STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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March 22, 2022

Jeff Johnstone
City of Olympia
601 4th Avenue East
Olympia, WA 98507
jjohnsto@ci.olympia.wa.us

Re: Opinion on Proposed Cleanup of the following Site:

Site Name:	Carpenter Road Olympia PD Shooting Range
Site Address:	6530 Martin Way E, Lacey, WA 98516
Cleanup Site ID:	14692
Facility/Site ID:	50400
VCP Project ID:	XS0008

Dear Jeff Johnstone:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your proposed independent cleanup of the Carpenter Road Olympia PD Shooting Range site (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70A.305 RCW.

Issue Presented and Opinion

Ecology has determined that upon completion of your proposed cleanup (implementation of institutional controls memorialized by an environmental covenant), no further remedial action will likely be necessary to clean up contamination at the Site.[1]

[1] Note that achieving cleanup levels via the proposed remedial technologies and methods carries uncertainties. Determination of no further action by Ecology will be contingent on sampling results confirming that MTCA cleanup levels have been achieved at selected points of compliance.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70A.305 RCW, and its implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided as follows.

Summary of Opinion

Releases of lead to soil have occurred at the Site, which is located at 6530 Martin Way in Lacey, Washington. The lead contamination in soil is from a police department indoor firing range which has operated from 1987 to present. The Property is being redeveloped by the City of Olympia as a facility for their waste resources department and will include offices and vehicle maintenance operations.

The lead in soil was characterized as presented within the *Remedial Investigation/Feasibility Study and Cleanup Action Plan, Carpenter Road Site* dated February 2, 2022. The feasibility study (FS) and cleanup action plan (CAP) presented in this report identified excavation and offsite disposal as the selected remedial alternative for the lead in soil.

Elevated lead concentrations were found both in soil and dust materials inside the firing range structure and in soil outside of the structure. The nature of the lead contamination is summarized in Table 1:

Table 1 – Summary of Lead Contamination Concerns at the Site

Structure Interior/Exterior	Area	Nature of Lead Contamination
Interior	North wall sloped soil berm	Lead bullets in soil, lead dust on soil
	East and west walls sloped soil berms	Lead dust on soil
	Within firing range	Lead dust on concrete and on Ecology blocks and other materials
Exterior	Soils adjacent to structure to east and west	Runoff from dust precipitating on the roof and discharging from gutter downspouts
	Structure Roof	Potential lead dust on structure roof

Lead in soil in lead as found to a maximum depth of 30 inches below ground surface. Lead has relatively low mobility in non-acidic (natural) waters, and risks to groundwater from the lead in soil are considered low.

The redevelopment activities at the Property will include demolition of the firing range structure. The lead dust on materials such as concrete will be removed by pressure washing. The pressure washing water will be contained and treated and property disposed of. Ecology requests to be provided with copies of documentation of proper treatment and disposal of such water.

Construction materials from the demolished structure such as concrete, wood, metals, and drywall will be properly recycled or disposed of at a permitted disposal facility. Care must be taken to ensure that such materials are not contaminated with lead.

Contaminated soils will be excavated and properly disposed of offsite. For the east and west sloped soil berms inside the building, the excavation of soils impacted by surficial dust will consist of shallow backhoe scrapes followed by confirmatory screening, and sampling and analysis. The soil at the north side of the firing range potentially containing bullets will require a greater amount of field screening for lead in soils, and potentially sieving of soils to remove bullets prior to hauling offsite for disposal. The need for such soil sieving will be driven by potential cost savings provided by soils being designated nonhazardous rather than hazardous waste.

Proper disposal of dust and soil containing lead must include characterization to determine whether such materials can be considered hazardous via Toxicity Characteristics Leaching Procedure (TCLP) analysis. Soil and dust that exceeds TCLP criteria must be either property disposed of at a hazardous waste facility or screened or treated onsite until results are less than hazardous criteria[2]. Care must be taken during any onsite treatment to ensure no discharges or fugitive dust occur. Soils that have that have lead concentrations less than TCLP criteria will be disposed of at a permitted nonhazardous landfill facility. Soils and materials with lead concentrations greater than TCLP criteria will be either treated onsite to achieve non-hazardous classification or properly disposed of at a hazardous waste facility.

Prior to execution of the cleanup, Ecology requests submittal of a confirmatory sampling plan showing proposed soil sampling locations and depths, and planned analytical methods (e.g. use of X-ray Fluorescence (XRF) field screening and offsite laboratory confirmation sampling). The confirmatory sampling plan should also detail the dust cleaning and pressure washing water management methodologies inside of the structure.

The cleanup of the lead in soil will be documented in a Cleanup Action Report, which should include the confirmatory soil sampling data demonstrating removal of all soils above the

[2] See WAC 173-303-090, Table 1.

selected MTCA cleanup levels, and waste disposal receipts demonstrating proper disposal of all contaminated media.

Description of the Site

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

- Metals (lead, copper, and antimony) into the soil.

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

Please note a parcel of real property can be affected by multiple sites. The parcels of real property associated with this Site are also located within the projected boundaries of the Asarco Tacoma Smelter Site (FSID: 89267963). At this time, we have no information that those parcel(s) are actually affected. This opinion does not apply to any contamination associated with the Asarco Tacoma Smelter Site facility.

Basis for the Opinion

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

1. GeoEngineers. *Environmental Investigation, Carpenter Road Site, Lacey Washington.* July 3, 2017.
2. GeoEngineers. *Remedial Investigation/Feasibility Study and Cleanup Action Plan, Carpenter Road Site, Lacey Washington.* February 2, 2022.

A number of these documents are accessible in electronic form from the Site webpage https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=14692. The complete records are stored in the Central Files of the Headquarters Office of Ecology, for review by appointment only. Visit our Public Records Request page https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests, to submit a public records request or get more information about the process. If you require assistance with this process, you may contact the Public Records Officer at publicrecordsofficer@ecy.wa.gov or 360-407-6040.

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

Analysis of the Proposed Cleanup

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

1. **Characterization of the Site**.

   Ecology has determined your characterization of the Site is sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A.**

   Site Contaminants

   Lead, copper, and antimony were found in soil at concentrations above MTCA cleanup levels at the Site. Like lead, copper and antimony are metals that are used in ammunition.

   Soil Characterization

   The extent of soil contamination appears to be sufficiently defined for the selection of cleanup levels and cleanup actions at the Site. The number of soil sample collected in the exterior and interior of the structure at the Site are summarized in Table 2:

Table 2 – Soil Sample Counts

Exterior versus Interior of Structure	Type of Analysis	Number of Sampling Locations	Number of Samples
Exterior	XRF Analysis	19	51
	Lab Analysis	16	20
	TCLP Analysis	4	4
Interior	XRF Analysis	10	36
	Lab Analysis	12	13

Lead was found above the Method A cleanup level of 250 milligrams per kilogram (mg/kg) in five (5) soil samples collected inside the structure and in three (3) soil samples collected outside of the structure. Copper and antimony were found in interior soil samples at concentrations above their respective MTCA Method B (noncancer-based) cleanup levels (one for copper and two for antimony); however, lead was also found at elevated concentrations in these soil samples.

Ecology has determined that lead can serve as an indicator hazardous substance under WAC 173-340-703 for cleanup at the Site, since cleanup of lead in soil is expected to result in cleanup of soil with copper or antimony above their respective cleanup levels.

As discussed above, with the exception of the interior north wall sloped soil berm which may include bullets penetrating into the soil, all of the soil contamination pertains to deposition of lead dust, either aerially deposited, or transported from the roof via runoff to soils adjacent to the east and west.

Groundwater Characterization

Groundwater is considered to be of low risk from the lead, copper, and antimony in soil since these metals have relatively low mobility in non-acidic waters (runoff and groundwater at the Site would not be expected to have low pH conditions). The deepest soil sample with a lead exceedance was location B-7 at 24 to 30 inches below ground surface (bgs) which had a lead concentration of 260 mg/kg, slightly above the Method A cleanup level of 250 mg/kg.

Three piezometers were installed at the Site and groundwater levels measured. The depth to groundwater ranged from ten (10) feet bgs to the east to 28 feet bgs to the west. Impacts to groundwater from the lead in soil at the Site are considered unlikely.

2. **Establishment of cleanup standards and points of compliance**.

Cleanup Standards

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

Table 3 – Selected Cleanup Levels

Contaminant	Soil Cleanup Level (mg/kg)	Simplified Terrestrial Ecological Evaluation Concentration (mg/kg)
Lead (Pb)	250[1]	220[3,4]
Copper (Cu)	3,200[2]	110[3]/550[4]
Antimony (Sb)	32[2]	NA

NA = None available.

1 – Method A cleanup level.
2 – Method B cleanup level, noncancer, unrestricted land use.
3 – Unrestricted Land Use
4 – Commercial Land Use

Points of Compliance

The points of compliance are throughout the Site. Cleanup levels based on the direct contact pathway apply to soils to a depth of 15 ft bgs. As discussed above, the deepest soil contamination at the Site was found at a depth of 30 inches bgs.

Terrestrial Ecological Evaluation (TEE)

Approximately eight (8) acres of forested lands are located within 500 feet of the Site. Hence, MTCA Table 749-1 indicates that the TEE process cannot be ended. MTCA provides for the application of simplified TEE concentrations (MTCA Table 749-2) in WAC 173-340-7491 and 7492. A site-specific TEE needs to be performed if various criteria within WAC 173-340-7491(2)(a) have been met, such as management or land use plans protecting native or semi-native vegetation; use of lands by threatened or endangered species; if a site is located on a property that contains at least ten acres of native vegetation on the property within 500 feet of the site; or significant wildlife population may be present. Since the Property is less than 10 acres in size and the other criteria have not been triggered, a simplified TEE is appropriate for the Site. Simplified TEE concentrations for Site contaminants are listed above in Table 3.

The planned development at the Site is reportedly expected to prevent ecological exposure to soils that have any remaining contamination after completion of cleanup (since structures and pavement will cover the soils). However, until such time that the new facility has been constructed, Ecology would not be able to conclude that this pathway has been closed. Therefore, cleanup to the simplified TEE concentrations from MTCA Table 749-2 are appropriate to use if a NFA letter is requested prior to construction of the new facility..

3. **Selection of cleanup action.**

Ecology has determined the cleanup you proposed for the Site meets the substantive requirements of MTCA.

Cleanup at the Site will consist of excavation and offsite disposal of contaminated soils, both inside and outside of the firing range structure. Cleanup will take place before and after demolition of the firing range structure. The lead dust inside the structure will be removed by pressure washing. The pressure washing water will be contained and treated and property disposed of. Ecology requests to be provided with copies of documentation of proper treatment and disposal of this water.

Construction materials from the demolished structure such as concrete, wood, metals, and drywall will be properly recycled or disposed of at a permitted disposal facility. Care must be taken to ensure that such materials are not contaminated with lead.

Contaminated soils will be excavated and properly disposed of offsite. For the east and west sloped soil berms inside the building, the excavation of soils impacted by surficial dust will consist of shallow backhoe scrapes followed by confirmatory screening and sampling and analysis. The soil at the north side of the firing range potentially containing bullets will require a greater amount of field screening for lead in soils, and potentially sieving of soils to remove bullets prior to hauling offsite for disposal. The need for such soil sieving will be driven by potential cost savings provided by soils being designated nonhazardous rather than hazardous waste.

Proper disposal of dust and soil containing lead must include characterization to determine whether such materials can be considered hazardous via Toxicity Characteristics Leaching Procedure (TCLP) analysis. Soil and dust that exceeds TCLP criteria must be either property disposed of at a hazardous waste facility or screened or treated onsite until results are less than hazardous criteria. Care must be taken during any onsite treatment activities to ensure that no discharges or fugitive dust occur. Soils that have that have lead concentrations less than TCLP criteria will be disposed of at a permitted nonhazardous landfill facility. Soils and materials with lead concentrations greater than TCLP criteria will be either treated onsite to achieve non-hazardous classification or properly disposed of at a hazardous waste facility.

Prior to execution of the cleanup, Ecology requests submittal of a confirmatory sampling plan showing soil sampling locations and depths and planned analytical methods (e.g. use of X-ray Fluorescence (XRF) field screening and offsite laboratory confirmation sampling). The confirmatory sampling plan should also detail the dust cleaning and pressure washing water management methodologies inside of the structure.

The cleanup of metals in soil will be documented in a Cleanup Action Report, which should include the confirmatory soil sampling data demonstrating removal of all soils above the selected MTCA cleanup levels and waste disposal receipts demonstrating proper disposal of all contaminated media.

Limitations of the Opinion

1. **Opinion does not settle liability with the state.**

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

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

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

2. **Opinion does not constitute a determination of substantial equivalence.**

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

3. **Opinion is limited to proposed cleanup.**

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

4. **State is immune from liability.**

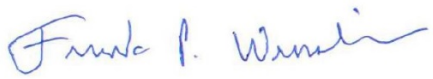
   The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70A.305.170(6).

Contact Information

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

For more information about the VCP and the cleanup process, please visit our webpage [3].
If you have any questions about this opinion, please contact me by phone at (509) 454-7835 or e-mail at frank.winslow@ecy.wa.gov.

Sincerely,



Frank P. Winslow, LHG
Toxics Cleanup Program
Headquarters Section

fpw: anf

Enclosure1 (1): A – Site Description and Diagrams

cc: Iain Wingard, GeoEngineers

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

Enclosure A

Site Description and Diagrams

Site Description

Site: The Site is defined by lead, copper, and antimony in soil. The Site is associated with a police department firing range and is from the use of ammunition containing lead, copper, and antimony.

Area and Property Description: The Site is located on one parcel of land currently occupied by the City of Olympia Police Department shooting range. Parcel 11815210500 (the Property) is an 8.45 acre irregular shaped parcel occupied by the approximately 18,000 square foot shooting range structure.

To the south of the structure on the Property is a parking area. Immediately west and north of the structure on the Property are forested areas. To the east of the structure is a topographic depression where dumpsters have been stored by the City of Olympia's waste management department. Beyond the Property to the southwest, south, and east are commercial operations that include Tacoma Screw Products to the east, a medical equipment supplier to the southeast, and a used car dealership to the south and southwest. To the west of the Property is a yard owned by Thurston County Roads Department and to the north is a gravel quarry.

Site History: The Property has been occupied by the City of Olympia Police Department Firing Range since 1987. Prior to 1987, sand and gravel quarrying reportedly took place on the Property between about 1941 and 1980. The sand and gravel quarrying evidently resulted in the irregular topography found on the Property today.

Sources of Contamination: The lead, copper, and antimony found in soils and dust at the Site is from the ammunition used at the firing range between 1987 and present. As discussed above, the lead contamination in soils includes aerially and runoff deposited dust as well as soil containing bullets in the north sloped berm inside the structure.

Physiographic Setting: The Site is located in Lacey, Washington, approximately five (5) miles east of downtown Olympia and approximately five (5) miles south of the Nisqually Reach of Puget Sound. The Site is in an area of undulating glacial terrain within the Puget Lowland Physiographic Province.

Surface/Storm Water: The nearest surface water body is Woodland Creek, located about 1,800 feet to the west of the Site. Stormwater is expected to generally flow to the south to southwest at the Site, though topography is quite variable and local stormwater flow directions will vary. The Property surface topography ranges in elevation from 157 feet above mean sea level (ft amsl) at the southwest corner to 216 ft amsl to the northeast (an approximately 60 feet of rise across 700 feet of distance). There are two topographic "bowls" on the Property, a western bowl currently occupied by the firing range, and an eastern bowl occupied by dumpsters in the Google Earth aerial photo dated June 26, 2021 (see oblique aerial photograph in Enclosure A).

The western bowl appears to drain to the south and then to the west, and the eastern

bowl appears to be a topographic depression with a bottom elevation at about 162 ft amsl. These topographic bowls appear to likely originate from sand and gravel mining at the Property.

Ecological Setting: The Site has approximately eight acres of forest within 500 feet. Hence, under MTCA Table 749-1, the TEE process cannot be ended. The planned development at the Site is reportedly expected to prevent ecological exposure to soils that have any remaining contamination after completion of cleanup (since structures and pavement will cover the soils). However, until such time that the new facility has been constructed, Ecology would not be able to conclude that this pathway has been closed. Application of simplified TEE values from MTCA Table 749-2 are discussed above.

Geology: The following text is from the RI/FS/CAP report:

> *Two primary geologic units are mapped at and near the Site that include Vashon recessional outwash (Qgo) and Vashon advance outwash (Qga). Both geologic units are glacial deposits. Advance outwash deposits were deposited by streams and rivers emanating from the glaciers during periods of glacial advance. After deposition, the advance outwash soils were overridden by the advancing glacier. Recessional outwash deposits were deposited during period of glacial retreat. Because the advance outwash deposits are glacially overridden, they are generally more compacted and consolidated than the overlying recessional outwash. Locally, the two outwash deposits are similar in composition, generally consisting of sand and gravel with variable silt content.*

Groundwater: Groundwater was found in piezometers at the Site at depths ranging to 10 to 28 ft bgs. Risk to groundwater from the lead in soils is considered low.

Water Supply: Potable water is provided to the subject property by the City of Lacey. The Site is on the edge of a wellhead protection zone that is located approximately 2,800 feet to the southeast. Several Group A/B wells are located in the vicinity of the Site, including one well labeled “Northwest Foreign Auto Parts” which was mapped on the eastern part of the Property. This well location appears to likely have been incorrectly mapped and appears to not be located on the Property. Based on the nature of the contamination at the Site, risks to water supply wells are considered unlikely.

Extent of Contamination: The extent of soil contamination has been defined during the RI sufficient for the identification of cleanup levels and for the development of a cleanup action plan. The vertical extent of lead in soils is limited to approximately 30 inches bgs, and the lateral extent has been defined to within the structure and in soils to the east and west of the structure where runoff from the roof has carried lead-containing dust. Field screening and confirmation soil sampling will be needed during cleanup in all areas with lead contaminated soils.

Site Diagrams

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: Base map provided by Opsis Architecture

Projection: WGS 1984 Web Mercator Auxiliary Sphere

Legend

- Piezometer Name and Approximate Location
- Property Boundary
- Site Boundary

Property and Site Layout

Carpenter Road Site
Lacey, Washington

GeoEngineers

Figure 2

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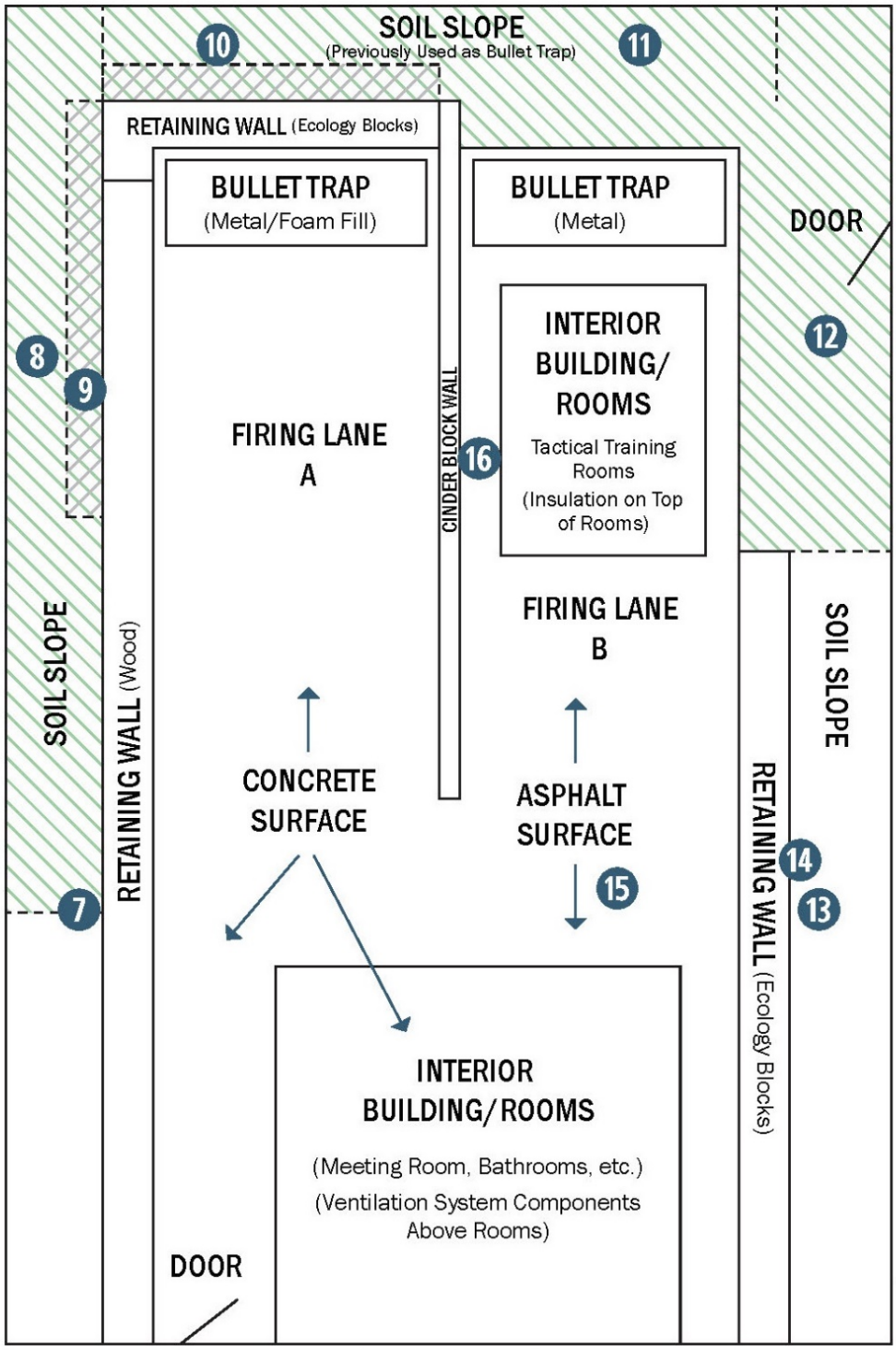

Not to Scale

Legend

8 Approximate location of Hand Auger Boring HA-8

Extent of Contamination Surface Soil Removal/Remediation Area

Extent of Contamination Slough Soil Removal/Remediation Area

Notes:

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Data Source:

Extent of Contamination - Inside Building

Cartpenter Road Site,
Lacey, Washington

GeoEngineers

Figure 8

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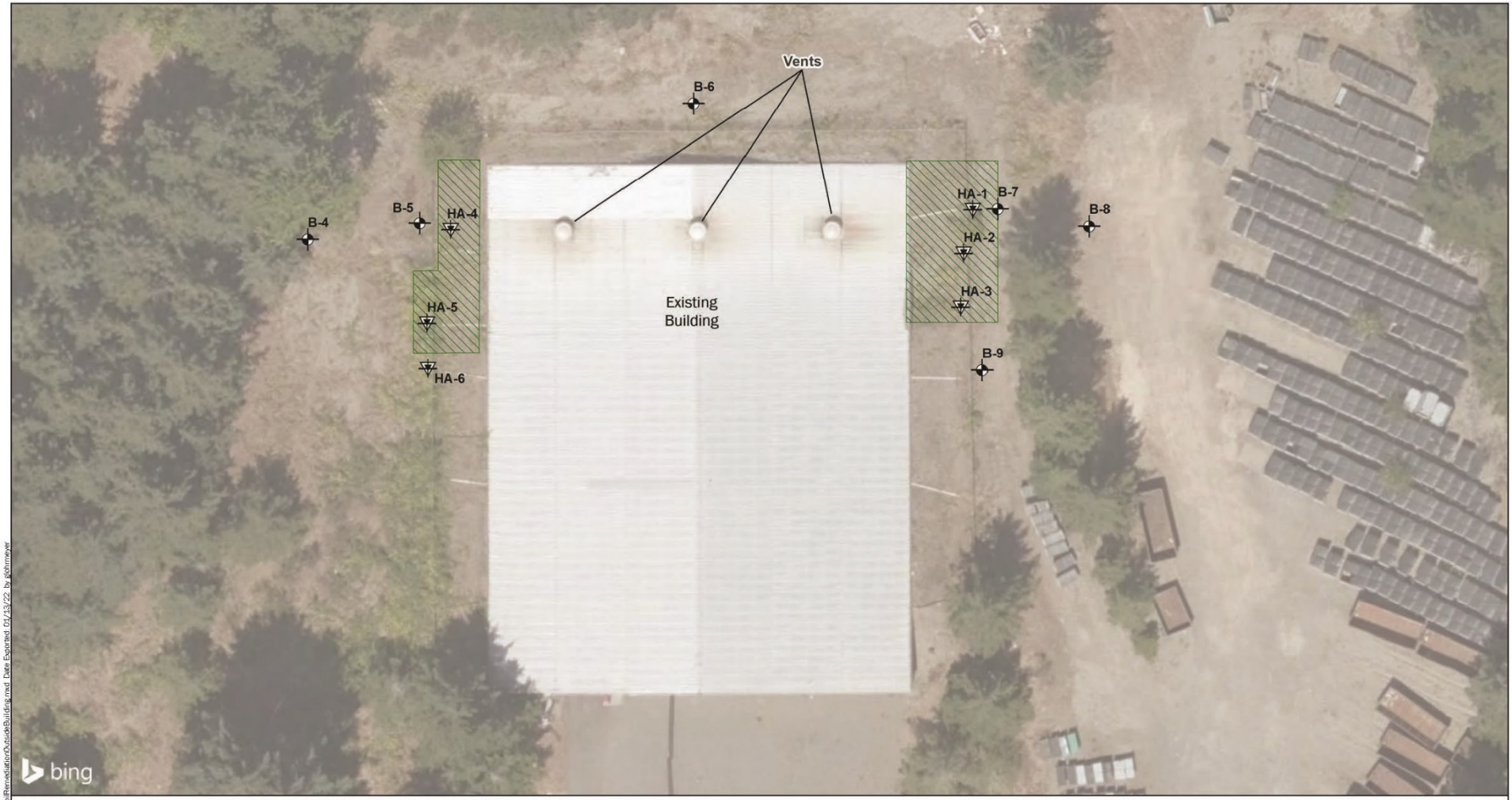

Notes:
1. The locations of all features shown are approximate.
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Data Source: Base map provided by the City of Olympia.

Projection: WGS 1984 Web Mercator Auxiliary Sphere

Legend

Extent of Contamination

Soil Removal/Remediation Area

B-1 Approximate Location of Direct Push Boring

HA-1 Approximate Location of Hand Auger

N W E S

40 0 40

Feet

Extent of Contamination – Outside Building

Carpenter Road Site
Lacey, Washington

GeoEngineers

Figure 9

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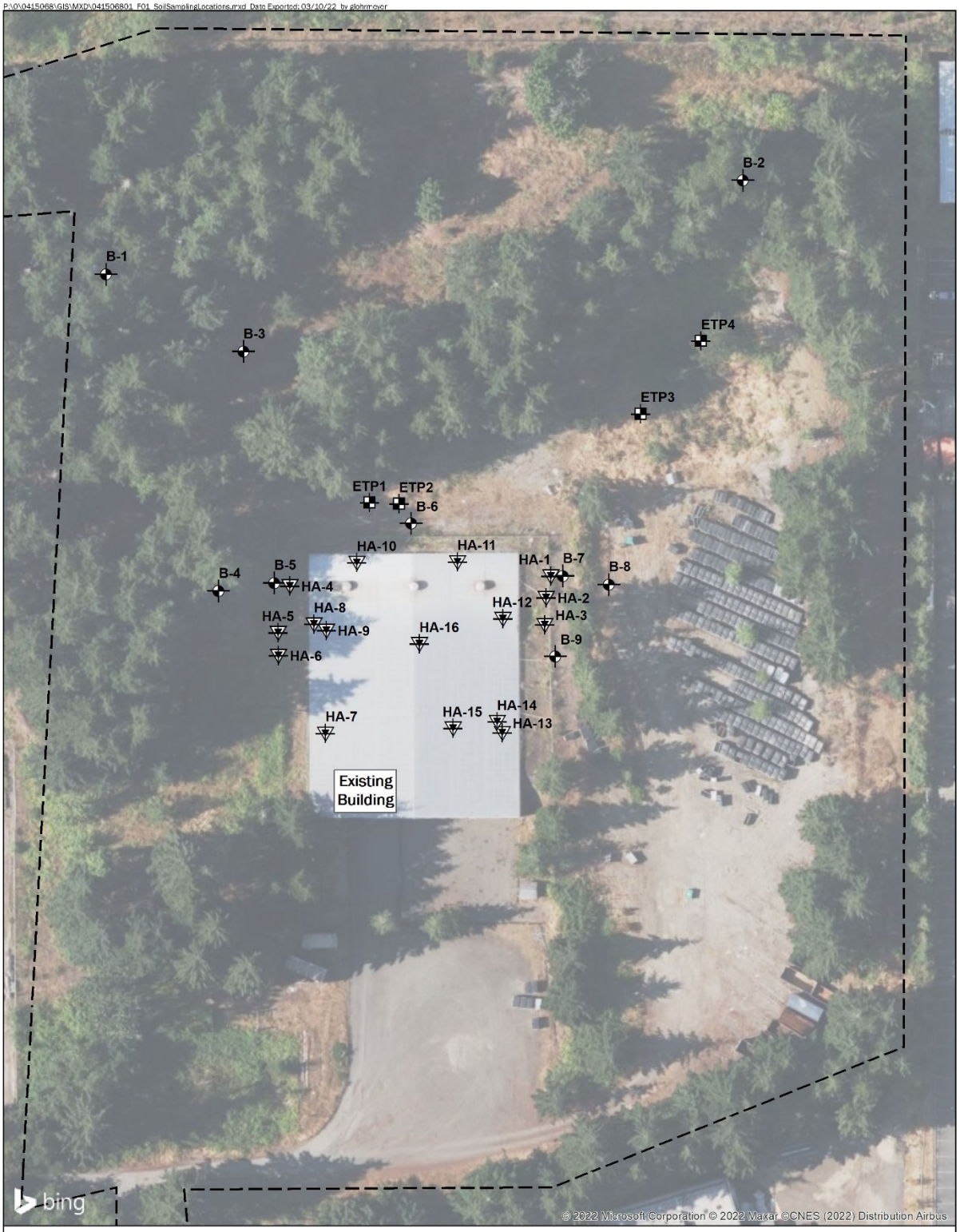


Legend

- Approximate Location of Direct Push Boring
- Approximate Location of Hand Auger
- Approximate Location of Test Pit
- Property Boundary

N
W E
S

100 0 100
Feet

Soil Sampling Locations

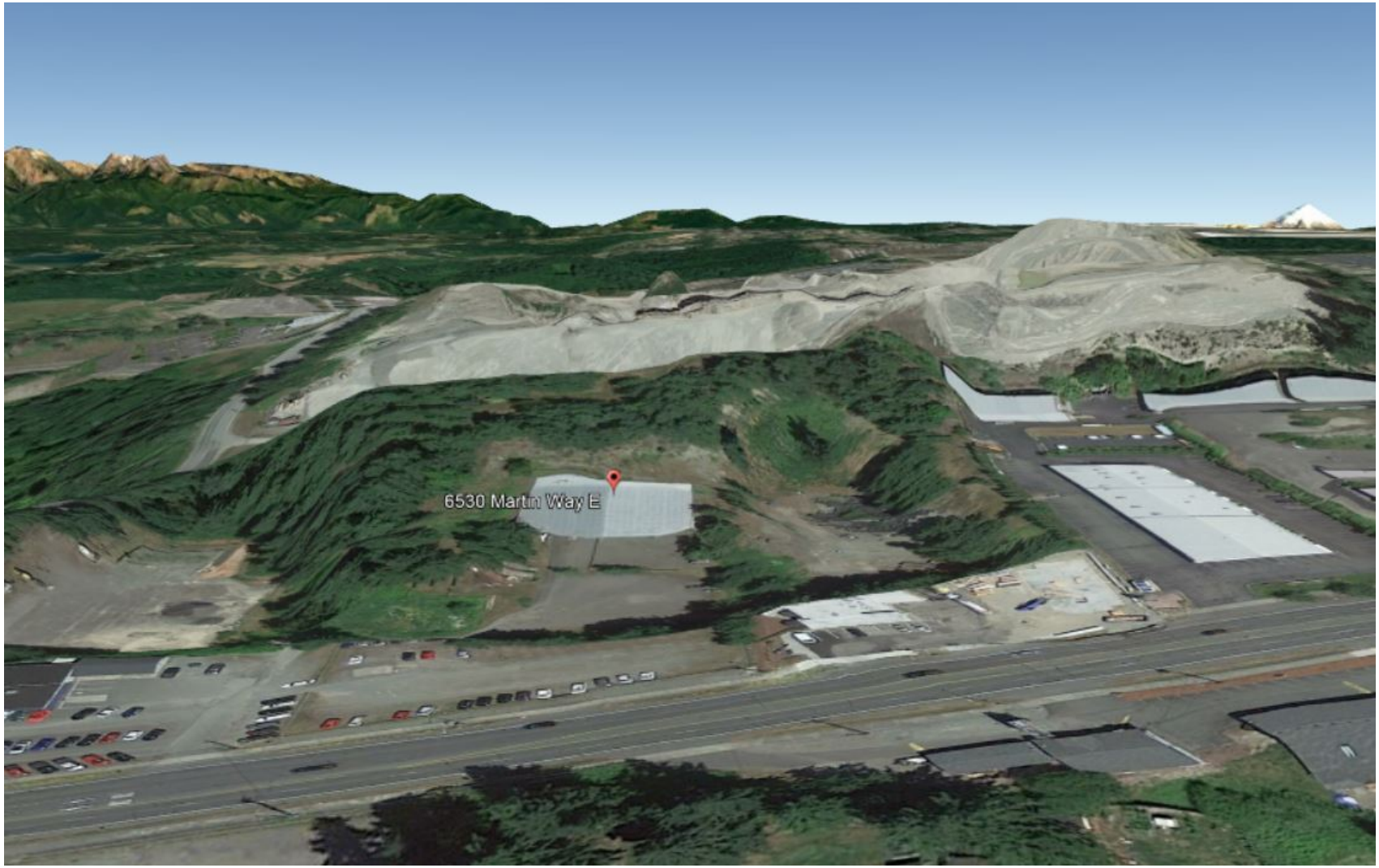
Carpenter Road Site
Lacey, Washington

GeoEngineers | Figure 1

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: Aerial from Bing.

Projection: WGS 1984 Web Mercator Auxiliary Sphere



Oblique Aerial Photograph – Source: Google Earth