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DEPARTMENT OF ECOLOGY
Northwest Region Office
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December 12, 2022

Jerry-Alan Murakami
12424 83rd Avenue South
Seattle, WA 98178
(jerryskii@yahoo.com)

RE: Opinion pursuant to WAC 173-340-515(5) on Remedial Action for the following Hazardous Waste Site:

- **Site Name:** Morningside Acres Tracts South
- **Site Address:** 5021 Rainier Avenue S, Seattle, Washington
- **Facility/Site No.:** 4321
- **VCP Project No.:** NW3345

Dear Jerry-Alan Murakami:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Morningside Acres Tracts South facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70A.305 RCW.

Issue Presented and Opinion

Pursuant to the completion of Site characterization work described in the *Remedial Investigation and Feasibility Study Report, Morningside Acres Tracts, 5001, 5015, and 5021 Rainier Avenue South, Seattle Washington* (*2021 RI/FS*), is additional work necessary to resolve data gaps?

YES. Ecology has determined that further Site characterization work is necessary to fully delineate the extent of contamination from this Site and evaluate potential interactions with total petroleum hydrocarbon (TPH) impacts at the north-adjacent Morningside Acres Tracts North Site.

Description of the Site

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

- Trichloroethylene (TCE) and vinyl chloride into the Soil.
- TCE; cis-1,2-dichloroethylene (DCE); 1,2-dichloroethane (EDC); 1,2-dichloropropane (DCP); vinyl chloride; and diesel-range TPH (TPH-D) into the Groundwater.
- TCE; cis-1,2-DCE, and vinyl chloride into the Air.

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

The Site consists of King County parcels 564960-0133 and 564960-0130 (Property), and all areas where contamination associated with the Site has come to be located.

Please note the parcels of real property associated with this Site are also potentially located within the projected boundaries of the north-adjacent Morningside Acres Tracts North facility (Cleanup Site ID 12406). At this time, we have no information that the Property is actually affected by this Site. This opinion does not apply to any contamination associated with the Morningside Acres Tracts North facility.

Basis for the Opinion

This opinion is based on the information contained in the documents listed in **Enclosure B**. A number of these documents are accessible in electronic form from the Site web page[1]. The complete records are kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. Visit our Public Records Request Page[2] to submit a public records request or get more information about the process. If you require assistance with this process, you may contact the Public Records Officer at publicrecordsofficer@ecy.wa.gov or 360-407-6040.

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

Analysis of the Cleanup

Ecology has concluded that **further remedial action** is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

[1] https://apps.ecology.wa.gov/cleanupsearch/site/12408
[2] https://ecology.wa.gov/Footer/Public-records-requests

Ecology recommends collecting additional Site characterization data in order to determine if the cleanup standards and cleanup action you selected meet the substantive requirements of MTCA. The Site is described above and in **Enclosure A.**

- **Soil.**

Prior use of the Site for automotive repair from 1964 to 2012 resulted in the release of Site contaminants of concern (COCs) TCE and vinyl chloride to the soil. Soil contamination appears to be centered around a former floor drain in the basement of the building located at 5021 Rainier Avenue S (5021 Building) and in a limited area north of this building. The extent of soil contaminated with TCE has been defined laterally in all directions. However, the vertical extent of vinyl chloride contamination in soil around the former floor drain is not fully delineated.

Based on the results of a temporary groundwater sample collected from boring GLP-07 within the 5021 Building discussed below, it is likely soil contaminated with TPH-D is present in the vicinity of this boring. As discussed in **Enclosure A**, adjacent borings to the north, south, east, and west did not contain TPH-D above laboratory detection limits and MTCA Method A soil cleanup level. Analytical results collected from borings installed on the north-adjacent Morningside Acres Tracts North (MSATN) Site, discussed in the *2022 RI/FS* indicate that petroleum contamination from this Site is not present in soil on the Property.

- **Groundwater.**

Groundwater sampling was first conducted at the Site in 2006. Initial results indicated that concentrations of TCE; cis-1,2-DCE; EDC; 1,2-DCP; and vinyl chloride (collectively CVOCs) in groundwater exceeded their respective Method A or B cleanup levels. A groundwater sample collected from a temporary well installed in boring GLP-07 contained TPH-D above the Method A cleanup level. Purge water from this well was also noted to contain blebs of light non-aqueous phase liquid (LNAPL).

Concentrations of CVOCs in groundwater exceeding the Method A or B cleanup levels appear to be originate from the floor drain in the center of the building located at 5021 Rainier Avenue S (5021 Building). The CVOC-contaminated groundwater plume extends downgradient to the north potentially below the building at 5015 Rainier Avenue (5015 Building) and off property to the northwest (**Enclosure A, Figure 5**).

Current groundwater analytical data does not appear to indicate that the CVOCs plume from the Site has comingled with the TPH plume from the north-adjacent MSATN Site. However, the downgradient extent of both the CVOCs and TPH plumes is not defined to the west of either Site. Ecology recommends installing monitoring wells on the west-adjacent property in the parking lot of 3723 S Dawson Street to constrain the western extent of the CVOCs plume and evaluate whether it has comingled with the TPH plume from the MSATN Site.

Based on analytical results from MW-17, the eastern extent of contamination on the Property is not defined. Ecology recommends installing an additional well upgradient to the east to constrain the extent of groundwater contamination in this area. Groundwater sampling records indicate

that MW-5 was only sampled once in 2006 and could not be located after 2013. If MW-5 has been decommissioned per WAC 173-160-381, please provide a decommissioning log.

- **Air.**

Air samples were collected from buildings on the Property in July 2019 due to concentrations of TCE; cis-1,2-DCE; and vinyl chloride in groundwater exceeding the Method B screening level for vapor intrusion. A total of seven air samples were collected from the 5015 Building, the 5021 Building, and ambient outdoor air. Air samples collected from the occupied portion of the 5021 Building and the 5015 Building contained 1,2-DCE above the Method B cleanup level for unrestricted use. Air samples collected from the basement of the 5021 Building contained TCE above the Method B cleanup level for unrestricted use, but below the action level for short-term TCE toxicity, as discussed in Ecology's letter *Re: Response to Ecology's Request for Evaluation of Trichloroethylene Risks at the following Site: Morningside Acres Tracts South, 5021 Rainier Avenue S, Seattle, WA 98118,* dated September 24, 2019 (*2019 Letter*).

Further evaluation of vapor intrusion risks may be necessary following completion of your selected remedial alternative, discussed in section 3 below. If groundwater below the site contains Site COCs above Method B screening levels for unrestricted use, evaluation of vapor intrusion risks as discussed in Ecology's *Guidance for Evaluating Vapor Intrusion in Washington State: Investigation and Remedial Action, revised March 2022*[3] will be needed.

2. Establishment of cleanup standards.

Ecology has determined the cleanup levels and points of compliance you established for the Site do not meet the substantive requirements of MTCA.

- **Soil.**

Based on measured depth the groundwater and the presence of Site COCs in soil and groundwater, the leaching pathway is complete at the Site. MTCA Method A soil cleanup levels for unrestricted uses (WAC 1763-340-740(2); Table 740-1) are appropriate.

Since a Method A cleanup level is unavailable for vinyl chloride, the Method B cleanup level for protection of groundwater is appropriate. The Method B cleanup level is available in Ecology's *Cleanup Levels and Risk Calculation (CLARC)* database[4]. The resulting cleanup level for vinyl chloride is 0.0017 milligrams per kilogram (mg/kg) for vadose zone soil, and 0.00009 mg/kg for saturated zone soil. These values can be adjusted upward to practical quantitation limits (PQL). Ecology does not concur with the proposed cleanup level of 0.67 mg/kg, because it only considers the direct contact pathway.

The point of compliance for soil cleanup standards based on the protection of groundwater is soils throughout the site (WAC 173-340-740(6)(b).

[3] https://apps.ecology.wa.gov/publications/SummaryPages/1909051.html/SummaryPages/0909047.html
[4] https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC/Data-tables

Ecology appreciates your evaluation of the need for a Terrestrial Ecological Evaluation (TEE) for the Site. No contiguous area of undeveloped land greater than 1.5 acres in size is located within a 500-foot radius of the Site. Therefore, Method A and B soil cleanup levels and point of compliance as discussed above are appropriate at the Site.

- **Groundwater.**

  The highest beneficial use for groundwater is considered to be as a potable source, unless it can be demonstrated that groundwater is non-potable. MTCA Method A cleanup levels, which are protective of groundwater as a potable source, are appropriate for the Site (WAC 173-340-720(3)). Where Method A cleanup levels do not exist for individual contaminants, the Method B cleanup level protective of potable water use should be used (WAC 173-340-720(4)(b)). These Method B cleanup levels are available in Ecology's *CLARC* database, and are listed below for selected chemicals:

  - cis-1,2-DCE: 16 micrograms per liter (µg/L)
  - trans-1,2-DCE: 100 µg/L
  - 1,1-DCE: 7 µg/L
  - 1,2-DCP: 5 µg/L

  The standard point of compliance is throughout the Site from the uppermost level of the saturated zone extending vertically to the lowest depth that could potentially be affected per WAC 173-340-720 (8)(b).

- **Air.**

  Due to the planned future use of the Site as a multi-family residential development as stated in the *2022 RI/FS*, the standard MTCA Method B cleanup levels for unrestricted use are appropriate for the Site (WAC 173-340-750(3)(b)). The standard point of compliance is defined as ambient air throughout the Site per WAC 173-340-750(6). If groundwater sampling conducted following the completion of remedial actions at the site indicates that Site COCs are below the Method B screening level for vapor intrusion, the vapor pathway may be considered incomplete.

3. Selection of cleanup action.

The preferred cleanup alternative you selected for the Site may meet the substantive requirements of MTCA, but Ecology needs to review additional Site characterization data to make a determination.

The preferred cleanup alternative selected in the *2022 RI/FS* includes the following remedial actions:

- Demolition of existing buildings and impervious surfaces on the Site;

- Removal of any identified and unidentified underground storage tanks (USTs);

- Excavation and off-site disposal of soils contaminated with TCE and vinyl chloride;
- Treatment and/or disposal of contaminated groundwater removed during construction;
- Installation of a network of permanent groundwater monitoring and injection wells;
- In-situ treatment of groundwater contaminated with CVOCs and TPH-D with in-situ chemical reduction and in-situ enhanced bioremediation;
- Groundwater monitoring conducted on a semi-annual basis for four years followed by one year of quarterly confirmational groundwater monitoring.

Additional Site characterization as discussed above in section 1 is needed to confirm the efficacy of your preferred cleanup alternative. Delineation of the downgradient extent of groundwater contamination is needed. In addition, due to the low soil cleanup level for vinyl chloride, and potential extension of contamination deeper than 12 feet bgs, over-excavation may be needed in the former floor drain area to completely remove the CVOC contamination source.

Ecology also recommends including an estimated restoration timeframe for contaminated groundwater. Aquifer testing and/or pilot testing of in-situ groundwater treatments is also recommended to evaluate the feasibility of in-situ groundwater treatment prior to implementation.

4. Next steps.

Ecology appreciates your efforts to date in conducting Site characterization and evaluating cleanup alternatives. Additional focused soil and groundwater investigation is necessary to determine the extent of the CVOC plume in groundwater and evaluate comingling with the north-adjacent Morningside Acres Tracts North Site. If further Site characterization indicates that contamination from the two sites is comingled, Ecology may combine the two sites into one cleanup site moving forward. If comingling is not occurring, Ecology may issue a separate Opinion Letter for the Morningside Acres Tracts North Site.

Ecology recommends the development of a work plan to ensure that sufficient data for soil and groundwater characterization as discussed in sections 1 and 3 is collected to avoid unnecessary expenditure of time and money. We look forward to working with you to bring the Site and Property to closure.

Limitations of the Opinion

1. 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).

2. 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 performed is substantially equivalent. Courts make that determination. *See* RCW 70A.305.080 and WAC 173-340-545.

3. 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).

Contact Information

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). After you have addressed our concerns, you may request another review of your cleanup. Please do not hesitate to request additional services as your cleanup progresses. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/vcp. If you have any questions about this opinion, please contact me by phone at 206-459-6287 or e-mail at david.unruh@ecy.wa.gov.

Sincerely,

David Unruh, LG
NWRO Toxics Cleanup Program

Enclosures (2): A – Description and Diagrams of the Site
B – Basis for the Opinion: List of Documents

cc: Branislav Jurista, Farallon Consulting (bjurista@farallonconsulting.com)
Sonia Fernández, VCP Coordinator (sonia.fernandez@ecy.wa.gov

Enclosure A

Description and Diagrams of the Site

Site Description

This section provides Ecology's understanding and interpretation of Site conditions, and is the basis for the opinions expressed in the body of the letter.

Site: The Site is defined by releases of the following at 5021 Rainier Avenue South in Seattle, King County, Washington (Property, **Figure 1**, **Figure 2**):

- TCE and vinyl chloride into the Soil.
- TCE; cis-1,2-DCE; EDC; 1,2-DCP; vinyl chloride; and TPH-D into the Groundwater.
- TCE; 1,2-DCE; and vinyl chloride into the Air.

The Site is located on the west side of Rainier Avenue South at Hudson Street, and consists of two irregularly-shaped King County tax parcels totaling 0.34 acres in area with the following King County parcel numbers:

- 564960-0133 (5015 Rainier Avenue S; 5015 Parcel)
- 564960-0130 (5021 Rainier Avenue S; 5021 Parcel)

According to MTCA, the Site is defined as all areas where contamination has come to be located. Based on the currently available site characterization data, the western boundary of the Site has not been fully delineated.

Area and Property Description: The Site is located in a mixed commercial and residential area in Seattle. The Property is currently developed with two single-story commercial buildings occupied by retail businesses. The Property is bounded by the following:

- North: A parking lot and community bicycle shop, with S Hudson Street beyond.

  The parking lot that is immediately north of the Site, has a parcel number 564960-0135, and a street address 5001 Rainier Avenue S (5001 parcel). This parcel is listed as cleanup site Morningside Acre Tracts North (MSATN), with a Cleanup Site ID 12406. The 5001 parcel was first developed in 1927 with a service station. Two generations of service stations occupied this parcel from this time until the late 1970s, when it was converted to a parking lot. Gasoline and diesel underground storage tanks (USTs) were closed in place on this parcel at that time. The current site status for the MSATN site is "awaiting cleanup". The MSATN site is also listed in Ecology's Hazardous Sites List (HSL) with a ranking of 3 (moderate risk).

- East: Rainier Avenue S, and restaurants and an event venue.

- South: Restaurants, retail stores, and office buildings, with S Dawson Street beyond.

- West: Warehouses, fitness facilities, and apartments, with 37th Avenue S beyond.

Property History and Current Use: The Property was first developed with a single-story warehouse building with a basement constructed on the 5021 Parcel in the 1920s (5021 Building; **Figure 2**). Historical uses of the 5021 Building have included plumbing supply, social club, fitness center, and auto and boat dealership. A heating oil UST is located on the southern side of the building (**Figure 3**). From 1964 until 2012, the building was used for auto maintenance. Aboveground storage tanks (ASTs) used for storage of solvents, waste oil, and hydraulic oil for auto maintenance operations were located in the basement of the 5021 Building. The building is currently partially occupied by a book store and community space located on the first floor. The basement of the building was primarily used for auto maintenance in the past, but is currently unoccupied.

A single-story retail building was constructed on the 5015 Parcel in approximately 1926 (5015 Building; **Figure 2**). The parcel was in use as a lumberyard from 1926 to approximately 1965. It was in use as an office building from approximately 1966 to 1980. From 1980 to the present, the 5015 Building has been occupied by a convenience store.

Sources of Contamination: The source of TCE; cis-1,2-DCE; 1,2-DCP; EDC; and vinyl chloride (collectively CVOCs) contamination at the Site is associated with historical use of the Property for auto maintenance. A sediment sample collected from a sump drain in the 5021 Parcel contained tetrachloroethene (PCE) and TCE. Soil and groundwater samples collected from the subsurface in the vicinity of the floor drain contained the highest concentration of CVOCs (**Figure 2**, **Figure 4**, **Figure 5**). The distribution of CVOCs in soil and groundwater at the Site indicates that the floor drain is the source of contamination for these compounds.

The source of petroleum contamination at the Site is likely associated with former USTs or an impact from the north-adjacent MSATN site. A groundwater sample collected from a temporary well installed near or potentially through a heating oil UST on the 5021 Parcel contained TPH-D above the Method A cleanup level (GLP-07; **Figure 5**). During the collection of the groundwater sample, light non-aqueous phase liquid (LNAPL) was noted in groundwater purged from the well. Soil samples were not collected from this boring. Groundwater samples collected from nearby monitoring wells were contaminated with petroleum hydrocarbons or benzene.

Total petroleum hydrocarbon releases from the north-adjacent MSATN Site may also be present on the Property. A benzene exceedance detected in monitoring well MW-19 in 2018 may be related to the TPH releases from the MSATN site.

Physiographic Setting: In general, the Seattle area sits on a complex and incomplete succession of glacial and nonglacial deposits that overlie an irregular bedrock surface. The City straddles the Seattle uplift, the Seattle fault zone, and the Seattle basin, three major bedrock structures that reflect north-south crustal shortening in the Puget Sound Lowland. The landforms and near-surface deposits that cover much of the Seattle area include the upland glacial till that in many areas was cut into channels during glaciation by recessional meltwater.

The glacial till can display north-south axes oriented in the former ice-flow direction. Glacially overridden deposits underlie most of the uplands, whereas loosely consolidated postglacial

deposits fill deep valleys and recessional meltwater channels. Soft organic-rich deposits have filled former lakes, bogs, and sloughs.

The Property is in the Rainier Valley, located between two uplands to the east and west. The Property is located on roughly level ground at an elevation of approximately 115 feet above mean sea level (amsl; **Figure 1**).

Surface/Storm Water System: Stormwater runoff on and in the vicinity of the Property disperses via sheet flow to catch basins connected to the City of Seattle stormwater system located on Rainier Avenue S. The nearest surface water body is Lake Washington, located approximately 0.9 miles northeast of the Property.

Ecological Setting: The Site is zoned for mixed commercial and residential use. Adjoining properties to the north, south, east and west are also zoned for mixed commercial and residential use. Land surfaces on the Property and adjacent parcels are primarily covered by buildings, asphalt, and concrete pavement with some small landscaped areas.

Geology: The geologic map of the area[5] indicates that the Site is underlain by Vashon-Age recessional lacustrine deposits, a series of finely bedded to laminated sands, silts and clays. Boring logs for explorations completed at the Site indicate that the Property is underlain by fill materials to a maximum depth of 6 feet below ground surface (bgs). Fill materials are underlain by clays, silts, sandy silts, and silty sands to the maximum explored depth of 45 feet bgs, interpreted to be recessional lacustrine deposits.

Groundwater: From 2006 to 2018, 15 wells were installed on the Property (MW-3 to MW-5, MW-7, MW-8, MW-11 to MW-17, MW-19 to MW-21; **Figure 3**, **Figure 6**). Wells were installed with 4 to 10-foot screens installed from 3 to 45 feet bgs.

Groundwater is present at the Site at depths ranging from 0.48 to 12.11 feet bgs. Groundwater flow at the Site is generally oriented northwest. Due to the location of the Site in a valley, groundwater flow is oriented to the northeast on the west side of the Site, and to the southwest on the east side of the Site (**Figure 6**).

Water Supply: Drinking water is supplied to the Property by water mains operated by the City of Seattle. Water for the City is sourced from the Cedar and Tolt River watersheds, located approximately 27 miles southeast and 29 miles northeast of the Site, respectively. The Site is located approximately 3.75 miles northwest of the closest 10-year wellhead protection zone for a municipal supply well.

Release and Extent of Contamination:

Soil: A Phase II Environmental Site Assessment (ESA) was conducted on the Site in May and June 2006 based on historical uses of the Property identified in a Phase I ESA conducted in 2005. Three borings were advanced on the 5015 Parcel to a maximum depth of 16.5 feet bgs (SB-3/MW-3, SB-4/MW-4, GP-

[5] https://pubs.usgs.gov/of/2005/1252/

2/MW-5; **Figure 4**). Soil samples collected from GP-2/MW-5 did not contain CVOCs or TPH above laboratory detection limits. Soil samples were not collected from SB-3/MW-3 or SB-4/MW-4.

Two additional borings were advanced on the Property in August 2006 to a maximum of 14.5 feet bgs (GP-4/MW-7, GP-5/MW-8; **Figure 4**, **Figure 7**, **Figure 8**). A soil sample collected from 8 feet bgs in GP-4/MW-7 contained TCE above the Method A cleanup level. Soil samples collected from GP-5/MW-8 did not contain CVOCs or TPHs above their Method A or B cleanup levels.

Additional subsurface investigation occurred on the Property in January and February 2007. A total of 11 borings were installed to a maximum depth of 26 feet bgs (GLP-07, GLP-08, GLP-09/MW-11, GLP-10/MW-12, GLP-11, GLP-12/MW-13, GLP-13, GLP-14/MW-14, GLP-15/MW-15, GLP-16/MW-16, and GLP-17/MW-17; **Figure 4**, **Figure 7**, **Figure 8**). With the exception of GLP-13 and GLP-17, CVOCs and TPHs were not detected above Method A or Method B cleanup levels. Soil samples collected from 4 feet to 12 feet bgs in GLP-13 and from 15 feet bgs in GLP-17 contained vinyl chloride above the Method B cleanup level for protection of groundwater.

GLP-07 was advanced in the immediate vicinity of a former heating oil UST on the 5021 Property (**Figure 4**). As discussed below, groundwater collected from a temporary well installed in this boring contained blebs of LNAPL. The boring log for the exploration notes soils encountered are potentially backfill material for the UST. Soil samples were not collected from GLP-7.

Supplemental soil sampling was conducted in 2017 and 2018 to further delineate the extent of CVOCs in soil at the Site. Two borings were advanced on the 5015 Parcel (MW-19 and MW-21) and one boring was completed on the east side of Rainier Ave S to the east of the Site (MW-20, **Figure 4**, **Figure 7**, **Figure 8**). With the exception of MW-19, soils collected from these borings did not contain CVOCs or TPH above the laboratory reporting limit. A soil sample collected from 15 feet bgs in MW-19 contained TCE and vinyl chloride above their respective Method A and Method B cleanup levels.

Groundwater: Groundwater samples collected during the Phase II ESA in 2006 from MW-3, MW-4, and MW-7 contained vinyl chloride above the Method A cleanup level. Groundwater samples collected from MW-7 also contained TCE; cis-1,2-DCE; and EDC above their respective Method A and Method B cleanup levels. MW-5 and MW-8 did not contain any CVOCs above Method A and B cleanup levels (**Figure 5**).

As discussed above, MW-11 through MW-17 were installed on the Property in January and February 2007. Groundwater samples collected from MW-11, MW-12, MW-16, and MW-17 contained vinyl chloride above the Method A cleanup level. Samples collected form MW-12, MW-16, and MW-17 also contained TCE above the Method A cleanup level. Additionally, cis-1,2-DCE was detected above the Method B cleanup level in groundwater samples collected MW-16 and MW-17 (**Figure 5**). Groundwater samples collected from Site monitoring wells, including a temporary well installed in GLP-07 and MW-10, installed on the north-adjacent parcel, did not contain CVOCs above Method A and Method B cleanup levels.

GLP-07 was advanced in the vicinity of a former heating oil tank on the 5021 Parcel (**Figure 5**). A groundwater sample was collected from a temporary well installed in the boring. Purge water was noted to contain globules of brown light nonaqueous phase liquid (LNAPL). Analytical results for the groundwater sample indicated that it contained TPH-D above the Method A cleanup level. Groundwater samples collected from the remaining monitoring wells did not contain TPHs above the laboratory reporting limit.

Groundwater sampling conducted on the site in February 2013 returned similar results to the previous sampling events. Vinyl chloride was detected above the Method A cleanup level in MW-4, MW-7, MW-12, MW-16, and MW-17. Groundwater samples collected from MW-7, MW-12, MW-16, and MW-17 also contained TCE above the Method A cleanup level. Cis-1,2-DCE was detected above the Method B cleanup level in groundwater samples collected from MW-7, MW-16, and MW-17. Monitoring well MW-19 was installed at the Site in 2017 and contained TCE; cis-1,2-DCE, and vinyl chloride above the Method A and Method B cleanup levels (**Figure 5**). The remainder of groundwater samples collected from Site monitoring wells during this event did not contain CVOCs above their respective Method A and Method B cleanup levels.

Following the installation of MW-20 and MW-21 in 2019, groundwater samples were collected from Site monitoring wells. Vinyl chloride was detected above the Method A cleanup level in MW-4, MW-7, MW-12, MW-17, MW-19, and MW-21. Groundwater samples collected from MW-7, MW-12, and MW-17 also contained TCE and cis-1,2-DCE above their Method A and Method B cleanup levels. Groundwater samples collected from the remaining wells at the Site did not contain CVOCs above Method A or Method B cleanup levels (**Figure 5**).

Groundwater samples collected from MW-19 in October 2018 and MW-11 in August 2019 contained benzene and TPH-D, respectively, above the Method A cleanup level. Petroleum hydrocarbons where not detected in any other Site monitoring wells. A groundwater sample was also collected from a temporary well installed in FB-23, located on the north-adjacent parcel close to its boundary with the 5015 Parcel (**Figure 5**). The groundwater sample did not contain CVOCs above their respective cleanup levels.

Air: Based on the analytical results of groundwater sampling, groundwater under the Property contained TCE and vinyl chloride above the Method B screening level for vapor intrusion. Air sampling was conducted on the Property in July 2019 to address the potential for CVOCs to be present in indoor air in buildings. One indoor air sample was collected from the 5015 Building on and five from the 5021 Building. One ambient air sample was collected from the open space between the two buildings (OA-1; **Figure 3**).

Air samples IA-1, IA-2, and IA-6, collected from the 5015 Building and the first floor of the 5021 Building contained 1,2-DCE above the Method B cleanup level for unrestricted use (**Figure 3**). Air samples IA-3 through IA-5, collected from the basement of the 5021 Building, contained TCE above the Method B cleanup level for unrestricted use. Sample IA-4 also contained vinyl chloride above the Method B cleanup level for unrestricted use.

Site Diagrams

REFERENCE: 7.5 MINUTE USGS QUADRANGLE SEATTLE SOUTH, WASHINGTON, DATED 2013

Enclosure A Figure 1

0 6,200

SCALE IN FEET

N

FARALLON CONSULTING

Your Challenges. Our Priority. | farallonconsulting.com

Washington
Issaquah | Bellingham | Seattle

Oregon
Portland | Baker City

California
Oakland | Irvine

FIGURE 1

PROPERTY VICINITY MAP
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN: 1355-001

Drawn By: vpehlivan Checked By: RL Date: 12/7/2021 Disc Reference:

Document Path: Q:\Projects\1355 Morningside\001 RainierAveS\Mapfiles\006 RI\Figure-01 SiteVicinityMap.mxd

King County iMap

Date: 11/21/2022

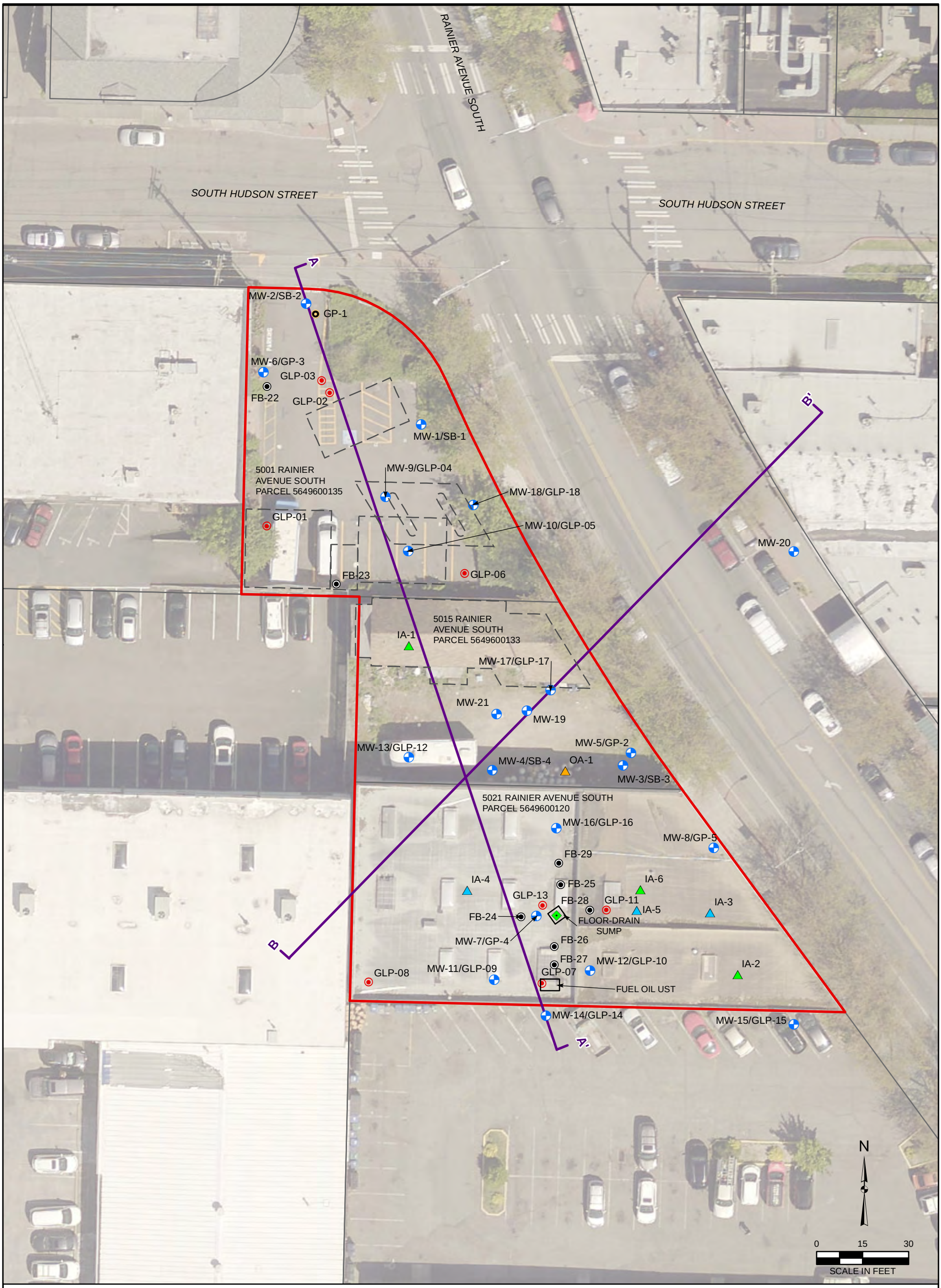
Notes: Enclosure A Figure 2

Morningside Acres Tracts North Parcel

Morningside Acres Tracts South Parcels

N

King County



LEGEND

- BASEMENT INDOOR AIR SAMPLING LOCATION
- FIRST FLOOR INDOOR AIR SAMPLING LOCATION
- OUTDOOR AIR SAMPLING LOCATION
- MONITORING WELL
- BORING (FARALLON)
- BORING (G-LOGICS)
- BORING (KLEINFELDER)
- SUMP SEDIMENT SAMPLE
- PROPERTY BOUNDARY
- KING COUNTY PARCEL BOUNDARY
- A A' LINE OF CROSS SECTION
- UST = UNDERGROUND STORAGE TANK

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

Enclosure A Figure 3

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FIGURE 3

SAMPLING LOCATIONS
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN: 1355-001

Drawn By: vpehlivan | Checked By: JR | Date: 12/7/2021 | Disc Reference:

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SOUTH HUDSON STREET

RAINIER AVENUE SOUTH

MW-2/SB-2

GP-1
13'|ND|ND

MW-6/GP-3
10'|<0.02|<0.01

FB-22
10.0'|<0.0021|<0.0021
15.0'|<0.0014|<0.0014
20.0'|<0.0013|<0.0013

GLP-03

GLP-02

MW-1/SB-1

MW-9/GLP-04

MW-18/GLP-18
10'|<0.03|<0.03
15'|<0.03|<0.03

MW-20
10.0'|<0.0013|<0.0013
13.0'|<0.0013|<0.0013
15.0'|<0.0012|<0.0012
20.0'|<0.0011|<0.0011

GLP-01

MW-10/GLP-05
5'|<0.03|<0.03

GLP-06

FB-23
10.0'|<0.0012|<0.0012
13.0'|<0.0013|<0.0013
17.0'|<0.0013|<0.0013
20.0'|<0.0013|<0.0013

MW-17/GLP-17
11'|<0.03|<0.03
15'|<0.03|0.041

MW-21
30.0'|<0.0016|<0.0016
35.0'|<0.0017|<0.0017
40.0'|<0.0013|<0.0013
45.0'|<0.0016|<0.0016

MW-19
10'|<0.0012 |<0.0012
15'|**0.18** |0.017
22.5'|<0.0013 |<0.0013
30'|<0.0012 |<0.0012

MW-5/GP-2
8.0-10.0'|ND|ND

MW-3/SB-3

MW-4/SB-4

MW-16/GLP-16
4'|<0.03|<0.03
6'|<0.03|<0.03

MW-13/GLP-12
6'|<0.03|<0.03

FLOOR-DRAIN SUMP

GLP-13
4'|<0.03|**0.77**
8'|<0.03| 0.036
12'|<0.03|0.087

FB-25
2.0'|<0.0019|<0.0019
6.0'|<0.0016|0.0019
10.0'|0.023|<0.0011

MW-8/GP-5
10'|<0.02|<0.01

FB-29

FB-28
2.0'|<0.0015|<0.0015
6.0'|**0.034**|0.0066

FB-24
6.0'|<0.0020|<0.0020
10.0'|<0.0011|<0.0011

GLP-11
3'|<0.03|<0.03

FB-26
6.0'|<0.0017|0.0035
10.0'|**0.88**|0.012
14.0'|<0.0011|---

MW-7/GP-4
8'|**0.24**|0.30

GLP-07

MW-12/GLP-10
3'|<0.03|<0.03
7'|<0.03|<0.03
9'|<0.03|<0.03

GLP-08
7'|<0.03|<0.03

FUEL OIL UST

FB-27
10.0'|<0.0013|---
14.0'|<0.0012|---

MW-11/GLP-09
2'|<0.03 |<0.03
8'|<0.03 |<0.03
12'|<0.03 |<0.03

MW-14/GLP-14
13'|<0.03|<0.03
24'|<0.03|<0.03

MW-15/GLP-15
13'|<0.03|<0.03
15'|<0.03|<0.03

NOTE:
EXCEPT FOR BORING MW-8/GP-5,
DEPTHS OF SOIL SAMPLES ON THE SOUTHERN
PARCEL ARE IN FEET BELOW BASEMENT FLOOR.
ALL OTHER SOIL SAMPLE DEPTHS ARE IN
FEET BELOW GROUND SURFACE.

NOTES:
SOIL ANALYTICAL RESULTS SHOWN AS
DEPTH IN FEET BELOW GROUND SURFACE | TCE | VC
SOIL ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM
ONLY COMPOUNDS DETECTED AT CONCENTRATIONS
EXCEEDING MTCA METHOD A OR B CLEANUP LEVELS
ARE SHOWN

BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE MTCA METHOD A OR B CLEANUP LEVEL
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE METHOD REPORTING LIMIT LISTED
--- = DENOTES SAMPLE NOT ANALYZED
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
ND = NOT DETECTED; METHOD REPORTING LIMIT UNKNOWN
TCE = TRICHLOROETHENE
VC = VINYL CHLORIDE
VOCs = VOLATILE ORGANIC COMPOUNDS
UST = UNDERGROUND STORAGE TANK

N

0 30

SCALE IN FEET

LEGEND

- MONITORING WELL
- BORING (FARALLON)
- BORING (G-LOGICS)
- BORING (KLEINFELDER)
- ESTIMATED EXTENT OF CHLORINATED VOCs IN SOIL EXCEEDING MTCA METHOD A OR B CLEANUP LEVELS - DASHED WHERE INFERRED
- PROPERTY BOUNDARY
- KING COUNTY PARCEL BOUNDARY

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

Enclosure A Figure 4

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FIGURE 5

ESTIMATED AREAL EXTENT OF CHLORINATED VOCs IN SOIL
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN: 1355-001

Drawn By: vpehlivan | Checked By: RL | Date: 1/5/2022 | Disc Reference:

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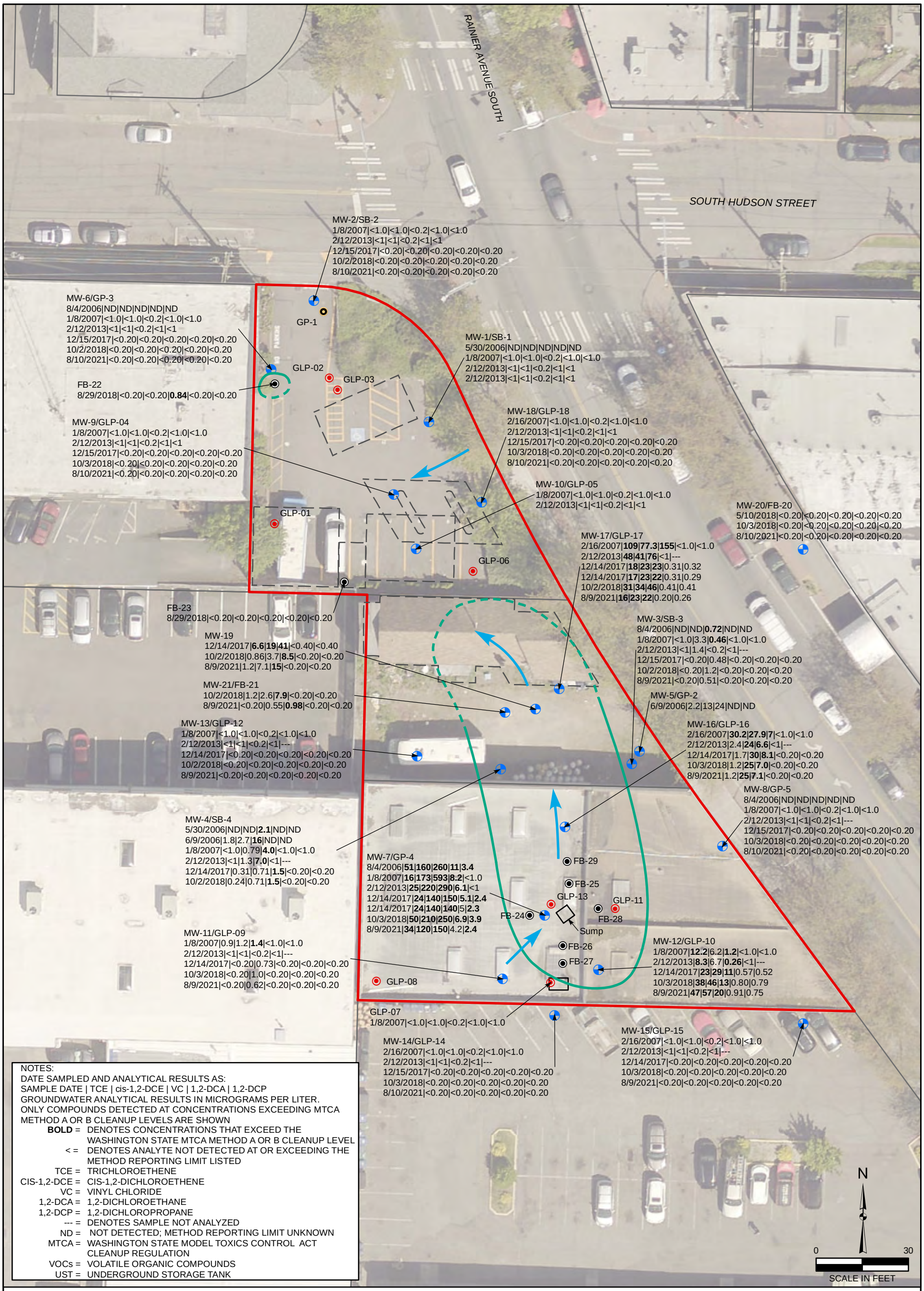

NOTES:
DATE SAMPLED AND ANALYTICAL RESULTS AS:
SAMPLE DATE | TCE | cis-1,2-DCE | VC | 1,2-DCA | 1,2-DCP
GROUNDWATER ANALYTICAL RESULTS IN MICROGRAMS PER LITER.
ONLY COMPOUNDS DETECTED AT CONCENTRATIONS EXCEEDING MTCA METHOD A OR B CLEANUP LEVELS ARE SHOWN

BOLD =	DENOTES CONCENTRATIONS THAT EXCEED THE WASHINGTON STATE MTCA METHOD A OR B CLEANUP LEVEL
< =	DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE METHOD REPORTING LIMIT LISTED
TCE =	TRICHLOROETHENE
CIS-1,2-DCE =	CIS-1,2-DICHLOROETHENE
VC =	VINYL CHLORIDE
1,2-DCA =	1,2-DICHLOROETHANE
1,2-DCP =	1,2-DICHLOROPROPANE
--- =	DENOTES SAMPLE NOT ANALYZED
ND =	NOT DETECTED; METHOD REPORTING LIMIT UNKNOWN
MTCA =	WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
VOCs =	VOLATILE ORGANIC COMPOUNDS
UST =	UNDERGROUND STORAGE TANK

LEGEND

- MONITORING WELL
- BORING (FARALLON)
- BORING (G-LOGICS)
- BORING (KLEINFELDER)
- ESTIMATED EXTENT OF CHLORINATED VOCs EXCEEDING MTCA METHOD A OR B CLEANUP LEVELS IN GROUNDWATER (BASED ON MOST RECENT DATA), DASHED WHERE INFERRED
- INFERRED GROUNDWATER FLOW DIRECTION
- PROPERTY BOUNDARY
- KING COUNTY PARCEL

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

Enclosure A Figure 5

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FIGURE 11

ESTIMATED AREAL EXTENT OF CHLORINATED VOCS IN GROUNDWATER
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN: 1355-001

Drawn By: vpehlivan | Checked By: RL | Date: 1/5/2022 | Disc Reference:

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LEGEND

- MONITORING WELL
- PROPERTY BOUNDARY
- KING COUNTY PARCEL BOUNDARY
- 105.65 — APPROXIMATE GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- (105.67) — GROUNDWATER ELEVATION (10/02/2018) MEASURED IN FEET ABOVE MEAN SEA LEVEL
- [103.72] — GROUNDWATER ELEVATION NOT USED IN CONTOURING
- [NM] — NOT MEASURED
- INFERRED GROUNDWATER FLOW DIRECTION

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

Enclosure A Figure 6

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FIGURE 4A

GROUNDWATER ELEVATION CONTOUR MAP - OCTOBER 2018
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

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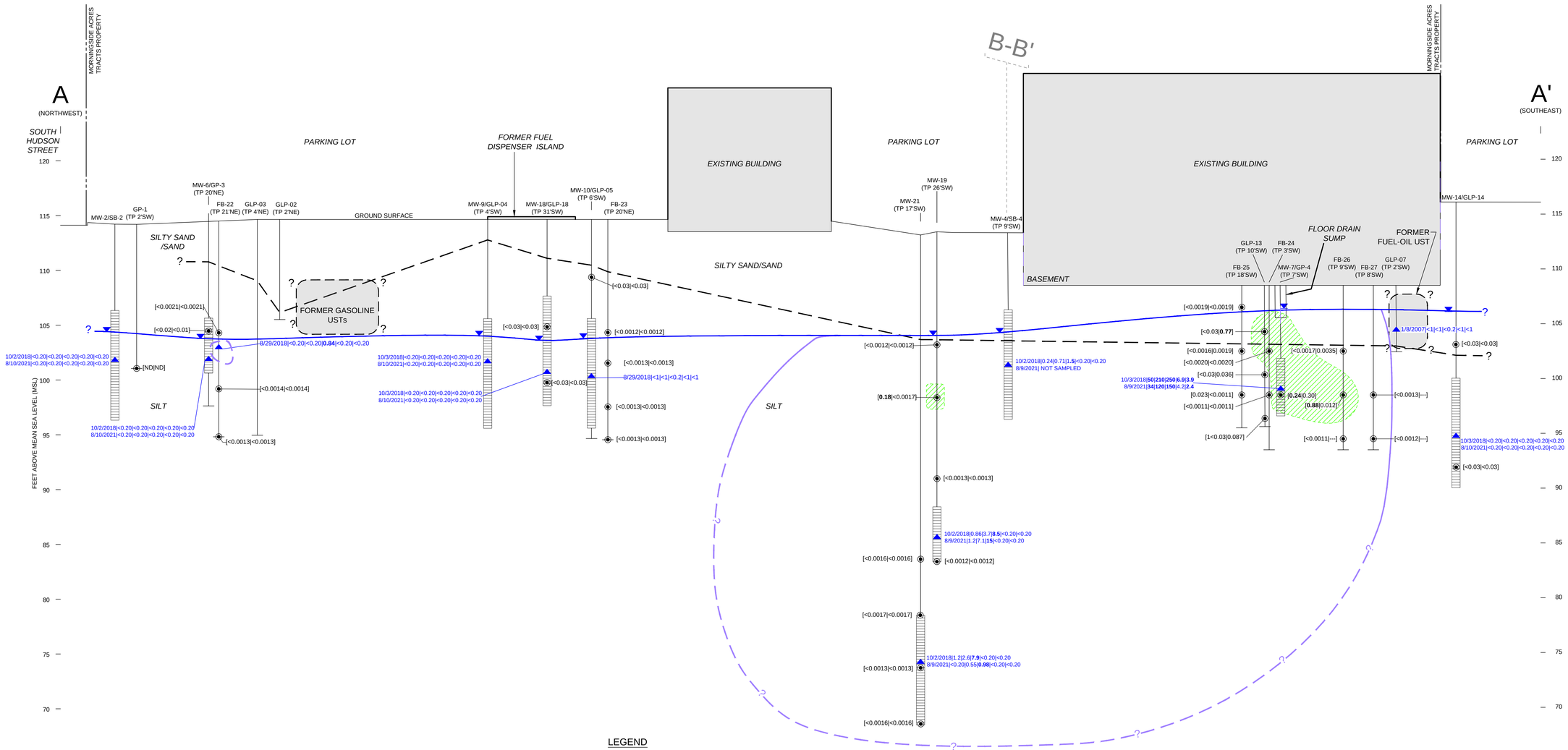
Drawn By: vpehlivan | Checked By: RL | Date: 1/5/2022 | Disc Reference:

Document Path: Q:\Projects\1355 Morningside\001 RainierAveS\Mapfiles\006_RI\Figure-04A_ElevationContours_Oct2018.mxd



MW-6/GP-3 (TP 20'SW)

- BORING OR MONITORING WELL LOCATION TRANSPOSED (TP) IN FEET, NORTHEAST (NE) OR SOUTHWEST (SW), TO CROSS-SECTION LINE
- STRATIGRAPHIC CONTACT/DASHED WHERE INFERRED
- GROUNDWATER LEVEL (10/2/2018)
- SOIL SAMPLE
- GROUNDWATER SAMPLE
- WELL SCREEN INTERVAL
- ESTIMATED EXTENT OF CHLORINATED VOCS IN SOIL EXCEEDING MTCA METHOD A OR B CLEANUP LEVELS
- ESTIMATED EXTENT OF CHLORINATED VOCS IN GROUNDWATER EXCEEDING MTCA METHOD A OR B CLEANUP LEVELS

LEGEND

10/2/2018|<0.20|<0.20|<0.20|<0.20	GROUNDWATER RESULTS FOR (DATE|TCE|CIS-1,2-DCE|VC|1,2-DCA|1,2-DCP) IN MICROGRAMS PER LITER (MOST RECENT RESULTS SHOWN AT EACH LOCATION)
[<0.03|<0.03]	SOIL RESULTS FOR [TCE|VC] IN MILLIGRAMS PER KILOGRAM
<	DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
BOLD	INDICATES CONCENTRATION EXCEEDS THE MTCA METHOD A OR B CLEANUP LEVEL
---	SAMPLE NOT ANALYZED FOR CONSTITUENT
UST	UNDERGROUND STORAGE TANK
MTCA	WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
VOC	VOLATILE ORGANIC COMPOUND
TCE	TRICHLOROETHENE
CIS-1,2-DCE	CIS-1,2-DICHLOROETHENE
VC	VINYL CHLORIDE
1,2-DCP	1,2-DICHLOROPROPANE
1,2-DCA	1,2-DICHLOROETHANE

Enclosure A Figure 7

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FIGURE 6

CROSS-SECTION A-A'
CHLORINATED VOCs
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021 RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON
FARALLON PN:1355-001

Drawn By:NM/ROLChecked By:BJ
Date: 12/17/2021

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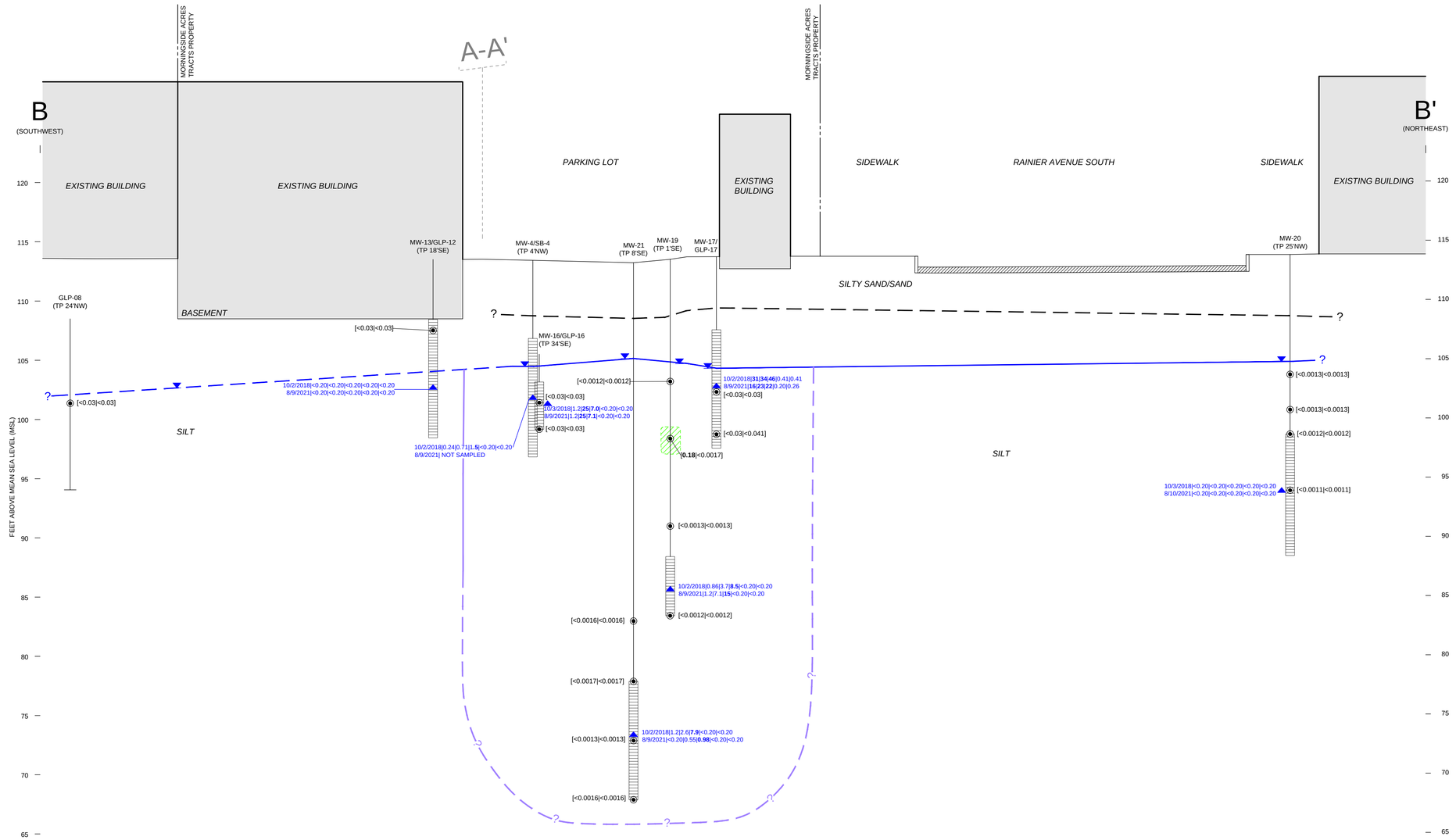

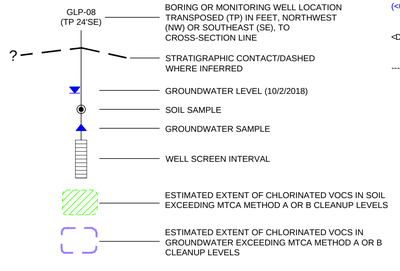

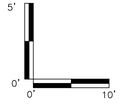

LEGEND

(<0.20|<0.20|<0.20|<0.20|<0.20)	GROUNDWATER RESULTS FOR (DATE|TCE|CIS-1,2-DCE|VC|1,2-DCA|1,2-DCP) IN MICROGRAMS PER LITER (MOST RECENT RESULTS SHOWN AT EACH LOCATION)
[<0.03|<0.03]	SOIL RESULTS FOR [TCE|VC] IN MILLIGRAMS PER KILOGRAM
<	DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
BOLD	INDICATES CONCENTRATION EXCEEDS THE MTCA METHOD A OR B CLEANUP LEVELS
---	SAMPLE NOT ANALYZED FOR CONSTITUENT
UST	UNDERGROUND STORAGE TANK
MTCA	WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
VOC	VOLATILE ORGANIC COMPOUND
TCE	TRICHLOROETHENE
CIS-1,2-DCE	CIS-1,2-DICHLOROETHENE
VC	VINYL CHLORIDE
1,2-DCP	1,2-DICHLOROPROPANE
1,2-DCA	1,2-DICHLOROETHANE

Enclosure A Figure 8

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FIGURE 7

CROSS-SECTION B-B'
CHLORINATED VOCs
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021 RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN:1355-001

Drawn By: NM/ROL Checked By: BJ

Date: 12/17/2021

Enclosure B

Basis for the Opinion:
List of Documents

1. Farallon Consulting, LLC, *Remedial Investigation and Feasibility Study Report, Morningside Acres Tracts, 5001, 5015, and 5021 Rainier Avenue South, Seattle, Washington*, June 20, 2022.

2. Ecology, *Re: Response to Ecology's Request for Evaluation of Trichloroethylene Risks at the Following Site: Morningside Acres Tracts South, 5021 Rainier Avenue S, Seattle, WA 98119*, September 24, 2019.

3. Farallon Consulting, LLC, *Vapor Intrusion Assessment, Morningside Acres Tracts, 5001, 5015, and 5021 Rainier Avenue South, Seattle, Washington*, September 5, 2019.

4. Ecology, *Re: Request for Evaluation of Trichloroethylene Risks at the following Site: Morningside Acres Tracts South, 5021 Rainier Avenue S, Seattle, WA 98118*, June 18, 2019.

5. Ecology, *Initial Investigation Field Report, Life Enrichment Bookstore, 5023 Rainier Avenue S, Seattle, WA 98118*, May 6, 2019.

6. Ecology, *Site Hazard Assessment, Morningside Acres Tracts South, 5021 Rainier Ave S, Seattle, King County, WA 98118*, August 19, 2015.

7. Ecology, *Initial Investigation Field Report, Morningside Acres Tracts North, 5001 Rainier Ave S, Seattle 98118, Morningside Acres Tracts South, 5015 & 5021 Rainier Ave S, Seattle 98118*, October 31, 2013.

8. The Riley Group, Inc., *Re: First Quarter 2013 Groundwater Sampling Report, Morningside Acres Tracts, 5001, 5015, and 5021 Rainier Avenue South, Seattle, Washington 98118*, April 19, 2013.

9. G-Logics, Inc., *Additional Site Exploration, Murakami-Morningside Acre Tracts, 5001, 5015, and 5021 Rainier Avenue South, Seattle, WA*, April 19, 2007.

10. Kleinfelder, Inc., *Re: Draft Supplemental Phase II Environmental Site Assessment, 5001, 5015, and 5021 Rainier Avenue South, Seattle, Washington*, August 28, 2006.

11. Kleinfelder, Inc., *Re: Limited Phase II Environmental Site Assessment, 5001, 5015, and 5021 Rainier Avenue South, Seattle, Washington*, June 26, 2006.

12. Kleinfelder, Inc., *Re: Letter Report, Geophysical Investigation Services, Proposed building Development, 5001, 5015, and 5021 Rainier Avenue South, Seattle, Washington*, May 1, 2006.