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March 9, 2021

Andrew Seitz
7415 Stibgen Road NW
Olympia, WA 98502
(ajseitz2000@yahoo.com)

Re: Further Action at the following Site:

- **Site Name:** Seitz Property
- **Site Address:** Brian Lane NW, Silverdale, WA 98383
- **Facility/Site No.:** 6865393
- **Cleanup Site ID:** 1472
- **VCP Project No.:** NW3293

Dear Andrew Seitz:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Seitz Property facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issue Presented and Opinion

Is further remedial action necessary to clean up contamination at the Site?

YES. Ecology has determined that further remedial action is necessary to clean up contamination at the Site.

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, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

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:

- Arsenic and carcinogenic polycyclic aromatic hydrocarbons (cPAHs) into the Soil.

Please note additional contaminants of concern (COCs) may be identified upon further Site characterization.

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, we have no information that the parcels associated with this Site are affected by other sites.

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 webpage[1]. The complete records are stored 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.

Ecology has determined your characterization of the Site is not sufficient to establish cleanup standards and select a cleanup action.

- Further soil characterization is needed:

  Historically in the former drum storage area, total toxicity equivalent concentration (TEQ) of cPAHs exceeded the MTCA Method A soil cleanup level at location SP2;

[1] Site Information (wa.gov)
[2] https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests

arsenic concentrations exceeded the MTCA Method A soil cleanup levels at locations SL-1 and SL-2. In 2015, approximately 5.5 cubic yards of contaminated soil were removed from this area; confirmation soil samples contained concentrations of cPAHs (in samples DSA-S5 and DSA-S6) and arsenic (in samples CS-1 through CS-9) below the laboratory practical quantitation limit (PQL). The cPAH- and arsenic-contaminated soil in the former drum storage area has been removed.

Arsenic exceeded the MTCA Method A soil cleanup level in the soil samples collected from former debris pile areas (samples DP1-S5-SL-09 and DP2-S6-SL-11) and the former house area (sample SP5-S7-SL-13) in 2015. The current soil conditions in these areas have not been evaluated.

Petroleum hydrocarbon contaminants were detected above PQL in groundwater in the former drum storage area, indicating a potential petroleum source in soil.
Site soil samples were analyzed for diesel- and heavy oil-range petroleum hydrocarbons (TPHd and TPHo) and volatile organic compounds (VOCs) in 2005; but the analytical results are not available for Ecology's review.

Therefore, it is Ecology's opinion that additional soil sampling is needed to identify potential COCs and determine current soil conditions:

- Soil samples need to be collected in areas of former debris piles and the former house, and analyzed for arsenic.

- The soil sample(s) collected near the former house need to be additionally analyzed for gasoline range-petroleum hydrocarbons (TPHg), TPHd, TPHo, and benzene, toluene, ethylbenzene, and xylenes (BTEX), as a drum storing petroleum product was historically present in this area.

- At least one soil sample needs to be collected in the former drum storage area for analysis of TPHg, TPHd, TPHo, and BTEX, to evaluate the potential petroleum hydrocarbon contamination in soil in this area.

- Please note based on the terrestrial ecological evaluation (TEE), the soil cleanup levels for TPHg and TPHo need to be adjusted in accordance with WAC 173-360-900, Table 749-2. The TEE is further discussed in Section 2.

- Depending on the soil sampling results, further soil sampling may be needed to delineate the extent of contamination.

- The soil sampling may be conducted coupling with the groundwater sampling that is discussed below.

- Further groundwater characterization is needed:

  A direct push soil boring was installed in the former drum storage area in 2018. Site shallow groundwater occurs at approximately 12 feet below ground surface (bgs) in this boring. One groundwater sample (DH-1) was collected from this boring.

  In sample DH-1, concentrations of arsenic, cPAHs, TPHd, and TPHo were below the PQL; concentrations of TPHg and BTEX were above the PQL but below the MTCA Method A groundwater cleanup levels. Please note, Ecology's guidance[3,4] requests to compare the sum of the TPHd and TPHo concentrations in a sample to the MTCA Method A cleanup level of 500 micrograms per liter (µg/L) for ground water. For this groundwater sample, the PQL for TPHd plus TPHo (750 µg/L) was above the MTCA Method A groundwater cleanup level (500 µg/L).

  One groundwater sample collected from the Landsworth Creek water system well, approximately 500 feet east of the Site, contained arsenic and cPAH TEQ concentrations above the MTCA Method A groundwater cleanup levels. Please note, this water well is advanced to a total depth of 168 feet bgs[5], and may be screened in an aquifer deeper than Site shallow groundwater. The analytical results may not be attributable to Site groundwater contamination.

  The Property is located within the wellhead protection zone of three drinking water supply wells (the Crystal Creek water system well, the Brianwood water system well, and the Landsworth Creek water system well), it is Ecology's opinion that further groundwater evaluation is needed to determine Site groundwater conditions and potential impact to nearby drinking water wells:

  - Sufficient (at least three) temporary or permanent monitoring wells should be installed in areas where waste has been disposed of historically (former drum storage area, debris piles, etc.).

  - The temporary or permanent monitoring wells should be screened across the uppermost water-bearing zone. This water bearing zone is likely present in the

[3] Ecology, *Determining Compliance with Method A Cleanup Levels for Diesel and Heavy Oil, Implementation Memorandum #4, Publication 04-09-086,* June 2004; Implementation Memorandum #4 Determining Compliance with Method A Cleanup Levels for Diesel and Heavy Oil (wa.gov)
[4] Ecology, *Guidance for Remediation of Petroleum Contaminated Sites, Publication No. 10-09-057,* Revised June 2016; Toxics Cleanup Program Procedure 440C: Releasing Environmental Covenants under the Model Toxics Control Act (wa.gov)
[5] Washington State Department of Health, *Office of Drinking Water database, Sentry Internet*; https://fortress.wa.gov/doh/eh/portal/odw/si/Intro.aspx

upper 20 to 25 feet bgs, above the first sandy clay layer that is present from approximately 20 to 50 feet bgs in nearby water wells[6,7].

- The measuring point elevations of the monitoring wells need to be surveyed using the North American Vertical Datum of 1988 by a Washington-state licensed land surveyor, in accordance with WAC 173-340-840(4)(e). Depths to groundwater need to be measured to the nearest 0.01 foot and elevations need to be contoured to determine the predominant groundwater flow direction at the Site.

- The groundwater samples should at least be analyzed for TPHg, TPHd, TPHo, VOCs including BTEX, cPAHs, polychlorinated biphenyls (PCBs), arsenic, and lead.

- If COCs are confirmed at concentrations exceeding MTCA Method A groundwater cleanup levels, additional monitoring wells may be needed to delineate the groundwater plume and remediation may be required.

- Following delineation and remediation, if required, at least four consecutive quarters of groundwater data with COC concentrations below the MTCA Method A groundwater cleanup levels are needed to demonstrate compliance.

- Table and figures of the September and November 2020 letter reports[8,9] should be revised.

  - Table 1 should include the 2005 soil sampling results (SP1 through SP5), and 2015 soil sampling results (DP1-S5-SL-09 and DP2-S6-SL-11).

  - An additional table is needed to present the groundwater sampling results.

  - The Site Plan should include the 1997 drum location, 2005 soil sampling locations (SP1 through SP5), 2015 soil sampling locations (DP1-S5, DP2-S6, and SP5-S7), and 2018 groundwater sampling location (DH-1). In addition, to be consistent with Table 1, soil sampling location DSA-5 should be labeled as "DSA-S5".

- Electronic submittal of all sampling data collected in and post-2005 into Ecology's

[6] Ecology, *Water Well Report, Well Tag #ACD356*, June 9, 1980.
[7] Ecology, *Water Well Report, Silverdale Pee Wee Cub*, August 24, 1982.
[8] Krista Webb Consulting, *Letter Report, Seitz Property, Brian Lane NW, Silverdale, Washington, Kitsap County Parcel IDs: 082501-4-026-2000 and 082501-4-25-2001*, September 22, 2020.
[9] Krista Webb Consulting, *Letter Report, Seitz Property, Brian Lane NW, Silverdale, Washington, Kitsap County Parcel IDs: 082501-4-026-2000 and 082501-4-25-2001*, November 19, 2020.

electronic Environmental Information Management (EIM) database is a requirement in order to receive a final Ecology opinion for this Site. Gaylen Sinclair (email Gaylen.Sinclair@ecy.wa.gov, or via telephone at 360-407-6496) is Ecology's contact and resource on entering data into EIM.

- The September and November 2020 letter reports[8,9] prepared and submitted by Krista Webb Consulting were not stamped by a Washington-state licensed geologist/hydrogeologist. Future reports that contain geological/hydrological descriptions and interpretations need to be submitted under the seal of an appropriately licensed professional, as required by Chapters 18.43 and 18.220 RCW.

2. Establishment of cleanup standards.

Soil

Cleanup levels. The Site does not meet the MTCA definition of an industrial property; therefore, soil cleanup levels suitable for unrestricted land use are appropriate. For unrestricted land use, the MTCA Method A cleanup levels are appropriate for soil at the Site. These Method A soil cleanup levels are based on protection of ground water and are available in WAC 173-340-900, Table 740-1.

To protect terrestrial ecological receptors, a simplified TEE is needed for the Site. **Enclosure C** represents Ecology's recommendation on the TEE. Based on the TEE, soil cleanup levels for the upper 15 feet need to be adjusted in accordance with WAC 173-360-900, Table 749-2. Please revise and resubmit the TEE form.

Points of compliance. The appropriate points of compliance for the Site should be:

For soil cleanup levels based on the protection of ground water, the point of compliance is defined as Site-wide throughout the soil profile and may extend below the water table.

For soil cleanup levels based on protection of terrestrial ecological receptors, the point of compliance is defined as Site-wide from the ground surface to 15 feet bgs.

Ground Water

Cleanup levels. Cleanup levels were set for groundwater based on its potential use as a drinking water source. The MTCA Method A cleanup levels are appropriate for this purpose, and were selected as the cleanup levels for groundwater at the Site. These Method A groundwater cleanup levels are available in WAC 173-340-900, Table 720-1.

Points of compliance. The standard point of compliance for groundwater is throughout the Site, from the uppermost level of the saturated zone extending vertically to the lowest depth which could potentially be affected. This is the appropriate point of compliance for the Site.

3. Selection of cleanup action.

Ecology has determined that the incomplete Site characterization does not allow a determination whether the cleanup action you selected for the Site meets the substantive requirements of MTCA.

Approximately 5.5 cubic yards of contaminated soil were removed from the former drum storage area, which is considered an interim action. An appropriate cleanup action can be selected only after the Site is fully characterized. The cleanup action selected must meet the minimum requirements in WAC 173-340-360(2), through completion of a Feasibility Study (FS) and a Disproportionate Cost Analysis (DCA) if a Model Remedy is not used.

4. Cleanup.

Ecology has determined the cleanup you performed to date does not meet any cleanup standards at the Site. After the Site is fully characterized and a FS/DCA is completed, Ecology will review the data and determine if the cleanup action you performed or selected meet the cleanup standards.

Please note this Site is currently listed in Ecology's Hazardous Sites List (HSL) with a hazard ranking of 2 (moderate to high risk). To receive a final Ecology opinion, the Site will need to go through a 30-day public notice and comment period for removing Site from the HSL.

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/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion, please contact me by phone at 425-649-7109 or e-mail at jing.song@ecy.wa.gov.

Sincerely,

Jing Song
Site Manager
NWRO Toxics Cleanup Program

Enclosures (2): A – Description and Diagrams of the Site
B – Basis for the Opinion: List of Documents
C – Memorandum, Seitz Property: upland Ecological Risk Assessment

cc: Krista Webb, Krista Webb Consulting (kristalewebb@gmail.com)

Enclosure A

Description and Diagrams of the Site

Site Description

This enclosure provides Ecology's understanding and interpretation of Site conditions and forms the basis for the opinions expressed in the letter.

Site: The Site is defined as cPAHs and arsenic released to soil. The Site consists of two contiguous rectangular-shaped Kitsap County tax parcels. Parcel A is the north parcel, with parcel number 08250140262000; Parcel B is the south parcel, with parcel number 08250140252001 (**Figure 1**). The two parcels are referred to as the Property in this opinion letter and Site Description. The two parcels, which cover approximately 9.78 acres of undeveloped land, are located east of Brian Lane NW in central Kitsap County, northwest of Silverdale, Washington. No street number has been assigned to the Property.

Area and Property Description: The Property is heavily vegetated with overgrown blackberry bushes, weeds, tall grasses, and other underbrush. An approximately 1-acre area on the western portion of the Property was cleared. A primitive road crosses the Property tracking southwest to northeast. Access to the Property is via a 30-foot-wide easement from Brian Lane NW, which is located west of the Property. No utilities are provided to the Property.

The Property is bounded with undeveloped land to the north, south, and west, and single family residences to the east and southwest.

Property History and Current Use: The Property was undeveloped land since as early as 1891. Aerial photograph in 1981 shows that the central portion of the Property was cleared at the time, with a building structure and a primitive road entering from the west; aerial photographs from 1990 to present show that the southwestern portion of the Property was cleared[1]. A historic report indicated that three abandoned building structures were present on Property in 1997[2]. Other historic reports indicated that the abandoned building structures were a house, a chicken coop, and a shed. The building structures were reportedly removed from the Property (decayed at the time) in June 2005[3]. The Property has been vacant since that time, and remain as undeveloped land until present day. The locations of the former building structures are depicted on **Figure 2**.

Sources of Contamination: Contamination appears to be associated with wastes that were historically disposed of at the Site. One 55-gallon drum was discovered on Parcel B in 1997 which contained petroleum product[2] (**Figure 3**). A total of eighteen 55-gallon drums were discovered on Parcel A in 2005 (**Figure 2**). Several of these drums were labeled with "Roybond Primer"; but the exact content of the drums were unknown. A few debris piles were also discovered on Property (**Figure 2**). These debris piles appeared to contain solid waste such as tires, trash, vehicles, etc. The COCs identified to date include arsenic and cPAHs in soil.

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[1] Associated Environmental Group, LLC, *Phase I Environmental Site Assessment, Seitz Property, Silverdale, Washington*, July 19, 2020.

[2] Ecology and Environment, Inc., *Silverdale Dump Site Removal Site Assessment Trip Report*, October 30, 1997.

[3] EnviroSound Consulting Inc., *Site Soil Investigation, Seitz Property, Silverdale, Washington,* November 30, 2015.

Physiographic Setting: The Site gently slopes to the east from an elevation of approximately 230 feet to 175 feet above mean sea level. The land surface in the vicinity of the Property is generally sloping to the east-northeast.

Surface/Storm Water System: The nearest surface water body is a tributary to Clear Creek that runs northwest to southeast approximately 1,000 feet northeast of the Site (**Figure 4**). Based on the topography, storm water runoff on the Property flows to the east toward Clear Creek.

Ecological Setting: The Site is located in a rural residential area. The Property and nearby properties to the north, south, and west are undeveloped, with heavy vegetation and bushes. The properties to the east and southwest are developed with single family residences.

Geology: The Property is in the region of the Puget Lowlands, an elongated topographic and structural depression filled with complex sequences of glacial and non-glacial sediments that overlie bedrock. Continental ice sheets up to 3,000 feet thick covered portions of the Puget Lowland several times during the Quaternary period. Retreating ice carved new landscapes, rechanneled rivers, drained or formed lakes, and deposited glacial drift including till and outwash. According to the Geologic Map of Kitsap County, the Property and vicinity area are underlain by Pleistocene-aged continental glacial till[4].

Based on the field observation during trenching and a soil boring installation at the Site, subsurface soil consists of 0 to 3 feet of top soil, followed by a layer of silty sand with gravel to approximately 17 feet bgs, which is interpreted as glacial till. Underneath the till to the total explored depth of 20 feet bgs is a medium to coarse sand layer where groundwater occurs[5].

Groundwater: No permanent groundwater monitoring wells haven been installed at the Site. In March 2018, a direct push soil boring was advanced at the Site. The soil boring was completed to a total depth of 20 feet bgs, with a static water level at approximately 12 feet bgs[5].

Multiple drinking water wells are located within a 1-mile radius of the Site. Two water wells are located at a distance closest to the Site (**Figure 4**):

- A Landsworth Creek water system well is located approximately 500 feet east of the Site. This well was completed to a total depth of 168 feet bgs[6].

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[4] Kitsap County Department of Community Development, *Geologic Map Units, Kitsap County, Washington*, April 11, 2017; https://www.kitsapgov.com/dcd/DCD GIS Maps/Geologic_Map_Units.pdf.

[5] Ecology, *Resource Protection Well Report, Notice of Intent Number: EE07072, Seitz Property, Silverdale, WA 98383*, March 8, 2018.

[6] Washington State Department of Health, *Office of Drinking Water database, Sentry Internet*; https://fortress.wa.gov/doh/eh/portal/odw/si/Intro.aspx

- A Brianwood water system well is located approximately 700 feet southwest of the Site. This well was completed to a total depth of 125 feet bgs and screened from 91 to 101 feet bgs, with a static water level at 55 feet bgs[7].

Water Supply: No water is provided to the Property. Drinking water for the nearby residential and commercial properties is supplied by multiple water supply systems[8], including:

- Group A water supply systems: the Silverdale Water District #16, the Allevena water system, the Brianwood water system, the Crystal Creek water system, the Clear Creek Baptist Church water system, and the Silverdale Pee Wees water system.

- Group B water supply systems: the Landsworth Creek water system, the Collins Water system, the Frontier water system, etc.

The Silverdale Water District #16 is currently sourced from 12 water supply wells with static water levels ranging from 69 to 484 feet bgs[9]. Other water system is sourced from one water supply well; these water supply wells were completed to total depths from 51 to 168 feet bgs[6,8].

The southwestern portion of the Property is located within the 10-year time-of-travel wellhead protection zone of the Crystal Creek water system and Brianwood water system wells. The eastern portion of the Property is located within the wellhead protection zone of the Landsworth Creek water system well[8].

Based on the well logs from nearby water wells (the Brianwood water system well[7] and the Silverdale Pee Wees water system well[10]), a layer of sandy clay appears to be present from approximately 20 to 50 feet bgs, and again from approximately 60 to 80 feet bgs. The sandy clay layers may be confining units separating aquifers. Based on the subsurface geology, these water wells may be screened across the aquifers deeper than Site shallow groundwater.

Release and Extent of Contamination: Environmental assessments have been conducted at the Site since 1997. The following lists Site investigation and regulatory history in chronological order:

- In 1985 and 1986, when the Property was owned by a previous owner, complaints were made by a neighboring property owner to the Kitsap County Health District (KCHD) alleging that illegal dumping was being conducted on the Property. KCHD was unable to substantiate the claims of illegal burial of drums and cylinders at the time.

- In August 1997, the current Property owner was notified by the U.S. Environmental Protection Agency (EPA) that there were allegations of illegal dumping on the Site,

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[7] Ecology, *Water Well Report, Well Tag #ACD356*, June 9, 1980.
[8] Washington State Department of Health, *Source Water Assessment Program (SWAP) database map*; SWAP Map
[9] Silverdale Water District, *2019 Silverdale Water District Annual Drinking Water Quality Report*, June 2020.
[10] Ecology, *Water Well Report, Silverdale Pee Wee Cub*, August 24, 1982.

presumably from the same neighbor. As a result of the allegation, a Site investigation was conducted on behalf of EPA.

  - The investigation included clearing brush and debris, conducting a geophysical survey, and digging three trenches to a maximum depth of 11 feet bgs on the Site. The locations of the trenches are depicted as "E&E 1997 Trench #1, 2, and 3" on **Figure 2**.

  - One 55-gallon drum discovered west of the former house was reportedly approximately ¼ full (**Figure 3**). One sample was collected from the drum. The analytical results were consistent with a diesel or heating oil type of petroleum product. The drum was emptied and recycled at the time.

- In March and April 2005, Ecology and KCHD conducted an initial Site investigation.

  - On March 14, 2005, KCHD received complaints from a neighbor that solid waste was uncovered at the Site due to land-clearing activities. KCHD visited the Site on March 18 and confirmed the presence of several piles of trash and rubbish. KCHD contacted the current owner to inquire about the status of the waste; the owner related that he was planning on developing the Property and cleaning up the solid waste.

  - On March 25, 2005, the current owner informed KCHD that additional brush-clearing activities revealed a 10-foot by 10-foot area where 18 55-gallon drums were discovered. The area is depicted as "Former Drum Storage Area" on **Figure 2**. KCHD inspected the drums on March 28; all drums were full or close to full. Four of the drums reportedly showed signs of leakage or spillage. Several drums were labeled with "Roybond Primer". The area around the drums reportedly smelled of solvents. KCHD provided the information to Ecology.

  - On March 29, 2005, a nearby property owner contacted Ecology reporting the drums found by the current owner and alleged additional drums (dumped in 1985 to 1986) were still buried on the Site. The complaint suggested that the 1997 trenching area was not in the alleged dumping area.

  - As a result of the initial investigation, Ecology listed the Site on the Confirmed and Suspected Contaminated Sites List (CSCSL) in April 2005, and requested KCHD to conduct a Site Hazard Assessment (SHA).

- KCHD conducted the SHA from August 2005 to February 2006.

  - During the time of SHA, the current owner removed the 18 drums on August 17, 2005, and also demolished the building structures in June 2005.

  - A ground penetrating radar and magnetic survey was conducted in August 2005 in areas that were not covered by the 1997 survey and trenching. No buried metallic objects and no signs of excavation were found. The 2005 survey area is depicted on **Figure 2**.

- Five soil samples (SP1 through SP5) were collected from the cleared areas of the Site from ground surface to 1 foot bgs (**Figure 5**). Two of the soil samples were collected from the former drum storage area; two were from the areas of the debris piles; and one was from the former house area. One soil sample, SP2, contained a cPAHs TEQ concentration above the MTCA Method A soil cleanup level.

- Two groundwater samples were collected from the two closest drinking water wells, respectively (**Figure 4**). The water sample collected from the Landsworth Creek water system well (east of the Site) contained an arsenic concentration and a cPAHs TEQ above the MTCA Method A groundwater cleanup levels. Please note the cPAHs TEQ in a blank water sample also exceeded the MTCA Method A groundwater cleanup level.

- As a result of the SHA, Ecology listed the Site on the Hazardous Sites List (HSL) in February 2006, with a hazard ranking of 2 (moderate to high risk).

- In June to October 2015, soil sampling and excavation were conducted at the Site.

  - In June and July 2015, seven soil samples were collected at five locations (SL-1, S1-SL-1.5, SL-2, SL-3, and SL-4) within or near the former drum storage area from the ground surface to 1.5 feet bgs (**Figure 2**). The soil samples collected at the ground surface from locations SL-1 and SL-2 contained arsenic concentrations above the MTCA Method A soil cleanup level.

  - Two soil samples (DP1-S5-SL-09 and DP2-S6-SL-11) were collected from the areas of two debris piles, respectively. One soil boing (SP5-S7-SL-13) was collected near the former house. All three soil samples were collected at the ground surface, and all contained arsenic concentrations above the MTCA Method A soil cleanup level. The areas where these samples were collected are depicted on **Figure 6**.

  - In October 2015, approximately 5.5 cubic yards of contaminated soil were removed from the former drum storage area. The excavation was completed to a size of 10-foot by 10-foot, and to a depth of 1.5 feet bgs. The excavation was not backfilled[11].

  - Two confirmation soil samples (DSA-S5 and DSA-S6) were collected at the bottom of the excavation at 1.5 feet bgs (**Figure 2**). The soil samples did not contain detectable cPAHs. No arsenic analysis was conducted on these confirmation samples.

  - The current owner submitted the investigation results, and entered the Site in Ecology's Voluntary Cleanup Program (VCP) on March 7, 2016. The Site was assigned a VCP project number of #NW3037. Ecology issued a *Further Action opinion letter* on June 22, 2016 to request additional work. This VCP agreement was terminated on December 3, 2018 due to lack of active cleanup activities.

[11] Email Correspondence from Krista Webb, February 12, 2021.

- In March 2018, a direct-push soil boring was advanced to 20 feet bgs at the east side of the former drum storage area[12]. One groundwater sample was collected from the soil boring.

    - The groundwater sample contained concentrations of TPHg and BTEX above the laboratory PQL but below the MTCA Method A groundwater cleanup levels.

    - Concentrations of TPHd, TPHo, cPAHs, and arsenic were below the laboratory PQL. However, the PQL for TPHd plus TPHo (750 µg/L) was above the MTCA Method A groundwater cleanup level (500 µg/L).

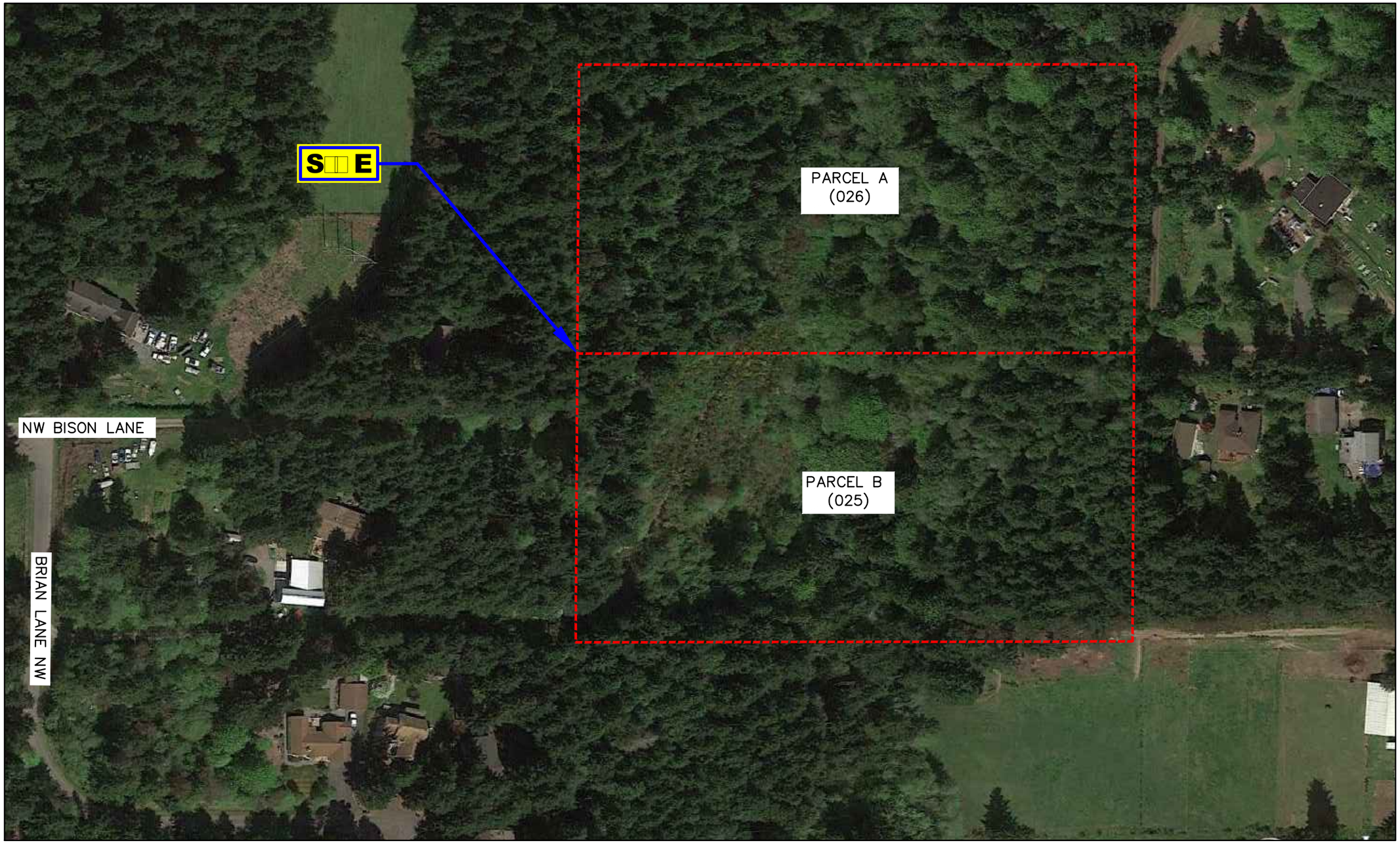
- In June to September 2020, a Phase I Environmental Site Assessment was conducted for the Site, and a letter report was prepared to summarize Site data. The Site re-entered Ecology's VCP on October 1, 2020 and was assigned a VCP project number of #NW3293.

- In November 2020, nine soil samples (CS-1 through CS-9) were collected in the former drum storage area at ground surface to 1.5 feet bgs (**Figure 2**). None of the soil samples contained detectable arsenic.

[12] Email Correspondence from Krista Webb, *Re: Groundwater sample at Seitz site*, January 14, 2021.

Site Diagrams

Enclosure A: Figure 1



Map adapted from Google Earth Pro Version 7.1.2.2041 – 08-03-2015

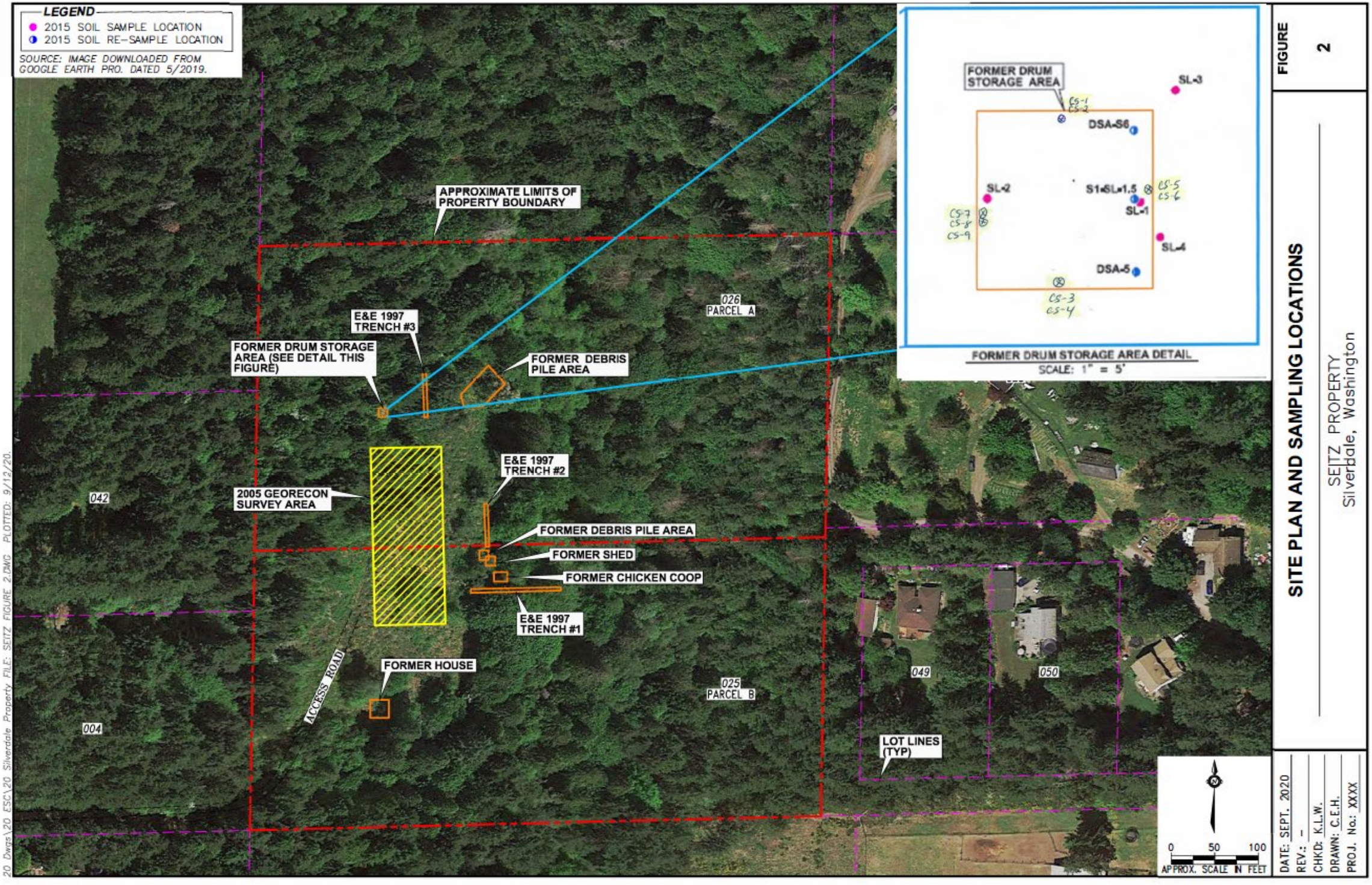
EnviroSound Consulting

FIGURE 1. Site Vicinity Plan
Project Name: Seitz Property
Location: Silverdale, WA
Project: ESC15-E010
Client: Mr. Andrew Seitz
Date: November, 2015

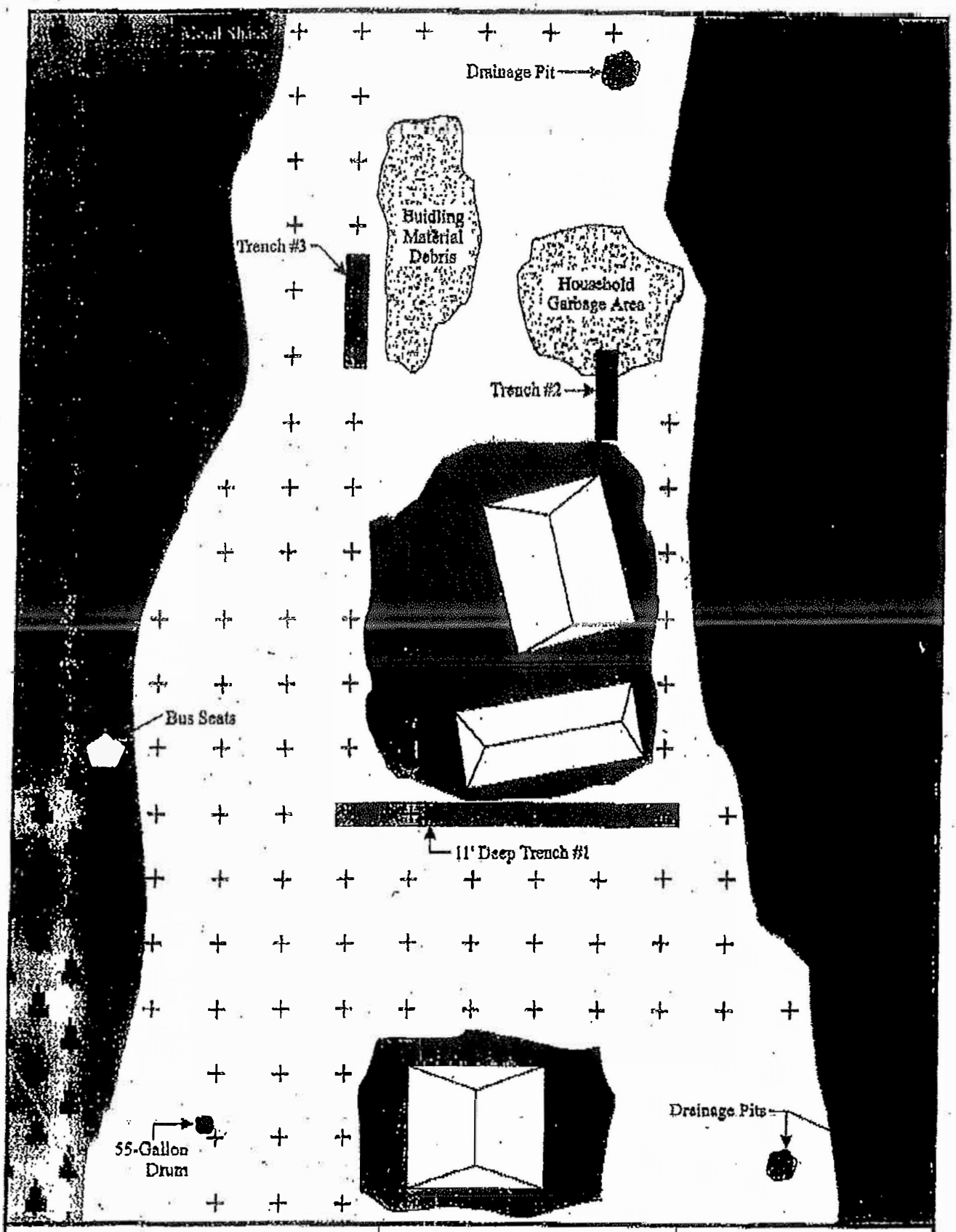
N

N.T.S.

Enclosure A: Figure 2



Enclosure A: Figure 3



ecology and environment, inc.
International Specialists in the Environment
Seattle, Washington

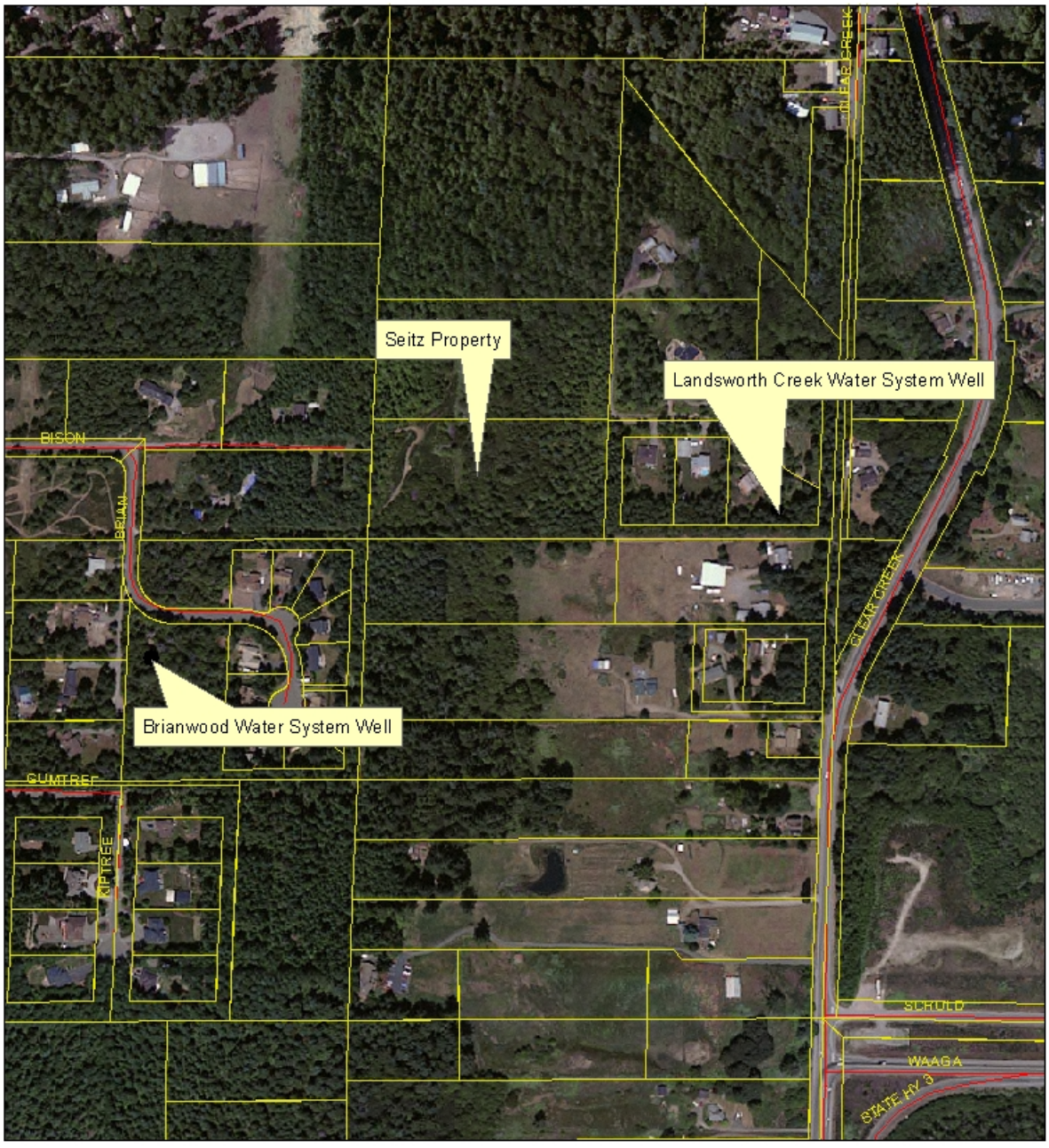
SILVERDALE DUMP SITE
Silverdale, Washington

Figure 2
SITE MAP

No Scale Used

Drawn:	DATE:	JOB NO.	Dwg.No.
MRE	10/29/97	BF0901SFT0	B F0901F2

Enclosure A: Figure 4

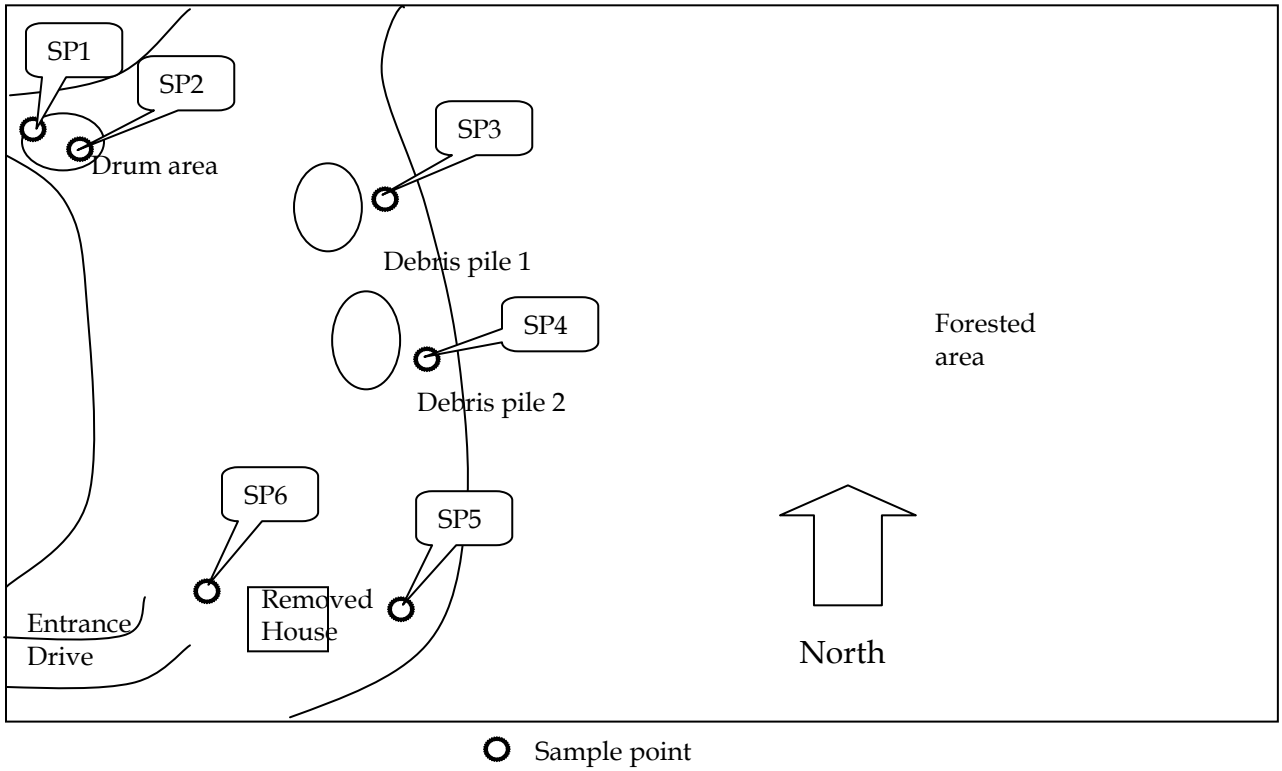


Seitz Property
11/3/2005

N
W E
S

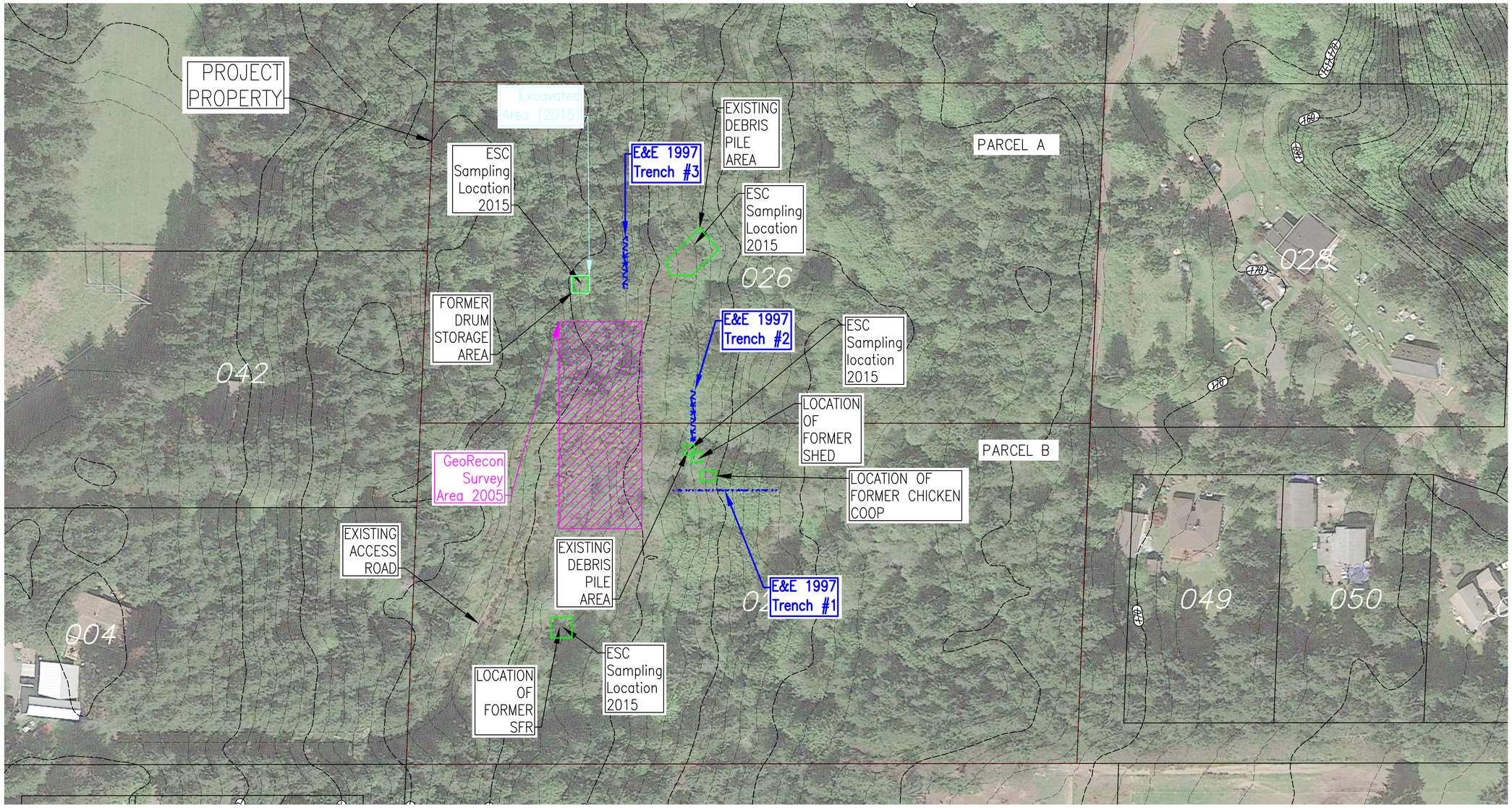
0 187.5 375 750 1,125 1,500
Feet

Enclosure A: Figure 5



Enclosure A: Figure 6

SECTION 08, T25N, R01E W.M.



LIDAR NOTE:
TOPOGRAPHY SHOWN (C1) IS FROM PUBLIC LIDAR FILES. CONTOURS BECOME DISTORTED BETWEEN CLEARED AREAS & TIMBERED AREAS. CONTRACTOR/OWNER TO FIELD VERIFY ALL ELEVATION CONTROL.

VERTICAL DATUM
NAVD88 (Lidar)

0 50 100 150
GRAPHIC SCALE (in feet)

Prepared for:

Revisions:

SCALE: 1"=50' (24X36)
DATE: 11-10-2015
CHECKED BY: JTA
DESIGN BY: CDH
DRAWN BY: ACL
PROJ. #: ESC15-E010

Prepared By:
EnviroSound Consulting
3388 NW BYRON ST., SUITE 200
SILVERDALE, WA 98383
(360) 698-5950 shawn@envirosound.net

HISTORICAL SAMPLING PLAN

FIGURE 2

Enclosure B

Basis for the Opinion:
List of Documents

1. Ecology and Environment, Inc., *Silverdale Dump Site Removal Site Assessment Trip Report*, October 30, 1997.

2. Washington State Department of Ecology (Ecology), *Environmental Report Tracking System (ERTS) #547121, Seitz Property, Brian Kane NW, Silverdale, Washington*, March 29, 2005.

3. Kitsap County Health District (KCHD), *Sampling and Analysis Plan, Seitz Property SHA, No Address, Kitsap County Tax Parcel ID# 082501-4-025-2001, Silverdale, Washington*, November 3, 2005.

4. KCHD, *Site Hazard Assessment, Seitz Property, off Brian Lane, Silverdale, WA*, February 7, 2006.

5. EnviroSound Consulting Inc., *Site Soil Investigation, Seitz Property, Silverdale, Washington*, November 30, 2015.

6. Ecology, *Re: Further Action at the following Site: Seitz Property, Brian Lane NW, Silverdale, WA 98383*, June 22, 2016.

7. Ecology, *Re: Request for Information on Status of VCP Project for the following Site: Seitz Property, Brian Lane NW, Silverdale, WA 98383*, January 16, 2018.

8. Ecology, *Resource Protection Well Report, Seitz Property, Silverdale, WA 98383*, March 8, 2018.

9. ESN Northwest Chemistry Laboratory, *Groundwater Sample Laboratory Analytical Results, Project Silverdale, Washington*, March 12, 2018.

10. ESN Northwest Chemistry Laboratory, Gro*undwater Sample Laboratory Analytical Results, Project Silverdale, Washington*, March 13, 2018.

11. Ecology, *Re: VCP Customer Response to Ecology Request for Information on Status of VCP Project for the following Site: Seitz Property, Brian Lane NW, Silverdale, WA 98383*, June 25, 2018.

12. Ecology, *Re: Termination of VCP Agreement for the following Site: Seitz Property, Brian Lane NW, Silverdale, WA 98383*, December 3, 2018.

13. Letter from Andrew Seitz, *Seitz Property – Silverdale*, April 11, 2019.

14. Ecology, *Re: Seitz Property, Brian Lane NW, Silverdale, WA 98383*, April 25, 2019.

15. Associated Environmental Group, LLC, *Phase I Environmental Site Assessment, Seitz Property, Tax Parcels 08250140252001 and 08250140262000, Silverdale, Washington 98383*, July 19, 2020.

16. Krista Webb Consulting (KWC), *Letter Report, Seitz Property, Brian Lane NW, Silverdale, Washington, Kitsap County Parcel IDs: 082501-4-026-2000 and 082501-4-25-2001*, September 22, 2020.

17. KWC, *Letter Report, Seitz Property, Brian Lane NW, Silverdale, Washington, Kitsap County Parcel IDs: 082501-4-026-2000 and 082501-4-25-2001*, November 19, 2020.

Seitz Property:
Upland Ecological Risk Assessment

To: Jing Song, LHG
Voluntary Cleanup Program Site Manager
Toxics Cleanup Program
Northwest Regional Office

From: Arthur Buchan, Toxicologist
Information & Policy Section
Toxics Cleanup Program

Date: February 5, 2021

This memorandum represents a Department of Ecology recommendation regarding a Terrestrial Ecological Evaluation (TEE) specific to the Seitz Property Cleanup located in Central Kitsap County, northwest of Silverdale, WA (Ecology VCP Project No. NW3293).

Determination:

It is recommended that the site would not qualify for an exclusion, and that a Simplified TEE should meet the requirements. As a result, it is recommended that a Simplified TEE as per WAC 173-340-7492 is conducted at this site as indicated in this memorandum.

For questions or concerns regarding this memorandum, please contact:

Arthur Buchan, Toxicologist
Washington State Department of Ecology
Toxics Cleanup Program
Policy and Technical Support Unit
Phone: (360) 407-7146
Email: abuc461@ecy.wa.gov

Purpose

The purpose of this memorandum is to provide guidance regarding an upland ecological risk assessment (TEE) for the Seitz property cleanup (VCP Project No. NW3293) located in Central Kitsap County, northwest of Silverdale, WA. The MTCA TEE requirements are listed in WAC 173-340-7490 through 7494.

TEE Comments/Recommendations

Exclusionary Criteria

No further evaluation of the TEE is required if any of the below exclusionary criteria are met at the site (Ecology 2013):

1. **Contamination below the point of compliance (340-7491(1) (a)).** This exclusion should not apply. It appears contamination is located at a shallower depth than 15 feet below ground surface (bgs).
2. **Incomplete exposure pathway (340-7491(1) (b)).** This exclusion should not apply. It appears no physical barrier either currently exists (or is planned) that would eliminate exposure of plants or wildlife to the contamination.
3. **Area of contiguous undeveloped land (340-7491(1) (c)).** This exclusion should not apply. Please see Appendix A. It appears that there is greater than 1.5 acres of contiguous undeveloped land on or within 500 feet of the site.
4. **Concentrations do not exceed natural background levels (340-7491(1) (d)).** This exclusion should not apply. Natural background is defined in MTCA as "means the concentration of hazardous substance consistently present in the environment that has not been influenced by localized human activities…" The presence of the contaminants at the site are due to the release of petroleum products, carcinogenic polycyclic aromatic hydrocarbons, and arsenic from historic waste disposal.

Discussion: It does not appear that any of the exclusionary criteria listed above would apply at this site. As a result, a Terrestrial Ecological Evaluation is required.

Simplified or Site-Specific Criteria

If the site cannot be excluded as discussed above, then a simplified or site-specific TEE is required. A site-specific TEE is required if any of the below criteria apply:

1. **Management or land use plans maintain or restore native vegetation (340-7491(2) (a) (i)).** The site is located on, or directly adjacent to, an area where management or land use plans will maintain or restore native or seminative vegetation (e.g. green-belts, protected wetland, forestlands, locally designated environmentally sensitive areas…).
    a. It appears that this criterion does not apply. The site was mapped using WDFW (2020), Priority Habitats and Species Interactive Web Mapping Tool (Figure 1), and it appears that the priority habitat is not directly adjacent to the release (distance of approximately 680 feet). Retrieved from: https://wdfw.wa.gov/mapping/phs/.
2. **The site is used by a threatened or endangered species (340-7491(2) (a) (ii)).** The site is used by a threatened or endangered species…)
    a. It appears this criterion does not apply.

3. **Amount of native vegetation located on the property within 500 feet of the site (340-7491 (2) (a) (iii)).** The site is located on a property that contains at least ten acres of native vegetation within 500 feet of the site, not including vegetation beyond the property boundaries.
    a. It appears this criterion does not apply. Within the affected parcels there appears to be between 5 and 9 acres of native vegetation. The site was mapped including a parcel search using WDFW (2020), Priority Habitats and Species Interactive Web Mapping Tool (Figure 1). Retrieved from: https://wdfw.wa.gov/mapping/phs/.
4. **Department determination (340-7491(2) (a) (iv)).** The department determines that the site may present a risk to significant wildlife populations.
    a. It appears that this criteria does not apply. The department has not determined that the site may present a risk to significant wildlife populations.

Discussion: It does not appear that any of the above criteria would apply at this site. As a result, a Site-Specific Terrestrial Ecological Evaluation is not required at this site.

Summary

It is recommended for this site:

- The site would not qualify for an exclusion; and
- A simplified TEE evaluation at this site would meet the requirements of the upland ecological risk assessment.

The requirements for conducting the Simplified Terrestrial Ecological Evaluation are found in WAC 173-340-7492. A copy of the screening levels for the purposes of the remedial investigation have been included in Figure 2. For the purposes of the remedial investigation, nature and extent of the contamination should be evaluated to the standard point of compliance (0 to 15 feet bgs.). A conditional point of compliance (set at 6 feet bgs) can be requested during the feasibility study with department approval and an environmental covenant preventing excavation of deeper soils. At the completion of the TEE, the Voluntary Cleanup Program, Terrestrial Ecological Evaluation Form should be completed, and turned into Ecology. This form can be found at: VCP TEE Form.

References

Ecology. (2013). *Model Toxics Control Act Regulation and Statute.* Chapter 173-340 WAC. Publication No. 94-06. Retrieved from:
http://apps.leg.wa.gov/wac/default.aspx?cite=173-340 and
https://fortress.wa.gov/ecy/publications/summarypages/9406.html

WDFW. (2020). *Priority Habitats and Species. Interactive Web Mapping Tool.* Retrieved from:
https://wdfw.wa.gov/mapping/phs/

Figure 1: Location of Release (with parcel layer) in Proximity to Washington State Department of Fish and Wildlife Priority Habitat (Freshwater Forested/Shrub Wetland).

Figure 2: Table 749-2. Priority Contaminants of Ecological Concern for Sites that Qualify for the Simplified Terrestrial Ecological Evaluation Procedure.

Table 749-2
Priority Contaminants of Ecological Concern for Sites that Qualify for the Simplified Terrestrial Ecological Evaluation Procedure.[a]

Priority contaminant	Soil concentration (mg/kg)	
	Unrestricted land use[b]	Industrial or commercial site
METALS:[c]		
Antimony	See note d	See note d
Arsenic III	20 mg/kg	20 mg/kg
Arsenic V	95 mg/kg	260 mg/kg
Barium	1,250 mg/kg	1,320 mg/kg
Beryllium	25 mg/kg	See note d
Cadmium	25 mg/kg	36 mg/kg
Chromium (total)	42 mg/kg	135 mg/kg
Cobalt	See note d	See note d
Copper	100 mg/kg	550 mg/kg
Lead	220 mg/kg	220 mg/kg
Magnesium	See note d	See note d
Manganese	See note d	23,500 mg/kg
Mercury, inorganic	9 mg/kg	9 mg/kg
Mercury, organic	0.7 mg/kg	0.7 mg/kg
Molybdenum	See note d	71 mg/kg
Nickel	100 mg/kg	1,850 mg/kg
Selenium	0.8 mg/kg	0.8 mg/kg
Silver	See note d	See note d
Tin	275 mg/kg	See note d
Vanadium	26 mg/kg	See note d
Zinc	270 mg/kg	570 mg/kg
PESTICIDES:		
Aldicarb/aldicarb sulfone (total)	See note d	See note d
Aldrin	0.17 mg/kg	0.17 mg/kg
Benzene hexachloride (including lindane)	10 mg/kg	10 mg/kg
Carbofuran	See note d	See note d
Chlordane	1 mg/kg	7 mg/kg
Chlorpyrifos/chlorpyrifos-methyl (total)	See note d	See note d
DDT/DDD/DDE (total)	1 mg/kg	1 mg/kg
Dieldrin	0.17 mg/kg	0.17 mg/kg
Endosulfan	See note d	See note d
Endrin	0.4 mg/kg	0.4 mg/kg
Heptachlor/heptachlor epoxide (total)	0.6 mg/kg	0.6 mg/kg
Hexachlorobenzene	31 mg/kg	31 mg/kg
Parathion/methyl parathion (total)	See note d	See note d
Pentachlorophenol	11 mg/kg	11 mg/kg
Toxaphene	See note d	See note d
OTHER CHLORINATED ORGANICS:		
Chlorinated dibenzofurans (total)	3E-06 mg/kg	3E-06 mg/kg
Chlorinated dibenzo-p-dioxins (total)	5E-06 mg/kg	5E-06 mg/kg
Hexachlorophene	See note d	See note d
PCB mixtures (total)	2 mg/kg	2 mg/kg
Pentachlorobenzene	168 mg/kg	See note d
OTHER NONCHLORINATED ORGANICS:		
Acenaphthene	See note d	See note d
Benzo(a)pyrene	30 mg/kg	300 mg/kg
Bis (2-ethylhexyl) phthalate	See note d	See note d
Di-n-butyl phthalate	200 mg/kg	See note d
PETROLEUM:		
Gasoline Range Organics	200 mg/kg	12,000 mg/kg except that the concentration shall not exceed residual saturation at the soil surface.
Diesel Range Organics	460 mg/kg	15,000 mg/kg except that the concentration shall not exceed residual saturation at the soil surface.

Footnotes:

a Caution on misusing these chemical concentration numbers. These values have been developed for use at sites where a site-specific terrestrial ecological evaluation is not required. They are not intended to be protective of terrestrial ecological receptors at every site. Exceedances of the values in this table do not necessarily trigger requirements for cleanup action under this chapter. The table is not intended for purposes such as evaluating sludges or wastes.
This list does not imply that sampling must be conducted for each of these chemicals at every site. Sampling should be conducted for those chemicals that might be present based on available information, such as current and past uses of chemicals at the site.

b Applies to any site that does not meet the definition of industrial or commercial.

c For arsenic, use the valence state most likely to be appropriate for site conditions, unless laboratory information is available. Where soil conditions alternate between saturated, anaerobic and unsaturated, aerobic states, resulting in the alternating presence of arsenic III and arsenic V, the arsenic III concentrations shall apply.

d Safe concentration has not yet been established. See WAC 173-340-7492(2)(c).