STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, Washington 98504-7600 • 360-407-6300

July 19, 2023

Brady Thomson
Goodman Real Estate Company
11611 San Vicente Boulevard, 10th Floor
Los Angeles, CA 90049
bthomson@fortess.com

Re: Opinion on Proposed Cleanup of a Property Associated with the following Site:

Site Name:	Washington Cold Storage
Site Address:	240 15th St SE, Puyallup, Pierce County, WA 98372
Facility/Site ID:	99997041
Cleanup Site ID:	16703
VCP Project ID:	XS0012
Parcel Nos:	0420274126, 7845000161, 7845000170

Dear Brady Thomson:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your proposed independent cleanup a property associated with the Washington Cold Storage site (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA),[1] chapter 70A.305 Revised Code of Washington (RCW).[2]

Opinion

Ecology has determined that, upon completion of your proposed cleanup, no further remedial action will likely be necessary at the Property to clean up contamination associated with the Site.[3] However, further remedial action remains necessary elsewhere at the Site to clean up contamination.

[1] https://apps.ecology.wa.gov/publications/SummaryPages/9406.html
[2] https://app.leg.wa.gov/rcw/default.aspx?cite=70A.305
[3] Note that achieving cleanup levels via the proposed remedial technologies and methods carries uncertainties. Determination of no further action by Ecology will be contingent on sampling results confirming that MTCA cleanup levels have been achieved at selected points of compliance.

This determination is dependent on yet-to be determined factors such as:

- Ecology's concurrence on the definition of the downgradient extent of contamination (additional data is needed to define the downgradient extent).
- Submittal to and concurrence by Ecology on a Basis of Design/Injection Plan document(s) that provides details of the injection design proposed for containment/cleanup of contaminated groundwater beneath the Property.
- Submittal to and concurrence by Ecology of a Basis of Design/Vapor Barrier Plan document(s) that provides details of the vapor barrier proposed for the planned building on the Property.
- Submittal to and concurrence by Ecology of a Compliance Monitoring Plan and completion of monitoring demonstrating cleanup levels have been achieved at selected points of compliance.
- Completion of the proposed cleanup work and submittal to and concurrence by Ecology on a Cleanup Action Completion Report documenting the cleanup work.
- Implementation of engineered and institutional controls memorialized within a recorded environmental covenant (EC) signed by Ecology.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, chapter 70A.305 RCW, and its implementing regulations, Washington Administrative Code (WAC) chapter 173-340[4] (collectively "substantive requirements of MTCA"). The analysis is provided below.

Summary of Opinion

Contamination releases to soil and groundwater occurred at the Site. This included petroleum (diesel-, gasoline-, and heavy oil-range); benzene; the chlorinated solvent compounds tetrachloroethene (PCE), trichloroethene (TCE), and *cis*-1,2-dichloroethene (cDCE); and per- and polyfluoroalkyl substances (PFAS). The contamination releases were identified following a fire that burned down a large warehouse and freezer building at the Site on August 21, 2021. No petroleum or chlorinated solvents were reported to be stored or used at the Property.

[4] https://apps.leg.wa.gov/WAC/default.aspx?cite=173-340

According to the remedial investigation/focused feasibility study and cleanup action plan (RI/FFS/CAP) submitted to Ecology for the Site:[5]

> *At the time of the fire, the warehouse building reportedly contained over 1,000 pounds of anhydrous ammonia, and large quantities of combustible products, causing the fire to burn for several days. Due to the size of the fire, the fire department from Joint Base Lewis-McChord (JBLM) assisted with firefighting activities with the use of aqueous firefighting foam (AFFF). Records were requested from JBLM to evaluate whether the AFFF used on the Property contained per- and polyfluoroalkyl substances (PFAS), but to date, no information regarding the contents of the AFFF has been received.*

Groundwater Contamination

Groundwater is present in sandy soils at a relatively shallow depth at the Site (between 1.7 and 10.6 feet below ground surface [ft bgs]). Maximum concentrations of diesel-range petroleum, benzene, PCE, and TCE in November 2021 and April 2023 are listed in Table 1:

Table 1. Change in Groundwater Contaminant Concentrations – 2021 to 2023

Contaminant	Method A Cleanup Level (µg/L)[1]	Maximum Concentration November 2021 (µg/L)	Maximum Concentration Feb-April 2023 (µg/L)
Diesel-Range Petroleum	500	**4,510**	481
Benzene	5	**137**	**8.6**
PCE	5	NS	3.4
TCE	5	NS	**9.4**
cDCE	16[2]	NS	**39.5**

Bold results indicated maximum greater than the Method A cleanup level.
NS = Location with chlorinated volatile organic compound (CVOCs) in groundwater not sampled in 2021.
1 – µg/L = micrograms per Liter.
2 – Method B cleanup level.

As shown in Table 1, significant concentration reductions for diesel-range petroleum and benzene occurred between 2021 and 2023. Most recent sampling results indicate MTCA cleanup level exceedances only for benzene at MW-1 and MW-7, and TCE and cDCE at FMW-10.

In addition to the contaminants listed in Table 1, groundwater exceedances concerns were found at three sampling locations for PFAS compounds. These exceedances are further discussed in a later section of this letter.

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[5] *Remedial Investigation/Focused Feasibility Study and Cleanup Action Plan, Former Washington Cold Storage Building*, prepared by Farallon, May 12, 2023.

Soil Contamination

Maximum concentrations for contaminants in soil are summarized in Table 2:

Table 2. Soil Cleanup Level Exceedances

Contaminant	Method A Cleanup Level (mg/kg)[1]	Maximum Concentration (mg/kg)	Number of Exceedances/ Samples
Diesel-Range Petroleum	2,000	<67	0/36
Heavy Oil-Range Petroleum	2,000	**26,100**	1/36
Benzene	0.03	**0.0760**	2/36
PCE	0.05	**0.0832**	1/23
TCE	0.03	**0.120**	2/23
PFOS	0.000170[2]	**0.000380**	1/3

Bold results indicated maximum greater than the Method A cleanup level.
1 – mg/kg = milligrams per kilogram.
2 – PFOS = Perfluorooctane Sulfonic Acid, Method B soil-protective-of-groundwater value.

Cleanup level exceedances in soil were limited to five locations on the Property (see Figure 12 in Enclosure A).

Soil Gas Contamination

Soil gas was characterized through passive vapor sampling. Exceedances of commercial-based sub-slab soil gas screening levels[6] are summarized in Table 3:

Table 3. Sub-Slab Soil Gas Screening Level Exceedances

Contaminant	Commercial-Based Screening Level (µg/m³)[1]	Maximum Concentration (µg/m³)	Exceedance Factor
Total Petroleum Hydrocarbons	13,000	2,500	0.2
Benzene	50	**1,050**	21
1,2-Dichloroethane (EDC)	15	**478**	32
PCE	1500	824	0.5
TCE	95	**711**	7.5

Bold results indicate maximum greater than the Method A cleanup level.
1 – µg/m³ = micrograms per cubic meter.

Ecology notes that the screening level for TCE is based on an acute risk under an early life scenario. Based on the results presented in Table 3, potential vapor intrusion risks are present at the Site for benzene, TCE, and EDC. The need for vapor intrusion mitigation for future structure(s) at the Site is discussed later in this letter.

[6] https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

Focused Feasibility Study and Cleanup Plans

Screening of alternatives within the RI/FFS/CAP report is further discussed in a later section of this letter. Selected cleanup plans presented within the RI/FFS/CAP included the following components:

- Excavation and off-Site disposal of contaminated soil.
- Remedial injections for contaminated groundwater.
- Installation of a vapor barrier in areas of soil gas contamination within the planned warehouse structure.

Excavation and off-Site disposal is considered by Ecology to be a permanent solution under MTCA and no feasibility study (FS) or disproportionate cost analysis (DCA) is therefore needed for that work. Sufficiency of cleanup of contaminated soil will be demonstrated through confirmation soil sampling and submittal of disposal receipts to Ecology. Ecology concurs with excavation and off-Site disposal to address the contaminated unsaturated soils.

The proposed remedial injections include activated carbon, which serves to immobilize the contamination, plus additives to enhance biodegradation. Therefore, the proposed remedy includes elements of both contaminant immobilization and destruction. Ecology concurs with the proposed remedial injection approach but notes that the success of such injection will be based on achieving cleanup levels at selected points of compliance. Additional discussion regarding injection remediation of contaminated groundwater is provided in a later section of this letter.

Ecology concurs that the installation of a vapor barrier is appropriate to mitigate potential vapor intrusion concerns. Vapor intrusion mitigation is further discussed in a later section of this letter.

Institutional Controls and Environmental Covenant

Because a component of the remedial action involves immobilization of contaminated groundwater, and because contaminant vapor could potentially remain following the proposed cleanup work, institutional controls memorialized within an EC are anticipated to be required for a Site or Property no further action (NFA) determination. In addition, long-term groundwater monitoring and possibly indoor air monitoring are anticipated to be needed. Components of the EC and long-term monitoring are discussed in a later section of this letter.

Anticipated Deliverables

The following is a list of anticipated future deliverables for the Site that are further discussed below within this letter:

- Documentation of the downgradient extent and delineation of groundwater contamination.
- Injection Plan and Basis of Design.
- Vapor Barrier Plan and Basis of Design.
- Pre-NFA Performance Monitoring Data.
- Cleanup Action Completion Report.
- Compliance Monitoring Plan.
- Pre-NFA Compliance Monitoring Data.
- Recorded Environmental Covenant.
- Post-NFA Compliance Monitoring Report(s).

Property Description

This opinion only applies to the Property described in this section, which was affected by release(s) at the Site. The Property includes the following parcels, totaling 7.95 acres of real property in Pierce County:

- 0420274126 (5.298 acres)
- 7845000161 (2.533 acres)
- 7845000170 (0.119 acres)

The Property is abutted by 15th Street SE the east, BNSF Railroad to the south, and private parcels to the west, and north. Beyond BNSF Railroad to the south is East Pioneer Avenue.

Site Description

This opinion applies to only the Site described in this section. The Site is defined by the nature and extent of contamination associated with the following releases:

- Petroleum Diesel-range (DRO) and Gasoline-range (GRO) into the groundwater and potentially air.
- Petroleum Heavy oil-range (ORO) into the soil and groundwater.
- Benzene into the soil, groundwater, and potentially air.
- Tetrachloroethene (PCE) into the soil.
- Trichloroethene (TCE) into the soil, groundwater, and potentially air.
- *cis*-1,2-dichloroethene (cDCE) into groundwater and potentially air.
- 1,2-Dichloroethane (EDC) potentially into the air.
- PFAS compounds into the soil and groundwater.

Enclosure A includes a detailed description and diagrams of the Site, as currently known to Ecology.

Please note a parcel of real property can be affected by multiple sites. At this time, Ecology has no information that the Property is affected by other sites.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. Farallon. Email submittal, PFAS in Groundwater Results. June 29, 2023.
2. Farallon. *Remedial Investigation/Focused Feasibility Study and Cleanup Action Plan, Former Washington Cold Storage Building.* May 12, 2023.
3. Atlas. *Interim Remedial Investigation Report, Former Washington Cold Storage Facility.* January 20, 2022.
4. Atlas. *Phase I Environmental Site Assessment, Former Washington Cold Storage Facility.* October 18, 2021.

You can request these documents by filing a records request.[7] For help making a request, contact the Public Records Officer[8] at or call 360-407-6040. Before making a request, check whether the documents are available on Ecology's Cleanup Site Search web page.[9]

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Proposed Cleanup

Ecology has concluded that, upon completion of your proposed cleanup, **no further remedial action** will likely be necessary at the Property to clean up contamination associated with the Site. That conclusion is based on the following analysis:

Characterizing the Site

Ecology has determined your completed Site characterization is sufficient for setting cleanup standards for the Site and selecting a cleanup action for the Property. The Site is described above and in **Enclosure A.** However, additional characterization is needed to define the extent of groundwater contamination downgradient of the Property.

Site Contaminant Sources

Exact sources of the petroleum, benzene, and chlorinated solvents in soil and groundwater are unknown but are suspected to have been released during the 2021 fire. The PFAS compounds in soil and groundwater are suspected to have originated from the aqueous firefighting foam (AFFF) used during the 2021 fire response.

Soil Characterization

The extent of soil contamination appears to be sufficiently defined for the selection of cleanup levels and cleanup actions at the Site. A total of 85 soil samples were collected from 49 locations in 2021-2023 on the Property. Soil samples were collected at depths between 0.5 and 24 feet below ground surface (ft bgs).

[7] https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests
[8] publicrecordsofficer@ecy.wa.gov
[9] https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=16703

The soil samples were analyzed for gasoline-, diesel-, and heavy oil-range petroleum hydrocarbons (GRO, DRO, and ORO) and benzene, toluene, ethylbenzene, and xylenes (BTEX). Selected soil samples were also analyzed for CVOCs, carcinogenic polycyclic aromatic hydrocarbons (CPAHs), dioxins/furans, and PFAS compounds.

Cleanup level exceedance for petroleum, benzene, PCE, and TCE were listed above in Table 2. Four locations had cleanup level exceedances for one or more of these constituents (see Figure 12 in Enclosure A). In addition, one location had a cleanup level exceedance for a PFAS compound. Perfluorooctane Sulfonic Acid (PFOS) was detected at 0.000380 milligrams per kilogram (mg/kg), exceeding the Method B soil-protective-of-groundwater-based concentration of 0.000170 mg/kg at location A-1 at a depth of 0.5 ft bgs, in the northwest part of the Property.

Groundwater Characterization

Groundwater is found at the Site at a depth of approximately between 1.7 and 10.6 ft bgs. In 2021, a significant number of sampling locations had DRO concentrations exceeding the Method A cleanup level of 500 micrograms per Liter (µg/L). However, in April 2023, the maximum DRO concentration was 480 µg/L. Similarly, the maximum benzene concentration dropped from 137 µg/L in 2021 to 8.6 µg/L in 2023. It appears that the DRO and benzene in groundwater have undergone significant natural attenuation between 2021 and 2023.

TCE was found in groundwater at one location (FMW-10) in 2023 at 9.4 µg/L, exceeding the Method A cleanup level of 5 µg/L. In addition, cDCE was detected in FMW-10 at 39.5 µg/L. The cDCE in groundwater is likely a result of anerobic dehalogenation of TCE and therefore suggests that biodegradation is likely taking place at location FMW-10.

The PFAS compounds Perfluorooctanoic Acid (PFOA), Perfluorooctane Sulfonic Acid (PFOS), Perfluorononanoic Acid (PFNA) were found in groundwater above the Method B cleanup level at location A-7 in 2021. One of these compounds, PFOA, was detected at a concentration above the Method B cleanup level at nearby monitoring well MW-4 in 2023. These two locations are in the southeastern part of the Property.

Additional groundwater sampling for PFAS was done in June 2023. This additional sampling round resulted in one additional location (MW-2) with PFOS in groundwater above cleanup levels, and additional PFAS compounds detected in MW-4 above cleanup levels.

Table 4 summarizes groundwater cleanup level exceedances in 2023:

Table 4. Groundwater Cleanup Level Exceedances in 2023

Location of Exceedance	Contaminant	Concentration (µg/L)	Cleanup Level (µg/L)
MW-1	Benzene	**5.2**	5
MW-7	Benzene	**8.6**	5
FMW-10	TCE	**9.4**	5
	CDCE	**39.5**	16
MW-3	PFOS	**53**	15/48[1]
MW-4	PFOA	**19**	10/48[1]
	PFOS	**16**	15/48[1]
	PFNA	**16**	9/40[1]

1 – Washington State Action Level and Method B Cleanup Level, respectively.

The downgradient (off-Property) extent of contamination has not yet been defined. **Ecology cannot issue a Property-Specific NFA determination until the downgradient extent of groundwater contamination has been sufficiently defined.**

Vapor Intrusion Potential

The presence of volatile contaminants in soil and groundwater at the Site have potential to present a risk of vapor intrusion. Contaminants that present a risk of vapor intrusion include benzene, EDC, PCE, TCE, cDCE, GRO, and to a lesser extent, DRO. Passive vapor sampling that was conducted at the Site resulted in isoconcentration maps being generated for selected contaminants. As discussed above, only benzene, EDC, and TCE had vapor concentrations exceeding commercial-based sub-slab screening levels. A warehouse including limited office space is currently being planned for the Property. Based on these soil vapor sampling results, the vapor intrusion pathway is potentially complete, and further actions are warranted to ensure no risk of indoor air cleanup level exceedances in the future.

Setting cleanup standards and points of compliance

Cleanup Standards

Ecology has determined the cleanup levels and points of compliance presented below meet the substantive requirements of MTCA. The following cleanup levels and screening levels are suggested for the Site:

Table 5. Cleanup Levels & Screening Level for Soil, Groundwater, and Indoor Air

Contaminant	Cleanup Level for Soil (Industrial) (mg/kg)	Cleanup Level for Groundwater (µg/L)	Method B Sub-Slab Screening Level (Commercial) (µg/m³)	Method B Indoor Air Screening Level (Commercial) (µg/m³)
DRO	2,000[1]	500[1]	13,000[2]	390[2]
ORO	2,000[1]	500[1]	NA	NA
Benzene	0.03	5[1]	50	1.5
EDC	0.023[4]	5[1]	15	0.45
PCE	0.05[1]	5[1]	1,500	44.92
TCE	0.03[1]	5[1]	95	2.85
cDCE	160[3]	16[3]	5,200	155.7
PFOA	63[4]	10/48[5]	NA	NA
PFOS	170[4]	15/48[5]	NA	NA
PFNA	180[4]	9/40[5]	NA	NA

1 – Method A cleanup level.
2 – Generic screening level for total petroleum hydrocarbons (TPH).
3 – No Method A cleanup level available for cDCE in soil or groundwater. The Method B cleanup level is provided.
4 – Method B, soil-protective-of-groundwater concentration.
5 – Washington State Action Level and Method B Cleanup Level, respectively.
NA = not applicable – constituent has low vapor pressure that results in relatively low risk to indoor air.

Ecology notes that MTCA provides for use of lower cleanup levels in case of potential cumulative toxicological effects.[10] Ecology cannot conclude that the Site contaminants do not have potential for cumulative toxicity. However, rather than applying more restrictive cleanup levels to address such potential, Ecology asserts the need to ensure that all potential exposure pathways are permanently closed at the Site.

Ecology also notes that application of commercial-based screening levels would require an environmental covenant that stipulates commercial use of the Property in perpetuity.

PFAS compounds in groundwater include Washington State Action Levels (SALs) and Method B cleanup levels. Ecology intends to evaluate whether the DOH SALs are "relevant and appropriate requirements" on a site-by-site basis using the criteria in WAC 173-340-710(4). No determination has yet been made for the Washington Cold Storage Site with respect to application of SALs. The potential application of SALs for PFAS in groundwater will be determined following Ecology's review of deliverable documents listed above, including the Injection Plan and Basis of Design and Compliance Monitoring Plan.

[10] WAC 173-340-708(5)

Points of Compliance

The points of compliance are throughout the Site. Cleanup levels based on the direct contact pathway apply to soils to a depth of 15 ft bgs. Cleanup levels based on the soil-to-groundwater pathway apply without respect to depth. There is potential for conditional points of compliance (CPOCs) to be applied for groundwater at the Site. The use of such CPOCs will be determined following Ecology's review of deliverable documents listed above, including the Injection Plan and Basis of Design and Compliance Monitoring Plan.

Terrestrial Ecological Evaluation (TEE)

The Site is located in an area of Puyallup with commercial and light industrial land uses to the west, north, and east, and residential neighborhoods south of East Pioneer Avenue to the south. No open space is located within 500 feet, except for a forested buffer on a tributary of the Puyallup River that is located approximately 300 feet east of the Site. This forested buffer is approximately 3.0 acres in area. Based on completion of a simplified TEE[11] using MTCA Table 749-1, the TEE process can be ended.

Following completion of the proposed cleanup, all contaminated soils are anticipated be removed. If any contaminated soils do remain, such soils will all be covered by a structure or paving. No further evaluation of ecological concerns appears to be warranted for the Site.

Selecting the cleanup action

Ecology has determined the cleanup action you selected for the Property meets the substantive requirements of MTCA. The cleanup action selected within the RI/FFS/CAP report include the following components:

- Excavation and off-Site disposal of contaminated soil.
- Remedial injections for contaminated groundwater.
- Installation of a vapor barrier in areas of soil gas contamination within the planned warehouse structure.

[11] WAC 173-340-7492(2)(a)(ii)

Proposed Cleanup of Soil

As discussed above, excavation and off-Site disposal of contaminated soil is considered a permanent solution under MTCA, and no FS or DCA is required for the selection of that component of cleanup. Documentation of the soil cleanup should be provided within a Cleanup Action Completion Report, including confirmation soil sampling results and disposal receipts.

Proposed Cleanup of Groundwater

Options for cleanup of groundwater are more complex. Groundwater cleanup can include technologies that are destructive or result in containment. Technologies that result in complete destruction of contaminants are arguably more permanent than technologies that rely on contaminant containment. For the petroleum, benzene, and CVOCs in groundwater, there are several potential cleanup approaches based on contaminant destruction. However, cleanup of PFAS in groundwater is a relatively new technical area and no technologies have apparently been developed that are known to ensure contaminant destruction. Pump-and-treat followed by water treatment is a potential approach that could be considered; however, pump-and-treat carries performance uncertainties (both in capture and treatment) as well as significant operations and maintenance requirements.

The RI/FFS/CAP proposed an approach that combines containment and destructive elements via remedial injections. An activated carbon injectate can result in enhanced sorption of the dissolved contaminants, thus immobilizing the contamination. Additives within the injectate can enhance biodegradation of the petroleum, benzene, and CVOCs. Ecology notes that biodegradation of petroleum and benzene is typically more rapid under aerobic conditions, whereas biodegradation of CVOCs is typically more rapid under anaerobic/methanogenic conditions. There are additional biodegradation mechanisms such as when both types of contaminants are present. Selecting appropriate injectate additives within the Site involves consideration of contaminant distributions, hydrogeology, and geochemistry.

Ecology has concluded that the proposed injection approach appears to be an appropriate approach to address the groundwater contamination beneath the Property. Because of the complexities and uncertainties associated with groundwater cleanup at the Site, and because contaminated soil will be cleaned up using permanent solutions, Ecology has waived the requirement for a Disproportionate Cost Analysis (DCA).[12] However, if the selected cleanup option does not result in achieving Site cleanup levels at selected points of compliance, then contingency plans will be needed.

[12] See WAC 173-340-360 (3) (b)

Underground injection control (UIC) authorization[13] from Ecology's Water Quality Program is required for remedial injection, and Ecology Toxics Cleanup Program (TCP) should be copied on any substantive UIC-related correspondence. Ecology TCP also requests submittal of an Injection Plan and Basis of Design that includes the specific injectates to be applied at specific locations within the Site, and analyses supporting injection design. Pilot testing may be needed to support final injection design.

Elements of the Basis of Design should include the groundwater geochemistry, anticipated effects of proposed injectates on groundwater geochemistry and targeted contaminants, the basis of the injection spacing and injectate volumes, vertical injection intervals, how daylighting of injected material will be controlled, and proposed performance monitoring locations.

Measurement of success of the injection will be based on groundwater monitoring results meeting cleanup levels following injection. A minimum setback between monitoring points and performance/compliance monitoring wells should be established to demonstrate a radius of influence from the injection locations.

The monitoring wells that comprise the performance/ compliance monitoring network will be reviewed by Ecology following the submittal of the Injection Plan and Basis of Design and a Compliance Monitoring Plan. Because the groundwater cleanup plan involves contaminant containment, a plan that provides for long-term groundwater monitoring following issue of an NFA determination is anticipated to be needed.

Potential Natural Attenuation Component of Cleanup

As discussed above, DRO and benzene concentrations in groundwater have dropped considerably between 2021 and 2023. In addition, TCE is apparently undergoing dehalogenation to cDCE at location FMW-10. Hence, natural attenuation in groundwater is apparently taking place for DRO and benzene and may be taking place for TCE as well. It is not known if any natural attenuation processes other than advective dilution are taking place for the PFAS compounds. Therefore, the proposed injection remediation is particularly important for addressing the PFAS in groundwater contamination.

Proposed Vapor Intrusion Mitigation

Ecology understands that the planned warehouse structure will likely have significant atmospheric exchange when bay doors are open and that office space in the new building is expected to be limited. Nonetheless, vapor intrusion mitigation measures are warranted on the Property. Installation of a vapor barrier is proposed in areas of volatile contaminants in soil gas at

[13] WAC 173-218

concentrations above commercial-based sub-slab screening levels. A vapor barrier must be installed with care to ensure no punctures and that intentional penetrations are sufficiently sealed. Smoke testing is a method to demonstrate that installed vapor barriers do not have leaks. Potential lateral migration of vapors must be considered as well in designing a vapor intrusion mitigation system.

Aggregate materials beneath a slab-on-grade concrete pad can provide for potential vapor accumulation and lateral migration. Ecology highly recommends that sub-slab aggregate have locations where any vapor under pressure can discharge to the atmosphere outside of the building, thus preventing any pressure gradient building up across the slab (i.e., active, or passive sub-slab depressurization).

This approach coupled with the proposed vapor barrier is anticipated to provide sufficiently redundant protections. If the mitigation system relies solely on an installed vapor barrier, post installation indoor air monitoring may be required to demonstrate performance[14]. Post-construction indoor air monitoring is particularly important due to uncertainties regarding potential lateral migration of vapors beneath the slab and vapor barrier and to ensure that any potential acute risk from TCE vapors has been mitigated.

Another approach to ensure protectiveness would be to perform continued sub-slab soil gas monitoring following construction. If contaminant concentrations are less than the sub-slab screening levels, then the vapor intrusion pathway has potential to be demonstrated to be closed.

As discussed above, Ecology requests submittal of a Vapor Barrier Basis of Design document for our review and comment.

Institutional Controls and Environmental Covenant

Institutional controls memorialized in an EC will ensure that no exposure to contamination occurs in the future. The EC is anticipated to include, but not be limited to the following measures:

- Commercial land use of the Property in perpetuity.
- Prohibition on use of groundwater from the Property for drinking water purposes.
- Long-term protection of the vapor intrusion mitigation system.
- Prevention of exposure to subsurface soils.

[14] See Section 6.6 of Guidance for Evaluating Vapor Intrusion in Washington State Investigation and Remedial Action, March 2022.

Request for No Further Action Determination

Once performance and compliance monitoring data indicate that a case can be made for an NFA determination, a Cleanup Action Completion Report should be submitted to Ecology. This report should include evaluations of performance monitoring for each element of the cleanup system, as well as the vapor intrusion mitigation system. The following are anticipated criteria for issue of an NFA determination:

- Post-excavation soil confirmation samples all below cleanup levels and disposal receipts submitted.
- Ecology's concurrence on the Injection Plan and Basis of Design.
- Ecology's concurrence on the Compliance Monitoring Plan.
- Groundwater performance and compliance monitoring results below cleanup levels.
- Ecology concurrence the Vapor Barrier Plan and Basis of Design.
- Vapor intrusion mitigation system installed and performance monitoring results (if needed) below cleanup levels.
- Ecology concurrence on a long-term (post-NFA) groundwater monitoring plan.
- Environmental covenant signed by Ecology has been recorded at Pierce County.

Limitations of the Opinion

Opinion does not settle liability with the state.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion does not:

- Resolve or alter a person's liability to the state
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70A.305.040(4).

Opinion does not constitute a determination of substantial equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you proposed will be substantially equivalent. Courts make that determination. See RCW 70A.305.080 and WAC 173-340-545.

Opinion is limited to proposed cleanup.

This letter does not provide an opinion on whether further remedial action will actually be necessary at the Site upon completion of your proposed cleanup. To obtain such an opinion, you must submit a report to Ecology upon completion of your cleanup and request an opinion under the VCP.

State is immune from liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion.
See RCW 70A.305.170(6).

Questions

Thank you for choosing to clean up the Site under the VCP. As you conduct your cleanup, please do not hesitate to request additional services. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our webpage.[15] If you have any questions about this opinion, please contact me at frank.winslow@ecy.wa.gov or 509-424-0543.

Sincerely,

Frank P. Winslow, LHG
Toxics Cleanup Program
Headquarters Section

FPW/tam

Enclosure (1): A – Site Description and Diagrams

cc by email: Yusuf Pehlivan, Farallon Consulting, ypehlivan@farallonconsulting.com
Pete Kingston, Farallon Consulting, pkingston@farallonconsulting.com
Treasure Mitchell, Expedited VCP Coordinator, Ecology, treasure.mitchell@ecy.wa.gov
Ecology Site file

[15] https://www.ecy.wa.gov/vcp

Enclosure A

Site Description and Diagrams

Site Description

Site

The Site is defined by contamination releases to soil and groundwater, and potentially air. Releases included petroleum (diesel-, gasoline-, and heavy oil-range); benzene; the chlorinated solvent compounds tetrachloroethene (PCE), trichloroethene (TCE), and cis-1,2-dichloroethene (cDCE); and per- and polyfluoroalkyl substances (PFAS). The contamination releases were identified following a fire that burned down a large warehouse and freezer building at the Site on August 21, 2021. No petroleum or chlorinated solvents were known to be stored or used at the Property.

Area and Property Description

The Property includes the following parcels, totaling 7.95 acres of real property in Pierce County:

- 0420274126 (5.298 acres)
- 7845000161 (2.533 acres)
- 7845000170 (0.119 acres)

The Property is abutted by 15th Street SE to the east, BNSF Railroad to the south, and private parcels to the west and north. Beyond BNSF Railroad to the south is East Pioneer Avenue. The Site is located in an area of Puyallup with commercial and light industrial land uses to the west, north, and east, and residential neighborhoods south of East Pioneer Avenue (to the south).

Site History

The following discussion of Site history is from the RI/FFS/CAP report:

> *The Property is developed with a one-story 1,495-square-foot modular office building constructed in 1985 and a one-story 19,885-square-foot industrial warehouse building constructed in 1960 and formerly used as a smokehouse. The Property historically also was developed with a 101,933-square-foot warehouse and freezer building constructed in 1985 and occupied by Washington Cold Storage, which was largely destroyed by a fire on August 21, 2021. Following the fire, the raised building foundation of the warehouse and freezer building remained on the Property. The building foundation consists of a loading-dock height concrete pad underlain by fill material and is approximately 4 feet higher than the grade of the remainder of the Property.*

Physiographic Setting

The Site is located near the middle of the Puyallup River Valley in Puyallup, Washington, approximately nine miles southeast of where the river discharges into Puget Sound (in Tacoma, Washington). The river valley cuts through undulating glacial topography within the Puget Sound Physiographic Province. The Site is located at an elevation of approximately 55 feet above mean sea level (ft amsl).

Surface/Storm Water

The Site is approximately 1,400 feet southwest of the Puyallup River, and nine miles southeast of Puget Sound. An unnamed creek is located approximately 370 feet east of the Site that flows to the north, draining into the Puyallup River. Based on groundwater flow directions at the Site, risk to surface water appears to be low.

Surface elevations at the Site range from 52 to 56 ft amsl, with topography generally dropping to the north and west. Stormwater in the vicinity of the Site is generally anticipated to drain to the north and west.

Ecological Setting

No open space is located within 500 feet of the Site, except for a forested buffer on a tributary of the Puyallup River that is located approximately 300 feet east of the Site. This forested buffer is approximately 3.0 acres in area. Based on completion of MTCA Table 749-1, the TEE process can be ended. In addition, following completion of the proposed cleanup, all contaminated soils are anticipated be removed. If any contaminated soils do remain, such soils will all be covered by a structure or paving.

Geology

The following discussion of Site geology is from the RI/FFS/CAP report:

> *Soil encountered beneath the Property during the RI and during a geotechnical investigation conducted by Terra Associates Inc. in November 2021 generally consisted of poorly graded sand with varying amounts of silt and gravel to a depth of approximately 15 feet below ground surface (bgs), underlain by intermittent layers of silt and silty sand to the maximum explored depth of 31.5 feet bgs. Trace quantities of wood fragments and organic material also were reported intermittently in several borings advanced on the Property at depths ranging from approximately 5 to 31 feet bgs.*

Groundwater

The following discussion of Site hydrogeology is from the RI/FFS/CAP report:

> *Groundwater was encountered during drilling at depths ranging from approximately 3 to 11 feet bgs. The range in depth to groundwater measurements is largely due to the difference in surface elevation for borings advanced within the raised building foundation, which is approximately 4 feet higher than the surrounding ground surface. Groundwater was measured in monitoring wells at depths ranging from 3.72 to 9.26 feet below top of casing during the February 2022 groundwater monitoring event, corresponding to groundwater elevations between 51.58 to 49.02 feet North American Vertical Datum of 1988 (NAVD88) (Table 1). Groundwater beneath the Property has been interpreted to flow to the north toward the Puyallup River (Figure 3).*

Water Supply

The following discussion of Water Supply at the Site is from the RI/FFS/CAP report:

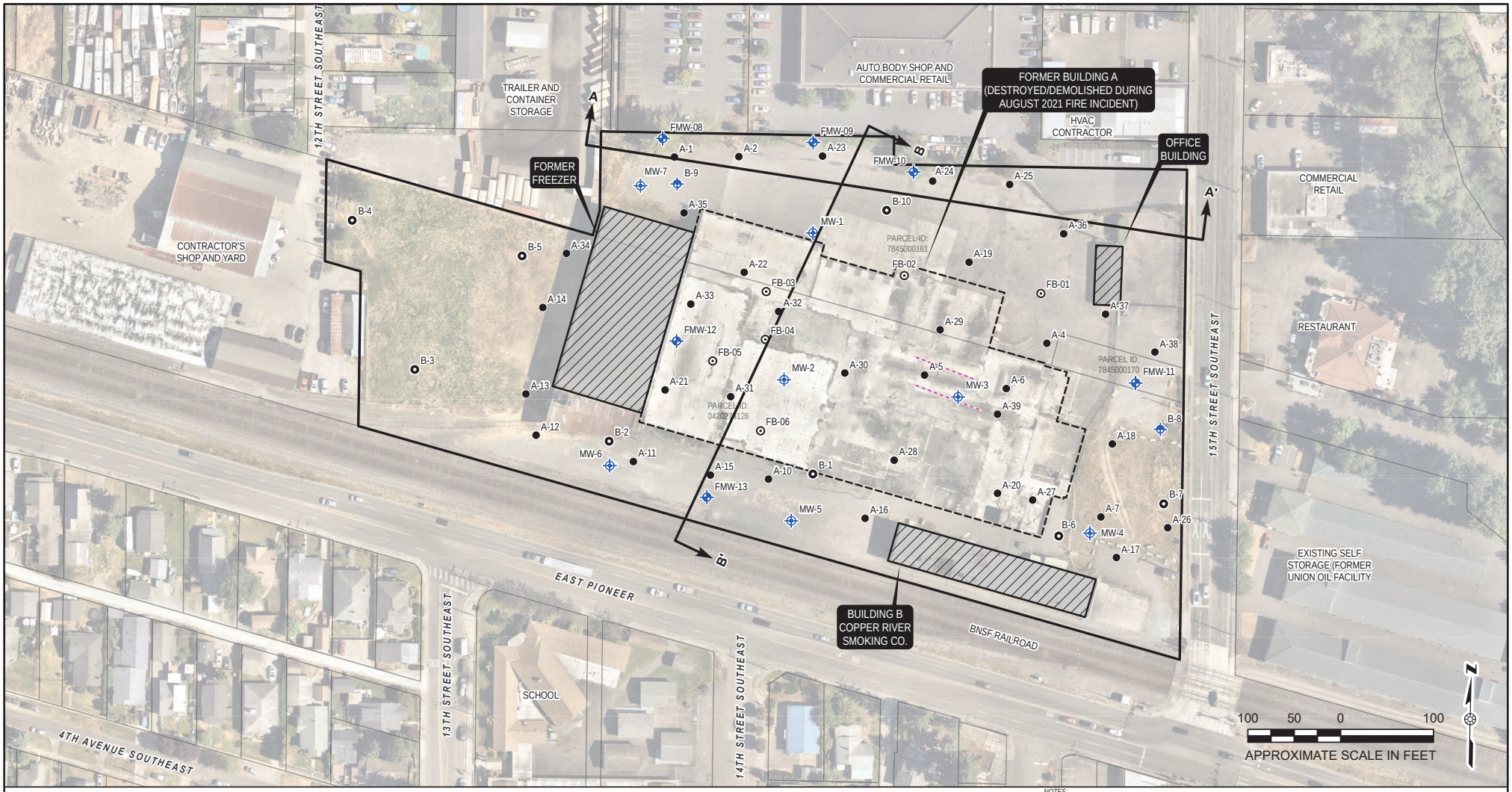
> *The City of Puyallup reportedly receives approximately 76 percent of its water from two natural springs located east and west of the city. The remaining water is supplied by five deep groundwater wells and an inter-tie with the City of Tacoma. Well logs for the City of Puyallup's municipal water supply wells indicate that the wells range from depths of approximately 280 to 880 feet bgs and are screened in aquifers encountered at depths exceeding approximately 200 feet bgs. According to the Source Water Assessment Program Mapping Application, the Property is not located within a wellhead protection area.*

The nearest Group A/B water supply well is located approximately 2,000 feet southwest of the Site. The nearest wellhead protection zone is located approximately 2,400 feet north of the Site. Risk to existing water supply wells from the Site groundwater contamination appears to be low.

Site Diagrams

All figures except Figure 11 from Farallon, *Remedial Investigation/Focused Feasibility Study and Cleanup Action Plan, Former Washington Cold Storage Building*, May 12, 2023.

Figure 11 from Farallon, Email submittal, *PFAS in Groundwater Results*, June 29, 2023.



LEGEND

- CROSS SECTION TRANSECT
- GEOTECHNICAL WELL (TERRA 2021)
- MONITORING WELL (ATLAS 2021)
- MONITORING WELL (FARALLON 2023)
- BORING (ATLAS 2021, 2022)
- BORING (FARALLON 2023)
- BORING (TERRA ASSOCIATES 2022)
- FORMER TRENCH DRAINS
- EXISTING BUILDING
- FORMER BUILDING
- APPROXIMATE SUBJECT PROPERTY BOUNDARY
- PIERCE COUNTY PARCEL BOUNDARIES

AERIAL IMAGERY: NEARMAP, 7/20/2022

NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
2. FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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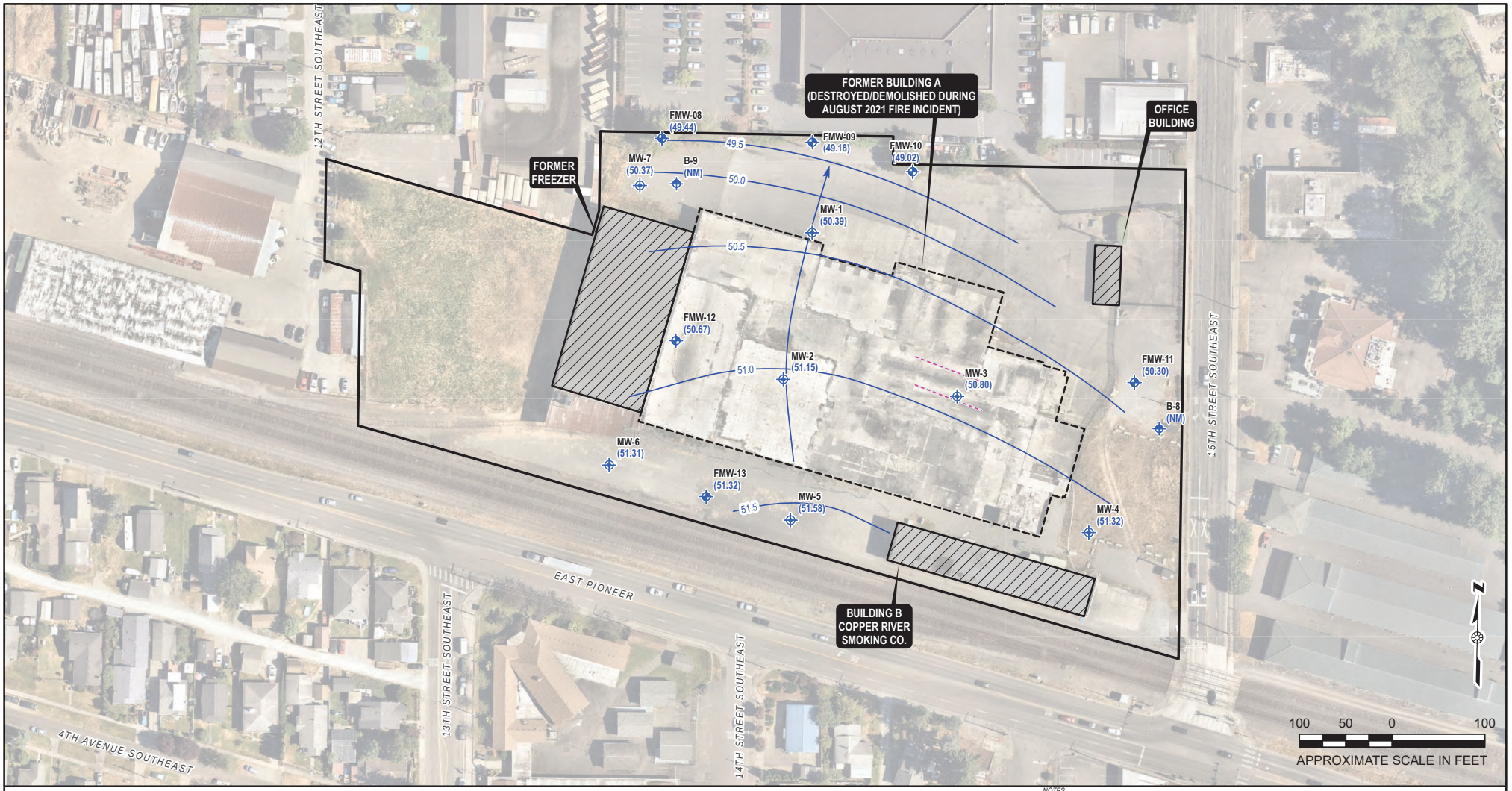
FIGURE 2

PROPERTY PLAN

WASHINGTON COLD STORAGE
240 15TH STREET SOUTHEAST
PUYALLUP, WASHINGTON

DRAWN BY: VBACHMANN	CHECKED BY: YP	DATE: 5/12/2023	FARALLON PN: 2636-001

Path: Q:\Projects\2636 Fortress Entities\001 Finr Wa Cold Storage Bldg\ArcPro\2636-001\2636-001\MapFiles\2023_Q1\2636-001_Fig02_PropertyMap_2023_Locs.aprx



LEGEND

- GEOTECHNICAL WELL (TERRA 2021)
- MONITORING WELL (ATLAS 2021)
- MONITORING WELL (FARALLON 2023)
- INFERRED GROUNDWATER FLOW DIRECTION
- INFERRED GROUNDWATER ELEVATION CONTOUR (0.5-FOOT INTERVAL)
- FORMER TRENCH DRAINS
- EXISTING BUILDING
- FORMER BUILDING
- APPROXIMATE PROPERTY BOUNDARY

(50.49) GROUNDWATER ELEVATION IN FEET AS MEASURED 2/13/2023, VERTICAL DATUM: NAVD88

(NM) GROUNDWATER ELEVATION NOT MEASURED

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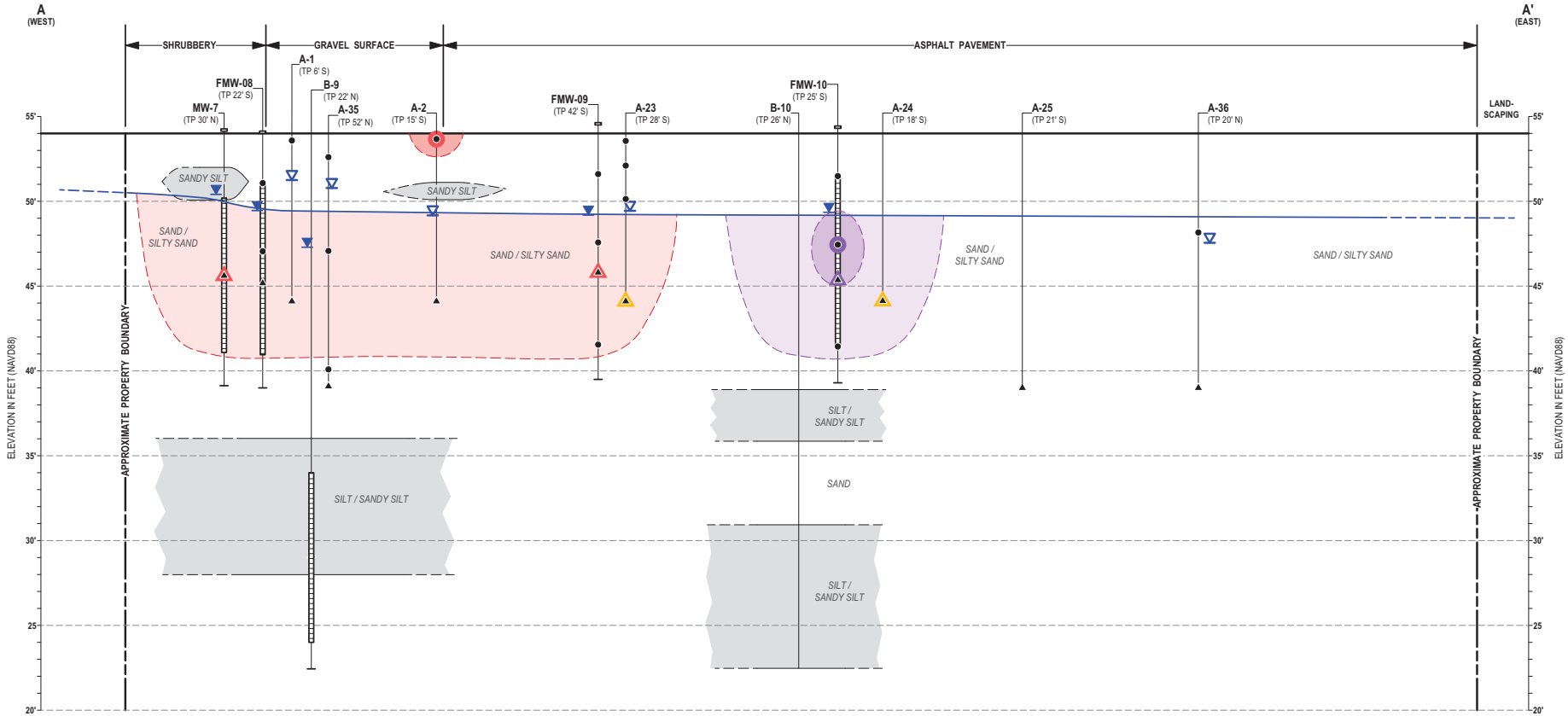
FIGURE 3

GROUNDWATER ELEVATION CONTOURS
FEBRUARY 13, 2023

WASHINGTON COLD STORAGE
240 15TH STREET SOUTHEAST
PUYALLUP, WASHINGTON

DRAWN BY: VBACHMANN	CHECKED BY: YP	DATE: 5/8/2023	FARALLON PN: 2636-001

Path: Q:\Projects\2636 Fortress Entities\001 Fmr Wa Cold Storage Bldg\ArcPro\2636-001\2636-001\MapFiles\2023_Q1\2636-001_Fig03_GW_Elevations_2023Q1.aprx



LEGEND

FMW-05 — WELL ID

STRATIGRAPHIC CONTACT (DASHED WHERE INFERRED)
SCREEN INTERVAL
SOIL SAMPLE LOCATION
GROUNDWATER SAMPLE LOCATION
WATER LEVEL INDICATOR (AT TIME OF DRILLING)
WATER LEVEL INDICATOR (2/13/23 SAMPLING EVENT)
APPROXIMATE GROUNDWATER LEVEL (DASHED WHERE INFERRED)

- INDICATES ONE OR MORE MTCA-A EXCEEDANCES OF DRO, ORO, GRO, OR BENZENE IN SOIL SAMPLE
- INDICATES ONE OR MORE MTCA-A EXCEEDANCES OF HVOCs IN SOIL SAMPLE
- INDICATES ONE OR MORE MTCA-A EXCEEDANCES OF DRO, ORO, GRO, OR BENZENE IN RECONNAISSANCE GROUNDWATER SAMPLE
- INDICATES ONE OR MORE MTCA-A EXCEEDANCES OF DRO, ORO, GRO, OR BENZENE IN MONITORING WELL GROUNDWATER SAMPLE
- INDICATES ONE OR MORE MTCA-A EXCEEDANCES OF HVOCs IN MONITORING WELL GROUNDWATER SAMPLE

- ESTIMATED EXTENT OF TPH AND/OR BENZENE EXCEEDING MTCA CLEANUP LEVELS IN SOIL
- ESTIMATED EXTENT OF TPH AND/OR BENZENE EXCEEDING MTCA CLEANUP LEVELS IN GROUNDWATER
- ESTIMATED EXTENT OF HVOC EXCEEDING MTCA CLEANUP LEVELS IN SOIL
- ESTIMATED EXTENT OF HVOC EXCEEDING MTCA CLEANUP LEVELS IN GROUNDWATER

DRO	TPH AS DIESEL-RANGE ORGANICS
ORO	TPH AS OIL-RANGE ORGANICS
GRO	TPH AS GASOLINE-RANGE ORGANICS
HVOCs	HALOGENATED VOLATILE ORGANIC COMPOUNDS
MTCA-A	MODEL TOXICS CONTROL ACT (METHOD A)
TPH	TOTAL PETROLEUM HYDROCARBONS

0 25 50
HORIZONTAL SCALE: 1" = 50'
8X VERTICAL EXAGGERATION

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FIGURE 4
CROSS SECTION A-A'

WASHINGTON COLD STORAGE
240 15TH STREET SOUTHEAST
PUYALLUP, WASHINGTON

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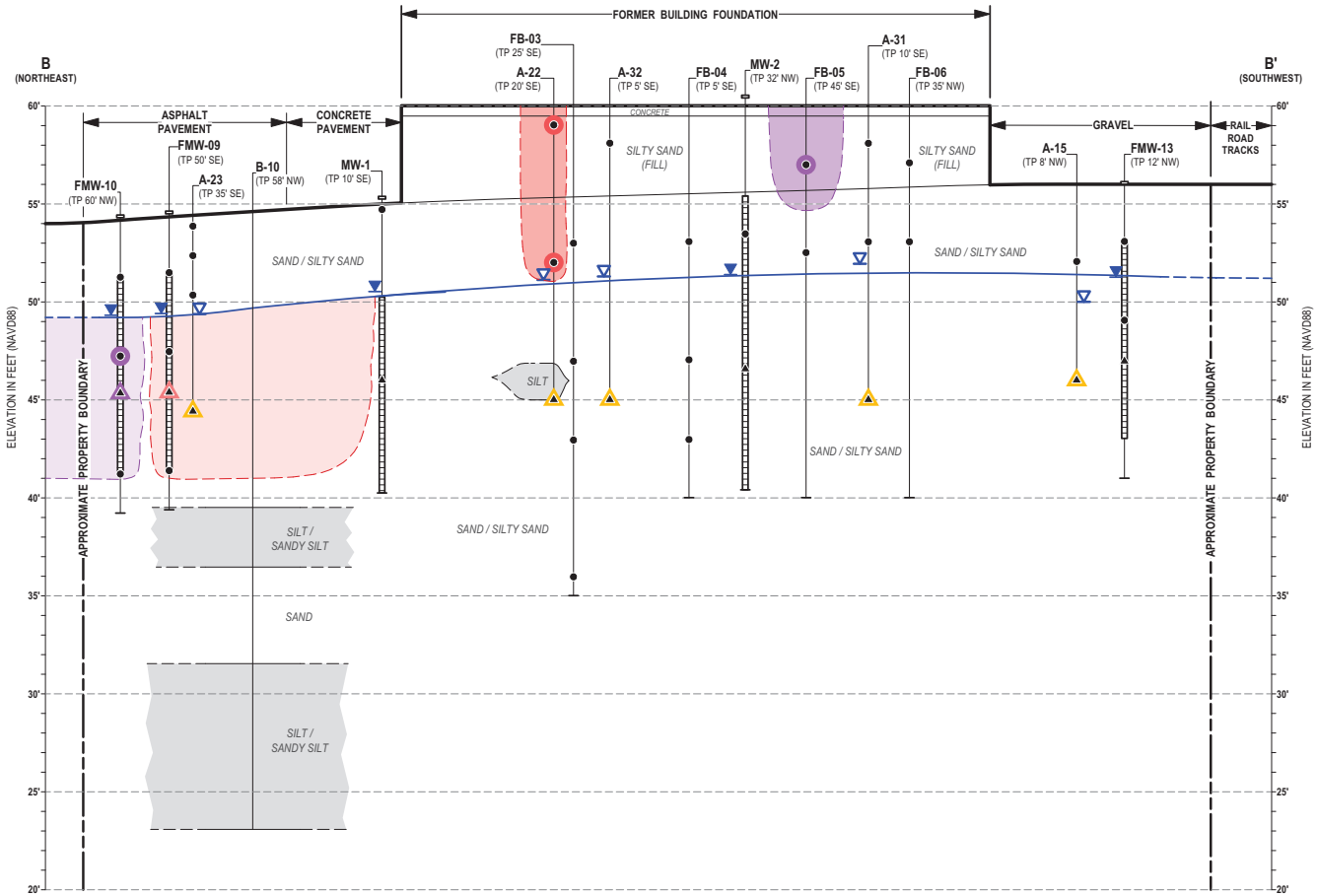

LEGEND

FMW-05 — WELL ID

STRATIGRAPHIC CONTACT (DASHED WHERE INFERRED)
SCREEN INTERVAL
SOIL SAMPLE LOCATION
GROUNDWATER SAMPLE LOCATION
WATER LEVEL INDICATOR (AT TIME OF DRILLING)
WATER LEVEL INDICATOR (2/13/23 SAMPLING EVENT)
APPROXIMATE GROUNDWATER LEVEL (DASHED WHERE INFERRED)

- INDICATES ONE OR MORE MTCA-A EXCEEDANCES OF DRO, ORO, GRO, OR BENZENE IN SOIL SAMPLE
- INDICATES ONE OR MORE MTCA-A EXCEEDANCES OF HVOCs IN SOIL SAMPLE
- INDICATES ONE OR MORE MTCA-A EXCEEDANCES OF DRO, ORO, GRO, OR BENZENE IN RECONNAISSANCE GROUNDWATER SAMPLE
- INDICATES ONE OR MORE MTCA-A EXCEEDANCES OF DRO, ORO, GRO, OR BENZENE IN MONITORING WELL GROUNDWATER SAMPLE
- INDICATES ONE OR MORE MTCA-A EXCEEDANCES OF HVOCs IN MONITORING WELL GROUNDWATER SAMPLE

- ESTIMATED EXTENT OF TPH AND/OR BENZENE EXCEEDING MTCA CLEANUP LEVELS IN SOIL
- ESTIMATED EXTENT OF TPH AND/OR BENZENE EXCEEDING MTCA CLEANUP LEVELS IN GROUNDWATER
- ESTIMATED EXTENT OF HVOC EXCEEDING MTCA CLEANUP LEVELS IN SOIL
- ESTIMATED EXTENT OF HVOC EXCEEDING MTCA CLEANUP LEVELS IN GROUNDWATER

DRO	TPH AS DIESEL-RANGE ORGANICS
ORO	TPH AS OIL-RANGE ORGANICS
GRO	TPH AS GASOLINE-RANGE ORGANICS
HVOCs	HALOGENATED VOLATILE ORGANIC COMPOUNDS
MTCA-A	MODEL TOXICS CONTROL ACT (METHOD A)
TPH	TOTAL PETROLEUM HYDROCARBONS

0 25 50
HORIZONTAL SCALE: 1" = 50'
8X VERTICAL EXAGGERATION

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FIGURE 5

CROSS SECTION B-B'

WASHINGTON COLD STORAGE
240 15TH STREET SOUTHEAST
PUYALLUP, WASHINGTON

DRAWN BY: VBACHMANN	CHECKED BY: YP	DATE: 5/9/23	FARALLON PN: 2636-001

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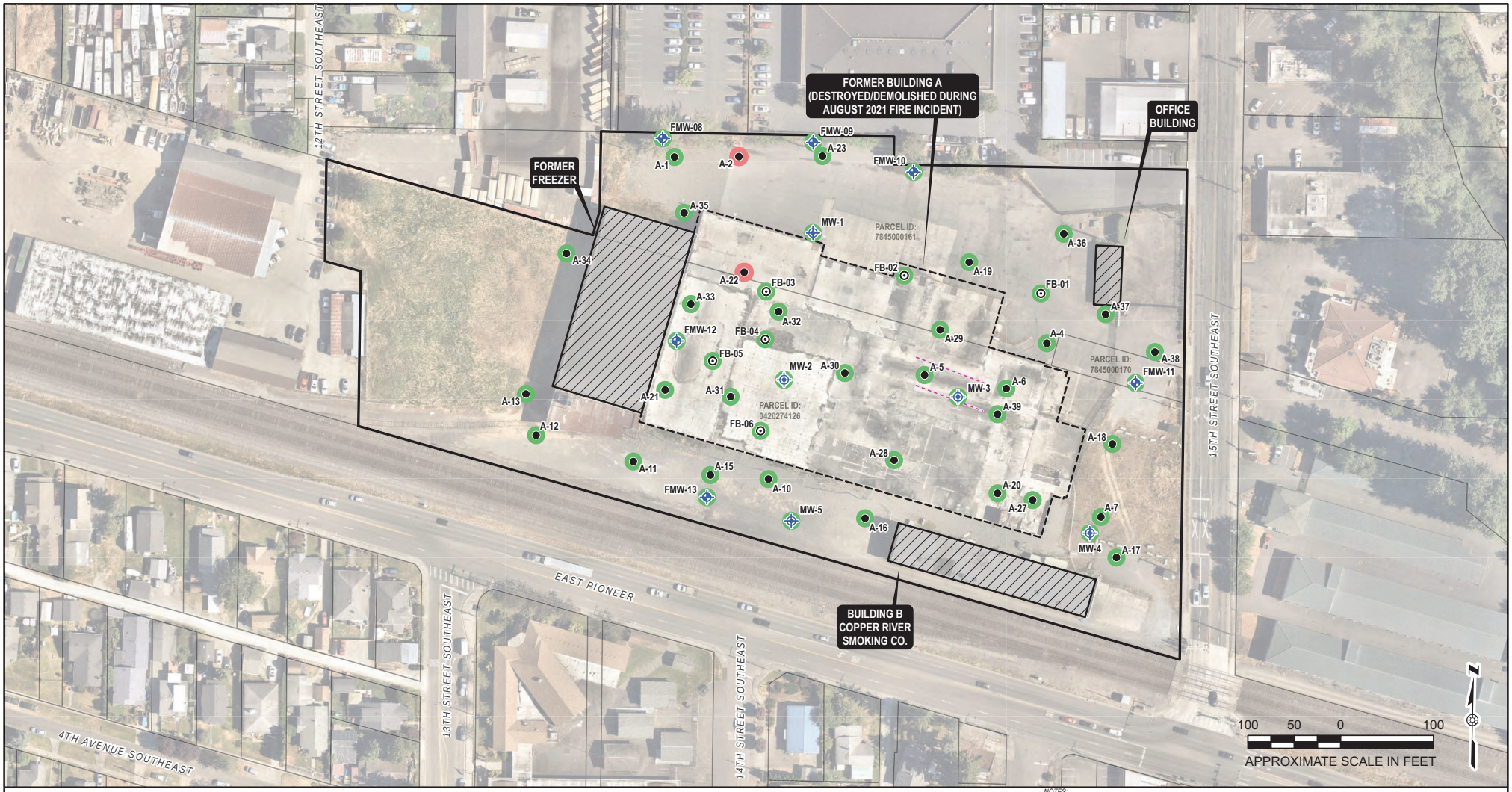

LEGEND

- MONITORING WELL (ATLAS 2021)
- MONITORING WELL (FARALLON 2023)
- BORING (ATLAS 2021, 2022)
- BORING (FARALLON 2023)
- INDICATES TPH AND BENZENE WERE NOT DETECTED AT CONCENTRATIONS EXCEEDING MTCA CLEANUP LEVELS
- INDICATES ONE OR MORE MTCA EXCEEDANCES OF TPH AND/OR BENZENE IN SOIL
- FORMER TRENCH DRAINS
- EXISTING BUILDING
- FORMER BUILDING
- APPROXIMATE PROPERTY BOUNDARY
- PIERCE COUNTY PARCEL BOUNDARIES

MTCA = MODEL TOXICS CONTROL ACT

AERIAL IMAGERY: NEARMAP, 7/20/2022

NOTES:
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FIGURE 6

SOIL ANALYTICAL RESULTS FOR TPH AND BENZENE

WASHINGTON COLD STORAGE
240 15TH STREET SOUTHEAST
PUYALLUP, WASHINGTON

DRAWN BY: VBACHMANN	CHECKED BY: YP	DATE: 5/8/2023	FARALLON PN: 2636-001

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Sample Location	Sampled By	Sample Depth (feet)[1]	Sample Date	Analytical Results (milligrams per kilogram)[2] PCE	TCE	cDCE	tDCE	Vinyl Chloride	EDC
A-1	Atlas	0.5	9/24/2021	< 0.0437	< 0.0219	< 0.0273	< 0.0328	< 0.0273	< 0.0251
A-2	Atlas	0.5	9/24/2021	< 0.0722	< 0.0361	< 0.0451	< 0.0542	< 0.0451	< 0.0415
A-4	Atlas	0.5	9/23/2021	< 0.0533	< 0.0266	< 0.0333	< 0.0400	< 0.0333	0.0306
A-5	Atlas	6.0	9/24/2021	< 0.0578	< 0.0289	< 0.0361	< 0.0433	< 0.0361	< 0.0332
A-6	Atlas	0.5	9/23/2021	< 0.0418	< 0.0209	< 0.0261	< 0.0313	< 0.0261	< 0.0240
A-7	Atlas	0.5	9/24/2021	< 0.0501	< 0.0250	< 0.0313	< 0.0376	< 0.0313	< 0.0288
A-10	Atlas	5.0	9/23/2021	< 0.0266	< 0.0532	< 0.0332	< 0.0399	< 0.0332	< 0.0306
A-12	Atlas	1.0	9/23/2021	< 0.0594	< 0.0297	< 0.0371	< 0.0446	< 0.0371	< 0.0342
A-13	Atlas	5.0	9/23/2021	< 0.0586	< 0.0293	< 0.0367	< 0.0440	< 0.0367	< 0.0037
2023 Subsurface Investigation									
FB-02	Farallon	7.0	2/7/2023	< 0.0144	< 0.0144	< 0.0144	< 0.0144	< 0.0144	< 0.0144
	Farallon	13.0	2/7/2023	< 0.0154	< 0.0154	< 0.0154	< 0.0154	< 0.0154	< 0.0154
FB-04	Farallon	7.0	2/8/2023	< 0.0215	< 0.0215	< 0.0215	< 0.0215	< 0.0215	< 0.0215
	Farallon	13.0	2/8/2023	< 0.0200	< 0.0200	< 0.0200	< 0.0200	< 0.0200	< 0.0200
	Farallon	17.0	2/8/2023	< 0.0205	< 0.0205	< 0.0205	< 0.0205	< 0.0205	< 0.0205
FB-05	Farallon	3.0	2/8/2023	< 0.0128	**0.120**	< 0.0128	< 0.0128	< 0.0128	< 0.0128
	Farallon	7.5	2/8/2023	< 0.0193	< 0.0193	< 0.0193	< 0.0193	< 0.0193	< 0.0193
FB-06	Farallon	3.0	2/8/2023	< 0.0199	< 0.0199	< 0.0199	< 0.0199	< 0.0199	< 0.0199
	Farallon	7.0	2/8/2023	< 0.0183	< 0.0183	< 0.0183	< 0.0183	< 0.0183	< 0.0183
FMW-10	Farallon	3.0	2/7/2023	< 0.0197	< 0.0197	< 0.0197	< 0.0197	< 0.0197	< 0.0197
	Farallon	7.0	2/7/2023	**0.0832**	**0.0451**	< 0.0219	< 0.0219	< 0.0219	< 0.0219
	Farallon	13.0	2/7/2023	< 0.0165 H	< 0.0165 H	< 0.0165 H	< 0.0165 H	< 0.0165 H	< 0.0165 H
FMW-12	Farallon	7.0	2/8/2023	< 0.0216	< 0.0216	< 0.0216	< 0.0216	< 0.0216	< 0.0216
	Farallon	13.0	2/8/2023	< 0.0213	< 0.0213	< 0.0213	< 0.0213	< 0.0213	< 0.0213
MTCA Cleanup Levels for Soil				**0.05**[3]	**0.03**[3]	**160**[4]	**1,600**[4]	**0.67**[4]	**11**[4]

NOTES:

Results in **bold** and highlighted yellow denote concentrations exceeding applicable cleanup levels.

< denotes analyte not detected at or exceeding the reporting limit listed.

[1]Depth in feet below ground surface.

[2]Analyzed by U.S. Environmental Protection Agency Method 8260D.

[3]Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method A Soil Cleanup Levels for Unrestricted Land Uses, Table 740-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as revised 2013.

[4]Washington State Cleanup Levels and Risk Calculations (CLARC) under Washington State MTCA, Standard Method B Formula Values for Soil from CLARC Master spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

Atlas = Atlas Technical Consultants, LLC

Farallon = Farallon Consulting, L.L.C.

H = sample analyzed outside of holding time

PCE = tetrachloroethene

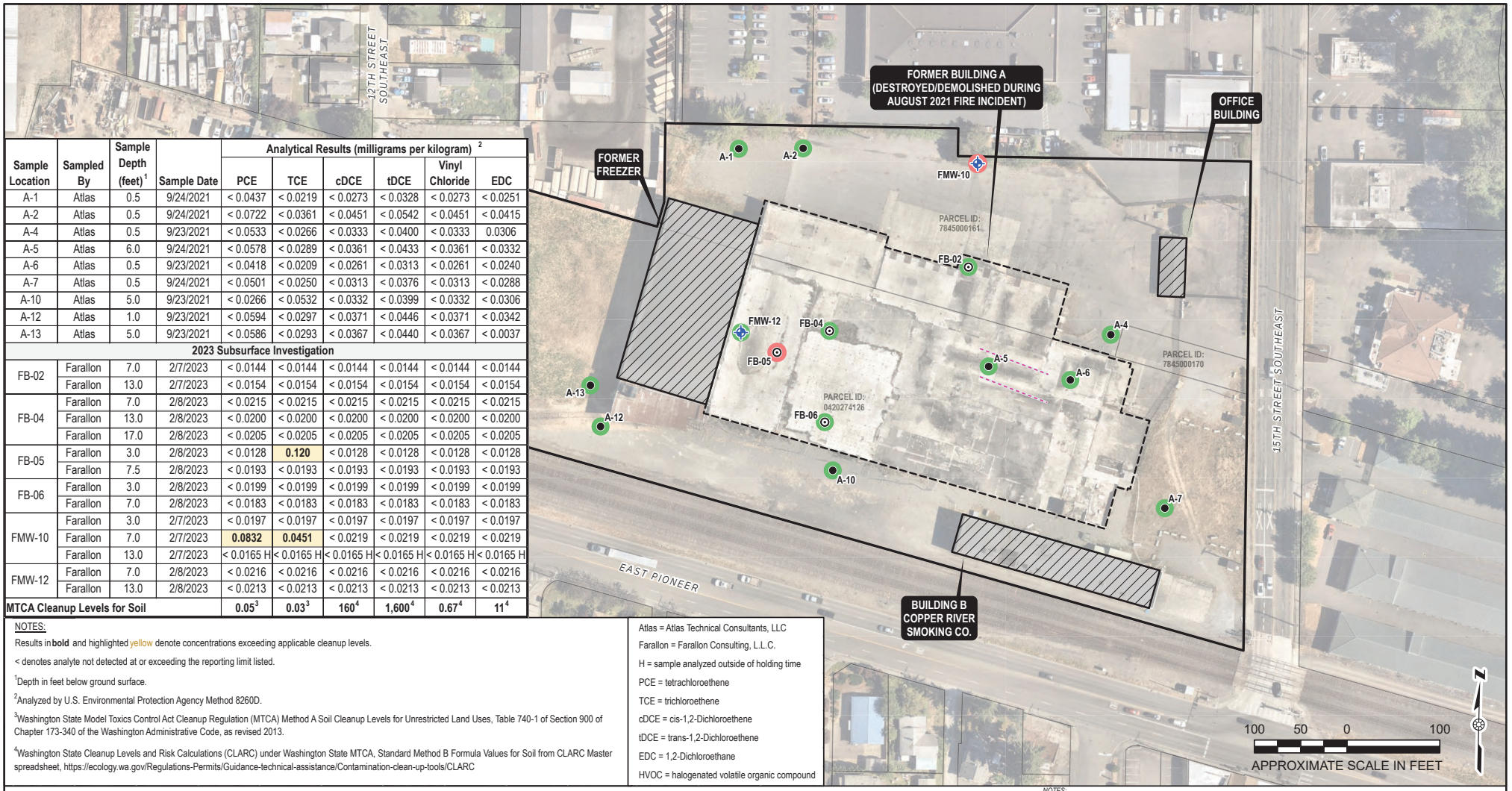
TCE = trichloroethene

cDCE = cis-1,2-Dichloroethene

tDCE = trans-1,2-Dichloroethene

EDC = 1,2-Dichloroethane

HVOC = halogenated volatile organic compound



LEGEND

- MONITORING WELL (FARALLON 2023)
- BORING (ATLAS 2021, 2022)
- BORING (FARALLON 2023)
- FORMER TRENCH DRAINS
- INDICATES NO DETECTIONS OF HVOCs IN SOIL EXCEEDING MTCA CLEANUP LEVELS
- INDICATES ONE OR MORE DETECTIONS OF HVOCs IN SOIL EXCEEDING CLEANUP LEVELS
- EXISTING BUILDING
- FORMER BUILDING
- APPROXIMATE PROPERTY BOUNDARY
- PIERCE COUNTY PARCEL BOUNDARIES

NOTES:

1. ALL LOCATIONS ARE APPROXIMATE.

2. FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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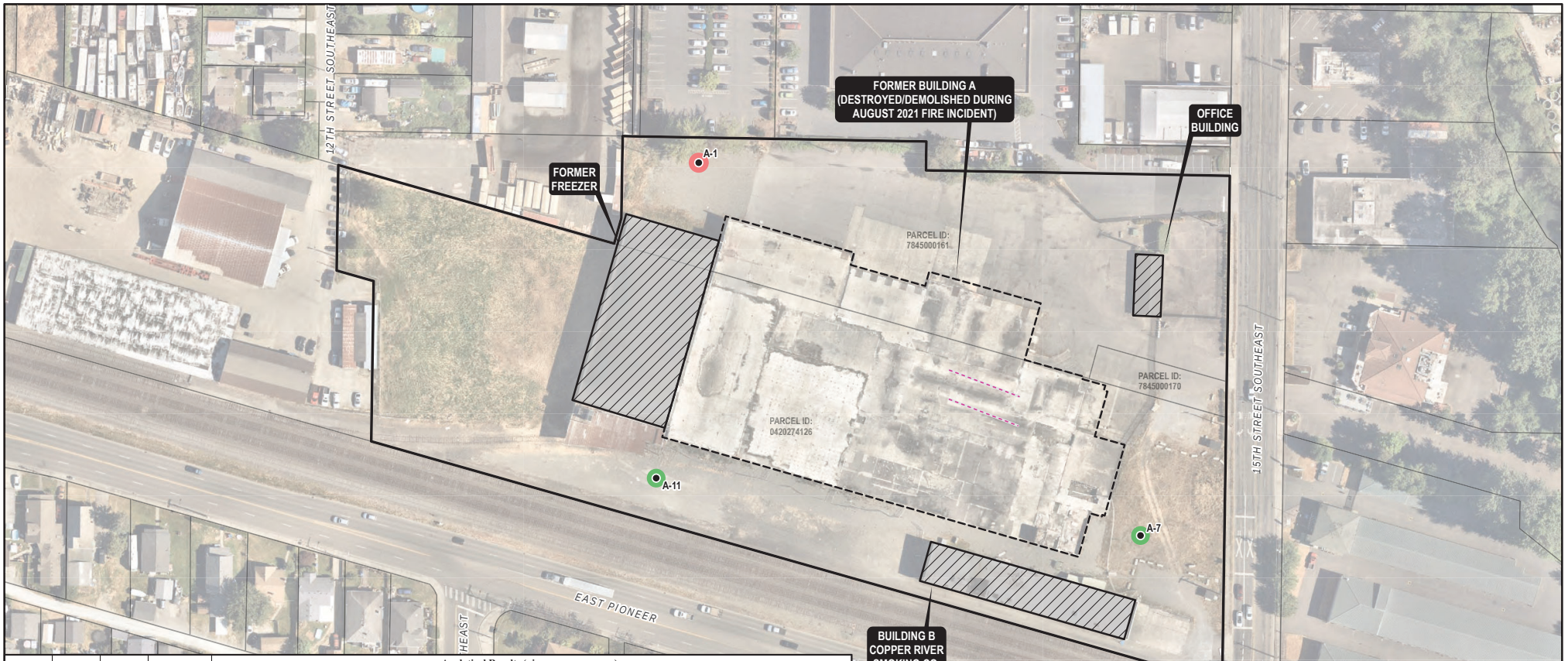
FIGURE 7

SOIL ANALYTICAL RESULTS FOR HALOGENATED VOCS

WASHINGTON COLD STORAGE
240 15TH STREET SOUTHEAST
PUYALLUP, WASHINGTON

DRAWN BY: VBACHMANN	CHECKED BY: YP	DATE: 5/8/2023	FARALLON PN: 2636-001

Path: Q:\Projects\2636 Fortress Entities\001 Fmr Wa Cold Storage Bldg\ArcPro\2636-001\2636-001\MapFiles\2023_Q1\2636-001_Fig07_VOCs_SoilAnalytical.aprx



Sample Location	Sampled By	Sample Date	Sample Depth (feet)	Analytical Results (picograms per gram)					
				Perfluorobutane Sulfonic Acid (PFBS)	Perfluorohexane Sulfonic Acid (PFHxS)	Perfluorooctanoic Acid (PFOA)	Perfluorooctane Sulfonic Acid (PFOS)	Perfluorononanoic Acid (PFNA)	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)
A-1	Atlas	9/24/2021	0.5	< 88	< 91	< 100	**380**	< 100	< 100
A-7	Atlas	9/24/2021	0.5	< 88	< 90	< 99	< 91	< 99	< 99
A-11	Atlas	9/24/2021	0.5	< 87	< 90	< 99	< 91	< 99	< 99
MTCA Method B Direct Contact Cleanup Levels for Soil				**24,000,000**	**780,000**	**240,000**	**240,000**	**200,000**	**240,000**
MTCA Method B Cleanup Levels for Soil Protective of Groundwater - Vadose Zone				**1,800**	**410**	**63**	**170**	**80**	**100**

NOTES:

< denotes analyte not detected at or exceeding the reporting limit listed.

[1]Depth in feet below ground surface.

[2]Samples analyzed by U.S. Environmental Protection Agency (EPA) Method 537 Modified. Only select analytes with established cleanup levels displayed. See lab report for full list of analytes.

[3]Washington State Cleanup Levels and Risk Calculations (CLARC) under Washington State MTCA, Standard Method B and C Values for Soil from CLARC Master spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

Results in **bold**and highlighted yellow denote concentrations exceeding applicable cleanup levels.

LEGEND

- BORING (ATLAS 2021, 2022)
- INDICATES PFAS COMPOUNDS WERE NOT DETECTED AT CONCENTRATIONS EXCEEDING MTCA CLEANUP LEVELS IN SOIL
- INDICATES ONE OR MORE MTCA EXCEEDANCES OF PFAS COMPOUNDS IN SOIL
- FORMER TRENCH DRAINS
- EXISTING BUILDING
- FORMER BUILDING
- APPROXIMATE PROPERTY BOUNDARY
- PIERCE COUNTY PARCEL BOUNDARIES

AERIAL IMAGERY: NEARMAP, 7/20/2022

Atlas = Atlas Technical Consultants, LLC

PFAS = per- and poly-fluoroalkyl substances

MTCA = Model Toxics Control Act

100 50 0 100

APPROXIMATE SCALE IN FEET

N

NOTES:

1. ALL LOCATIONS ARE APPROXIMATE.

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FIGURE 8

SOIL ANALYTICAL RESULTS FOR PFAS

WASHINGTON COLD STORAGE
240 15TH STREET SOUTHEAST
PUYALLUP, WASHINGTON

DRAWN BY: VBACHMANN	CHECKED BY: YP	DATE: 5/8/2023	FARALLON PN: 2636-001

Path: Q:\Projects\2636 Fortress Entities\001 Fmr Wa Cold Storage Bldg\ArcPro\2636-001\2636-001\MapFiles\2023_Q1\2636-001_Fig08_PFAS_SoilAnalytical.aprx

Sample Location	Sampled By	Sample Date	Analytical Results (micrograms per liter) DRO[1]	ORO[1]	GRO[2]	Benzene[3]
Monitoring Well Groundwater Samples						
B-9	Atlas	9/2/2022	< 94.0	106 C	< 50.0 J	< 0.440
	Farallon	12/27/2022	< 83.3	< 167	< 100	< 0.200
MW-1	Atlas	11/4/2021	**620** P	< 117	< 50.0	3.18
	Atlas	2/9/2022	**4,310** C	< 118	< 50.0	**39.8**
	Atlas	9/2/2022	**4,350** M	< 93.2	288 JL	**14.6**
	Farallon	12/27/2022	298 M X	< 157	266	**5.40**
	Farallon	2/14/2023	193 X	< 151	< 100 J	3.20 J
	Farallon	4/11/2023	481 X	< 151	< 100	**5.23**
MW-2	Atlas	11/4/2021	**1,540** M	< 118	166	**28.5**
	Atlas	2/9/2022	**1,930** C	< 119	< 50.0	**50.2**
	Atlas	9/1/2022	141 M	< 93.3	< 50.0	2.40
	Farallon	12/27/2022	91.2 X	< 154	< 100	1.53
	Farallon	2/14/2023	< 76.9	< 154	< 100	0.690
MW-3	Atlas	11/4/2021	288 M	< 115	< 50.0	**12.9**
	Atlas	2/9/2022	249	< 119	< 50.0	4.49
	Atlas	9/1/2022	< 92.5	238 C	< 50.0	0.479
	Farallon	12/28/2022	< 76.9	159 X	< 100	< 0.200
	Farallon	2/13/2023	104	< 151	< 100	< 0.200
MW-4	Atlas	11/4/2021	**1,130**	< 108	< 50.0	1.13
	Atlas	2/9/2022	294	< 119	< 50.0	< 0.440
	Atlas	9/1/2022	< 93.3	214 C	< 50.0 J	< 0.440
	Farallon	1/4/2023	< 80.0	< 160	< 100	< 0.200
	Farallon	2/13/2023	< 75.5	< 151	< 100	< 0.200
MW-5	Atlas	11/4/2021	230 P	< 117	< 50.0	1.18
	Atlas	2/9/2022	< 122	< 122	< 50.0	< 0.440
	Atlas	9/1/2022	< 94.2	< 94.2	< 50.0	< 0.440
	Farallon	12/28/2022	< 80.0	< 160	< 100	< 0.200
	Farallon	2/13/2023	< 75.5	< 151	< 100	< 0.200
MW-6	Atlas	11/15/2021	267 G	< 99.3	< 50.0	2.90
	Atlas	2/9/2022	< 118	< 118	< 50.0	1.05
	Atlas	9/1/2022	< 93.8	171 C	< 50.0	1.01
	Farallon	12/28/2022	< 80.8	< 162	< 100	0.340
	Farallon	2/13/2023	< 75.5	< 151	< 100	< 0.200
MW-7	Atlas	11/15/2021	**4,620** M	< 98.9	**1,440**	**120**
	Atlas	2/9/2022	**7,210** C	< 119	< 50.0	**76.4**
	Atlas	9/2/2022	< 94.0	106 C	< 50.0 J	< 0.440
	Farallon	1/4/2023	311 M X	< 160	213	**21.1**
	Farallon	2/14/2023	335 X	< 157	159	**13.7**
	Farallon	4/11/2023	259 X	< 154	< 100	**8.59 J**
FMW-08	Farallon	2/14/2023	< 75.5	< 151	< 100	0.340
FMW-08	Farallon	4/11/2023	< 75.5	215 X	< 100	0.340
FMW-09	Farallon	2/14/2023	387 M X	< 151	< 100 J	**6.64** J
FMW-09	Farallon	4/11/2023	305 X	< 151	< 100	3.35
FMW-10	Farallon	2/14/2023	114 N X	177 Q	< 100 J	0.260 J
FMW-10	Farallon	4/11/2023	353 X	< 151	< 100	0.370
FMW-11	Farallon	2/13/2023	< 76.9	< 154	< 100	< 0.200
FMW-12	Farallon	2/14/2023	< 75.5	< 151	< 100	< 0.200
FMW-13	Farallon	2/13/2023	< 76.9	< 154	< 100	1.38
MTCA Method A Cleanup Level for Groundwater[4]			**500**	**500**	**800/1,000[5]**	**5**

Sample Location	Sampled By	Sample Date	Analytical Results (micrograms per liter) DRO[1]	ORO[1]	GRO[2]	Benzene[3]
Reconnaissance Boring Groundwater Samples						
A-1	Atlas	9/24/2021	< 247*	< 495*	< 247*	< 0.440
A-2	Atlas	9/24/2021	< 248*	< 497*	< 248*	< 0.440
A-4	Atlas	9/23/2021	< 248*	< 496*	< 248*	< 0.440
A-5	Atlas	9/24/2021	**3,050** P	< 98.7	157	**31.7**
A-6	Atlas	9/24/2021	< 246*	< 491*	< 246*	< 0.440
A-7	Atlas	9/24/2021	**1,680**	< 100	< 250*	< 0.440
A-10	Atlas	9/23/2021	**1,500** M	445	396	**62.3**
A-12	Atlas	9/23/2021	< 249*	< 498*	< 249*	< 0.440
A-13	Atlas	9/23/2021	< 248*	< 496*	< 248*	< 0.440
A-14	Atlas	9/23/2021	< 250*	< 499*	< 250*	---
A-15	Atlas	11/3/2021	**1,510** M	< 99.4	402	**47.2**
A-16	Atlas	11/3/2021	< 98.4	< 98.4	< 50.0	< 0.440
A-17	Atlas	11/2/2021	< 99.5	125	< 50.0	< 0.440
A-18	Atlas	11/2/2021	< 99.7	185	< 50.0	< 0.440
A-19	Atlas	11/2/2021	< 99.0	364	< 50.0	< 0.440
A-20	Atlas	11/2/2021	**828** M	< 98.9	64.4	**18.8**
A-21	Atlas	11/2/2021	**3,270** M	< 99.4	367	**50.0**
A-22	Atlas	11/2/2021	**4,510** M	< 98.7	761	**137**
A-23	Atlas	11/13/2021	**4,050** M	< 98.5	350	**41.2**
A-24	Atlas	11/13/2021	**650** C	< 99.2	< 50.0	< 0.440
A-25	Atlas	11/13/2021	< 103	< 103	< 50.0	< 0.440
A-26	Atlas	11/13/2021	< 98.6	< 98.6	< 50.0	< 0.440
A-27	Atlas	3/7/2022	496 M	< 119	< 50.0	< 0.440
A-28	Atlas	3/7/2022	245 M	258	< 50.0	2.28
A-29	Atlas	3/7/2022	< 116	**962**	< 50.0	1.92
A-30	Atlas	3/7/2022	< 122	231	< 50.0	0.710
A-31	Atlas	3/7/2022	**937** M	< 118	92.4	**14.3**
A-32	Atlas	3/7/2022	**975** M	< 120	243	**51.1**
A-33	Atlas	3/7/2022	**1,650** M	< 119	86.1	**16.3**
A-34	Atlas	3/7/2022	261 M	206	< 50.0	**8.59**
A-35	Atlas	3/8/2022	**1,290** M	< 122	197	**28.0**
A-36	Atlas	3/8/2022	< 120	259	< 50.0	< 0.440
A-37	Atlas	3/8/2022	< 118	178	< 50.0	< 0.440
A-38	Atlas	3/8/2022	< 120	**700**	< 50.0	< 0.440
A-39	Atlas	3/7/2022	< 122	191	< 50.0	1.07
MTCA Method A Cleanup Level for Groundwater[4]			**500**	**500**	**800/1,000[5]**	**5**

NOTES:

Results in **bold** and highlighted yellow denote concentrations above applicable cleanup levels.

--- denotes sample not analyzed or chromatographic pattern not quantified as listed analyte.

< denotes analyte not detected at or above the reporting limit listed.

* denotes analyzed by Northwest Method NWTPH-HCID

[1]Analyzed by Northwest Method NWTPH-Dx unless otherwise noted.

[2]Analyzed by Northwest Method NWTPH-Gx unless otherwise noted.

[3]Analyzed by U.S. Environmental Protection Agency Method 8260D.

[4]Washington State Model Toxics Control Act Cleanup Regulation Method A Cleanup Levels for Groundwater, Table 720-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as amended 2013.

[5]Cleanup level is 800 micrograms per liter if benzene is detected and 1,000 micrograms per liter if benzene is not detected.

Atlas = Atlas Technical Consultants, LLC

BTEX = benzene, toluene, ethylbenzene, and xylenes

C = chromatographic pattern indicates unresolved compound(s), or an unresolved complex mixture in the range

DRO = total petroleum hydrocarbons (TPH) as diesel-range organics

G = chromatographic pattern resembles weathered gasoline-range material

GRO = TPH as gasoline-range organics

J = result is an estimate

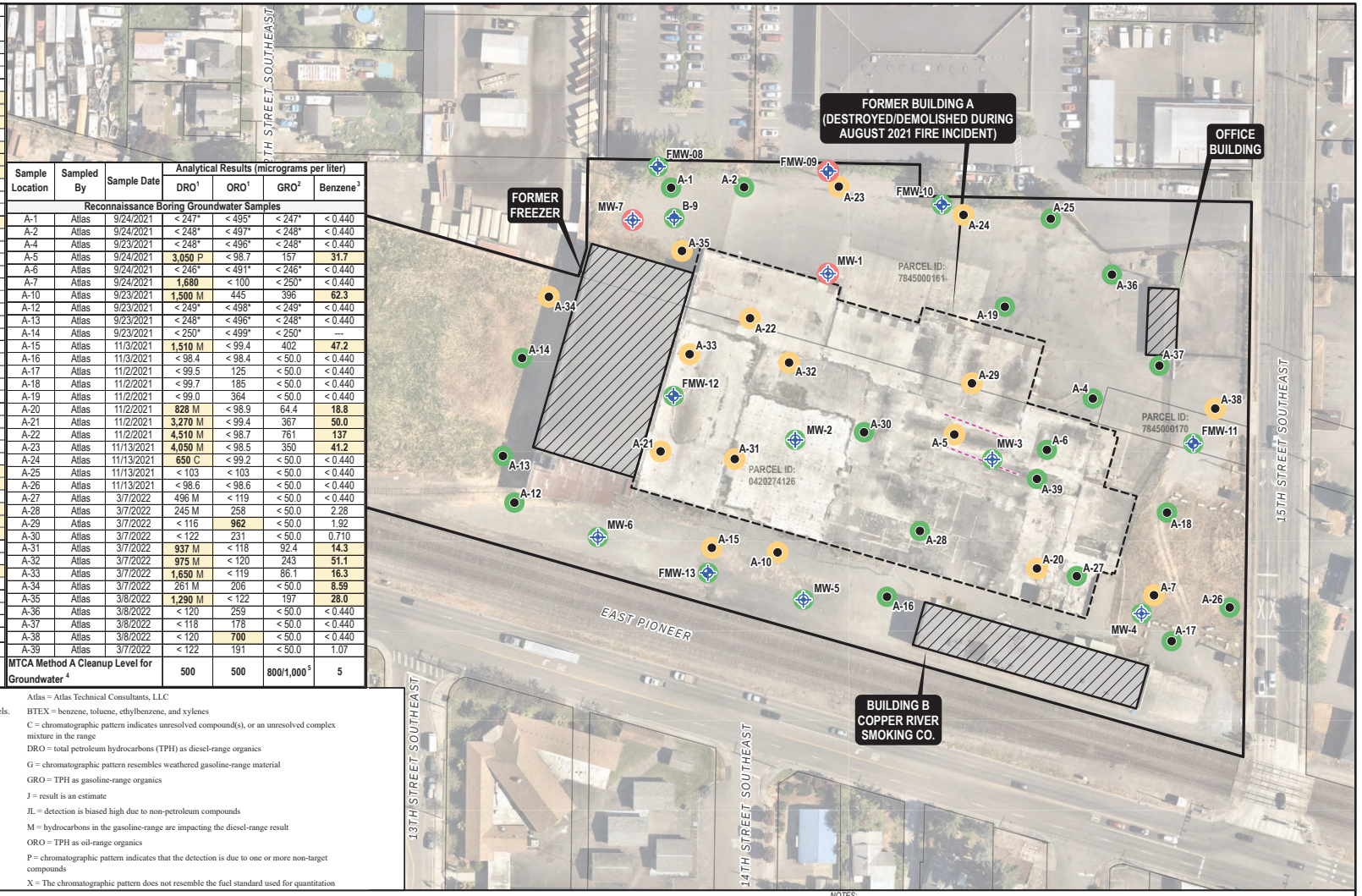
JL = detection is biased high due to non-petroleum compounds

M = hydrocarbons in the gasoline-range are impacting the diesel-range result

ORO = TPH as oil-range organics

P = chromatographic pattern indicates that the detection is due to one or more non-target compounds

X = The chromatographic pattern does not resemble the fuel standard used for quantitation



LEGEND

- INDICATES TPH AND BENZENE WERE NOT DETECTED AT CONCENTRATIONS EXCEEDING MTCA CLEANUP LEVELS IN GROUNDWATER
- INDICATES ONE OR MORE MTCA EXCEEDANCES OF TPH AND/OR BENZENE IN GROUNDWATER
- INDICATES ONE OR MORE MTCA EXCEEDANCES OF TPH AND/OR BENZENE IN RECONNAISSANCE GROUNDWATER
- BORING (ATLAS 2021, 2022)
- GEOTECHNICAL WELL (TERRA 2021)
- MONITORING WELL (ATLAS 2021)
- MONITORING WELL (FARALLON 2023)
- FORMER BUILDING
- APPROXIMATE PROPERTY BOUNDARY
- PIERCE COUNTY PARCEL BOUNDARIES
- MTCA = MODEL TOXICS CONTROL ACT
- FORMER TRENCH DRAINS
- EXISTING BUILDING

100 50 0 100

APPROXIMATE SCALE IN FEET

N

NOTES:
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FIGURE 9

GROUNDWATER ANALYTICAL RESULTS FOR TPH AND BENZENE

WASHINGTON COLD STORAGE
240 15TH STREET SOUTHEAST
PUYALLUP, WASHINGTON

DRAWN BY: VBACHMANN	CHECKED BY: YP	DATE: 5/8/2023	FARALLON PN: 2636-001

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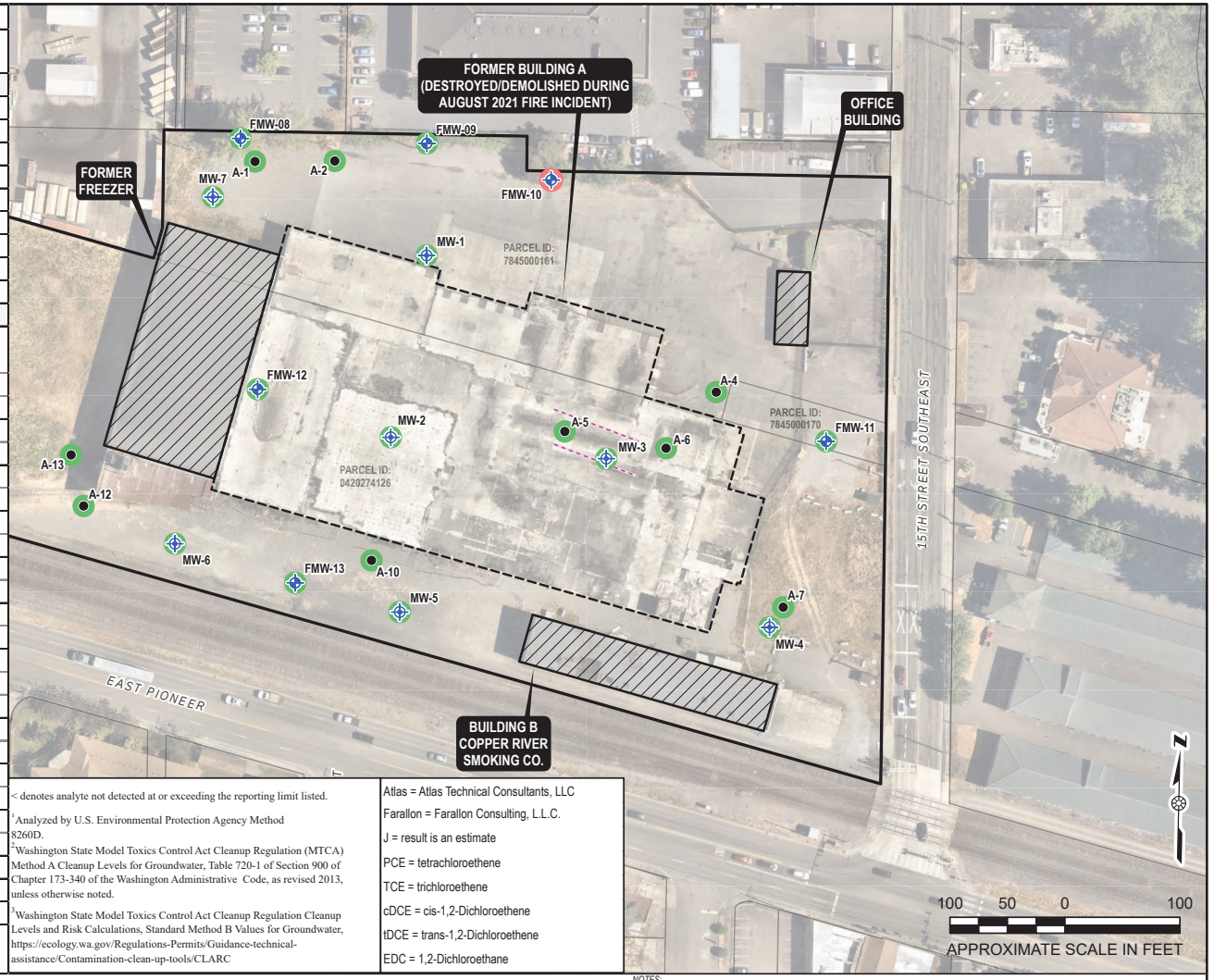
Sample Location	Sampled By	Sample Date	Analytical Results (micrograms per liter) [1] PCE	TCE	cDCE	tDCE	Vinyl Chloride	EDC
Reconnaissance Boring Groundwater Samples								
A-1	Atlas	9/24/2021	< 0.400	< 0.500	< 0.500	< 0.500	< 0.200	< 0.750
A-2	Atlas	9/24/2021	< 0.400	< 0.500	< 0.500	< 0.500	< 0.200	< 0.750
A-4	Atlas	9/23/2021	< 0.400	< 0.500	< 0.500	< 0.500	< 0.200	< 0.750
A-5	Atlas	9/24/2021	< 0.400	< 0.500	< 0.500	< 0.500	< 0.200	< 0.750
A-6	Atlas	9/24/2021	< 0.400	< 0.500	< 0.500	< 0.500	< 0.200	< 0.750
A-7	Atlas	9/24/2021	< 0.400	< 0.500	< 0.500	< 0.500	< 0.200	< 0.750
A-10	Atlas	9/23/2021	< 0.400	< 0.500	< 0.500	< 0.500	< 0.200	< 0.750
A-12	Atlas	9/23/2021	< 0.400	< 0.500	< 0.500	< 0.500	< 0.200	< 0.750
A-13	Atlas	9/23/2021	< 0.400	< 0.500	< 0.500	< 0.500	< 0.200	< 0.750
Monitoring Well Groundwater Samples								
MW-1	Farallon	12/27/2022	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400
	Farallon	2/14/2023	< 0.400 J	< 0.400 J	< 0.400 J	< 0.400 J	< 0.400 J	< 0.400 J
	Farallon	4/11/2023	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400
MW-2	Farallon	12/27/2022	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400
	Farallon	2/14/2023	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400
MW-3	Farallon	12/28/2022	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400
	Farallon	2/13/2023	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400
MW-4	Farallon	1/4/2023	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400
	Farallon	2/13/2023	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400
MW-5	Farallon	12/28/2022	< 0.700 K	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400
	Farallon	2/13/2023	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400
MW-6	Farallon	12/28/2022	< 0.700 K	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400
	Farallon	2/13/2023	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400
MW-7	Farallon	1/4/2023	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	0.850
	Farallon	2/14/2023	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	0.540
	Farallon	4/11/2023	< 0.400	< 0.400 J	< 0.400	< 0.400	< 0.400	0.510 J
FMW-08	Farallon	2/14/2023	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400
	Farallon	4/11/2023	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400
FMW-09	Farallon	2/14/2023	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400
	Farallon	4/11/2023	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400
FMW-10	Farallon	2/14/2023	3.38	**6.44**	**29.8**	0.960	< 0.400	< 0.400
	Farallon	4/11/2023	1.74	**9.39**	**39.5**	1.39	< 0.400	< 0.400
FMW-11	Farallon	2/13/2023	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400
FMW-12	Farallon	2/14/2023	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400
FMW-13	Farallon	2/13/2023	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400	< 0.400
MTCA Cleanup Levels for Groundwater [2]			**5**	**5**	**16 [3]**	**160 [3]**	**0.2**	**5**



< denotes analyte not detected at or exceeding the reporting limit listed.

[1] Analyzed by U.S. Environmental Protection Agency Method 8260D.

[2] Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method A Cleanup Levels for Groundwater, Table 720-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as revised 2013, unless otherwise noted.

[3] Washington State Model Toxics Control Act Cleanup Regulation Cleanup Levels and Risk Calculations, Standard Method B Values for Groundwater, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

Atlas = Atlas Technical Consultants, LLC
Farallon = Farallon Consulting, L.L.C.
J = result is an estimate
PCE = tetrachloroethene
TCE = trichloroethene
cDCE = cis-1,2-Dichloroethene
tDCE = trans-1,2-Dichloroethene
EDC = 1,2-Dichloroethane

LEGEND

- BORING (ATLAS 2021, 2022)
- MONITORING WELL (ATLAS 2021)
- MONITORING (FARALLON 2023)
- INDICATES HVOCs WERE NOT DETECTED AT CONCENTRATIONS EXCEEDING MTCA CLEANUP LEVELS IN GROUNDWATER
- INDICATES ONE OR MORE HVOCs WERE DETECTED AT CONCENTRATIONS EXCEEDING MTCA CLEANUP LEVELS IN GROUNDWATER
- FORMER BUILDING
- APPROXIMATE SUBJECT PROPERTY BOUNDARY
- PIERCE COUNTY PARCEL BOUNDARIES
- FORMER TRENCH DRAINS
- EXISTING BUILDING

HVOCs = HALOGENATED VOLATILE ORGANIC COMPOUNDS

AERIAL IMAGERY: NEARMAP, 7/20/2022

NOTES:
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FIGURE 10
GROUNDWATER ANALYTICAL RESULTS FOR HALOGENATED VOCs
WASHINGTON COLD STORAGE
240 15TH STREET SOUTHEAST
PUYALLUP, WASHINGTON

DRAWN BY: VBACHMANN	CHECKED BY: YP	DATE: 5/8/2023	FARALLON PN: 2636-001

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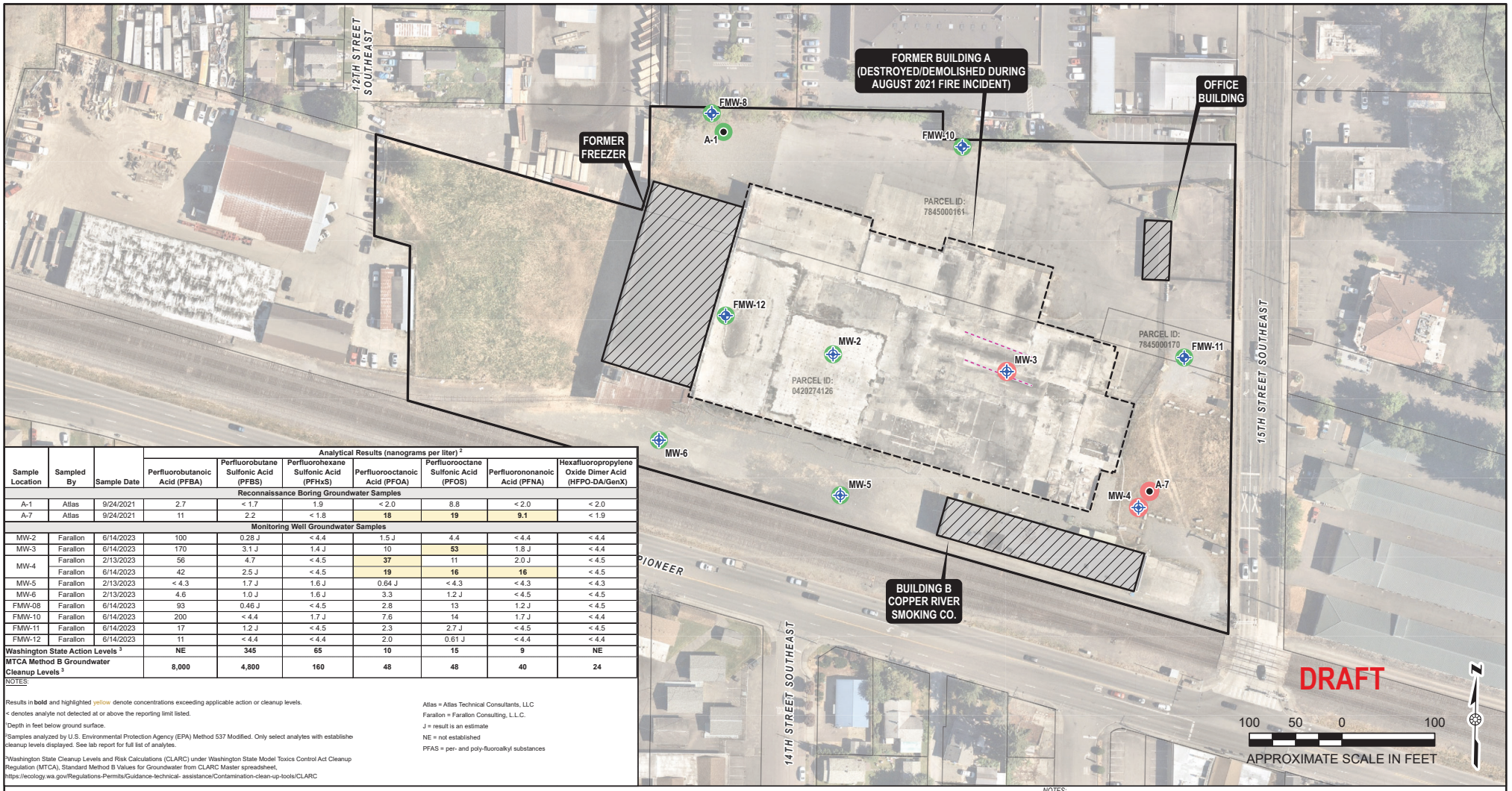

Sample Location	Sampled By	Sample Date	Analytical Results (nanograms per liter) [2]						
			Perfluorobutanoic Acid (PFBA)	Perfluorobutane Sulfonic Acid (PFBS)	Perfluorohexane Sulfonic Acid (PFHxS)	Perfluorooctanoic Acid (PFOA)	Perfluorooctane Sulfonic Acid (PFOS)	Perfluorononanoic Acid (PFNA)	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)
Reconnaissance Boring Groundwater Samples									
A-1	Atlas	9/24/2021	2.7	< 1.7	1.9	< 2.0	8.8	< 2.0	< 2.0
A-7	Atlas	9/24/2021	11	2.2	< 1.8	**18**	**19**	**9.1**	< 1.9
Monitoring Well Groundwater Samples									
MW-2	Farallon	6/14/2023	100	0.28 J	< 4.4	1.5 J	4.4	< 4.4	< 4.4
MW-3	Farallon	6/14/2023	170	3.1 J	1.4 J	10	**53**	1.8 J	< 4.4
MW-4	Farallon	2/13/2023	56	4.7	< 4.5	**37**	11	2.0 J	< 4.5
	Farallon	6/14/2023	42	2.5 J	< 4.5	**19**	**16**	**16**	< 4.5
MW-5	Farallon	2/13/2023	< 4.3	1.7 J	1.6 J	0.64 J	< 4.3	< 4.3	< 4.3
MW-6	Farallon	2/13/2023	4.6	1.0 J	1.6 J	3.3	1.2 J	< 4.5	< 4.5
FMW-08	Farallon	6/14/2023	93	0.46 J	< 4.5	2.8	13	1.2 J	< 4.5
FMW-10	Farallon	6/14/2023	200	< 4.4	1.7 J	7.6	14	1.7 J	< 4.4
FMW-11	Farallon	6/14/2023	17	1.2 J	< 4.5	2.3	2.7 J	< 4.5	< 4.5
FMW-12	Farallon	6/14/2023	11	< 4.4	< 4.4	2.0	0.61 J	< 4.4	< 4.4
Washington State Action Levels [3]			**NE**	**345**	**65**	**10**	**15**	**9**	**NE**
MTCA Method B Groundwater Cleanup Levels [3]			**8,000**	**4,800**	**160**	**48**	**48**	**40**	**24**

NOTES:

Results in **bold** and highlighted yellow denote concentrations exceeding applicable action or cleanup levels.

< denotes analyte not detected at or above the reporting limit listed.

[1]Depth in feet below ground surface.

[2]Samples analyzed by U.S. Environmental Protection Agency (EPA) Method 537 Modified. Only select analytes with establishe cleanup levels displayed. See lab report for full list of analytes.

[3]Washington State Cleanup Levels and Risk Calculations (CLARC) under Washington State Model Toxics Control Act Cleanup Regulation (MTCA), Standard Method B Values for Groundwater from CLARC Master spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical- assistance/Contamination-clean-up-tools/CLARC

Atlas = Atlas Technical Consultants, LLC
Farallon = Farallon Consulting, L.L.C.
J = result is an estimate
NE = not established
PFAS = per- and poly-fluoroalkyl substances

LEGEND

- BORING (ATLAS 2021, 2022)
- MONITORING WELL (ATLAS 2021)
- MONITORING WELL (FARALLON 2023)
- INDICATES PFAS COMPOUNDS WERE NOT DETECTED AT CONCENTRATIONS EXCEEDING WASHINGTON STATE ACTION LEVELS IN GROUNDWATER
- INDICATES ONE OR MORE WASHINGTON STATE ACTION LEVEL EXCEEDANCES OF PFAS COMPOUNDS IN GROUNDWATER
- FORMER TRENCH DRAINS
- EXISTING BUILDING
- FORMER BUILDING
- APPROXIMATE PROPERTY BOUNDARY
- PIERCE COUNTY PARCEL BOUNDARIES

AERIAL IMAGERY: NEARMAP, 7/20/2022

NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
2. FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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FIGURE 11

GROUNDWATER ANALYTICAL RESULTS FOR PFAS

WASHINGTON COLD STORAGE
240 15TH STREET SOUTHEAST
PUYALLUP, WASHINGTON

DRAWN BY: VBACHMANN	CHECKED BY: YP	DATE: 6/28/2023	FARALLON PN: 2636-001

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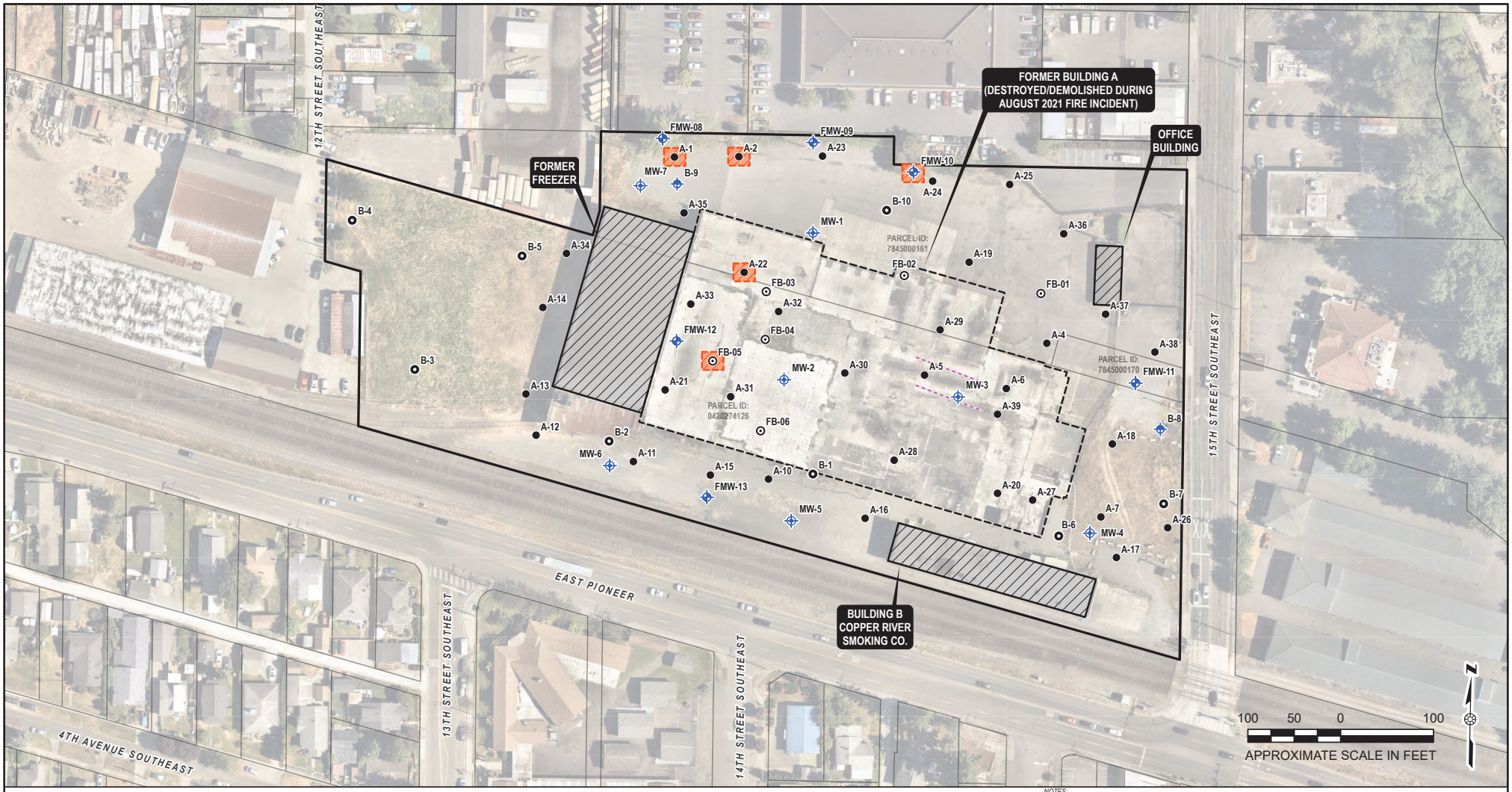

LEGEND

- GEOTECHNICAL WELL (TERRA 2021)
- MONITORING WELL (ATLAS 2021)
- MONITORING WELL (FARALLON 2023)
- BORING (ATLAS 2021, 2022)
- BORING (FARALLON 2023)
- BORING (TERRA ASSOCIATES 2022)
- FORMER TRENCH DRAINS
- PLANNED SOURCE REMOVAL EXCAVATION AREAS
- EXISTING BUILDING
- FORMER BUILDING
- APPROXIMATE SUBJECT PROPERTY BOUNDARY
- PIERCE COUNTY PARCEL BOUNDARIES

AERIAL IMAGERY: NEARMAP, 7/20/2022

NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
2. FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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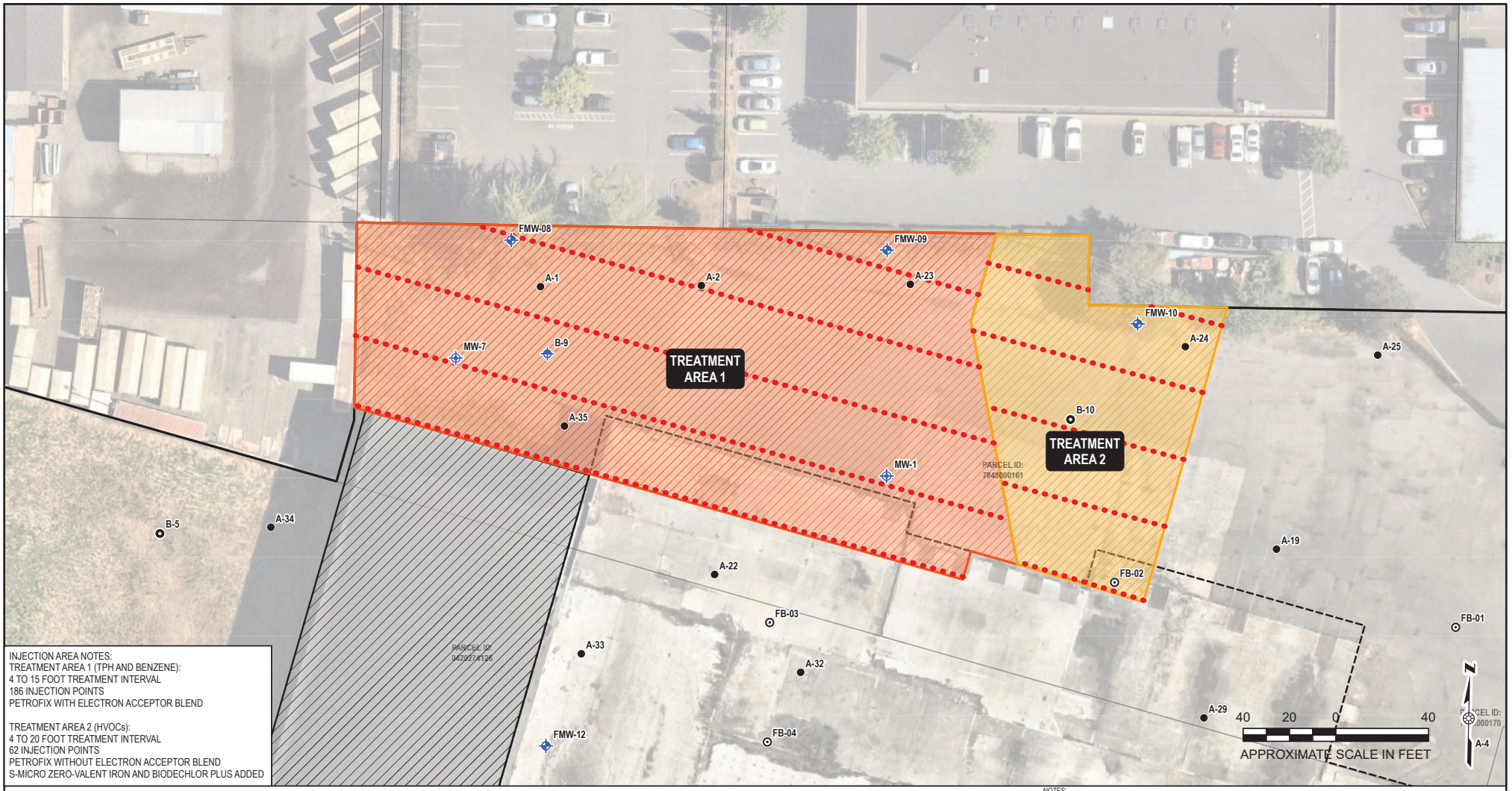
FIGURE 12

PROPERTY PLAN WITH PLANNED SOURCE REMOVAL EXCAVATION AREAS

WASHINGTON COLD STORAGE
240 15TH STREET SOUTHEAST
PUYALLUP, WASHINGTON

DRAWN BY: VBACHMANN	CHECKED BY: YP	DATE: 5/9/2023	FARALLON PN: 2636-001

Path: Q:\Projects\2636 Fortress Entities\001 Fmr Wa Cold Storage Bldg\ArcPro\2636-001\2636-001\MapFiles\2023_Q1\2636-001_Fig12_PropertyMap_SourceExcavation.aprx



INJECTION AREA NOTES:
TREATMENT AREA 1 (TPH AND BENZENE):
4 TO 15 FOOT TREATMENT INTERVAL
186 INJECTION POINTS
PETROFIX WITH ELECTRON ACCEPTOR BLEND

TREATMENT AREA 2 (HVOCs):
4 TO 20 FOOT TREATMENT INTERVAL
62 INJECTION POINTS
PETROFIX WITHOUT ELECTRON ACCEPTOR BLEND
S-MICRO ZERO-VALENT IRON AND BIODECHLOR PLUS ADDED

LEGEND

- GEOTECHNICAL WELL (TERRA 2021)
- MONITORING WELL (ATLAS 2021)
- MONITORING WELL (FARALLON 2023)
- BORING (ATLAS 2021, 2022)
- BORING (FARALLON 2023)
- BORING (TERRA ASSOCIATES 2022)
- INJECTION POINT ROW
- TREATMENT AREA 1
- TREATMENT AREA 2
- EXISTING BUILDING
- FORMER BUILDING
- APPROXIMATE SUBJECT PROPERTY BOUNDARY
- PIERCE COUNTY PARCEL BOUNDARIES

HVOC = HALOGENATED VOLATILE ORGANIC COMPOUNDS

TPH = TOTAL PETROLEUM HYDROCARBONS

AERIAL IMAGERY: NEARMAP, 7/20/2022

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FIGURE 13

PLANNED INJECTION TREATMENT AREAS

WASHINGTON COLD STORAGE
240 15TH STREET SOUTHEAST
PUYALLUP, WASHINGTON

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