EVREN NORTHWEST INC.
environmental & natural resource consultants

CONTAMINATED MEDIA MANAGEMENT PLAN

HISTORICAL LANDFILL (FORMER SOLID WASTE DISPOSAL AREA AND UPLAND SOLID WASTE DISPOSAL)

AT ELK RIDGE ESTATES

Northeast of Hankey Road and Barrick Lane
St Helens, Oregon

Agency Information
ECSI No. 4857

Prepared for:

St. Helens Assets, LLC
PO Box 288
Washougal, Washington 98671

Issued on:

January 26, 2023
Project No. 826-12001-06

Purpose

This Contaminated Media Management Plan (Plan) must be followed by any person or entity hired or granted permission to conduct surface and subsurface work on the former Solid Waste Disposal Area and Upper Solid Waste Disposal Cell at the subject site (the approximate 72-acre Elk Ridge Estates subdivision is located northeast of the intersection of Hankey Road and Barrick Lane, west of St. Helens, Oregon, as shown on Figure 1). This Plan applies to site development, operations, maintenance, and other work, and:

ANY FIRM involved with earthwork / subsurface work, or ANY INDIVIDUAL who has the potential to encounter soil, ground water or surface water at the subject site must review, understand, and follow this Plan. Acknowledgement is required (Appendix A).

- Has been designed as a tool for architects, engineers, and others involved in the design, planning, and implementation of subject site redevelopment.
- Has been prepared in accordance with State of Oregon requirements.
- Outlines methods to minimize risk to human health and the environment from historic contamination beneath the site.
- Provides guidance for managing impacted soil and ground water.

Use

This plan has been prepared for use during site redevelopment. The property owner must provide a copy of this Plan to any firm or person with the potential to come in contact with the contaminated media at the subject site (e.g., contractors, maintenance workers, landscapers, utility companies, etc.) prior to starting subsurface work.

The Plan includes generic requirements for conducting surface and subsurface work. Detailed sampling/work plans may need to be developed, depending on the nature of the subsurface work at the property. The Plan covers the following:

- Explains the current understanding of impacted media at the site.
- Details contractor, subcontractor, field personnel and permitting requirements.
- Outlines guidance and requirements for managing impacted media in a manner that is protective of human health and the environment.

This Plan must be reviewed and signed by any person involved in any work with the potential to come in contact with contaminated media at the subject site prior to site work. A copy of this Plan will be made available to all personnel involved as a reference, with at least one copy being kept onsite during work. In order to document review and understanding, an acknowledgement page has been prepared (Appendix A) and *must* be signed by anyone conducting work involving contaminated media at the site prior to the commencement of this work.

Plan Revisions

Users of this Plan are advised that Oregon Department of Environmental Quality (ODEQ) regulations and other applicable state or federal regulations and guidance may change in the future and applicable regulations should be reviewed prior to commencing any subsurface work. If it is believed that local and State regulations related to contaminated soils have changed, revisions to the Plan may be necessary to reflect current regulatory standards. Additionally, the Contact Information listed in Attachment B should be kept current.

This

Contaminated Media Management Plan

for:

Historical Landfill (Former Solid Waste Disposal Area and Upland Solid Waste Disposal)
at Elk Ridge Estates

Northeast of Hankey Road and Barrick Lane
St Helens, Oregon

Agency Information
ECSI No. 4857

Has been prepared for the sole benefit and use of our Client:

St. Helens Assets LLC
PO Box 288
Washougal, Washington 98671

and its assignees

Issued
January 26, 2023

by:

Assumptions and Limitations

This Contaminated Media Management Plan (Plan) is designed to provide earthwork contractors with guidance for the proper handling and management of potentially contaminated media. This document is intended to be used as a general overview document for use by the excavation contractor during any earthwork completed at the project site. This Plan is reflective of site conditions discovered through environmental site assessments. Required actions described in this Plan are consistent with State of Oregon and Oregon Department of Environmental Quality rules, regulations and guidance enforce and available as of the date of issue. The user of this Plan is advised to check for any updates that may be applicable to a specific scope of work being conducted under this Plan. Each contractor and subcontractor are responsible for the safety of its employees, including compliance with applicable OSHA regulations and compliance with all specifications for the project.

No warranties are expressed, or implied concerning potential contaminants or environmental media not addressed through sampling and analysis. EVREN Northwest, Inc. is not responsible for conditions or consequences arising from information not available at the time of Plan preparation. This Plan was prepared in accordance with generally accepted professional practice in the area at this time for the exclusive use of our client and their agents or authorized third parties. No other warranty, either expressed or implied, is made.

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Figures

Attachments

amsl	above mean sea level
bgs	below ground surface
BPA	Bonneville Power Administration
CFSLs	clean fill screening levels
Client	St. Helens Assets, Inc. (SHA)
DU	decision unit
ECSI	Env
ENW	EVREN Northwest, Inc.
ERE	Elk Ridge Estates
FSWDA	Former Solid Waste Disposal Area
HASP	Health and Safety Plan
ID	inside diameter
ISM	Incremental Sampling Methodology
ITRC	Intestate Technology & Regulatory Council
mg/Kg	milligram per Kilogram
NPDES	National Pollutant Discharge Elimination System
OAR	Oregon Administrative Rule
ODEQ	Oregon Department of Environmental Quality
OSHA	Occupational Safety & Health Administration
PAHs	polynuclear aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PID	photoionization detector
ppmv	parts per million by volume
RBC	risk-based concentration
RCRA	Resource Conservation and Recovery Act
SAP	sampling and analysis plan
SHA	St. Helens Assets, LLC (Client)
SLRBCs	screening-level risk-based concentrations
USGS	U.S. Geological Survey
UST	underground storage tank
USWDC	Upland Solid Waste Disposal Cell
VOC	volatile organic constituent

1.0 Site Setting & Environmental Conditions

This Plan prepared by EVREN Northwest, Inc. (ENW) on behalf of St. Helens Assets, LLC. (SHA; Client) applies to the historical landfill within the Elk Ridge Estates (ERE) subdivision (Subject Property), an approximately 72-acre subdivision located in St. Helens, Oregon (see Figure 1).

The former landfill at the Subject Property was located in a drainage north of Barrick Lane (current Tract E, Homeowner Association [HOA] Commons Area). Reportedly, solid waste (household trash) was placed in this area over a 20-year period (1950s-1970s). In 2010, approximately 7,000 cubic yards of buried solid waste were excavated and screened. The portion that passed through the screen was placed back in the excavation. The former landfill is designated the Former Solid Waste Disposal Area (FSWDA) north of Barrick Lane, as depicted in Figure 2. The remaining portion of the solid waste that did not pass the screen was either disposed of at Hillsboro Landfill (822 tons) or placed in an unlined cell within the Bonneville Power Administration (BPA) easement located on the northern part of the subject property. This unlined disposal cell is designated the Upland Solid Waste Disposal Cell (USWDC) and its location is depicted in Figure 2.

The property is to be developed in phases with residential lots, connecting drives and open spaces (see Figure 2). *At the time of this Plan's preparation, the subdivision is still under development.*

1.1 Site Location and Setting

The residential ERE subdivision is bounded by Barrick Lane to the southeast, Hankey Road and Milton Creek to the southwest, Perry Creek Road and Perry Creek to the west, forestland and farmland to the north, and forestland to the east. Single-family residences are developed south of the subject property along Hankey Road and Pittsburg Road. A rock quarry operated by Eagle Star Rock Products is west of Perry Creek and the site.

The subject property is being developed in a phased approach. Most of the property has been re-graded, and infrastructure (streets, vehicle turn-outs, medians, curbs, sidewalks, and utilities) installed for the future residential housing development. Approximately 120 building lots have been developed and 107 homes constructed on the southeast (Phases 1 and 2) and southwest (Phase 6) parts of the site at the time of Plan preparation.

Historical Use. In 2007, a contractor discovered buried solid waste near the gully on the southern part of the Property. The Property was in the process of being re-graded for the 131-lot Elk Ridge Estates single-family housing development. Since then, environmental work has included assessment, waste removal and waste separation as summarized in the next section.

SHA purchased the subject property from Sterling Savings Bank around February 15, 2012. There was no disclosure to SHA of buried solid waste on the property at the time of purchase, 62 lots had already been fully developed and approved for single-family home construction and the balance of the 72-acre Property was partially developed with utility infrastructure. SHA was first notified of a possible "dump site" on the subject property approximately in or around April 2012 by a local real estate agent. At that time SHA contacted the ODEQ, which informed SHA that the Property was listed as a cleanup site, namely Environmental Cleanup Site Information (ECSI) no. 4857. With the support and partnership of the ODEQ,

and prior to any residential home construction or sales, the FSWDA, USWDC, and associated impacts were investigated and characterized. Following this effort, on October 7, 2014 ODEQ issued a letter to SHA stating the presence of the FSWDA and USWDC at the subject property, in the areas known as Tracts B and E; however, "no contamination is known or suspected to be present on any other lots or tracts in the Development."

Topography. The subject site is located within the U.S. Geological Survey (USGS) St. Helens 7.5-minute quadrangle. The topography rises from an elevation of approximately 190 feet above mean sea level (amsl) at the site's southern reach, to an elevation of approximately 430 feet amsl at the site's northern edge (see Figure 1).

Regional Geologic Setting. The site and surrounding area are located within the northern part of the Portland Basin, which is the northernmost of several sediment-filled structural basins that comprise the Willamette Valley segment of the Puget-Willamette Lowland.[1] This lowland is a complex structural and topographic sediment-filled trough that lies between Puget Sound to the north, west-central Oregon to the south, the Cascade Range to the east, and the Coast Range to the west.

Local Geologic Setting. Geologic mapping in the site area indicates that the south and northwest portions of the site are underlain by Miocene tholeiitic basalt lava flows of the Sentinel Bluffs member of Grande Ronde Basalt, of the Columbia River Basalt Group; the north-central portion of the site is mapped as underlain by Miocene Sandy River Mudstone; and the northeast portion of the site is mapped as Quaternary landslide deposits. Intensely weathered basalt (saprolite), basalt fragments, and competent basalt were encountered in test pits and borings on the southern portion of the site. Claystone, mudstone, and/or siltstone were encountered throughout the site and appear to overlie weathered and competent basalt on the southern portion of the site. Landslide deposits encountered on the northern portion of the site consisted of siltstone and claystone with occasional basalt cobbles. These geologic units are described in ENW's *Beneficial Water Use Determination* report.[2]

Surface Water. Topographic mapping by the USGS indicates that the majority of the site slopes toward the southwest to a gully located at the southern extent of the development adjacent to Barrick Lane. This open area[3] covers 2.37 acres and encloses the FSWDA.

A 30-inch municipal storm drain from the development was extended to an outfall near the southwest property corner during implementation of the Remedial Design/Remedial Action (RD/RA) plan.[4] Storm

[1] Evarts, R.C., 2004, Geologic Map of the Saint Helens Quadrangle, Columbia County, Oregon, and Clark and Cowlitz Counties, Washington: U.S. Geological Survey Scientific Investigations Pamphlet and Map 2834, 23 p., and map.

[2] ENW, 2015, *Beneficial Water Use Determination,* Open Space Tracts B and E, Elk Ridge Estates Development, Former Landfill, Northeast of Hankey Road and Barrick Lane, St. Helens, Oregon 97051: Prepared for St. Helens Assets LLC, P.O. Box 288, Washougal, WA 98671, in preparation.

[3] Historical documents may refer to this area as Tract E or B Open Space.

[4] ENW, Draft. *Technical Memorandum, Final Remedial Design/Remedial Action (RD/RA) Implementation Report*, Undocumented Landfills (Former Solid Waste Disposal Area and Upland Solid Waste Disposal Cell) at Elk Ridge Estates, St. Helens, Oregon, ECSI File No. 4857: Prepared for St. Helens Assets, LLC, P.O. Box 288, Washougal, Washington (in preparation).

water at this outfall flows into a culvert that passes under Hankey Road to the west (Figure 2). Storm water that passes through the culvert discharges into Milton Creek to the west of Hankey Road.

Perry Creek's confluence with Milton Creek is a short distance southwest of the site. Milton Creek flows just over three (3) miles southeast to a point where it discharges into the north end of Scappoose Bay, near the side channel west of the north end of Sauvie Island and the Columbia River.

Ground Water. The estimated depth to regional ground water at the site ranges from approximately 178 feet below ground surface (bgs) at the north end of the property to 97 feet bgs at the south end of the property.[5] Shallow perched ground water was encountered during exploration activities at varying depths.

The Columbia River Basalt Group is considered the geologic basement of the Portland Basin, and consists of a thick, flow on flow sequence of individual basalt lavas. Ground water aquifers are present within the Columbia River Basalt Group within rubbly flow tops of some individual flows. A northeastward ground water flow direction is presumed at the site.

1.2 Summary of Regulatory and Environmental Investigation History

A summary of previous environmental work is presented in this section. For a comprehensive review of the Property's regulatory and environmental investigation history the reader is directed to the following resources:

- Bocci, R.I., 2007, letter from Robert I. Bocci, of Suntree, Inc., to Mike Keller of Canby Excavating, dated August 2 (ENW Files).
- Charles Morrow, 2007, letter from Charles Morrow, Laboratory Director of Columbia Inspection, Inc. to Chris Schmidt of Canby Excavating, with attached Certificate of Analysis, Report No. 7072502, dated August 17 (ENW Files).
- Columbia Inspection, Inc., 2007, Certificate of Analysis (Draft), St. Helens, Project Name: Canby Excavating, Attention: Chris Schmidt (ODEQ Files).
- ENW, 2012, Paul Trone personal communications with Mike Keller (Canby Excavating), dated August 31 (ENW Files).
- ENW, 2012, Paul Trone personal communications with Dwight Irby (Property owner 1973-1974), dated September 18 (ENW Files).
- ENW, 2013, *Technical Memorandum – Limited Surface Water and Subsurface Investigations*, Revision 2.0, Elk Ridge Estates Development, North of Hankey Road and Barrick Lane, St. Helens, Oregon, ECSI Site ID: 4857, dated January 8 (ENW Files).
- ENW, 2013, *Additional Soil Characterization, Lots 1 Through 7*, Elk Ridge Estates, Northeast of Hankey Road and Barrick Lane, St. Helens, Oregon 97051, dated July 25 (ENW Files).

[5] U.S. Geological Survey (USGS) and Oregon Water Science Center, Estimated Depth to Ground Water in the Portland, Oregon Area. website: http://or.water.usgs.gov/projs_dir/puz/

- ENW, 2015, *Additional Soil Characterization, Open Space Tracts B and E*, Elk Ridge Estates Development, Northeast of Hankey Road and Barrick Lane, St. Helens, Oregon 97051, dated April 23 (ENW Files).
- ENW, 2015, *Beneficial Water Use Determination, Open Space Tracts B and E*, Elk Ridge Estates Development, NE of Hankey Road and Barrick LN, St. Helens, Oregon 97051, dated August 5 (ENW Files).
- ENW, 2016, *Risk Assessment*, Elk Ridge Estates Development, NE of Hankey RD and Barrick LN, St. Helens, Oregon 97051, dated January 20 (ENW Files).
- ENW, 2016, *Data Gaps Investigation Open Space Tract E Stream Sediment Sampling and Upland Disposal Cell Soil Gas Monitoring*, Elk ridge Estates Development, Northeast of Hankey Road and Barrick Lane, St. Helens, Oregon 97051 (ECSI File No. 4857): Prepared for Elk Ridge Estates Homeowners Association, Inc., dated August 15, 2016 (ENW Files).
- ENW, (Draft), *Storm Water Management Plan*, Elk Ridge Estates, Northeast of Hankey Road and Barrick Lane, St. Helens, Oregon 97051: Prepared for Elk Ridge Estates Homeowners Association, Inc., (in preparation).
- ODEQ, 2007, Memorandum to ECSI File #4857: Site Visit – Elk Ridge Estates Development Property, by Steve Fortuna, dated August 6, 2007 (ODEQ Files).

1.2.1 Solid Waste Source, Separation, and Removal Activities

The solid waste was discovered in 2007, according to ODEQ (2007) and Mike Keller of Canby Excavating, Inc., who was contracted by Suntree Inc. to re-grade the Property for the ERE development.

Dwight Irby reported to ENW that the City hauled household waste to the FSWDA from sometime in the 1950s into the 1960s and disposed of the waste in the gully on the lower part of the Property.

Solid waste was removed by Canby Excavating, Inc. in 2007. Chris Schmidt of Canby Excavating informed ODEQ (2007) that the waste layers ranged from 2 feet to 8 feet thick or more, and that Canby Excavating followed the extent of waste meanders as they were encountered. Canby Excavating screened the solid waste from the soil, based on ENW's conversations with Mike Keller of Canby Excavating and Robert Bocci, President of Suntree Inc. According to Mike Keller, this screening operation was conducted near the east end of Barrick Lane at the southeast corner of the Property at the approximate location shown on Figure 2.

Mike Keller of Canby Excavating reported that the soil and smaller inert pieces of solid waste (mostly bits of glass) that passed through the screen were placed back in the excavation from which it was removed in the area north of the gully (FSWDA). The separated waste that did not pass through the screen (larger bits and pieces of bottles, plastic containers, plastic film and wrappers, scrap metal, wood, and other debris) was stockpiled at the Property, until on August 8-9, 2007, when a total of 822.59 tons (25 truck and trailer loads) of soil and trash were transported and disposed at the Hillsboro Landfill.

The remaining waste that did not pass the screen was tested by Columbia Inspection, Inc. (2007) and determined to be non-hazardous. According to Robert Bocci (2007) and based on conversations with Mike Keller of Canby Excavating, this material was disposed of onsite in the USWDC and capped with 2- to 5-feet of clean soil from the borrow pit (Figures 2).

In 2022, re-grading of the steep-walled portion of the ravine that crosses the FSWDA was performed which required reworking and reconsolidating fill materials. Municipal storm water was redirected from the previous storm water outfall to a new manhole, and 30-inch diameter storm water pipe that discharged at an outfall near the southwest property corner. Surface water drainage was diverted to a new channel established along the southern property boundary adjacent to Barrick Lane, which discharged above the storm water outfall. Subsurface seeps were captured by underdrains centered beneath the storm water channel also discharge the storm water outfall. Solid waste removed from trench excavations for the storm water pipe and trench drains were loaded and transported offsite to RCRA Subtitle D Hillsboro Landfill for disposal. A high-visibility orange demarcation geotextile was installed over the regraded FSWDA and covered with a minimum 3-foot-thick imported clean, compacted soil cap. Additionally, the USWDC was regraded, high-visibility orange demarcation geotextile installed, and a minimum 3-foot compacted clean soil cap placed over the entire footprint of the cell.

1.2.2 Site Investigations

Columbia Inspections, Inc. (2007) initially characterized the waste, and ENW conducted additional assessments (September and November 2012, July 2013, April 2015 and June 2016) to determine the nature and extent of solid waste and/or resultant impacts to soil, ground water and sediment. ENW has also assessed the FSWDA and USWDC for the presence of landfill gases (November 2012, April 2015 and July 2016).

Following this work ENW completed a Beneficial Ground Water Use Determination (July 2015) and a Risk Assessment (April 2016).

1.3 Description of Areas with Residual Contaminated Media

All contractors are advised that the information presented herein is based on data available through sampling under one or more specific Scopes of Work; there is no practice that is thorough enough to absolutely identify the presence of all hazardous substances that may be present at a given site.

Residual solid waste located in the FSWDA and USWDC has been identified and characterized (see Section 1.2 for a summary of characterization findings). Any work within the boundaries of the FSWDA and USWDC must be conducted in a manner that is consistent with all State regulations, ODEQ requirements specific to the subject site, and this Plan.

FSWDA. This tract is located in the southern part of site and was the location of the historical landfill (see Figure 3). This area includes undisturbed solid waste (placed in the 1950s and 1960s), waste passing a screen placed in 2007, solid waste reconsolidated during the course of regrading the site in 2022, and a high-visibility demarcation layer which separates the landfilled waste from a 3-foot-thick, clean soil cap. In addition, Elk Ridge Estates' municipal storm water is conveyed through the central part of the FSWDA via a series of two manholes and 24- to 30-inch ID pipes to a rock-lined outfall approximately 35 feet upstream of the Hankey Road culvert near the southwest corner of the property. Surface storm water within the FSWDA is managed via a 240-foot-long by 20-foot-wide channel that follows the southern site boundary adjacent to Barrick Lane and discharges at the outfall above the Hankey Road culvert. The floor of the channel is lined with jute mat/riprap and fitted with 16 rock check dams designed to drop out sediment. The FSWDA was hydroseeded/mulched and fitted with erosion controls to stabilize the disturbed soil surface.

The physical characteristics of the historical landfill undisturbed solid waste area are outlined below.

- Length: approximately 580 feet northeast to southwest.
- Width: approximately 185 feet southeast to northwest.
- Depth: up to 19.5 feet at its maximum (including soil cover) at the northeast end of the landfill.
- Area: approximately 91,545 square feet.
- Soil Cover: Demarcation layer underneath at least three feet of clean, compacted fill soil.
- Solid Waste: greater than 19.5 feet at its northeast end and composed of solid waste in a lean clay-silt matrix. The solid waste to soil ratio is estimated to range from 1:10 to 3:20. The soil was typically gray to brown and moist in the presence of decomposing solid waste below a depth of 4 feet (west end).
- Elevation: approximately 197 feet amsl at the west end of the area to 205 feet amsl at its east end.
- Native Soil: native lean clay and basalt bedrock underlies the historical landfill.
- Ground Water: perched ground water was encountered in the borings completed in the portion of the historical landfill centered along the axis of the ravine at depths ranging from a few inches bgs to 12 feet bgs.
- Surface Water: The FSWDA is the natural collection point of storm water leaving the subject site. As such, the subdivision storm water design incorporated this natural drainage feature and the large majority of storm water captured from the developed portion of the site is conveyed to the FSWDA. An engineered subsurface storm water treatment and conveyance system manages onsite storm water that ultimately flows into a culvert that passes under Hankey Road to the west. Surface storm water within the FSWDA is diverted to a channel established along the southern boundary.
- Potential Contaminants: metals, petroleum hydrocarbons, polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), pesticides, herbicides, and methane (in soil gas). *Note: Due to the variable nature of materials within historical landfills it is possible that additional contamination may be present that has not yet been identified by site characterization and assessment.*

USWDC. As described above, a portion of the screened solid waste (the solid waste debris that was too large to pass through the screen) was placed in an unlined cell under the high-tension transmission lines within the Bonneville Power Administration (BPA) easement in the upper (northern) portion of the site (see Figure 4). In December 2022, the USWDC was reworked, solid waste reconsolidated, covered with a high-visibility demarcation geotextile, and capped with 3-feet of clean compacted soil, approximately half of which was imported from a clean soil stockpile located west of the cell. The USWDC was hydroseeded/mulched and fitted with erosion controls to stabilize the disturbed soil surface.

The physical characteristics of the USWDC are outlined below.

- Length: approximately 241 feet north-northeast to south-southwest.

- Width: approximately 85 feet from east to west.
- Depth: up to 10 feet at its maximum (including soil cover) at the north end of the cell (TP30).
- Area: approximately 17,828 square feet.
- Soil Cover: demarcation layer underneath at least three feet of clean fill soils. A typical solid waste to soil ratio in the cover is estimated to be less than 1:20.
- Solid Waste: greater than 10 feet at its northeast end and composed of solid waste in a clay-silt matrix. The solid waste to soil ratio is estimated to range from 1:10 to 2:5. The soil was typically gray to brown and moist to wet in the presence of decomposing solid waste. Waste is typically more abundant below a depth of 4 feet.
- Elevation: approximately 340 feet amsl at the south end of the cell to 363 feet amsl at its north end.
- Native Soil: native clay, clayey silt, and weathered saprolitic bedrock underlies the fill in the cell.
- Ground Water: perched ground water was encountered at a depth of approximately 4 feet in a boring and test pit completed in the southern part of the USWDC.
- Potential Contaminants: metals, petroleum hydrocarbons, PAHs, PCBs, pesticides, herbicides, and methane (in soil gas). *Note: Due to the variable nature of materials within historic landfills it is possible that additional contamination may be present that has not yet been identified by site characterization and assessment.*

All soil and sediment occurring beneath the 3-foot clean soil cap and high-visibility orange demarcation layer in either the FSWDA or USWDC, or any soil containing evidence of solid waste, must be managed as impacted soil, unless proven otherwise by an ODEQ-approved method. If a large-scale earthwork project is planned, consultation with the Environmental Consultant and development of a sampling plan is recommend to minimize expense. The media-handling protocol described in this Plan is intended to minimize the risk to site workers during earthwork.

2.0 Site Work Initiation

This section describes work to be conducted and requirements to be met ***prior*** to beginning site work.

2.1 Notifications, Permits and Other Approvals

All notifications, legally required permits or other approvals required to conduct the work to be performed will be made or obtained prior to starting work at the site. Such permits may include a National Pollutant Discharge Elimination System (NPDES) 1200-C Construction Stormwater Permit, a permit from the City of St Helens and/or Columbia County, and an Erosion and Sediment Control Plan.

2.2 Contractor Requirements

Contractors and/or subcontractors hired to conduct surface and subsurface work at the site will be competent and experienced in the management of media impacted with hazardous substances. Pre-planning of anticipated work with the Environmental Consultant (contact information in Attachment B) is recommended.

2.3 On-Site Personnel

All field personnel who have the potential for coming in contact with impacted media will:

- Have a copy and be familiar with the Health and Safety Plan (see Section 2.4).
- Have reviewed this Plan and signed the acknowledgement page (Attachment A). The signed acknowledgement pages will be available for the property owner's or site management's inspection and permanent record-keeping, if requested.

2.4 Health and Safety Plan

Any contractor conducting earthwork at the subject site must prepare and implement a site-specific Hazard Communications Plan. The Hazard Communications Plan fulfills "worker right to know" requirements (29 CFR 1926.59). A copy of the Hazard Communications Plan must be submitted to the Owner prior to the start of work on the project. During work on the project, the Hazard Communications Plan must be posted at the project site. The general contractor is responsible for notifying any subcontractors of pertinent environmental conditions. Subcontractors may either adopt the prime general contractor's Hazard Communications Plan or must prepare their own Hazard Communications Plan. This document should be used in conjunction with, not in place of, the Hazard Communications Plan and the project specifications. The general contractor and subcontractor are responsible for the safety of its employees, including compliance with applicable Occupational Safety & Health Administration (OSHA) regulations, and compliance with all specifications in the technical specifications for the project.

In addition, a Health and Safety Plan (HASP) specific to the work to be performed will be prepared according to industry standards. At a minimum, OSHA standards specific to the work to be performed will be met. The Health and Safety Plan should be prepared by a qualified specialist knowledgeable about health and safety issues, the contaminants identified at the site, the previously documented site conditions, and the proposed contractors' scope of work.

2.5 Corrective Action

If requirements outlined in this Plan are not fully or timely completed, the property owner will take appropriate corrective action to meet the intent of this Plan and in doing so will remain in compliance with this Plan.

3.0 Soil Management

ODEQ requires contaminated media to be adequately characterized to determine management options. When soil is highly contaminated, the generation, treatment, transportation, and disposal may fall under both state and federal hazardous waste regulations.[6] Contaminated media that is not hazardous waste is regulated under Oregon Administrative Rule (OAR) Chapter 340-093 for solid waste.

For the purposes of this Plan, contaminated soil is defined as soil with concentrations of hazardous substances greater than the Clean Fill Screening Levels (CFSLs),[7] or screening-level risk-based concentrations (SLRBCs; see OAR 340-122-0115). It is important for field personnel to know how to identify, characterize (if appropriate), and manage contaminated soil.

A detailed soil sampling and analysis plan is outside the scope of this document as the specifics would be determined by the scope(s) of work to be conducted at the site. To minimize expenses from any surface or subsurface project, we recommend reviewing the scope with the Environmental Consultant.

3.1 Identification of Impacted Soil

All soil and sediment occurring beneath the 3-foot clean soil cap and high-visibility orange demarcation layer associated with the FSWDA or USWDC (see Figure 3 and 4), or any soil containing evidence of solid waste will be managed as impacted soil unless proven otherwise. It should be noted that some constituents (i.e., metals) may not be distinguishable by field screening methods. Potentially impacted soil may be identified using any of the following methods:

- Visual observation of discolored soil (staining).
    - Generally, soil that is contaminated with petroleum hydrocarbons exhibits gray or black staining, although other contaminants and natural conditions may also cause staining.
- Olfactory observation of a petroleum odor.
    - Petroleum products, solvents, and other types of contaminated soil may release vapors when exposed to the atmosphere. If concentrated enough, these vapors will be interpreted as an odor. Odors may also be present in contaminated groundwater. Odor

[6] When soil is contaminated by a listed or characteristic hazardous waste, then soil contains a hazardous waste and must be managed accordingly. ODEQ hazardous waste generator requirements are triggered when the contaminated soil is removed from its original location.

[7] ODEQ, February 21, 2019, prepared by Heather Kuoppamaki. *Clean Fill Determinations*: Oregon Department of Environmental Quality Materials Management Department, 700 NE Multnomah St., Suite 600, Portland, OR.

can be subjective, and inhalation of vapors from impacted soil is harmful to human health. Therefore, odor is considered an inadvertent field indicator and will not be used for continuous screening of soil.

- Sheen
    - Sheen is another indication of petroleum contamination. Soil with a sheen may appear shiny and reflective. Sheens from heavily impacted soil may appear iridescent with rainbow-like colors. Sheens may also be observed in contaminated ground water.
- Collection and analysis of soil for constituents of concern.
- Indication of impacts by instrumentation designed for screening for volatile constituents (e.g., photoionization detector [PID]).
    - PID readings involve the measurement of headspace vapors originating from a soil sample. PID screening is performed by placing a soil sample in a plastic bag. Air is captured in the bag, and the bag is shaken to expose the soil to the air trapped in the bag. The probe of a PID is inserted into the bag, which measures VOC vapor (petroleum constituent) concentrations in units of ppm. A PID is designed to quantify VOC vapor concentrations in the range between 1 and 2,000 parts per million by volume (ppmv). It should be noted that a PID may give false positive readings in the presence of water vapor and rain may also affect performance. High humidity can cause lamp fogging and decreased sensitivity. This can be significant when soil moisture levels are high.
- Where both soil and ground water are present, soil impacts may be indicated by observation of iridescent sheen or separated fluid phases (i.e., immiscible liquids).

Section 1.3 describes the area where potential residual soil impacts could be present on the subject property. However, anyone performing subsurface work at the site should be prepared for the possibility to encounter impacted soil in other areas as well.

It is important to note that there may be impacted media on site in areas that ENW has not assessed. If soils with significantly different characteristics than those previously identified are excavated at the site, they may need to be appropriately characterized by laboratory analyses prior to disposal or reuse onsite. They should be brought to the attention of the Project Manager or Environmental Consultant. The Environmental Consultant will notify ODEQ, if applicable, to ensure proper characterization and management under this scenario.

If samples are to be collected, they should be collected by personnel knowledgeable in soil sampling methods and protocols, ensuring that appropriate sample selection, collection (whether discrete or composite), labeling, and storage methods are followed.

If soil or sediment exhibiting evidence of contamination or other debris associated with chemical contamination is encountered during excavation work, it should be brought to the immediate attention of the Environmental Consultant. However, it must be emphasized that some impacted soils do not exhibit any physical indication of their impacts (e.g., no odor or discoloration or PID response associated with metals-impacted soils). Therefore, the most reliable method of determining if chemical impacts are present is laboratory analysis.

3.2 Field Screening Protocols

Soil field screening will include observation of any disturbed project site soil. The field screening process includes the following:

- Observe the sidewalls and bases of excavations (or trenches) for evidence of possible contamination.
- Three inches of soil will be scraped from sidewalls prior to collection of samples. If samples are collected from an excavation bucket, they should be collected from the interior and away from the sides of the bucket.
- Collect grab samples by hand or trowel (approximately one hand full) that are representative of the material being stockpiled. If used, the trowel will be decontaminated between sampling intervals.
- Retain a portion of the samples (approximately the size of half a sugar cube) for sheen testing that includes dropping the soil into a black pan to observe the degree of soil sheen (no sheen, slight sheen, moderate sheen, or heavy sheen).
- The majority of the grab sample will be placed into a plastic bag with trapped air. The bagged sample is allowed to sit for approximately one minute and then tested for headspace vapors using a hand-held PID. Based on the routine field screening process and the use of standard bag size, it is assumed that the amount of trapped air in each bag is approximately equivalent for all field-screened samples. Calibration of the PID will be conducted on a daily basis and will be recorded in a calibration log. The calibration log will document the PID model calibration standard used and background level after calibration.
- Field screening documentation (i.e., staining, sheen, headspace vapor measurements, and odors) and a brief description of the soil type shall be recorded in soil field screening logs. The field logs will indicate areas and associated volumes of excavated material requiring stockpiling for further evaluation.

3.3 Management of Impacted Soil and Sediment

During site excavation, all soil will be monitored and field-screened for potential impacts during site excavation activities. If suspect subsurface features are encountered (e.g., underground storage tanks, piping, dry wells, sumps, etc.) or field-screening suggest impacts, all excavated or disturbed soil in these areas will be managed as impacted soil unless the Project Manager chooses to conduct additional sampling and testing (according to ODEQ-approved methods) and determines the soil is not impacted. If any soils are identified through observation or olfactory indication (sight or smell) as being impacted outside previously identified areas (Section 1.3), this will be brought to the attention of the Environmental Consultant (see Attachment B for contact information). Soil testing, if appropriate, would be conducted to determine the regulatory status of impacted soil (e.g., soil with contaminants at levels triggering special regulatory, handling, and/or management requirements) and to confirm removal of impacted soil, if applicable.

If excavation is going to occur in the area of the FSWDA (identified on Figure 3) or in the area of the USWDC (identified on Figure 4), soil (and/or sediment) **must** be managed using one or more of the following

approaches. Additionally, the three (3) feet of clean soil cap must be maintained in both the FSWDA and the USWDC. It is highly advised that the Environmental Consultant be contacted *prior to starting work* to develop the least expensive approach to working with residual impacted soil and sediment.

If impacted soil or sediment is excavated, it must be managed as a contaminated material. Unless otherwise directed by the Project Manager, the preferred method of excavation and disposal of impacted soil and sediment will be to load the material directly into transport vehicles for off-site disposal.

3.3.1 Stockpiling

Soils generated during excavation activities may be temporarily stockpiled for further evaluation (for example, if soil needs to be characterized prior to exporting from the subject site). Soil that is placed in temporary stockpiles must be well maintained at all times. All stockpiled soil must be placed either (1) in enclosed and covered metal bins with plastic liners; (2) in sealed 55-gallon drums; or (3) on impermeable plastic sheeting (minimum 6-mil thick) with a berm around the perimeter of the stockpile and a plastic sheeting cover. The plastic sheeting and berm prevent the runoff of stockpiled soil contaminants to surrounding areas. The berm may be constructed with hay bales or other equivalent methods approved by the Owner. The bottom plastic sheeting should be lapped over the berm materials, and the soil stockpile within the berm should also be covered with plastic sheeting to prevent erosion or leaching of contaminants. The upper plastic sheeting covering the soil stockpile should be secured using sandbags or equivalent. The upper plastic sheeting prevents the stockpiled soil from being exposed to precipitation and wind.

These soils may be temporarily managed on-site for no more than 30 days. If stockpiled soils must remain at the site longer than 30 days, a Solid Waste Letter of Authorization must be obtained from ODEQ. If soil stockpiles are to be exported offsite, testing of the stockpile to confirm appropriate disposition is required (see Section 3.3.2)

3.3.2 Characterization of Soil to be Exported

Soil derived from the site shall be sampled following using the guidance provided in the Interstate Technology & Regulatory Council (ITRC) Incremental Sampling Methodology (ISM) guidance document. Representative samples from temporary soil stockpiles will be collecting using ISM, through which multiple "increments" (samples of equal mass) are collected across a targeted area, identified as a "decision unit" or DU. The increments from each DU are composited and processed to derive a statistically valid average concentration across the target area.

ISM subsamples will be collected using a decontaminated stainless-steel hand auger and/or stainless-steel hand shovel and/or excavator bucket (for large stockpiles). Sampling depths will depend on the volume and dimensions of the stockpile and will be selected to ensure that the upper, middle, and lower portions of the stockpile are equally represented, based on stockpile geometry. For the purposes of statistical quality control, two replicate samples may be collected from a stockpile, in addition to an initial sample. A total of 50 increment subsamples will collected from each stockpile (along with 50 subsamples for each replicate sample, as applicable) and will be placed into their own dedicated laboratory-provided one-gallon glass sample jars, uniquely labelled, and immediately placed in cooled storage pending delivery to the laboratory. Sampling personnel will wear fresh Nitrile gloves, and all sampling equipment will be

decontaminated prior to sampling each stockpile (and replicates, as applicable) to prevent cross-contamination between samples.

ISM samples will be submitted to a laboratory for processing in accordance with ITRC protocols, prior to analysis. Sampling shall be conducted by the Environmental Consultant.

3.3.3 Off-Site Disposal of Impacted Soil

Unless otherwise directed by the Project Manager, the preferred method of excavation and disposal of impacted soil will be to load the material directly into transport vehicles for off-site disposal. Transport to a landfill authorized to accept contaminated materials will require a waste disposal permit. It is anticipated that disposal of impacted soils, if necessary, will be acceptable at a Resource Conservation and Recovery Act (RCRA) Subtitle D Landfill Facility. The data does not suggest the presence of hazardous waste at the site. If, however, hazardous waste is encountered, it will be properly characterized for disposal at a hazardous waste landfill.

Upon approval from the receiving facility, the stockpiled material can be loaded into trucks for transport. The contractor must exercise care during loading of the potentially contaminated soil to minimize spillage of the soil onto the ground surface. All trucks leaving the project site must be free of loose soil on the exterior of the trucks and may require covers. Contaminated soil loaded into trucks should be covered if weather conditions could cause soil to blow out (dry, warm, or windy conditions) during transport to the disposal facility. The contractor must use care not to track soil onto city roads. Trucks will not be allowed to leave the site if liquids are draining from the load. Transport tracking tickets may be required to document delivery to the approved disposal facility for each individual truck leaving the project site.

3.3.4 Off-Site Disposal of Soil Containing Buried Debris

Soils containing buried debris has been identified on site. Any soils containing buried debris must be disposed of under an approved permit.

3.4 Cultural Resources

Cultural or archaeological artifacts have not been identified at the project site. However, if cultural or archaeological resources are inadvertently discovered during excavation, work in the area must stop and the Legislative Commission on Indian Services shall be notified by calling (503) 986-1067. The Oregon State Historic Preservation Office should be contacted regarding discovery or potential damage to archaeological sites. The Owner should also be contacted so that modifications to the work scope may be discussed.

3.5 Import Fill Characterization

If the importation of fill soils, other than soil purchased from a commercial source, such as compost and/or aggregate, is required for this project, ENW will prepare a Sampling and Analysis Plan (SAP) to document that fill being imported meets ODEQ's CFSLs, specifically testing for RCRA metals and petroleum hydrocarbons, to ensure concentrations in soil to be imported are not above established background concentrations in this area. The SAP for this testing will likely incorporate ISM and will be completed once the source for soil fill has been identified, if applicable. ODEQ must review this SAP and analytical results, and approve the import of materials used on site, prior to importation. Depending on the source and

previous site use of the source material, analytical requirements my include contaminants beyond RCRA metals and total petroleum hydrocarbons. For example, if fill is to be sourced from agricultural property, imported fill will also be tested for pesticide residues.

3.6 Protective Measures for Workers

The media-handling protocol described in this Plan is intended to minimize the risk to site workers during earthwork as well as to future occupants of the site. This section provides general measures to be taken to protect workers from impacted soil.

On-site workers may be exposed to contaminants through incidental:

- Ingestion of soil.
- Dermal contact (through the skin).
- Inhalation of impacted airborne dust and vapor.

To reduce exposure:

- All personnel will minimize their direct contact with soil, and wear project-specific personal protective equipment identified by the Health and Safety Plan.
- Contaminated clothing should be washed with a strong detergent and hot water before reuse.
- Personnel will thoroughly wash their hands and other exposed body parts, as necessary, upon leaving the work area and before eating, drinking, or other activities.
- Release of dust and vapors to the air should be minimized, and all personnel will remain upwind of the work areas to the maximum extent practical.

3.7 Protective Measures for the Environment

This section provides general measures to be taken to protect the environment from contaminants in soil. Depending on construction scope, federal, state, and local permits or other project approvals will provide the detailed protective measures required. The environment may be exposed to contaminants through incidental:

- Wind-borne dispersion.
- Transport by surface water.
- Transport by site equipment or workers.
- Contact by public or environmental receptors (e.g., birds and animals) that enter the work area.

To reduce exposure:

- Control access to earthwork area through fencing, signage, or other means.
- Implement dust-control methods, if needed.
- Prevent surface water from leaving the work area.

3.8 Record Keeping

The contractor is responsible for keeping a detailed daily record of all soil excavation, stockpiling, export, and disposal of stockpiled soil. This includes the purpose, origin, destination, and volume of soils generated from the project site. The contractor is responsible for preparing a daily field report for distribution to the Owner and Environmental Consultant that identifies the amount of soil excavated, stockpiled, and/or transported off site and daily tonnage for each respective soil disposition. All soil excavation, handling, and disposal will be documented in these daily field reports by the contractor, and all field screening, soil sampling, chemical analyses and disposal receipts shall be documented in a summary report to be furnished to the Owner. The following information must be submitted to the Environmental Consultant for all subsurface work:

- Company performing work.
- Brief description and purpose of the subsurface work.
- Attachment A consisting of original signatures of all field personnel indicating that they have read and understood the content of this Plan.
- Documentation of the locations (aerial and vertical extents) where work was conducted, and any impacted media encountered. A photo-documentation log of the field work and survey or high accuracy GPS data is highly recommended.
- Documentation (including photographs, as appropriate) of the location of, method of collection, and analytical results of any samples collected and analyzed. Chain-of-custody documentation should also be retained with the analytical data.
- If any impacted media is stored on-site, dates and methods of storage.
- Disposition of any impacted media, including permit and disposal receipts, as appropriate. For any impacted media that is excavated and placed back on site, the date, location (both map and high accuracy GPS coordinates), volume of placement and confirmation of approval of onsite placement from Environmental Consultant (who contacted, date and time of contact and approval) as well as photo-documentation of the placed soil is required.

Based on these records, a post-development Plan may be prepared.

4.0 WATER MANAGEMENT

Work at the site may encounter shallow perched ground water. Firms conducting any excavation work or trenching should be prepared to encounter ground water (which may or may not be impacted). Additionally, surface water has the possibility of collecting in subsurface work areas and becoming impacted by residual soil contamination. Any water present during subsurface or surface work will need to be managed as described in this section.

4.1 Managing Removed Water

Any dewatering will require management using one of the following methods:

- Above-ground management in a temporary holding vessel prior to disposal. Temporary holding vessels prior to disposal may consist of a 55-gallon drum, a small above-ground storage tank (AST), or large ASTs (such as Baker or Frac-Tanks), or other suitable storage vessels, depending on the amount of water to be removed. During the dewatering process, care should be taken to minimize the uptake of soil and sediment.
- Direct transfer to a truck designed and permitted to transport such wastes.
- Disposal into a sewer system, *if allowed,* must be pre-approved by City of Portland and pretreatment may be required.

Dewatered fluids may require sampling and testing, dependent upon the disposal method(s) to be used. Additionally, sampling can be conducted to show that dewatered fluids are not impacted (and can be disposed in an agency approved manner). Contact the Environmental Consultant to ensure correct sampling protocol and methods are used.

4.2 Record-Keeping for Removed Water

The following information must be submitted to the Environmental Consultant for each batch of water:

- Company performing work.
- Batch Identification.
- Batch laboratory results.
- Documentation of approval for discharge or waste manifest/receipt of trucking company.
- Date discharged/transported.
- Total gallons discharged/transported.

Once work is complete, this information will be summarized for all occurrences and submitted to the appropriate agencies by the Environmental Consultant.

5.0 Potential for Explosive Gas

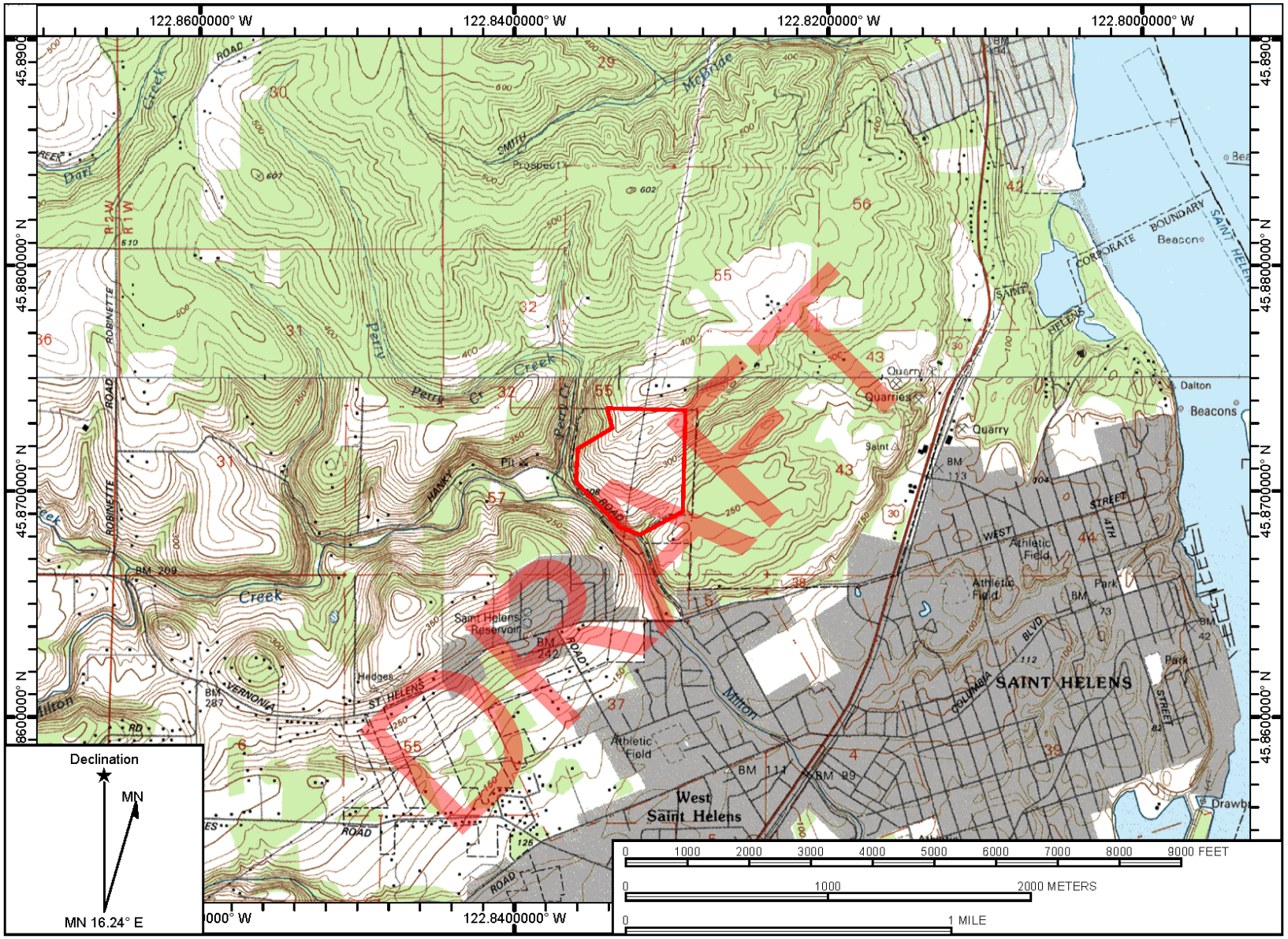
The historical landfill on the FSWDA and the USWDC both have the potential to generate and accumulate landfill gas. Any work in these areas should consider and address the potential for encountering landfill gases. Landfill gas is generally composed of methane, carbon monoxide, carbon dioxide, hydrogen sulfide and other trace gases. Methane:

- Is a simple asphyxiant.
- Has a high fire hazard.
- Has a high explosion hazard.
- Is lighter than air.

Relevant measures to address these characteristics should be incorporated into the Health and Safety Plan (see Section 2.4) for each scope of work. Extra consideration should be given to any confined space work.

Environmental assessments have shown that the historical waste at the subject site is low in organic material, thereby lessening the potential production of gases as a product of decomposition. However, soil gas monitoring has identified the presence of methane, including one location where the concentration greatly exceeded the lower explosive limit.

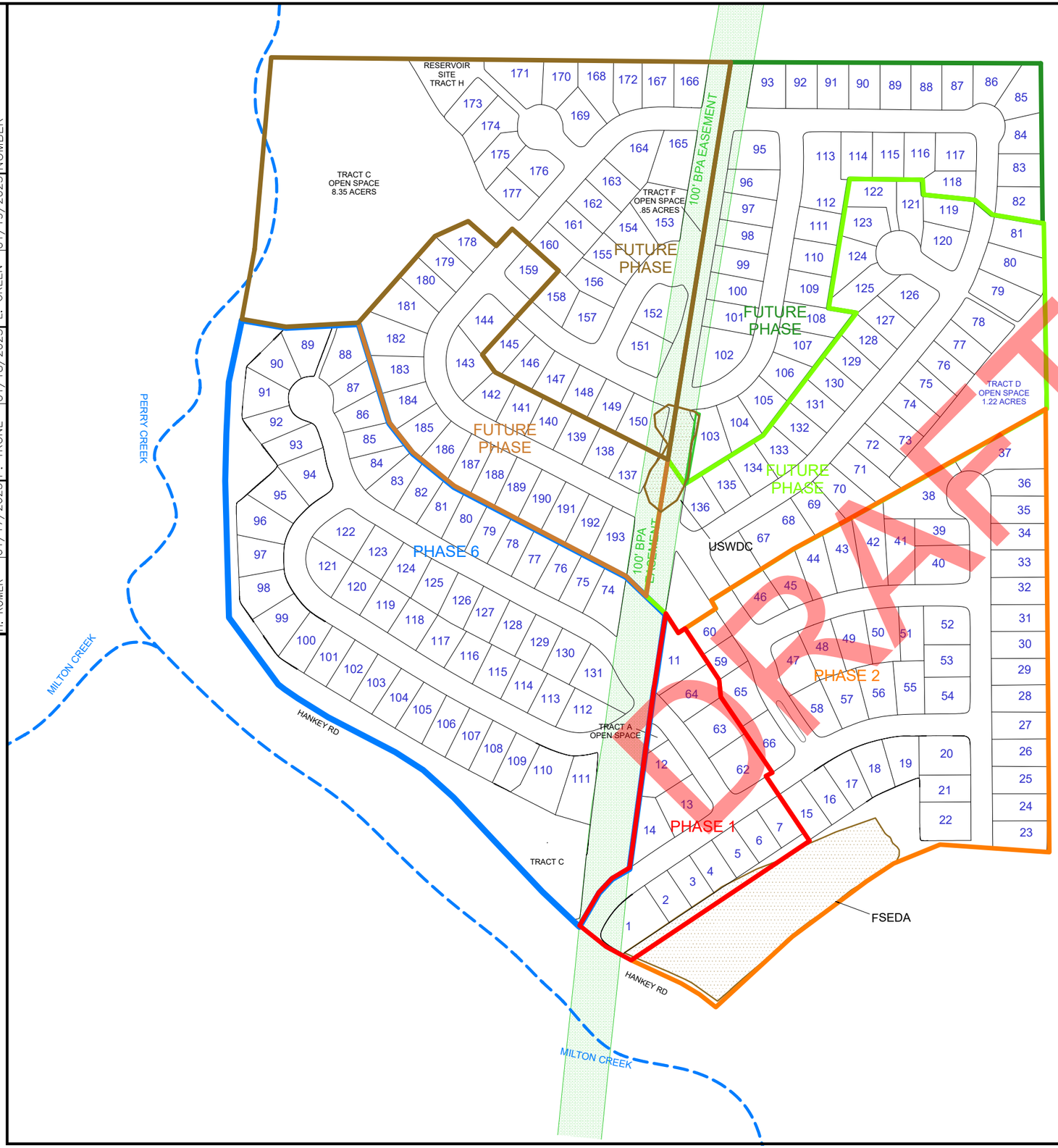
Figures



Source: USGS Topographic Map, 7.5-Minute St Helens Quadrangle, 1990

EVREN NORTHWEST environmental natural resource consultants	Date Drawn: 4/29/2013 CAD File Name: 826-12001-01sv_map Drawn By: LDG Approved By: NMW	Elk Ridge Development N 45.8712 Deg / W 122.8321 Deg St. Helens, Oregon	**Site Vicinity Map**	Project No. 826-12001-05 Figure No. **1**

DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
H. ROMER 01/17/2023	P. TRONE 01/18/2023	L. GREEN 01/19/2023	826-12001(v10)



LEGEND:

- APPROXIMATE LOT BOUNDARIES AND LOT NUMBERS
- 146 — APPROXIMATE SUBJECT PROPERTY BOUNDARIES (COLOR INDICATING VARIOUS DEVELOPMENT AREAS)
- LOCALITY OF THE FACILITY

FSWDA = FORMER SOLID WASTE DISPOSAL AREA
USWDC = UPPER SOLID WASTE DISPOSAL CELL

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2011 AND ENW FIELD NOTES.

APPROXIMATE SCALE

0 300 600 FEET

N

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FIGURE 2

SITE PLAN

ELK RIDGE ESTATES
ST HELENS, OREGON

DRAWING NUMBER 826-12001(v11)
APPROVED BY L. GREEN 01/19/2023
CHECKED BY P. TRONE 01/18/2023
DRAWN BY H. ROMER 01/16/2023

TRACT A
OPEN SPACE

63
66
12
62
18
19
ELK MEADOWS RD
17
13
16
15
14
7
6
5
4
3
2
1

B10
B12
B13
B14
B15
B16
B17
B18
B19
B20
B21
B22
B23
B24
B25
B5
B2
B9
B11
B6
B8
B7
B1
B3
B4
SG01
SG02
SG03
SG04
SG05
SS01
SS02
SS03
SS03B
SS04
SS05

PUBLIC STORM WATER LINE CONTINUATION
NEW STORM WATER CHANNEL
STORM WATER DISSIPATION PAD
CULVERT
BARRICKLIN
HANKEY RD
RETAINING WALL
RIPRAP ARMORED SLOPES

DRAFT

LEGEND:

- 146 — APPROXIMATE LOT BOUNDARIES AND LOT NUMBERS
- FORMER SOLID WASTE DISPOSAL AREA (FSWDA)
- IMPORTED CLEAN SOIL CAP
- NEW STORM WATER CHANNEL
- CHECK DAMS IN NEW STORM WATER CHANNEL
- ROCK ON JUTE MAT BETWEEN CHECK DAMS
- RAVINE TRENCH DRAIN
- STORM SYSTEM
- SEDIMENTATION MANHOLE (POLLUTION CONTROL)
- CATCH BASIN
- STORM WATER MANHOLE
- SG01 — SOIL GAS/ LANDFILL GAS MONITORING POING
- B28 — ENW SUBSURFACE SAMPLE LOCATION (BOREHOLE)
- B26 — ENW SUBSURFACE SAMPLE LOCATION (BOREHOLE) COPCS (EXCEED SLRBCS AND/OR BACKGROUND)

- SURFACE SOIL
- SUBSURFACE SOIL
- SEDIMENT

LEAD | CADMIUM | COPPER | PCBS | SILVER
ARSENIC | BENZO(A)PYRENE

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2011 AND ENW FIELD NOTES.
2. ALL LOT, ROAD, AND FEATURE LOCATIONS ARE APPROXIMATE.

APPROXIMATE SCALE
0 70 140 FEET

N

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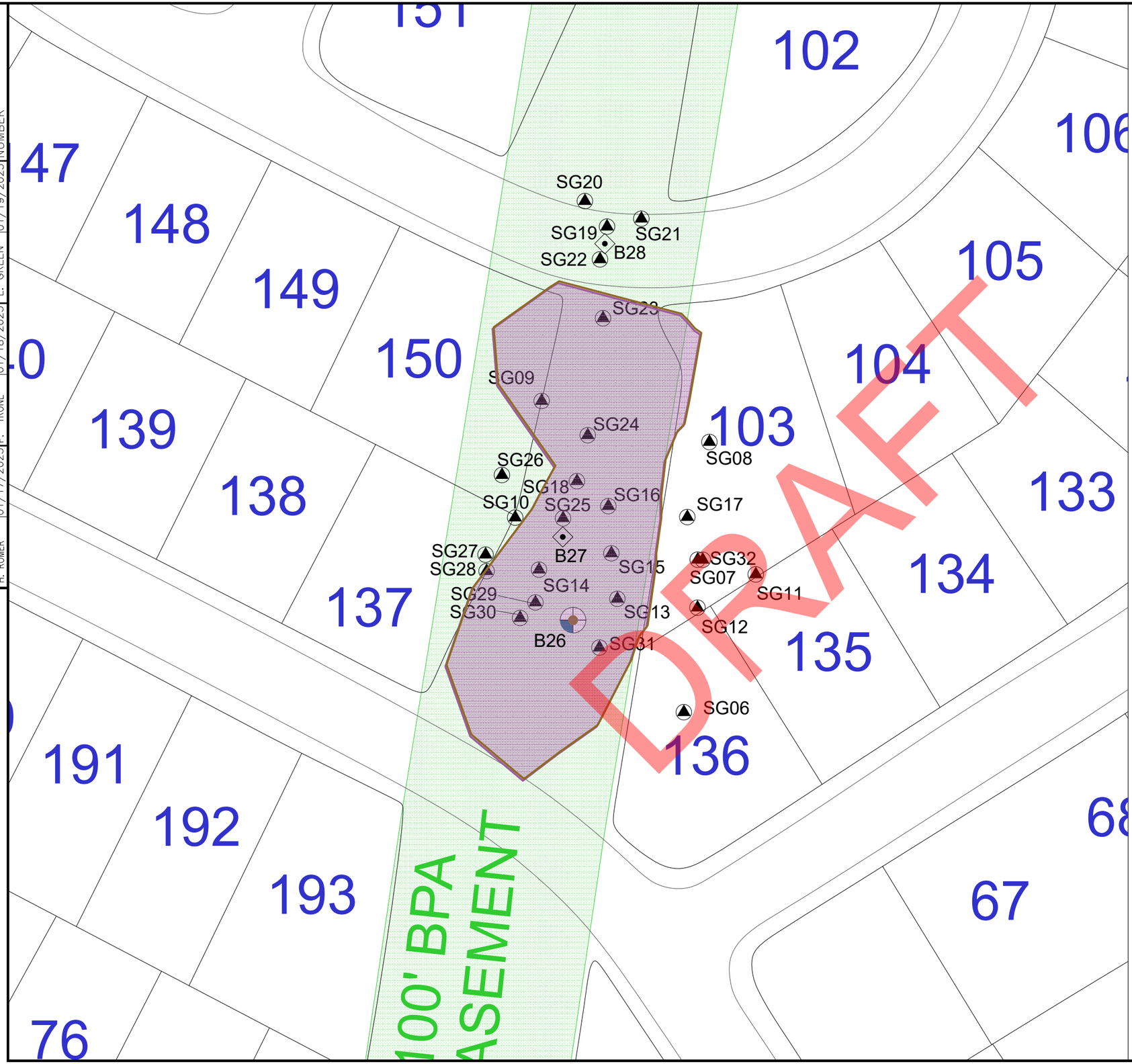
FIGURE 3

SOIL CAP DIAGRAM FORMER SOLID WASTE DISPOSAL AREA (FSWDA)

ELK RIDGE ESTATES
ST HELENS, OREGON

DRAWING NUMBER 826-12001(v12)

	APPROVED BY	CHECKED BY	DRAWN BY
	L. GREEN	P. TRONE	H. ROMER
	01/19/2023	01/18/2023	01/17/2023



LEGEND:

- 146 — APPROXIMATE LOT BOUNDARIES AND LOT NUMBERS
- UPPER SOLID WASTE DISPOSAL CELL (USWDC)
- IMPORTED CLEAN SOIL CAP
- SG01 — SOIL GAS/ LANDFILL GAS MONITORING POING
- B28 — ENW SUBSURFACE SAMPLE LOCATION (BOREHOLE)
- B26 — ENW SUBSURFACE SAMPLE LOCATION (BOREHOLE) COPCS (EXCEED SLRBCS AND/OR BACKGROUND)

SURFACE SOIL
SUBSURFACE SOIL
SEDIMENT

LEAD CADMIUM COPPER PCBS SILVER
ARSENIC BENZO(A)PYRENE

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2011 AND ENW FIELD NOTES.
2. ALL LOT, ROAD, AND FEATURE LOCATIONS ARE APPROXIMATE.

APPROXIMATE SCALE

0 50 100 FEET

N

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FIGURE 4
SOIL CAP DIAGRAM UPLAND
SOLID WASTE DISPOSAL CELL (USWDC)

ELK RIDGE ESTATES
ST HELENS, OREGON

Attachment A

Acknowledgement Signature Form

Copy and use the following form to document review and understanding of the Contaminated Media Management Plan. Any person responsible for or conducting subsurface work at the site must sign this form.

Acknowledgement Signature Form

To be signed by all personnel responsible for, or involved in subsurface work:

I have read this Contaminated Media Management Plan, and I agree to abide by these measures and safety rules and all applicable safety regulations while working at this site. I understand that any violation of these rules will result in my removal from the work area.

Brief Description of Scope of Work

Signature / Title - Project Role	Date

Attachment B

Site Contacts

Site contacts should be reviewed and updated prior to each scope of work at the site.

Site Contacts

Client	Environmental Consultant*
St. Helens Assets LLC Mark Zoller Email: mark@mhzoller.com Cell: (360) 798-3921	**EVREN Northwest, Inc.** Lynn D. Green, C.E.G. / Paul Trone, R.G. Email: lynng@evren-nw.com / pault@evren-nw.com Phone: (503) 452-5561

Site Project Manager*	Geotechnical Engineer*
Name: Company: Email: Cell:	Name: **Company:** Email: Cell:
Architect	**Engineer**
Name: **Company:** Email: Cell:	Name: **Company:** Email: Cell:

Contractor Office / Field Contacts	
Name: **Company:** Email: Cell:	Name: **Company:** Email: Cell:

Add additional contacts as appropriate for the scope of work. This may include subcontractors, the Oregon Department of Environmental Quality, the City of St Helens and/or Columbia County.