

Public Review Draft Cleanup Action Plan

Go East Corp Landfill Site
Everett, Washington
Ecology Agreed Order No. DE 18121

for

**Washington State Department of Ecology on
Behalf of Century Communities**

January 30, 2024



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Go East Corp Landfill Site Everett, Washington

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EXECUTIVE SUMMARY

The Draft Cleanup Action Plan (DCAP) for the Go East Corp Landfill Site (Go East Site or “Site”) was prepared on behalf of the Washington State Department of Ecology (Ecology) in collaboration with Century Communities of Washington, LLC. This DCAP has been prepared to meet the requirements of the Model Toxics Control Cleanup Act (MTCA) administered by Ecology under Chapter 173-340 of the Washington Administrative Code (WAC). This DCAP describes Ecology’s proposed cleanup action for this site and sets forth the requirements that the cleanup must meet.

Ecology anticipates hosting a public comment period and public meeting for the Draft Remedial Investigation/Feasibility Study (RI/FS) Report and DCAP in February 2024. Ecology will consider public comments before finalizing the RI/FS and Cleanup Action Plan (CAP). Ecology maintains webpage¹ for the Go East Corp. Landfill site, which includes summary information and links to site documents.

The Site is located within a former ravine above the Snohomish River Valley (see Figure 1). Sand mining was performed within the former ravine between 1969 to 1972. Wood waste and construction materials were disposed in the landfill (former ravine) between 1972 and 1983. Snohomish County Health Department (SCHD; formerly known as Snohomish Health District) permitted the landfill under Chapter 173-301 of the WAC, which was repealed as an antiquated regulation in 1985 and superseded by WAC 173-304 and later by WAC 173-350.

The landfill was closed as a limited purpose landfill under current regulations in WAC 173-350-400 as part of the redevelopment of the property. Site grading and landfill closure activities were performed between March 2021 and July 2022 pursuant to Land Disturbing Activity permits issued by Snohomish County Planning and Development Services and a Solid Waste Facility Permit issued by SCHD. The activities included:

- Excavation of landfill material from the peripheral areas of the landfill (i.e., the wedge area) and the placement of the landfill material in the center of the landfill which reduced the landfill area from approximately 9.6 to 6.0 acres.
- Closure of the landfill with an engineered cover that includes a 40-mil linear-low density polyethylene (LLDPE) membrane, a geocomposite drainage layer, and soil cover.
- Construction of two stormwater detention ponds on the southeast portion of the landfill to reduce the peak stormwater runoff from the adjoining residential development. The stormwater ponds are underlain by a double liner with an interstitial leak detection layer.
- Construction of a geomembrane-lined landfill gas collection trench along the periphery of the landfill to collect and ventilate any accumulated methane beneath the landfill liner.
- Preservation of the steep, wooded northeast landfill slope and construction of a rock buttress at the toe of the slope to increase its structural stability.
- Additional site development activities including surface water and groundwater management, and site regrading.

¹ <https://apps.ecology.wa.gov/cleanupsearch/site/4294>

The Site is under an Agreed Order with Ecology under the state's cleanup law, MTCA, which required the owner to perform an interim action during landfill closure and to prepare a Remedial Investigation/Feasibility Study (RI/FS). The interim action consisted of supplemental landfill waste characterization, soil sampling to confirm that potentially contaminated soil was removed from beneath the wedge area, reconnaissance of the steep, vegetated northeast landfill slope, and confirmation soil sampling associated with debris removal. The interim action also included soil testing beyond the landfill boundary associated with debris removal, characterization of fill material, and stormwater management. The interim actions are summarized in the Final Interim Action Completion Report (GeoEngineers 2021).

This RI/FS Report developed cleanup levels for groundwater, surface water, and sediment that are protective of human health and the environment. The primary contaminants at the Site are mobilized naturally-occurring metals. Arsenic, lead, and nickel were detected at concentrations slightly greater than their cleanup levels in one monitoring well completed in groundwater beneath the wedge area. Manganese and iron were detected above the cleanup levels in groundwater and surface water at the Site. Groundwater beneath the wedge area is recovering because the overlying landfill material has been removed. Iron and manganese readily oxidize as the surface water at the toe of the landfill mixes with ambient air resulting in the precipitation of the oxidized metals in the downstream sediment. This is evident by the rust-colored iron deposits observed downstream of the landfill. Other chemicals of concern for the site included polycyclic aromatic hydrocarbons (PAHs) that were detected at concentrations slightly above the cleanup levels in two wedge area groundwater monitoring wells during one sampling event at each well. PAH compounds were also detected but at concentrations below the cleanup levels in surface water at the toe of the landfill. Pesticides, presumably from urban stormwater drainage and not related to the landfill, were detected in sediment upstream and downstream of the landfill.

The Feasibility Study screened the remedial technologies and developed three cleanup alternatives for evaluation. The cleanup alternatives included:

- Alternative 1. Consists of the completed landfill closure activities.
- Alternative 2. Adds monitored natural attenuation and natural recovery. Groundwater and surface water are monitored to evaluate their recovery following removal of landfill waste from the wedge area and the construction of the final landfill cover. The property owner is voluntarily monitoring the recovery of the wetlands associated with Stream 3 following their revegetation after the mudflow event even though the sediment is compliant with the cleanup levels.
- Alternative 3. Adds active surface water treatment for the manganese and iron and potentially for organics that were encountered below the cleanup levels.

The Draft RI/FS recommended Alternative 2 as active surface water treatment is unnecessary, potentially disruptive, and potentially requires additional permitting to discharge the treated water. Groundwater and surface water monitoring are required under the solid waste regulations in WAC 173-350-400(7) and -500 until the groundwater meets the groundwater quality standards.

This DCAP is the proposed decision document issued by Ecology that describes the cleanup standards for the Site, the method of cleanup that will be used to achieve the cleanup standards, and other requirements the cleanup will comply with.

This Executive Summary should be used only in the context of the full report for which it is intended.

1.0 INTRODUCTION

1.1. Purpose

This document is the Draft Cleanup Action Plan (DCAP) for the Go East Site located near Everett, Washington. The general location of the Site is shown in Figures 1 and 2. A Cleanup Action Plan (CAP) is required as part of the site cleanup process under Chapter 173-340 Washington Administrative Code (WAC), Model Toxics Control Act (MTCA) Cleanup Regulations. The purpose of the CAP is to identify the proposed cleanup action for the Site and to provide an explanatory document for public review. More specifically, this plan:

- Describes the Site.
- Summarizes current site conditions.
- Summarizes the cleanup action alternatives considered in the remedy selection process.
- Describes the selected cleanup action for the Site and the rationale for selecting this alternative.
- Identifies site-specific cleanup levels and points of compliance for each hazardous substance and medium of concern for the proposed cleanup action.
- Identifies applicable state and federal laws for the proposed cleanup action.
- Identifies residual contamination remaining on the site after cleanup and restrictions on future uses and activities at the site to ensure continued protection of human health and the environment.
- Discusses compliance monitoring requirements.
- Presents the schedule for implementing the CAP.

Ecology has made a preliminary determination that a cleanup conducted in conformance with this DCAP will comply with the requirements for selection of a remedy under WAC 173-340-360.

1.2. Previous Studies

Previous studies of the Site were conducted from 1981 to 2022 and included test pit explorations and soil sampling, groundwater monitoring well installation and groundwater sampling, seep and surface water sampling, and landfill gas studies. This section summarizes the previous studies. Additional description is contained in the RI/FS (GeoEngineers 2023).

Prior to the RI/FS study, 152 test pits were excavated to identify hazardous substances present in the landfill material and in native soil outside the Landfill. Landfill materials observed in test pits consisted of construction debris intermixed with native soil. Chemical analyses were performed on soil samples from the test pits to identify preliminary chemicals of concern that included metals and organic contaminants.

Four groundwater monitoring wells were installed around the perimeter of the Landfill in 2009. Groundwater samples were collected from monitoring wells MW-1, MW-2, and MW-3. Well MW-4 was not sampled because it was dry. The groundwater samples were analyzed for metals and organics. Constituents detected included arsenic, manganese, chromium, iron, lead, and mercury.

Surface water on the Property was sampled on multiple occasions between 1981 and 2009. The surface water samples were collected from Streams 2 and 3 (see Figure 3A), and several groundwater seep locations. Constituents detected included fluoranthene, arsenic, iron, lead, manganese, and zinc. The chemicals were detected in Stream 3 at the base of the Landfill's northeastern slope. The following constituents were not detected at concentrations greater than laboratory reporting limits in surface water: gasoline-range organics (GRO), diesel-range organics (DRO), volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), pesticides, antimony, beryllium, cadmium, copper, mercury, selenium, silver, and thallium.

Landfill gas sampling was conducted at temporary landfill gas probe locations in 2009. Oxygen concentrations ranged from 0.0 to 21.5 percent and carbon dioxide concentrations ranged from 0.1 to 22.8 percent. Methane was detected at concentrations between 0.2 percent and 8.4 percent in three of the 10 gas probe locations within the Landfill limit.

An interim action was completed in 2021 as described in the Final Interim Action Completion Report (GeoEngineers 2021). The outer margin area of the Landfill was excavated and relocated into the main landfill mass. Confirmation soil samples were collected from the excavation area to ensure any potential landfill contaminants were removed from the wedge area. Additional soil confirmation sampling was performed on the northeast landfill slope and following stormwater management activities in the cul-de-sac area of the site. The interim action successfully consolidated waste material into the main landfill mass and confirmed no contamination remained outside the final landfill limits.

An RI/FS was completed between 2021 and 2023. Remedial investigation activities included installation of six new monitoring wells, and multiple rounds of groundwater, surface water, seep and sediment sampling. Sample locations are shown in Figures 3A and 3B. Samples were analyzed for a wide variety of potential chemicals of concern including petroleum hydrocarbons, total and dissolved metals, organochlorine pesticides, chlorinated acid herbicides, PCBs, VOCs, semi-volatile organic compounds (SVOCs), and polycyclic aromatic hydrocarbons (PAHs). Geochemical indicator parameters and leachate indicators were analyzed based on the requirements of WAC 173-350-500 for landfill monitoring. Additional landfill gas studies were conducted as well. The proposed cleanup levels for the chemicals of concern are shown in Tables 7-1 and 7-2 of the RI/FS. The results of the remedial investigation included the following:

- Arsenic, lead, and nickel were detected at concentrations slightly above their cleanup levels in one monitoring well (MW-7) completed in groundwater beneath the wedge area.
- Manganese and iron were detected at concentrations greater than the cleanup levels in groundwater beneath the wedge area and in groundwater and surface water downstream of the landfill.
- Groundwater beneath the wedge area is recovering because the overlying landfill material has been removed.
- Other chemicals of concern for the site included PAHs detected at concentrations slightly greater than the cleanup levels in two wedge area groundwater monitoring wells (MW-6 and MW-7) during one sampling event at each well. PAH compounds were detected at concentrations below the cleanup levels in surface water at toe of the landfill.
- Pesticides, presumably from urban stormwater drainage and not related to the landfill, were detected in sediment upstream and downstream of the landfill.

1.3. Regulatory Framework

Snohomish County Health Department (SCHD; formerly known as Snohomish Health District) is the local jurisdictional health department responsible for permitting the Go East Corp. Landfill under the Solid Waste Handling Standards (WAC 173-350-400). SCHD and Ecology approved the Landfill Closure Plan (LFCP) as part of Solid Waste Facility Permit # SW-027 (Permit), subject to the development and written approval of Landfill closure construction plans comprising final design drawings, construction specifications, and a Construction Quality Assurance Report (CQAR) pursuant to WAC 173-350-400(5). The Landfill closure construction plans were reviewed by SCHD and Ecology and approved by SCHD in August 2020. The CQAR was finalized July 1, 2022 (PACE 2022).

The MTCA Agreed Order (No. DE 18121) required the owner to perform an interim action during the landfill closure activities and to prepare an RI/FS Report and preliminary Draft Cleanup Action Plan (DCAP). This DCAP was prepared in accordance with applicable requirements of the MTCA Cleanup Regulation (WAC 173-340), the Sediment Management Standards (WAC 173-204), and the Solid Waste Handling Standards (WAC 173-350).

The Draft RI/FS and DCAP do not address methane generated by the biodegradation of organic material in the landfill. Methane is a non-toxic, flammable gas that is explosive at concentrations between 5 and 15 percent by volume. SCHD regulates methane under the landfill permit pursuant to the solid waste handling standards in WAC 173-350-400. Methane is monitored in accordance with the Landfill Gas Monitoring and Contingency Plan (Herrera 2024).

2.0 SITE DESCRIPTION

2.1. Site History

Detailed descriptions of the Landfill operational history are provided in the Agreed Order, the LFCP, and the *Amended Decision of the Snohomish County Hearing Examiner: Amended Decision Affirming SEPA Threshold Determination, Approving Rezone, and Approving Preliminary Subdivision with Conditions (Amended Decision)* (Snohomish County 2018). The summary presented below is based on information contained in the Agreed Order.

The former ravine beneath the Landfill was mined as a source of sand and gravel aggregate materials from 1969 until 1972. The ravine was then reclaimed with landfill material between 1972 to 1983. Plans were made beginning in 2009 to close the Landfill as part of Property redevelopment. SCHD issued a closure Permit in 2018. The Permit was appealed to the Washington State Pollution Control Hearings Board (PCHB). PCHB affirmed that the LFCP met the closure requirements specified in WAC 173-350-400(8). The Site was added to Ecology's Confirmed and Suspected Contaminated Sites List in 2019. The Cleanup Site Identification Number is 4294 and the Facility/Site Identification Number is 2708.

An interim action was performed in 2021. The interim action activities were performed in concurrence with the landfill closure activities, and intended to confirm that any potential soil contamination be removed from the beyond the final landfill boundary. The interim action activities are documented in the Final Interim Action Completion Report (IACR) (GeoEngineers 2021).

The landfill was closed in accordance with the requirements for limited purpose landfills (WAC 173-350-400) and the LFCP between March 2021 and July 2022. A summary of major landfill closure and associated activities included the following, elements of which are shown in Figure 4:

- The excavation of landfill material from the wedge area and placement and capping of the landfill material beneath an impermeable landfill cap; thus reducing the landfill footprint from approximately 9.6 to 6.0 acres.
- Excavation of clean soil from the western portion of the Property to use as backfill within the interim action excavation and in other areas of the Property as needed.
- Installation of a groundwater interceptor trench at the toe of the western slope that discharges water to Stream 2.
- Additional clearing and grading.
- Placement of clean imported fill on portions of the Property.
- Installation of an engineered cap over the final limits of the landfill, except where natural vegetation was preserved on the steep northeast landfill slope.
- Construction of access path and rock buttress at the toe of the northeast slope of the landfill.
- Construction of permanent stormwater facilities including detention ponds that discharge stormwater to Stream 2.

Century Communities purchased the Property on May 24, 2022 and developed the 96-tract Alpine Estates community. Snohomish County Planning and Development services approved the Alpine Estates, A Plat Community plat map on October 24, 2023. Tracts 998 through 992 and 995 through 999 were granted and conveyed to the Alpine Estates Owners Association. The landfill exists on Tracts 989, 992, 997, and 999. Century Communities currently governs the Alpine Estates Owners Association.

2.2. Human Health and Environmental Concerns

Manganese and iron are detected above natural background concentrations in groundwater beneath the wedge area and in groundwater and surface water downstream of the landfill. Arsenic, lead, and nickel are also detected above cleanup levels in one well (MW-7) completed beneath the wedge area. PAHs were detected at concentrations slightly above the cleanup levels in two groundwater monitoring wells (MW-6 and MW-7) completed beneath the wedge area. Pesticides, presumably from urban stormwater drainage and not related to the landfill, were detected in sediment upstream and downstream of the landfill.

The conceptual site model is shown in Figure 5. The Landfill wastes are the primary source of hazardous substances present at the Site. The primary transport mechanisms are precipitation and infiltration of rainwater through the waste and groundwater flow through the waste located below the water table. The groundwater under the landfill is under anaerobic reducing conditions because the biological degradation reactions in the landfill consume dissolved oxygen. Naturally occurring iron and manganese in the mineral deposits are mobilized under anaerobic reducing conditions because the divalent species of iron and manganese are more soluble than their oxidized species. Contaminated groundwater and leachate are secondary contaminant sources. Secondary transport mechanisms at the Site include groundwater flow which discharges near the weir box as leachate/surface water.

Potential exposure media include the landfill waste, groundwater, surface water, and sediment. An engineered landfill cap was constructed over most of landfill surface, and native vegetation was preserved on the steep, northeastern slope of the landfill. Therefore there is little to no likelihood for humans and/or terrestrial ecological receptors to be exposed to contaminants present in the waste.

New water wells should not be located within 1,000 feet of the landfill without a variance (WAC 173-160-171). Future wells would therefore not be impacted by contaminated groundwater flow from the landfill. The off-property drinking water pathway is considered a pathway to be environmentally conservative, albeit an unlikely pathway. There is no ecological exposure to groundwater.

The beneficial uses of surface water in Stream 3 and downgradient of Stream 3 include domestic, industrial, and agricultural water supply; primary contact recreation; stock watering; wildlife habitat; commerce and navigation; boating; and aesthetic values. Stream 3 is not fish-bearing. Surface water is not used on the Property. The stream flow in Stream 3 downstream of the property is insufficient to use as a potable water supply, and any exposures to humans would be incidental. Ingestion and direct contact of surface water by humans on and off the Property is therefore a complete but minor exposure pathway. Ingestion and direct contact of surface water by ecological receptors on and off the Property is a complete exposure pathway.

Exposure to sediment in Stream 3 primarily includes ecological receptors. Additionally, direct contact or ingestion of sediment by human receptors is a potential pathway although this is considered a minor pathway. The chemicals of concern were detected below the cleanup standards in the most recent sediment samples; however, contact with wetland sediment may cause mild skin irritation.

2.3. Cleanup Standards

2.3.1. Chemicals of Concern

The primary chemicals of concern to be addressed by the cleanup are manganese and iron. Arsenic, lead, and nickel have been detected near the cleanup levels in one well (MW-7) completed beneath the wedge area. PAHs were inconsistently detected at concentrations slightly above the cleanup levels in two groundwater monitoring wells (MW-6 and MW-7) completed beneath the wedge area. Pesticides, presumably from urban stormwater drainage and not related to the landfill, were detected in sediment upstream and downstream of the landfill.

2.3.2. Cleanup Levels

Cleanup levels were developed in the Draft RI/FS. Table 1 shows the groundwater and surface water chemicals of concern and their cleanup levels, and Table 2 shows the sediment chemicals of concern and their cleanup levels. The cleanup levels are protective of human health and the environment, as described in the Draft RI/FS report.

3.0 DESCRIPTION OF SELECTED REMEDY

3.1. Site Description

The site includes the former landfill boundary and a portion of Stream 3 within approximately 200 feet of the weir box at the toe of the northeast slope of the landfill.

3.2. Description of the Cleanup Action

The cleanup action includes closing the landfill per WAC 173-350-400 (completed in 2022), monitored natural attenuation (MNA) for groundwater and surface water, and natural recovery for sediment. MNA for groundwater consists of continued monitoring of groundwater wells as required by long-term post-closure care. MNA for surface water consists of continued monitoring of surface water emanating from the weir box. Recovery for sediment was partially performed by the 2021 mudflow that covered pre-existing sediments. Natural recovery for sediment includes re-establishing wetland vegetation in and near Stream 3, improving surface water quality, and additional natural sedimentation to overlie historical contamination. Wetland vegetation was planted on the mudflow downstream from the landfill in March 2023. Annual wetland inspections and periodic maintenance will occur for five years.

3.3. Cleanup Standards and Point of Compliance

Cleanup levels (CULs) were developed for contaminants in groundwater, surface water, and sediment. The groundwater and surface water cleanup levels for arsenic, iron, and manganese are based on the unfiltered natural background concentrations measured in groundwater from wells that are hydraulically upgradient of the landfill. The DCAP does not establish soil cleanup levels. The Interim Action Completion Report confirms that the remaining soil meets very conservative interim action levels defined in the Interim Action Work Plan. Cleanup levels were developed based on Ecology's 2023 Cleanup Levels and Risk Calculation (CLARC) resource, adjusted with Site-specific natural background concentrations or laboratory practical quantitation limits (PQLs).

The point of compliance for groundwater is beyond the perimeter of the landfill. This conditional point of compliance is consistent with WAC 173-350-100, which states "the point of compliance will be located as near to the downgradient edge of the solid waste handling activity as technologically, hydrogeologically, and geographically feasible." Wedge area wells MW-6, MW-7, and MW-8 and downgradient well MW-10 shall be used for monitoring groundwater quality.

The point of compliance for surface water is where contaminants are released to surface water. The point of compliance for surface water begins at the weir box at the toe of the landfill. Surface sampling location SWS-1 (at the weir box) shall be used for monitoring surface water quality.

The point of compliance for sediment is within the biologically active aquatic zone (WAC 173-204-560(6)). The point of compliance for sediment is the upper approximate 1 foot of sediment in Stream 3. This will be protective of the biologically active zone (typically the upper 10 – 15 centimeters), as well as protective for direct contact of sediment by humans ("beach play").

The cleanup standards including each affected medium, contaminant, and cleanup level are summarized in Tables 1 and 2.

3.4. Applicable, Relevant and Appropriate Requirements (ARARs)

The potential ARARs for the site include:

Solid Waste Regulations for Limited Purpose Landfills (WAC 173-350-400). SCHD permits the landfill under this regulation. WAC 173-350-400 provides requirements for landfill closure, monitoring, and post-closure.

Washington Water Well Construction Regulations (WAC 173-160). Establishes state standards for installing, maintaining, and decommissioning wells.

Washington Water Pollution Control Act (RCW 90.48). The Washington Water Pollution Control Act and its implementing regulations address the requirements under Sections 301, 302, and 303 of the Federal Clean Water Act (CWA, Title 33 USC § 1251 et seq.).

Maximum Contaminant Levels (WAC 246-290-310). The primary and secondary maximum contaminant levels (MCLs) for drinking water established in Washington Department of Health regulations are applicable requirements under MTCA.

Washington Surface Water Quality Standards (WAC 173-201A). These standards are applicable to surface waters of the state. The Washington State Surface Water Standards are protective of the beneficial uses of surface water and provide criteria that are protective of human health and aquatic life.

Washington Clean Air Act Regulations (WAC 173-400). Provides standards and procedures for managing the discharge of contaminants to the atmosphere. Washington air quality regulation establishes permit programs that implement federal and state air quality regulations. In Snohomish County, oversight of most air quality regulations has been delegated to the Puget Sound Clean Air Agency (PSCAA). PSCAA also has its own regulations. PSCAA regulation I, 6.03(b)(96) exempts landfills such as the Go East Landfill that do not have operating, active landfill gas collection systems (the federal Clean Air Act at 60.751 defines an “active collection system” as one that uses blowers or compressors, which are not present at the site).

Washington State Environmental Policy Act (SEPA; RCW 43.21c). Requires state agencies to analyze the impacts of proposals for legislation and other actions that might significantly affect the quality of the environment. SEPA review was performed prior to landfill closure.

Washington Industrial Safety and Health Act Regulations (WAC 296-62). Contains health and safety training requirements for on-site workers. They also contain permissible exposure limits for conducting work at the Landfill. These regulations will be applicable to certain activities required for landfill maintenance in the future.

Local regulatory requirements that are potentially applicable to the cleanup action alternatives developed for the Site include:

Snohomish Health District Code (Title 2, Division II). Provides the requirements for handling solid wastes in Snohomish County. Specific to the Landfill, these regulations identify the responsibilities of owners of closed or abandoned Landfills.

Snohomish County Code (SCC) 7.53 (Water Pollution Control). Provides the requirements to control discharges of contaminants to public drainage facilities, natural drainage systems, and storm water and receiving waters. SCC 7.53 references the technical guidelines and best management practices (BMPs) included in the Snohomish County Drainage Manual.

SCC 30.62A (Wetlands and Fish & Wildlife Habitat Conservation Areas). Provides critical area regulations pursuant to the Growth Management Act (RCW 36.70A) for designation and protection of wetlands and fish and wildlife habitat conservation areas (streams, lakes, marine waters, and primary association areas for

critical species). SCC 30.62A applies to development activity, actions requiring project permits, and clearing occurring within wetlands, fish and wildlife habitat conservation areas and buffers.

SCC 30.63A (Drainage). Implements the storm water management provisions under the Federal Clean Water Act (33 U.S.C. § 1251 et seq.) as administered by Ecology through issuance of the National Pollutant Discharge Elimination System (NPDES) Phase I Municipal Stormwater Management Permit in accordance with chapter 90.48 RCW.

SCC 30.63B (Land Disturbing Activity). Provides the standards and requirements for land disturbing activities.

3.5. Environmental Justice

Effective January 1, 2024, WAC 173-340-380(5)(c) requires that cleanup action plans summarize how impacts on likely vulnerable populations and overburdened communities were considered when selecting the cleanup action. Ecology Publication No. 24-09-044 (Ecology 2024) defines criteria for whether a potentially exposed population includes a likely vulnerable population or overburdened community (VP/OC). These criteria were evaluated by comparing factors on the Washington State Department of Health's Environmental Health Disparities (EHD) Map and EPA's Environmental Justice Screening and Mapping Tool (EJScreen) website with the criteria in Ecology Publication No. 24-09-044:

- VP/OCs are indicated by EHD ranks of 9 or 10. The potentially exposed population near the Site has an EHD Index rank of 2.
- VP/OCs are indicated when the census tract is at or above the 80th percentile for the Demographic Index or Supplemental Demographic Index from EPA's EJScreen map. The potentially exposed population near the Site is ranked below the 50th percentile in EJScreen's Demographic Index and Supplemental Demographic Index.

The cleanup action plan does not impact any vulnerable populations or overburdened communities.

3.6. Cultural Resource Protection

Effective January 1, 2024, WAC 173-340-815 requires that all remedial actions must comply with applicable state and federal laws regarding cultural resource protection. Ecology reviewed the selected cleanup action and concluded that monitored natural attenuation and natural recovery have no potential to cause adverse impacts to cultural resources.

3.7. Restoration Timeframe

A reasonable restoration timeframe for the Site is approximately 20 years for groundwater and surface water, and 10 years for sediment. This timeframe is considered reasonable based on the requirements of WAC 173-340-360(4)(b):

- Potential risks to human health and the environment are low. The cover system prevents access to the waste. There are no current uses of groundwater or surface water within or near the Site and institutional controls will prevent future use of these resources.

- Achieving a shorter restoration time frame is not practical or necessary due to the low concentrations and limited number of contaminants present.
- Institutional controls to prevent access to the Landfill waste and to prohibit use of groundwater and surface water will be effective and reliable. Source control actions and natural attenuation will effectively and reliably reduce concentrations of contaminants in groundwater, surface water, and sediment over time.
- The toxicity and/or the concentrations of the Site contaminants are generally low.

3.8. Compliance Monitoring

The three types of compliance monitoring are: Protection, performance, and confirmational monitoring. The purposes of compliance monitoring and data evaluation include the following:

Protection monitoring. Confirm that human health and the environment are adequately protected during construction and the operation and maintenance period of an interim action or cleanup action as described in the safety and health plan.

Performance monitoring. Confirm that the interim action or cleanup action has attained cleanup standards and, if appropriate, remediation levels or other performance standards such as construction quality control measurements or monitoring necessary to demonstrate compliance with a permit or, where a permit exemption applies, the substantive requirements of other laws.

Confirmational monitoring. Confirm the long-term effectiveness of the interim action or cleanup action once cleanup standards and, if appropriate, remediation levels or other performance standards have been attained.

Protection monitoring was performed during landfill closure activities while performance monitoring was performed during the interim action.

Confirmational monitoring will be performed by sampling groundwater initially at monitoring wells MW-6, MW-7, MW-8, and MW-10 and surface water at weir box location SWS-1 at the toe of the landfill. A Compliance Monitoring Plan will be prepared in accordance with WAC 173-340-410(3) and submitted to Ecology for review and approval. The Compliance Monitoring Plan shall include a Sampling and Analysis Plan that meets the requirements of WAC 173-340-820 and WAC 173-350-500(4). Confirmation monitoring is required for each chemical of concern until the concentrations of that chemical attenuates to below the cleanup level at the monitoring location for eight consecutive measurements or statistical compliance is demonstrated in accordance with WAC 173-340-720(9) for a minimum of the most recent eight samples.

3.9. Schedule for Implementation

Landfill closure was performed between March 2021 and July 2022 in accordance with the Go East Landfill Closure Plan (PACE 2018) and landfill permit issued by SCHED. The Landfill closure construction plans were reviewed by SCHED and Ecology and approved by SCHED in August 2020. The CQAR was finalized July 1, 2022.

Interim actions were performed under MTCA concurrent with the landfill closure activities to ensure that residual soil beyond the landfill met stringent interim action levels that are protective of all exposure pathways. The Interim Action Completion Report was completed on November 23, 2021. Separate interim action completion reports were prepared for the reconnaissance of the northeast landfill slope (April 7, 2022) and to confirm that clean soils remained following stormwater management activities near the cul-de-sac area (December 20, 2022). Groundwater and surface water are currently monitored in accordance with an interim sampling plan defined in the landfill permit pending the finalization of the Cleanup Action Plan and Compliance Monitoring Plan. Groundwater and surface water monitoring will be performed in accordance with the Compliance Monitoring Plan until the concentrations of the chemicals of concern are compliant with the cleanup levels.

3.10. Institutional/Engineering Controls

Institutional controls are measures undertaken to limit or prohibit activities that interfere with the integrity of a cleanup action or that may result in exposure to hazardous substances at a site. Century Communities is recording a covenant for the Alpine Estates, A Plat Community following closure of the landfill in accordance with WAC 173-350-400(8)(e). The environmental covenant for the landfill tracts (Tracts 989, 992, 997, and 999 of the plat map) includes the following specific prohibitions and requirements:

- **Land use.** The closed landfill shall be used for storm water detention, a publicly-accessible recreation area, an emergency access road, and open area. Associated paved surfaces, foundations and footings, utility trenches, fence posts, vegetation, and any additional features and activities shall not interfere with the integrity of the landfill containment and monitoring systems.
- **Containment of waste materials.** The closed landfill is covered with a 40-mil linear-low density polyethylene geomembrane, a geocomposite drainage layer, a minimum one-foot sand cover, and a minimum 1-foot soil cover. Any activity that may result in the release or exposure to the environment of the waste contained in the landfill, or create a new exposure pathway, is prohibited. Some examples of activities that are prohibited in the capped areas include: disturbing the geomembrane cover and drainage system; drilling; digging more than 1 foot deep with mechanical equipment; placement of any objects or use of any equipment which deforms or stresses the surface beyond its load bearing capability; piercing the surface with a rod, spike or similar item; bulldozing or earthwork that lowers the finished grade above the geomembrane cover or raises the finished grade more than two feet; unless such activities are approved in writing by SCHED. The Grantor shall notify any contractor of these covenant restrictions prior to performing earthwork. The Grantor shall notify SCHED if the geomembrane cover and drainage systems are observed or encountered for any reason.
- **Stormwater facilities.** A stormwater detention pond, with two cells, is constructed on the southern portion of the landfill surface. The stormwater detention pond is underlain by compacted landfill material, a double-lined 40-mil linear-low density polyethylene liner with an interstitial leak detection layer, and a 2-foot soil cover. A leak detection vault is constructed north of the detention pond on the landfill cover. Stormwater conveyance structures are constructed above the landfill cover. The property owner is responsible for the maintenance and repair of the stormwater detention pond as required by Section 7.54.080 (Maintenance and Repair of Constructed Stormwater Control Facilities) of the Snohomish County Code. The maintenance activity shall include inspection of the leak detection vault for leakage as warranted. The property owner shall notify SCHED of suspected leakage. The property owner shall be responsible for the identification and repair of the damaged liner as warranted. SCHED is the Beneficiary for a trust/assignment of funds established for this purpose.

- **Vapor/gas controls.** The geomembrane cover, methane trench, ventilation system, and twelve soil gas probes are documented in the Go East Landfill Construction Quality Assurance Report. The soil gas probes shall be maintained for as long as directed by SCHD, and then decommissioned in accordance with Chapter 173-160, Washington Administrative Code, as warranted.
- **Groundwater use.** No water well shall be installed within 1,000 feet of the Go East Landfill boundary, pursuant to Chapter 173-160, Washington Administrative Code.
- **Monitoring.** Groundwater, surface water, and soil gas shall be monitored in accordance with the landfill post-closure care permit issued by SCHD or, as applicable, a cleanup action plan developed under the Model Toxics Control Act. Groundwater monitoring wells on Tracts 992 (MW-8), 997 (MW-6), 990 (MW-7), and 989 (MW-10) shall be maintained until SCHD determines that the concentrations of naturally-occurring metals have attenuated to natural background conditions. Groundwater monitoring wells shall be decommissioned in accordance with Chapter 173-160, WAC, when approved by SCHD.
- **Other.** Any activity performed within the closed landfill boundary that may interfere with the integrity of the landfill containment system and the continued protection of human health and the environment is prohibited.

3.11. Public Participation

The Draft RI/FS and DCAP are posted on Ecology's cleanup website² for the Site. Ecology anticipates hosting a public comment period and a public meeting in February 2024 for the Draft RI/FS Report and the DCAP

4.0 REFERENCES

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GeoEngineers, 2023. Public Review Draft Remedial Investigation/Feasibility Study, Go East Corp Landfill Site, Everett, Washington. Ecology Agreed Order No. DE 18121. December 1, 2023.

² <https://apps.ecology.wa.gov/cleanupsearch/site/4294>

PACE Engineers, Inc. (PACE), 2018. Go East Landfill Closure Plan, Revised January 2018 with updates.

PACE Engineers, Inc. (PACE), 2022. Construction Quality Assurance Report. Go East Landfill. May 20, 2022, revised June 15, 2022, revised July 1, 2022.

Snohomish County, 2018. Amended Decision of the Snohomish County Hearing Examiner: Amended Decision Affirming SEPA Threshold Determination, Approving Rezone, and Approving Preliminary Subdivision with Conditions. In Re Bakerview File No. 10-101204 SD/REZO. February 14, 2018.

United States Environmental Protection Agency (EPA), 2024. Environmental Justice Screening and Mapping Tool (EJScreen), <https://www.epa.gov/ejscreen>.

Washington State Department of Health, 2024. Washington Environmental Health Disparities Map, <https://doh.wa.gov/data-and-statistical-reports/washington-tracking-network-wtn/washington-environmental-health-disparities-map>.

Table 1
Groundwater and Surface Water Cleanup Levels for PCOCs
Former Go East Landfill
Everett, Washington

Chemical of Concern	Protection of Drinking Water ¹	Protection of Surface Water ¹	Protection of Sediment ¹	Preliminary Cleanup Level ²	Site-Specific Background ³	Laboratory PQL ⁴	Cleanup Level After Adjustment ⁵
Total Metals (µg/L)							
Arsenic	0.58	0.018	350	0.018	7.3	3.3	7.3
Iron	300	1000	NE	300	3,010	20	3,010
Lead	15	2.5	15	2.5	NC	1.1	2.5
Manganese ⁶	50	50	NE	50	354	11	354
Nickel	100	52	26.3	26.3	NC	22	26.3
Pesticides (µg/L)							
cis-Chlordane	0.13	0.00036	2.1	0.00036	NC	0.005	0.005
Heptachlor	0.097	0.00000034	0.00055	0.00000034	NC	0.005	0.005
PAHs (µg/L)							
Fluoranthene	640	6	3800	6	NC	0.10	6
Pyrene	240	8	2100	8	NC	0.10	8
cPAH TEQ	0.023	0.0097	0.0095	0.0095	NC	0.0076	0.0095

Notes:

¹ Ecology-provided cleanup level following January 2023 update to CLARC tables (<https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC>). See Appendix H of the RI/FS. The protection of drinking screening levels for iron and manganese are based on the secondary Maximum Contaminant Levels (MCLs) for aesthetic criteria.

² Preliminary cleanup level is the lowest of protection of drinking water, surface water, and sediment shown to the left in this table.

³ Site Specific background metals concentrations; see Appendix I of the RI/FS.

⁴ Practical Quantitation Limits (PQLs) from the RI analytical laboratory OnSite Analytical.

⁵ Cleanup level adjusted upward if necessary per WAC 173-340-700.

⁶ The 50 µg/L cleanup level is based on secondary MCL for aesthetic criteria. The health-based screening level for manganese is 750 µg/L.

NC = Not calculated

NE = Not established

µg/L = microgram per liter

Gray shaded cells provide the basis for the preliminary cleanup level

Blue shaded cells provide the basis for the cleanup level

Table 2
Sediment Cleanup Levels for PCOCs
 Former Go East Landfill
 Everett, Washington

Potential Chemicals of Concern (PCOC)	Protection of Sediment w/ Bioaccumulation (for reference only) ¹	Protection of Sediment w/o Bioaccumulation ²	Site-Specific Background ³	Laboratory PQL ⁴	Cleanup Level After Adjustment ⁵
Metals (mg/kg)					
Arsenic	11	11	NA	10	11
Iron	46,700	46,700	21,282	25	46,700
Lead	21	360	NA	5.0	360
Manganese	31,200	31,200	294	0.50	31,200
Nickel	50	50	51.2	2.5	51.2
Pesticides (mg/kg)					
cis-Chlordane	0.0001	2.03	NA	0.010	2.03
Heptachlor	0.0001	0.289	NA	0.0050	0.289
PAHs (mg/kg)					
Fluoranthene	0.005	3,570	NA	0.0067	3570
Pyrene	0.005	2,680	NA	0.0067	2680
cPAH TEQ	0.021	0.174	NA	0.0051	0.174

Notes:

All values in milligrams per kilogram (mg/kg).

¹ For reference only: Ecology-provided sediment cleanup level after January 2023 CLARC update (<https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC>). See Appendix H of the RI/FS.

² Ecology-provided sediment cleanup level (without bioaccumulation) after January 2023 CLARC update (<https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC>). See Appendix H of the RI/FS.

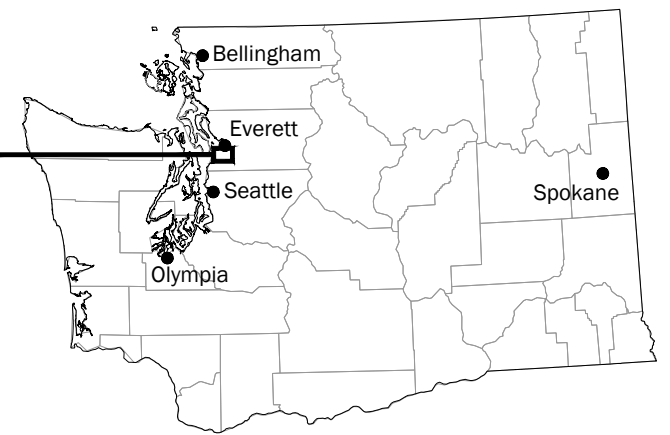
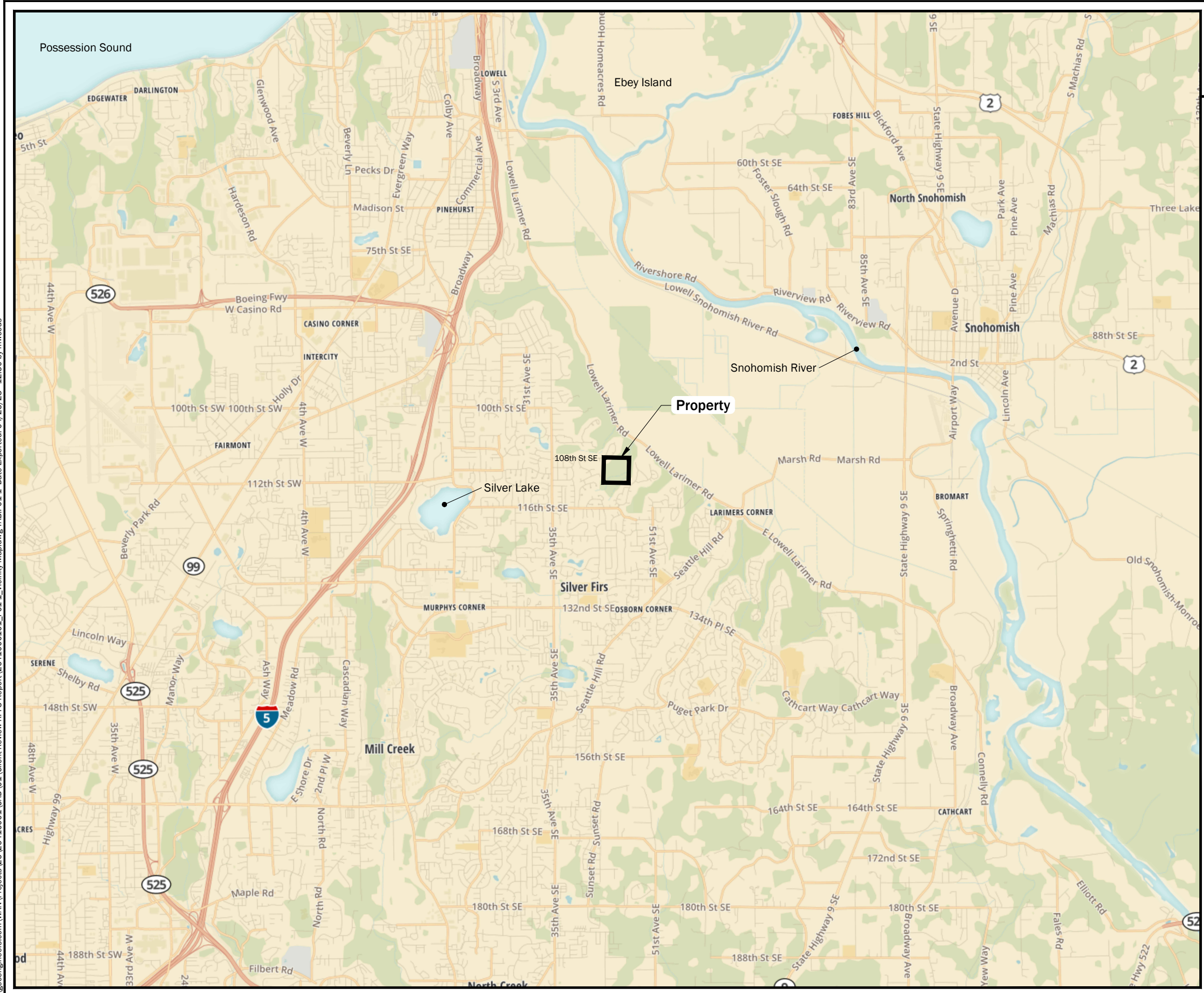
³ Site-specific metal background concentrations calculated from sediment samples SEDB-1 to SEDB-8 pursuant to WAC 173-340-709(3). See Appendix I of the RI/FS.

⁴ Practical Quantitation Limits (PQLs) from the RI analytical laboratory Onsite Analytical

⁵ Cleanup level adjusted upward if necessary per WAC 173-340-700

Gray shaded cells provide the basis for the cleanup level.

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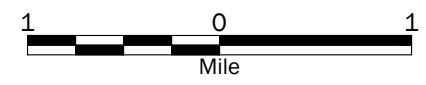
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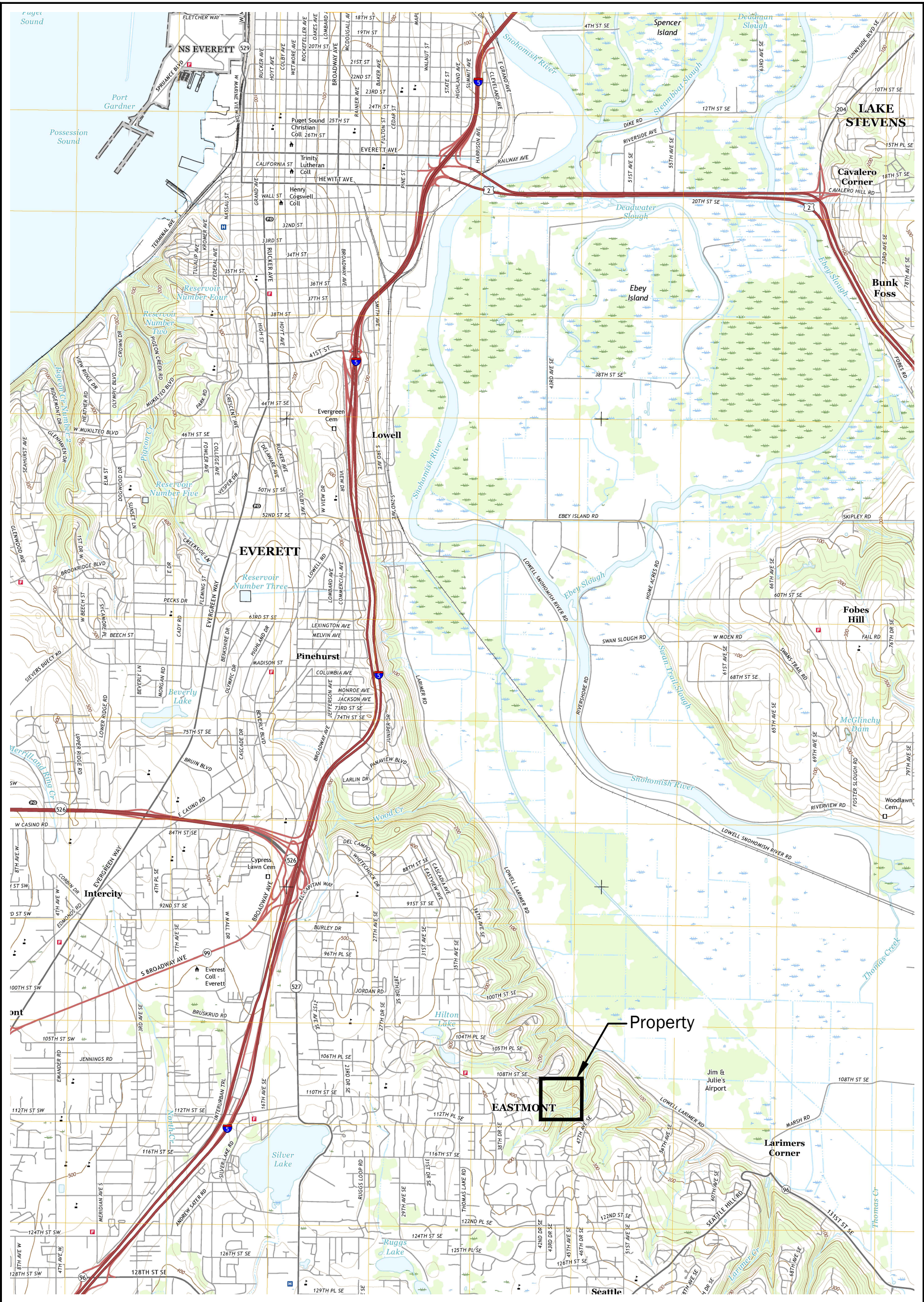
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Data Source: Mapbox Open Street Map, 2016.

Projection: NAD 1983 UTM Zone 10N



Vicinity Map	
Go East Corp Landfill Site Everett, Washington	
	Figure 1



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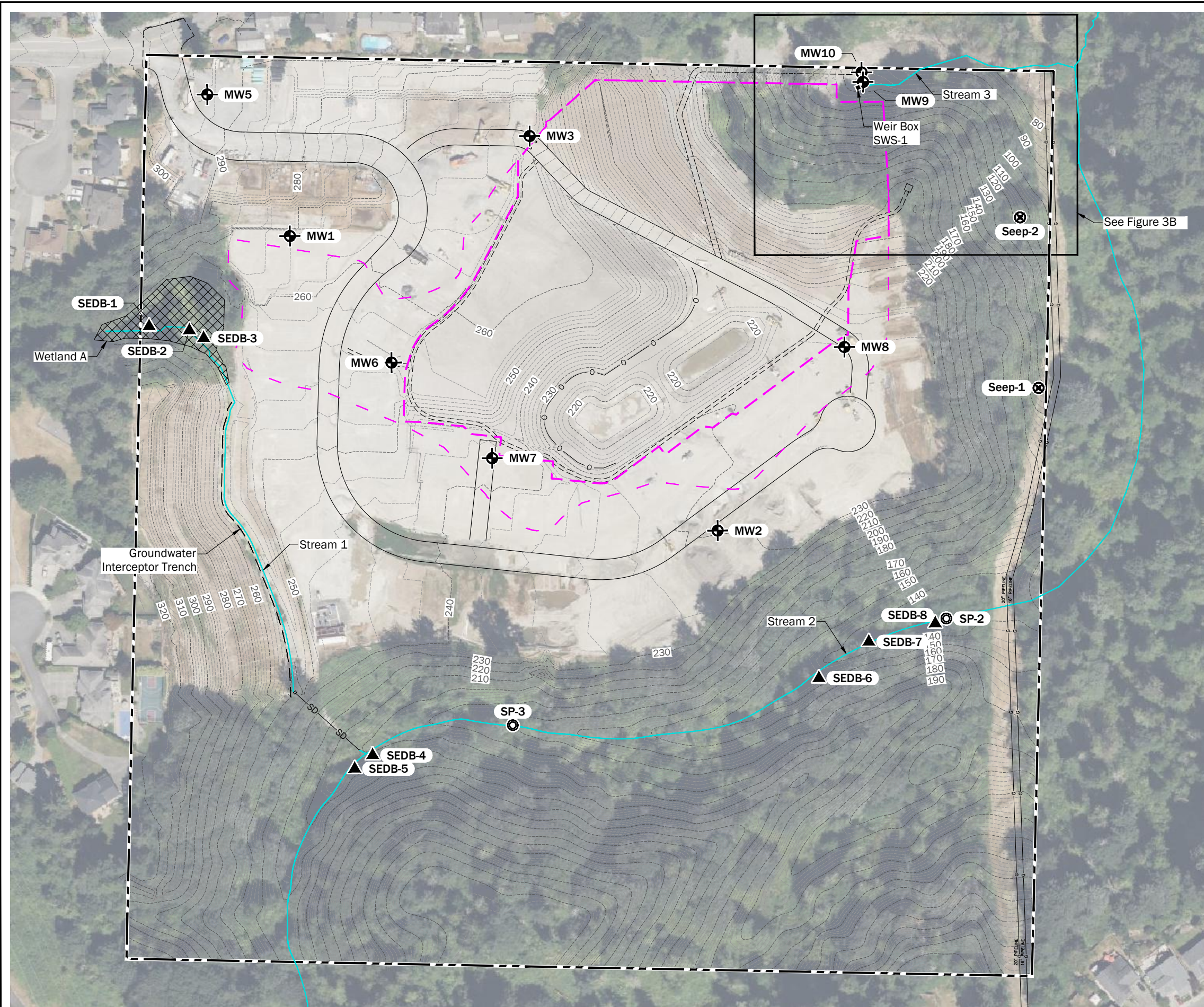
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Property Location in Relation to Physiographic Features	
Go East Corp Landfill Site Everett, Washington	
GEOENGINEERS	Figure 2

Data Source: Map from USGS dated 2017.

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Legend


- Property Boundary
- Final Landfill Limit
- Former Extent of Wedge Area
- 280 Topographic Contour (NAVD88)
- MW1 Groundwater Monitoring Well
- SEDB-1 Sediment Sample Location
- Seep-1 Seep Location
- SP-2 Surface Water Location

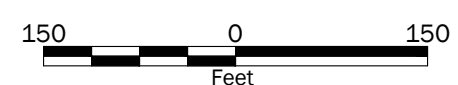
Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Background CAD files from MG Land Surveyors downloaded 2/17/2023.
Aerial from Microsoft Bing Images.

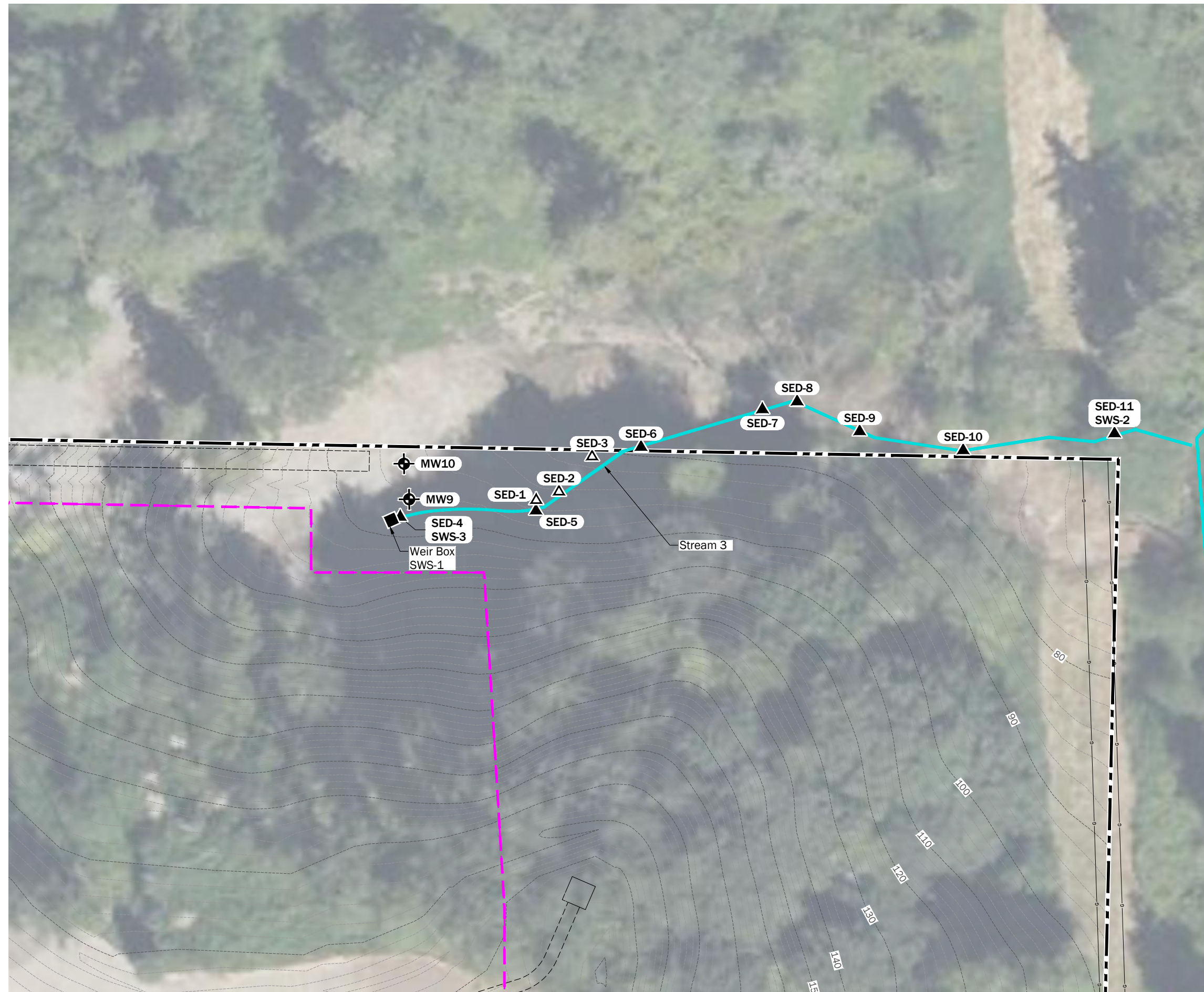
Projection: WA State Plane, North Zone, NAD83, US Foot





RI Sampling Locations	
Go East Corp Landfill Site Everett, Washington	
	Figure 3A

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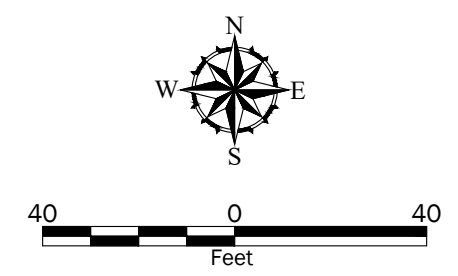


- Legend**
- Property Boundary
 - - - Final Landfill Limit
 - - - Former Extent of Wedge Area
 - 280--- Topographic Contour (NAVD88)
 - MW1 Groundwater Monitoring Well
 - SED-4 Sediment Sampling Location
 - SED-1 Sediment Sampling Location (Disturbed by mudslide)

- Notes:**
1. The locations of all features shown are approximate.
 2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

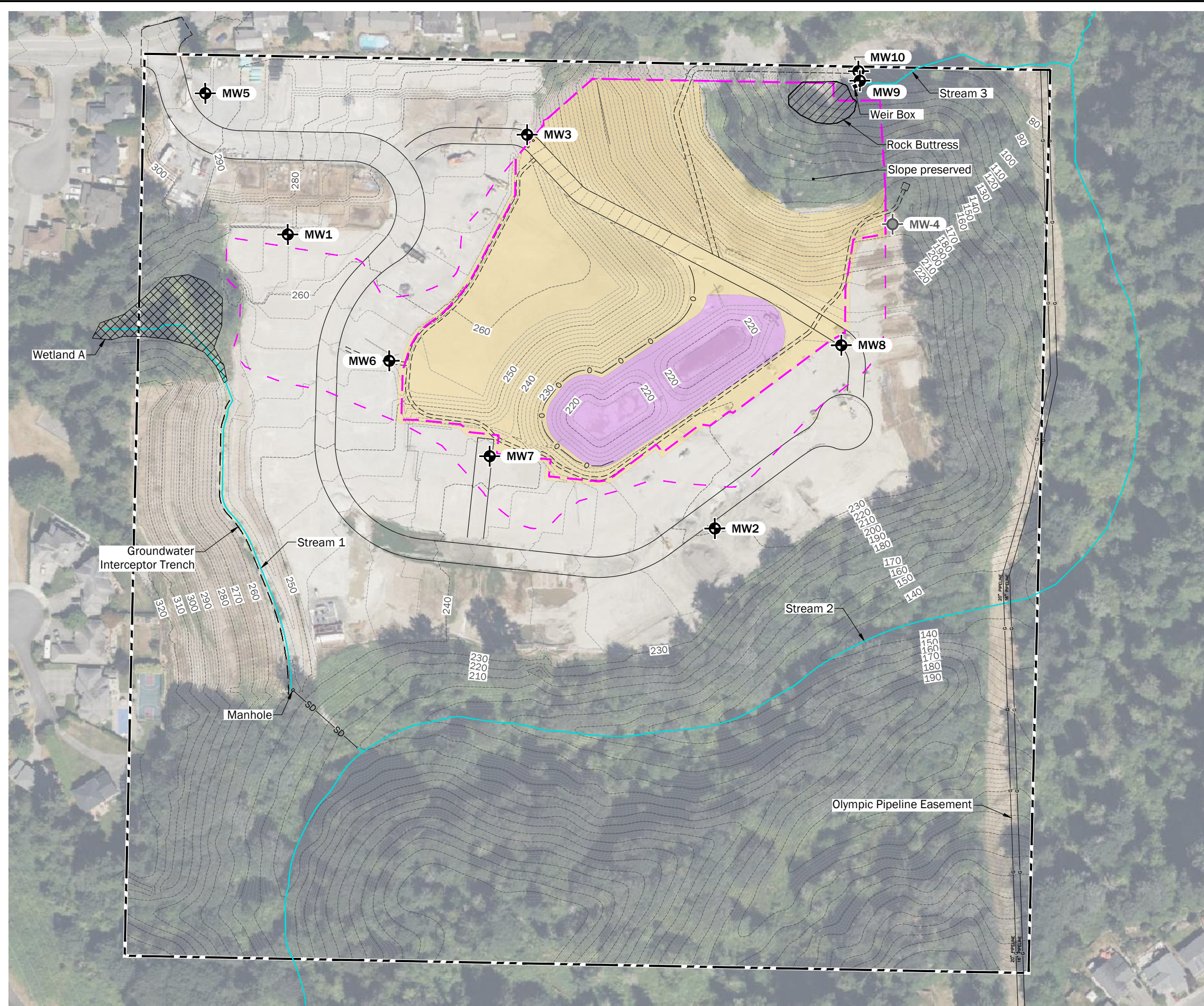
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 Aerial from Microsoft Bing Images.

Projection: WA State Plane, North Zone, NAD83, US Foot



RI Sampling Locations	
Go East Corp Landfill Site Everett, Washington	
	Figure 3B

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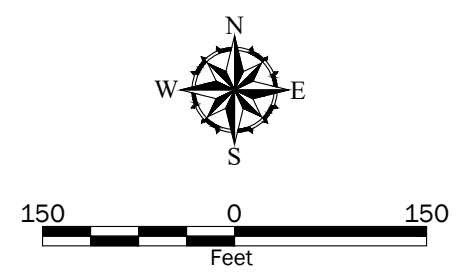
Legend

- Property Boundary
- Final Landfill Limit
- Former Extent of Wedge Area
- Engineered Cap
- Double-lined stormwater pond
- Topographic Contour (NAVD88)
- MW1 Groundwater Monitoring Well
- MW-4 Decommissioned Groundwater Monitoring Well
- Storm Drain

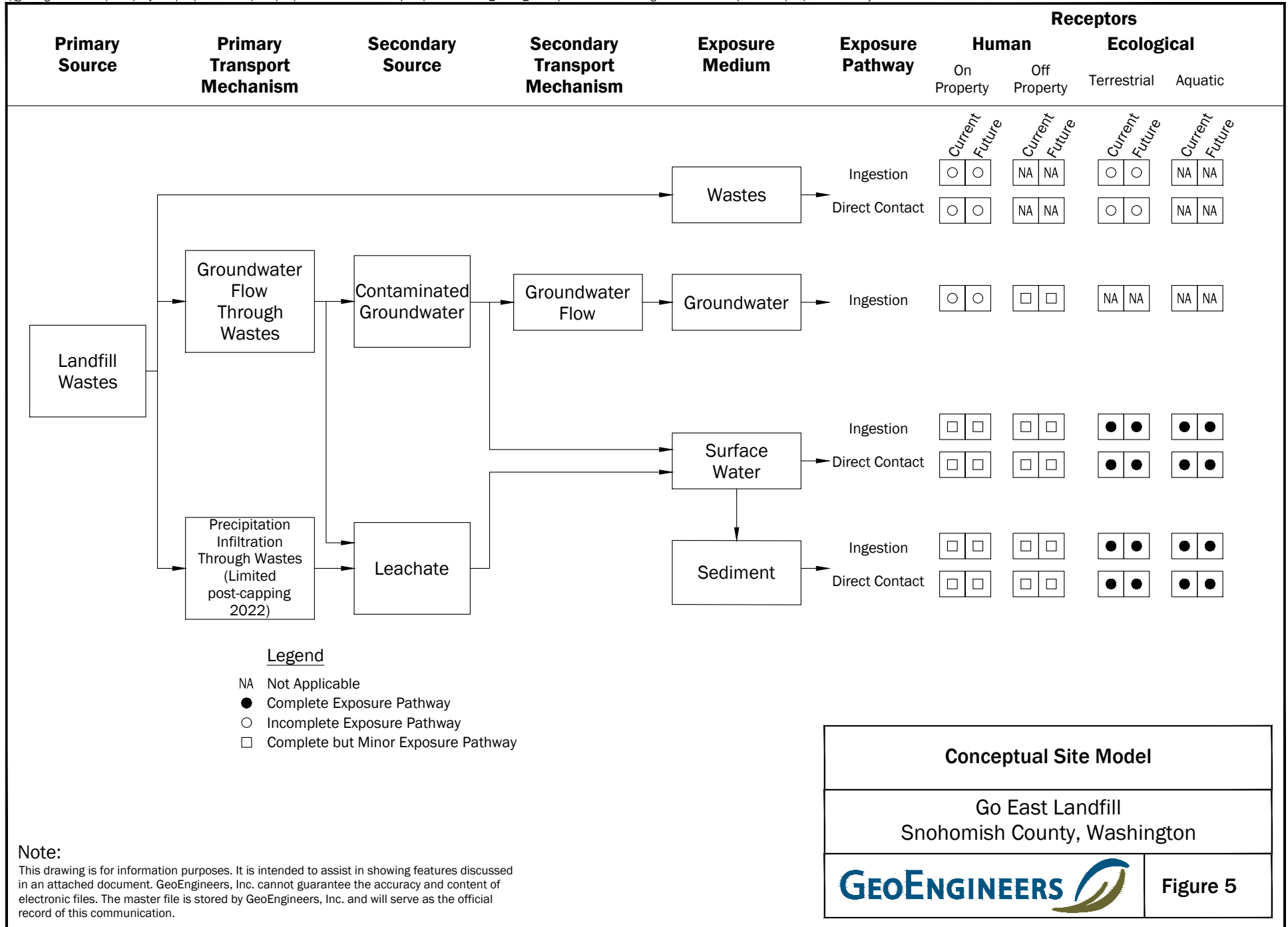
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Data Source: Background CAD files from MG Land Surveyors downloaded 2/17/2023.
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Projection: WA State Plane, North Zone, NAD83, US Foot



2023 Topography and Site Conditions	
Go East Corp Landfill Site Everett, Washington	
	Figure 4



Note:
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