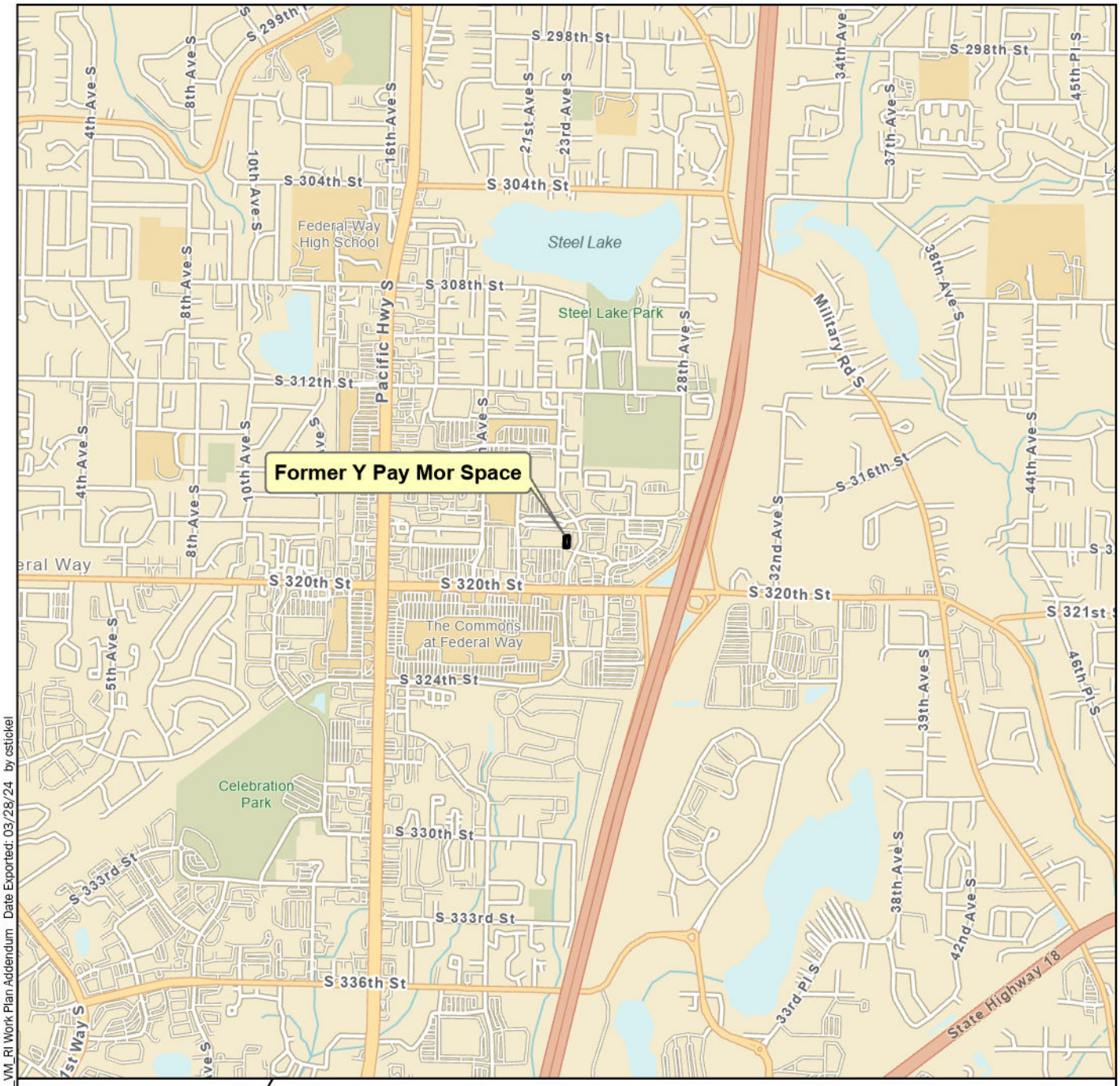
[5] Physiochemical properties include grain size distribution analyzed by ASTM D422, pH by SW-846 9045D, moisture content by (calculated based on total solid results analyzed by Standard Method [SM] SM 2540 G), soil bulk density by ASTM International (ASTM) D248, and total organic carbon content Solid Waste method SW846 9060.

[6] Dissolved gases analysis includes ethene, ethane, methane, and acetylene by RSK-175.

[7] Monitored natural attenuation (MNA) parameters that will be analyzed include total organic carbon by SM 5310B, total iron by EPA method 6010D, ammonia by SM 4500-NH3, nitrate by EPA 353.2, nitrite by EPA 353.2, sulfate by ASTM D516, chloride by SM 4500, and biochemical oxygen demand (BOD) by SM 5210B during each sampling event.

[8] DHC analysis was completed on existing wells in March 2023. Additional microbial analysis consisting of Microbial Insights QuantArray® is planned once in 2024 after the installation of the new wells.

VOCs = volatile organic compounds
MNA = monitored natural attenuation
bgs = below ground surface
-- = no analysis planned
EPA = United States Environmental Protection Agency
DHC = Dehalococcoides microbes
ASTM = ASTM International
SM = Standard Method



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0 2,000

Feet

Source(s):
- ESRI

Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Vicinity Map

Y Pay Mor
Federal Way, Washington

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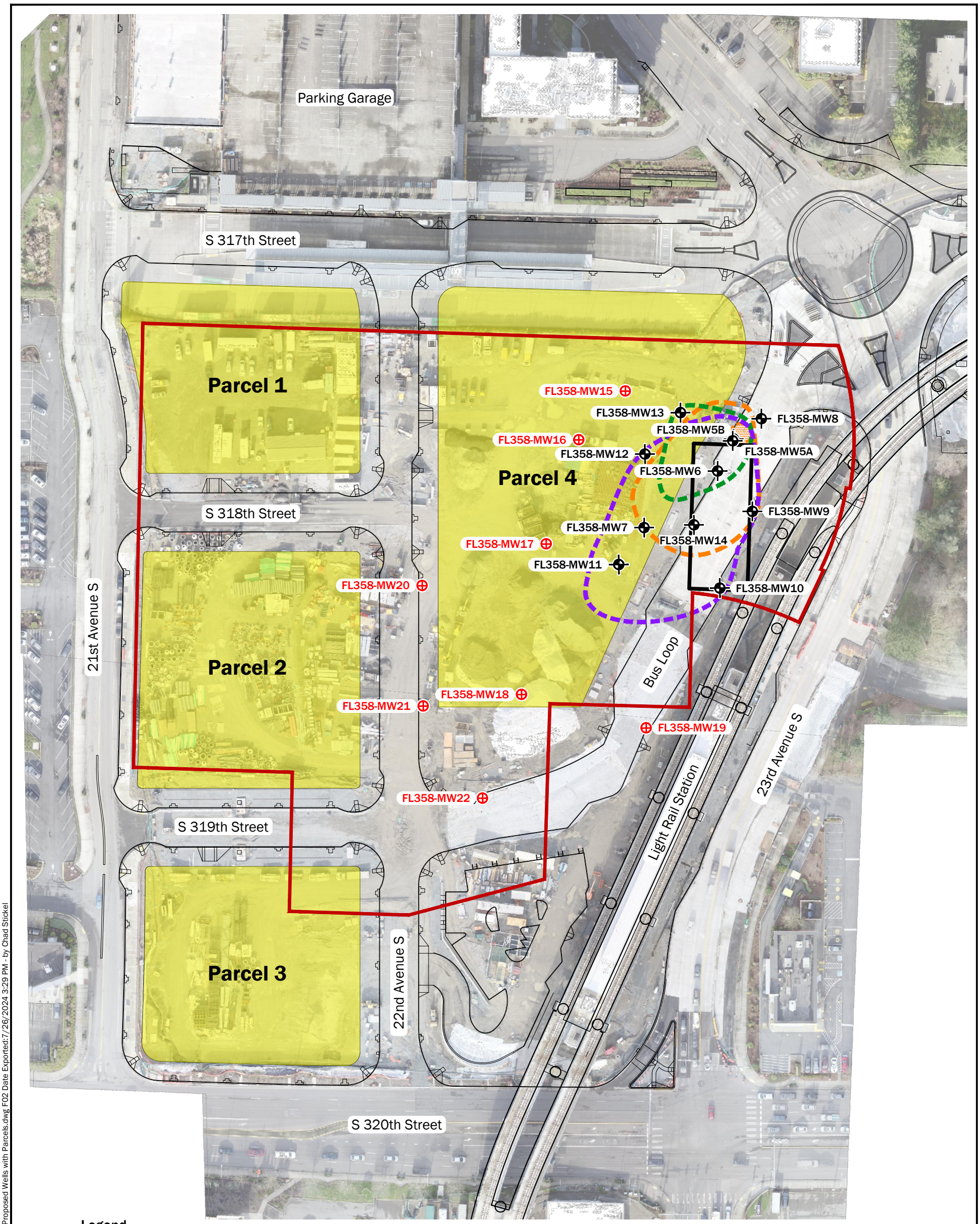
Figure 1



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Legend

- Surplus Property (Potential TOD)
- FL358 Parcel Boundary
- Former Y Pay Mor Cleaners
- Existing Monitoring Well
- Proposed Monitoring Well
- CVOC Soil Plume Boundary (Post-2020 Remedial Excavation)
- Approximate Area of PCE-Contaminated Soil Greater Than 20 Times PCUL
- Approximate Extent of PCE in Groundwater at Concentrations Greater than the PCUL During the 2023 Sampling Events
- Approximate Extent of Vinyl Chloride in Groundwater at Concentrations Greater than the PCUL During the 2023 Sampling Events

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Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. TOD = Transit Oriented Development
4. Features and infrastructure shown are proposed or currently under construction.

Data Sources:

- Design plans S3.15 S07-CDP536, S07-UCP336 dated October 28, 2021 completed by Kiewit/Parsons
- Aerial from Furtado & Associates dated 1/20/2024

Projection: Project Datum Washington State Planes, North Zone, US Foot.

Site Plan

Y Pay Mor Site
Federal Way, Washington

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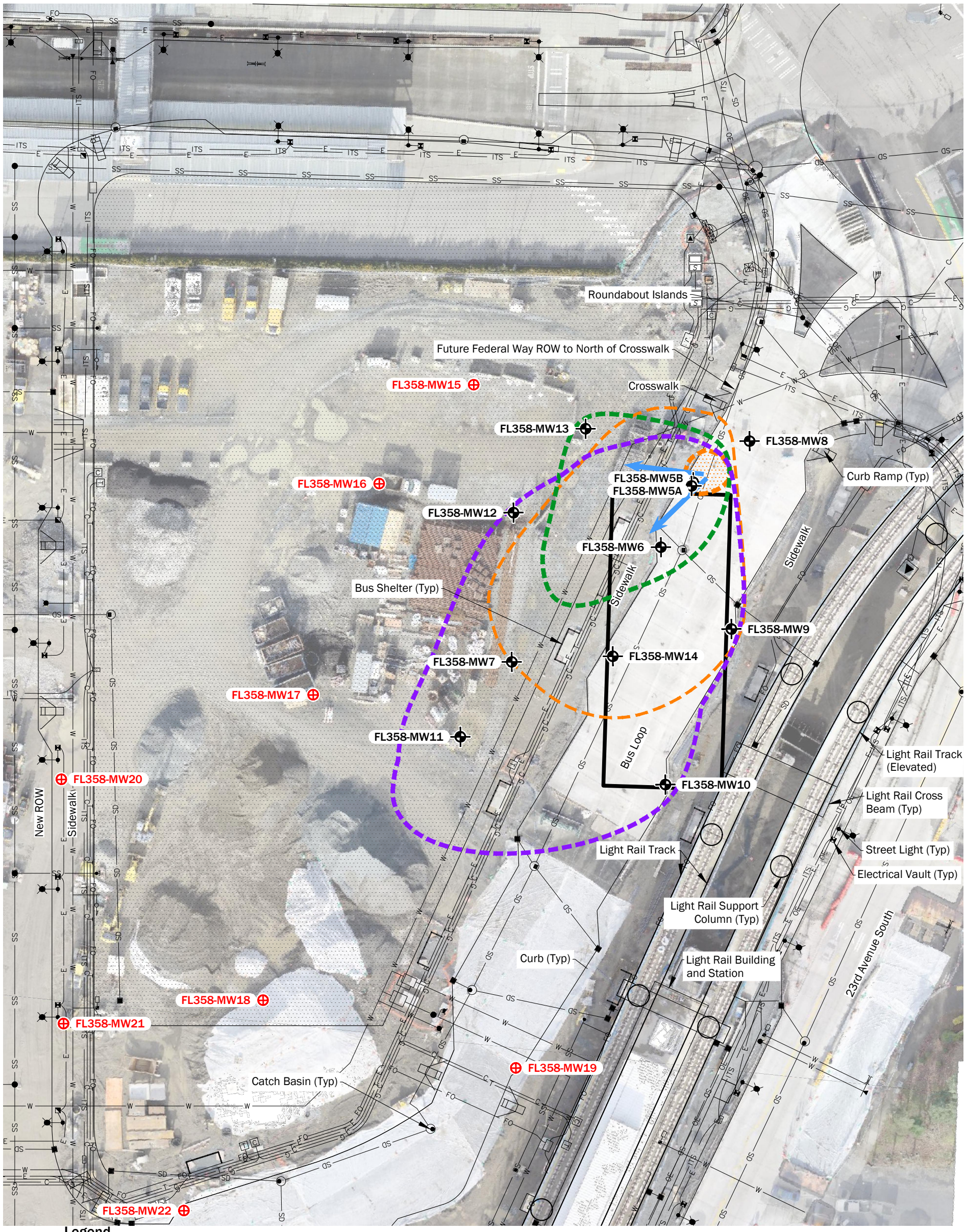
Figure 2



Legend

- Former Y Pay Mor Cleaners
- Surplus Property Boundary (Potential TOD) To Remain Unpaved Until Development
- Proposed Monitoring Well
- Existing Monitoring Well
- Approximate Groundwater Flow Direction of Shallow Aquifer (variable range shown)
- CVOC Soil Plume Boundary (Post-2020 Remedial Excavation)
- Approximate Area of PCE-Contaminated Soil Greater Than 20 Times PCUL
- Approximate Extent of PCE in Groundwater at Concentrations Greater than the PCUL During the 2023 Sampling Events
- Approximate Extent of Vinyl Chloride in Groundwater at Concentrations Greater than the PCUL During the 2023 Sampling Events

SS = Sanitary Sewer Utility
SD = Stormwater Utility
W = Water Utility
E = Underground Electrical Utility
OE = Overhead Electrical Utility
FO = Fiber Optic Utility
T = Telephone Utility
G = Gas Utility
C = Communication Utility
ITS = Conduit

N W E S

50 0 50
Feet

Notes:

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3. PCUL= Preliminary Cleanup Level, PCE = tetrachloroethene, ROW = right of way
4. Features and infrastructure shown are proposed or currently under construction.

Data Sources:

- Design plans S3.15 S07-CDP536, S07-UCP336 dated October 28, 2021 completed by Kiewit/Parsons
- Aerial from Furtado & Associates dated 1/20/2024

Projection: Project Datum Washington State Planes, North Zone, US Foot.

Proposed Additional Wells

Y Pay Mor Site
Federal Way, Washington

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Figure 3

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Attachment A

Revisions to 2021 RI Work Plan Sampling and Analysis Plan (SAP)

Attachment A –
Revisions to 2021 RI Work Plan SAP

SOIL SAMPLING AND DRILLING METHODOLOGY

Soil borings will be advanced by a licensed driller using hollow-stem auger equipment. Soil samples will be collected using either a 2-inch, outside-diameter, split spoon sampler or a 2½-inch, inside-diameter California-style split barrel sampler driven into the relatively undisturbed soil using a 140 pound-hammer free falling approximately 30 inches.

GROUNDWATER MONITORING WELL INSTALLATION

Groundwater monitoring wells will be constructed by licensed driller in accordance with the Minimum Standards for Construction and Maintenance of Wells (Chapter 173-160 Washington Administrative Code [WAC]). Monitoring well installation will be observed by a geologist or engineer who will maintain a detailed log of the construction materials and well depths. Proposed screen depths for well construction are presented in Table 1.

The monitoring wells will be constructed using 2-inch-diameter, flush-threaded Schedule 40 polyvinyl chloride (PVC) casing with machine-slotted PVC screen (0.010-inch slot width). The wells are planned to be installed with a 20-foot-long well screen with the bottom of the well screen positioned at the top of confining silt layer. Anticipated screened intervals are presented in Table 1. Actual well screen intervals will be based on field conditions observed at the time of drilling. Drillers will submit resource protection well notification and construction documents to Ecology as required.