Site-Specific Sampling and Analysis Plan

11380 SW Beaverton Hillsdale Highway
Beaverton, Oregon

Cooperative Agreement Number:
BF-01J66301-0

July 25, 2022

Prepared for:

City of Beaverton
12725 SW Millikan Way
Beaverton, OR 97005

Prepared by:

Stantec Consulting Services Inc.
601 SW Second Avenue, Suite 1400
Portland, Oregon 97204

Project No.: 185751322

Document Title:	Site-Specific Sampling and Analysis Plan 11380 SW Beaverton Hillsdale Highway Beaverton, Oregon Cooperative Agreement Number: 01J66301-0
Prepared by:	Leonard Farr Jr., RG, LG Stantec Consulting Services Inc. 601 SW Second Avenue, Suite 1400 Portland, Oregon 97204 (503) 220-5407
Date:	July 25, 2022

Title	Printed Name	Signature	Date of Approval
EPA Region 10 Brownfields Project Officer	Margaret Olson		
EPA Region 10 Quality Assurance Manager	Donald Brown		
City of Beaverton Brownfields Project Manager	David Tetrick		
Stantec QA/QC Manager and Project Manager	Leonard Farr Jr.	Leonard C Farr Jr	7/25/2022
Stantec Health & Safety Officer & Field Manager	Roxanne Russell	Roxanne Russell	7/25/2022

This document entitled, Site-Specific Sampling and Analysis Plan (SSSAP), 11380 SW Beaverton Hillsdale Highway, Beaverton, Oregon was prepared by Stantec Consulting Services Inc. for the City of Beaverton (City). The material in it reflects Stantec's best judgment considering the information available at the time of preparation. Any use which a third party makes of this SSSAP, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Stantec accepts no responsibility for damages, if any, suffered by any third party because of decisions made or actions based on this document. This document was prepared under the supervision and direction of the staff identified below.

Roxanne Russell

Author: **Roxanne Russell, PE**
Environmental Engineer

Leonard C Farr Jr

Reviewer: **Leonard Farr Jr., RG**
Principal

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1.0 INTRODUCTION

On behalf of the City of Beaverton (City), Stantec Consulting Services Inc. (Stantec) has prepared this Site-Specific Sampling and Analysis Plan (SSSAP) for a Phase II Environmental Site Assessment (ESA) of 11380 SW Beaverton Hillsdale Highway, Washington County tax lot 1S115BD05400, in Beaverton, Oregon (Property). All work described herein will be completed in accordance with the generic Quality Assurance Project Plan (QAPP) prepared for the City Brownfields Project (Cooperative Agreement Number BF-01J66301-0) (Stantec, 2020). The United States Environmental Protection Agency (USEPA) approved the generic QAPP on July 24, 2020 (Stantec, 2020). USEPA approved the eligibility of this Property for Phase II ESA hazardous substance funding on March 1, 2022.

1.1 PROJECT ORGANIZATION

The project implementation team will be led by Stantec Project Manager (PM) Leonard Farr. The key team member roles and responsibilities are summarized below. If this organizational structure changes at any time during the project, the change will be documented in an amendment to this SSSAP.

USEPA Region 10 Brownfields Project Officer: Margaret Olson
Phone: (503) 326-5874

The USEPA Region 10 Brownfields Project Officer will review and approve the SSSAP and will monitor activities for this project.

EPA Region 10 Brownfields Quality Assurance Manager: Donald Brown
Phone: **(206) 553-2987**

The USEPA Region 10 Brownfields Quality Assurance Manager will review and approve the SSSAP.

City of Beaverton Brownfields Project Manager: David Tetrick
Phone: **(503) 526-2537**

The City of Beaverton Brownfields PM is the primary point-of-contact for communications with the USEPA, DEQ, and Stantec. The City of Beaverton Brownfields PM is responsible for overall project management, contract management, project cost accounting, and other business-related project tasks. The City of Beaverton Brownfields PM will coordinate all required reporting to the USEPA Project Officer.

Stantec QA/QC Manager and Project Manager: Leonard Farr Jr., RG
Phone: (971) 230-5204

The Stantec PM will coordinate project activities, provide technical support and oversight, and will coordinate with internal staff so that the resources necessary to complete the project are available when needed. The Stantec PM will communicate with team members, coordinate daily operations, and maintain control over the schedule, budget, and technical aspects of the project. The Stantec PM will be responsible for deliverables and manage subcontractor procurement activities. The Stantec PM will

review or prepare all deliverables, including verifying the transcription of laboratory data into report text and summary tables, so that high-quality work products are produced. The Stantec PM will be responsible for distributing the finalized, approved SSSAP to each of the key project personnel via email.

The Stantec QA/QC Manager will manage the review of data and deliverables generated during this project as directed by the Stantec PM and in accordance with the QAPP.

Stantec Health and Safety Officer and Field Manager: Roxanne Russell
Phone: (907) 250-3115

The Health and Safety Officer (HSO) will prepare a Site-Specific Health and Safety Plan (HASP) in accordance with Occupational Health and Safety Administration (OSHA) guidelines. The HASP will include a hazard analysis for each definable field activity. The HSO will be responsible for documenting that 1) Stantec personnel have received appropriate levels of training; 2) field operations are conducted in accordance with appropriate health and safety protocols; and 3) subcontractors receive a pre-work safety briefing (a.k.a. tailgate meeting) and sign-off that they understand and will adhere to minimum project safety protocols. The tailgate meeting will also include discussion of Stantec's COVID-19 Field Guidance and Best Practices guidance document, included in **Appendix A**.

The Field Manager (FM) will be responsible for implementing the field activities, including scheduling, collecting samples, documentation, and delivery of samples to the laboratory.

Soil Vapor Sample Analytical Laboratory: Pace National
Project Manager: Jared Starkey
Phone: (615) 773-9698

Pace National (formerly ESC Lab Sciences) will be responsible for analysis of soil and groundwater samples collected at the Property. The Pace National PM will report to the Stantec PM. The Pace National Quality Assurance Manual (QAM) is provided in the QAPP (Stantec, 2020).

1.2 PROPERTY DESCRIPTION

The 0.96-acre Property consists of Washington County tax lot 1S115BD05400 located in Beaverton, Oregon and is owned by City of Beaverton (Figure 1). The Property is zoned Regional Center East (RC-E). The Property is currently occupied by a 12,000 square foot, two-tenant, single-story commercial building. The western tenant space is currently vacant and was most recently occupied by a retail mattress store. The eastern tenant space is occupied by a dentist office. A 36-space parking lot is immediately north of the building, and a 24-space parking lot is immediately south of the building. The Property is bordered on the north by SW Beaverton Hillsdale Highway, on the east by a freeway onramp to State Highway 217, on the south by an office building, and on the west by a retail gasoline station and a commercial building that is currently occupied by Goodwill Industries.

1.3 PROPERTY HISTORY

The Property was first developed prior to 1936 with a petroleum bulk terminal and associated rail spur, and railway tracks that crossed the Property from east to west. The petroleum bulk terminal reportedly

was removed from the Property in 1963. South of the railway tracks on the Property, outdoor material storage is evident in historical aerial photographs from 1948 until 1963. A small structure, use unknown, fronting SW Beaverton Hillsdale Highway was constructed on the Property prior to 1970, and was removed prior to 1981. The current Property building, used for office and retail, was constructed in 1984. The Property has remained generally unchanged since 1984.

1.4 PREVIOUS ENVIRONMENTAL REPORTS

1.4.1 June 1998 Phase I Environmental Site Assessment

PBS Environmental + Engineering prepared a Phase I ESA in 1998 for the Property on behalf of David Scott. The Phase I ESA concluded that no Recognized Environmental Conditions (RECs) were identified in connection with the Property. However, the report failed to identify former use of the Property as a petroleum bulk terminal.

1.4.2 February 2022 Phase II Environmental Site Assessment

Point Source Solutions, LLC completed a Phase II ESA at the Property in February 2022 on behalf of Elysium Developers V (Point Source Solutions, 2022). The Phase II ESA included the collection of soil and groundwater samples in six direct-push borings advanced in the north and south parking lots. Soil sampling conducted at the Property was of little value as all samples tested were collected from the saturated zone, most at a depth of 8 feet below ground surface (bgs) (the report indicated that groundwater was measured as shallow at 2.19 feet bgs). The only notable hazardous substance detection in soil was an arsenic concentration of 45.4 milligrams per kilogram (mg/kg) in boring SB6, located south of the Property building. This arsenic concentration exceeds its residential, occupational, and construction worker Oregon Department of Environmental Quality (DEQ) direct contact risk-based concentrations (RBCs).

Four groundwater samples were collected from borings located in the parking lot north of the Property building, and two groundwater samples were collected from borings located in the parking lot south of the Property building. Static groundwater was present in the borings from 2.19 to 7.19 feet bgs. Gasoline-range organics (GRO) were detected in one of the four groundwater samples located in the north parking lot at a concentration of 610 micrograms per liter (µg/L), and not sampled in the two borings located in the south parking lot. The most stringent applicable DEQ RBC screening value for GRO is the groundwater in excavation RBC of 14,000 µg/L. Diesel range organics (DRO) were detected in the four groundwater samples located in the north parking lot at concentrations between 83 and 6,700 µg/L, and in the two groundwater samples located in the south parking lot at concentrations between 70 and 86 µg/L. Oil-range organics (ORO) were detected in one groundwater sample located in the north parking lot at a concentration of 360 µg/L. The most stringent applicable DEQ RBC screening value for DRO and ORO is the groundwater in excavation RBC of >S, meaning that the groundwater RBC exceeds the solubility limit. Metals (arsenic, barium, cadmium, chromium, and lead) were detected in the two borings located in the south parking lot, and not sampled in the four borings located in the north parking lot. Metals (arsenic, barium, cadmium, chromium, and lead were not present at concentrations above the most stringent applicable DEQ RBC screening values for groundwater in excavation. Polychlorinated bipheynls (PCBs)

were sampled from the two borings located in the south parking lot and were not detected above laboratory reporting limits, and not sampled in the four borings located in the north parking lot.

1.4.3 March 2022 Phase I Environmental Site Assessment

A Phase I ESA report was completed for the Property by Stantec in March 2022 on behalf of the Client (Stantec, 2022b). The following RECs were identified:

- REC #1: A petroleum bulk terminal operated on the northern portion of the Property for a period of at least 27 years. The February 2022 Phase II ESA discovered gasoline- and diesel-range organics in soil and groundwater in the northern portion of the Property. Former bulk terminal operations, and releases of petroleum that may be associated with former bulk terminal operations, constitute a REC for the Property.

- REC #2: Outdoor materials storage of an unknown nature occurred on the southern portion of the Property for a period of at least 15 years. The February 2022 Phase II ESA discovered an elevated arsenic concentration in soil in the southern portion of the Property. Former outdoor material storage activities, and releases of arsenic that may be associated with these activities, constitute a REC for the Property.

- REC #3: A retail gas station has operated adjacent and west of the Property since the mid-1960s, a period of approximately 60 years. Environmental records available for this site indicate that releases have occurred at the site, but because the magnitude of the releases were small, the Oregon DEQ issued a No Further Action (NFA) letter for the site in 2009. No testing of the adjacent site's soil or groundwater has been conducted since 2007. The presence of an active retail gas station adjacent to the west of the Property at which no soil or groundwater data has been collected for 15 years constitutes a REC for the Property

1.4.4 March 2022 Focused Phase II Environmental Site Assessment

A Focused Phase II ESA report was completed for the Property by Stantec in March 2022 on behalf of City of Beaverton (Stantec, 2022a). Stantec collected four sub-slab soil vapor samples (including a duplicate sample) to evaluate whether future residential occupants of the existing Property building might be exposed to risk associated with the vapor intrusion exposure pathway. Volatile organic compounds (VOCs), including chloroform, isopropylbenzene, methylene chloride, styrene, tetrachloroethylene, 1,2,4-trimethylbenzene, and xylenes, were detected in the soil vapor samples at concentrations below even the most conservative (residential) soil vapor RBCs. Based on the results of sub-slab soil vapor sampling, it appears that planed future building residential occupants would not be exposed to unacceptable levels of risk associated with the vapor intrusion into building exposure pathway.

1.5 PROBLEM DEFINITION

During the completion of the Phase I ESA at the Property in March 2022 (Stantec, 2022b), RECs were identified as listed in **Section 1.4.3.**

The City's plans for the Property include the conversion of the existing Property building into a homeless shelter and social services resource office. The homeless shelter is planned to serve an adult population on a short-term basis. The City of Beaverton is seeking an NFA determination from the DEQ to facilitate the redevelopment of the Property.

2.0 SCOPE OF WORK

The scope of work described in this SSSAP includes (1) a geophysical survey and (2) a Phase II ESA to evaluate the RECs identified during Phase I ESA completion and summarized above in **Section 1.4.3**. Standard operating procedures (SOPs) for the work tasks identified below are presented in the approved QAPP (Stantec, 2020).

2.1 PRE-FIELDWORK ACTIVITIES

Prior to field activities, Stantec will perform the following:

- Complete National Historic Preservation Act (NHPA) Section 106 and Endangered Species Act consultations and submit documentation to the USEPA for review/approval;
- Prepare a site-specific HASP in accordance with Oregon Occupational Safety and Health Administration (OSHA) guidelines and Stantec protocols;
- Request the Utility Notification Center to mark underground utilities on the Property;
- Contract with a private utility locate service provider to identify potential underground utilities/structures at the planned boring locations;
- Contract with Apex Labs for analytical testing services; and
- Contract with a licensed driller for the advancement of borings for the purpose of soil and groundwater sampling.

A health and safety briefing will be conducted daily by field personnel in coordination with subcontractors prior to beginning field activities and will focus on anticipated work hazards and controls.

2.2 GEOPHYSICAL SURVEY

A geophysical survey will be completed to screen the northern portion of the parking lot north of the building on the Property (the area of the former petroleum bulk terminal) for the presence of potential underground storage tanks (USTs).

The geophysical survey will begin with the development of a detailed surface map followed by a magnetic and/or electromagnetic survey. This data will be processed to identify conductive materials that will be marked with color-coded marking paint. Areas where conductive materials are identified will be further investigated with a Ground Penetrating Radar (GPR) survey. The results of the survey will be marked on the Property and on a Property map.

2.3 PHASE II ESA

2.3.1 Direct-Push Soil Sampling

Stantec will subcontract with an Oregon-licensed driller to facilitate the collection of soil and/or groundwater samples from eight temporary borings (GP-1 through GP-8) at the Property in accordance with QAPP SOP-02 and SOP-4 (Stantec, 2020).

The temporary borings will be completed utilizing direct-push equipment with a clear acetate liner within a hollow stainless-steel drill rod, advanced by a hydraulically driven hammer to collect relatively undisturbed soil cores in 5-foot sections.

Groundwater is anticipated to be at a depth of approximately 2 to 7 feet bgs (Point Source Solutions, 2022). Each boring for soil and groundwater sampling will be advanced until groundwater is encountered, drilling refusal occurs, or to a maximum depth of 10 feet bgs. Proposed boring locations are shown on **Figure 2**, and the soil sampling design and rationale is presented in **Table 1.**

Soil samples will be collected continuously during advancement of the borings by the Stantec FM. Cores will be logged for soil classification, results of field screening for VOCs collected with a photoionization detector (PID) equipped with a 10.2 electron-volt lamp, and visual/olfactory observations of soil conditions recorded in a field notebook or on field data sheets, and on boring logs.

One unsaturated zone soil sample will be collected from each boring for laboratory analysis. The soil sample will be collected from the depth interval exhibiting the greatest environmental impact ("worst case") based on field screening, visual, or olfactory observations. If no impact is observed, the sample will be collected from the boring terminus or just above encountered groundwater, whichever occurs first.

Soil samples collected from the borings will be submitted to Apex Labs for a selection of the following laboratory analyses:

- GRO by method NWTPH-Gx (GP-1 through GP-5 only);
- DRO/RRO by method NWTPH-Dx (GP-1 through GP-5 only);
- RCRA 8 Metals by USEPA Methods 6020/7471 (GP-3, GP-6, GP-7);
- VOCs by USEPA Method 8260D, if GRO is detected above the residential direct contact RBC; and/or
- Polycyclic aromatic hydrocarbons (PAHs) by USEPA Method 8270C SIM, if DRO/ORO are detected at a combined concentration of greater than the residential direct contact RBC.

In accordance with QAPP SOP-02, samples selected for VOC and GRO analysis will be collected first using USEPA Method 5035 (field methanol preservation). VOC and GRO soil samples will be collected using a pre-cleaned, disposable, small-diameter core sampler (i.e., Terra Core, Easy-Draw Syringe, or Power-Stop Handle) as quickly as possible after the soil is removed from the subsurface, from as undisturbed a portion of the soil as possible or from a freshly exposed part of the sample. Samples for other analytical methods will be collected subsequently using a disposable nitrile gloved hand. Nitrile gloves will be changed out between sample intervals.

2.3.2 Direct-Push Groundwater Sampling

One groundwater grab sample will be collected from borings GP-1, GP-2, GP-3, GP-6, and GP-7 in accordance with QAPP SOP-4 (Stantec, 2020). Groundwater grab samples will be collected by installing a 1-inch diameter polyvinyl chloride (PVC) temporary well with a 1-inch diameter slotted screen positioned to intercept the top of the water table. Proposed boring locations are shown on **Figure 2**, and the groundwater sampling design and rationale is presented in **Table 2.**

Each well will be purged using a peristaltic pump until four borehole volumes of groundwater have been purged or until field parameters, such as temperature, pH, conductivity have stabilized. Stabilization is achieved after all parameters have stabilized for three successive readings. Three successive readings should be within plus or minus 0.1 for pH, 3% for conductivity, 10 millivolts (mV) for oxygen reduction potential (ORP), and 10% for dissolved oxygen (DO). Three successive readings for temperature are not required. Following purging of groundwater, a groundwater sample for VOC/GRO analysis will be collected from each temporary well using a peristaltic pump and new, disposable polyethylene tubing.

Groundwater samples will be submitted to Apex Labs for a selection of the following laboratory analyses:

- GRO by methods NWTPH-Gx;
- DRO/RRO by method NWTPH-Dx;
- Total and dissolved RCRA 8 Metals by USEPA Methods 6020/7471; and/or
- VOCs by USEPA Method 8260D (DP-1 through DP-6).

2.3.3 Quality Assurance/Quality Control

All samples will be collected, handled, and submitted for analysis in accordance with the USEPA-approved QAPP (Stantec, 2020), as summarized below.

- One field duplicate will be collected for every 20 samples per sample matrix. If there are fewer than 20 samples per matrix, one field duplicate per matrix will be submitted.
- Equipment blanks will be collected by pouring laboratory-prepared water or distilled water over or through any reusable soil and/or groundwater field sampling equipment and collecting the rinsate for laboratory analysis. One equipment blank per sample matrix (soil and groundwater) will be submitted to the laboratory with investigative samples and analyzed for the same parameters as the investigative samples. However, reusable equipment is not expected to be used during this investigation and no equipment blank samples are expected to be collected.
- Trip blanks will be submitted at the rate of one trip blank per shipping container containing groundwater or soil samples for laboratory VOC analysis.
- Additional soil and groundwater sample volumes will be collected and submitted for laboratory matrix spike (MS)/ matrix spike duplicate (MSD) analysis. An MS/MSD sample will be collected for organic and inorganic analyses at a minimum frequency of one per 20 or fewer samples per matrix.

2.3.4 Borehole Abandonment and Investigation-Derived Waste

Each boring will be abandoned using granular bentonite to a depth of 8 inches below surface grade hydrated in-place in accordance with Oregon Water Resources Department requirements. The uppermost 8 inches of the boring will be filled with surface material (soil, asphalt, or concrete) present at the boring site.

Soil cuttings, purge water and driller's decontamination water will be segregated and stored on the Property in labeled Department of Transportation (DOT) approved drums. Stantec will arrange with the Property owner for a secure temporary investigation-derived waste (IDW) storage area. The soil and

groundwater analytical results from the investigation will be used to characterize the IDW for off-Property disposal at a permitted waste disposal facility.

2.4 DOCUMENTATION AND REPORTING

Field activities will be documented in a bound field notebook with sequentially numbered pages and on Stantec field forms in accordance with applicable Stantec field sampling SOPs contained in the project QAPP (Stantec, 2020). Following receipt of final laboratory analytical results, Stantec will prepare a written report documenting the sampling. The report will include, at a minimum, the following:

- A description of the sampling activities;
- Figures/diagrams illustrating sampling locations;
- Data summary tables;
- Data validation memorandum; and
- Comparison of laboratory analytical data to relevant DEQ RBCs for evaluation of potential risk.

The report will include recommendations, as appropriate. The report also will discuss any deviations from the procedures described in this SSSAP.

3.0 CONCEPTUAL SITE MODEL

A CSM has been completed for the Property based on the land use and beneficial water use determinations described below. The CSM for the Property is illustrated in **Figure 3**.

3.1.1 Land Use Determination

The Property is currently zoned Regional Center East (RC-E). The City's plans for the Property include the conversion of the existing Property building into a homeless shelter and social services resource office. The homeless shelter is planned to serve an adult population on a short-term basis.

Receptors deemed applicable to the Property risk evaluation consist of urban residential, occupational, and construction and excavation workers as shown in **Figure 3**.

3.1.2 Locality of Facility

The locality of facility (LOF) is defined by the DEQ as the area where human or ecological receptors are reasonably likely to come in contact with hazardous substances sourced from a facility. The area is determined by contaminant physical and chemical properties, physical characteristics that influence the migration of contaminants over time (such as groundwater gradient), and human activity in the vicinity. The primary function of the LOF is to identify all relevant exposure pathways to support identification of applicable risk screening levels. Based upon the land use determination and future redevelopment plans for the Property, the current and likely future use of the Property will remain commercial and/or residential. Therefore, the exposure pathways for current and likely future users of the Property are confined to the Property and the LOF is therefore defined as the Property boundary.

3.1.3 Beneficial Water Use Determination

The Property area is supplied by municipal domestic water provided by the City of Beaverton, and there are no private water supply wells on the Property; therefore, groundwater beneath the Property is not anticipated to be accessed in the future for drinking or other purposes.

No information has been collected to-date regarding the groundwater gradient on the Property. A limited water well survey was completed by Stantec. The Property is located in the SW quarter of the NE quarter of Section 15, Township 1S, Range 1W. Results of a well search on the OWRD online well query system indicated no water supply wells within the Property LOF. Impacts to beneficial groundwater uses within the Property LOF are not reasonably likely to occur. It is Stantec's opinion that the groundwater ingestion pathway is incomplete at the Property and as a result this pathway will not be evaluated as part of the risk evaluation for the Property.

3.1.4 Conceptual Site Model Summary

Based upon the land use determination, the Property LOF, municipal domestic water supply and the results of the water well survey described above Property receptors are defined as residential, urban

occupational, construction workers, and excavation workers. Potentially complete exposure pathways for Property receptors include direct contact with soil, soil and groundwater volatilization to outdoor air, soil and groundwater vapor intrusion into buildings, and groundwater in an excavation. The CSM is depicted on **Figure 3**.

4.0 SCHEDULE

Field sampling activities are expected to take up to 2 days to complete. The standard laboratory turnaround time for laboratory analysis of samples is 10 business days. The report will be completed within two weeks of the receipt of all laboratory testing data.

5.0 LIMITATIONS

This document entitled, Site-Specific Sampling and Analysis Plan, 11380 SW Beaverton Hillsdale Highway, Beaverton, Oregon was prepared by Stantec for the City of Beaverton. The material in it reflects Stantec's best judgment considering the information available to it at the time of preparation. Any use which a third party makes of this SSSAP, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Stantec accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this SSSAP.

6.0 REFERENCES

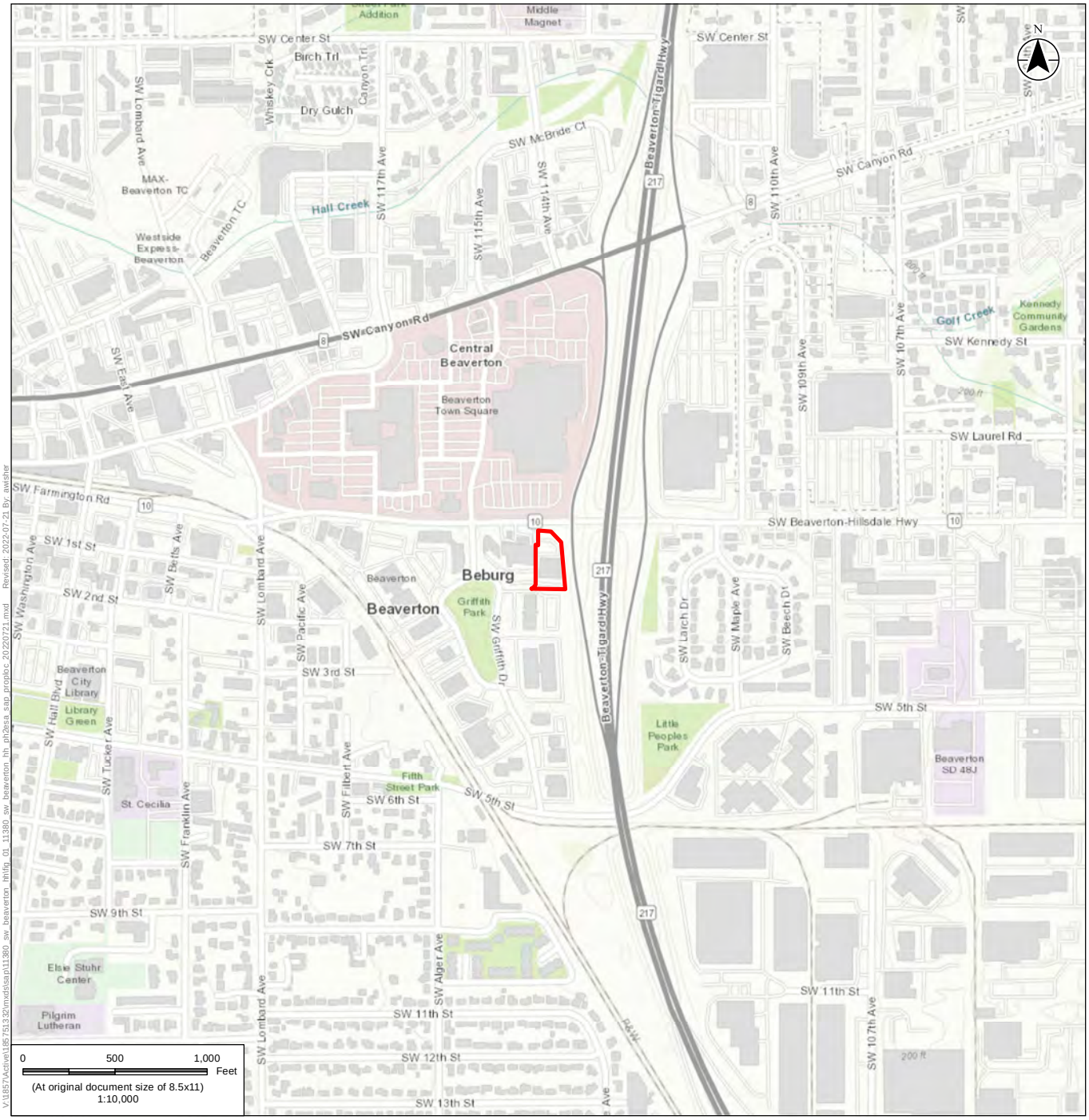
Point Source Solutions, LLC, 2022. Phase II Environmental Site Assessment, Commercial Property, 11380-11390 SW Beaverton-Hillsdale Hwy, Beaverton, OR 97005. February 2.

Stantec, 2020. Master Quality Assurance Project Plan, (Revision 1), City of Beaverton, Cooperative Agreement No. BF-01J66301. July 24.

Stantec, 2022a. Focused Phase II Environmental Site Assessment Report, 11380 SW Beaverton Hillsdale Highway, Beaverton, Oregon 97005. March 2.

Stantec, 2022b. Phase I Environmental Site Assessment, 11380 SW Beaverton Hillsdale Highway, Beaverton, Oregon 97005. April 14.

FIGURES



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Approximate Site Boundary

Notes

1. Coordinate System: NAD 1983 UTM Zone 10N

2. Background: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Stantec

Project Location
11380 Southwest Beaverton Hillsdale Highway
Beaverton Oregon 97005

Client/Project 185751322
City of Beaverton
Brownfields Projects
Phase II Environmental Site Assessment
Sampling and Analysis Plan

Title
Property Location Map

Figure No.
1

Revised: 2022-07-21 By: awisher

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Stantec

- Soil and Groundwater Sample Location
- Previous Soil and Groundwater Sample Location (Point Source Solutions, January 2022)
- Approximate Site Boundary

Notes

1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
2. Background: © 2022 Microsoft Corporation © 2022 Maxar ©CNES (2022) Distribution Airbus DS © 2022 TomTom

Project Location

11380 Southwest Beaverton Hillsdale Highway
Beaverton Oregon 97005

Client/Project 185751322

City of Beaverton
Brownfields Projects
Phase II Environmental Site Assessment
Sampling and Analysis Plan

Title

Property Layout and Proposed Sampling Locations

Figure No.

2

Figure 3
Conceptual Site Model
11380 SW Beaverton Hillsdale Highway
Beaverton, Oregon

Potential Receptor	Current and Future Exposure Pathways				
	Soil - Direct Contact	Soil/Groundwater - Volatilization to Outdoor Air	Vapor Intrusion	Tapwater Ingestion	Groundwater in Excavation
Urban Residential	Potentially complete	Potentially complete	Potentially complete	Not complete*	Not applicable
Occupational Workers	Potentially complete	Potentially complete	Potentially complete	Not complete*	Not applicable
Construction Workers	Potentially complete	Not applicable	Not applicable	Not applicable	Potentially complete
Excavation Workers	Potentially complete	Not applicable	Not applicable	Not applicable	Potentially complete

Notes:

Current land use: Mixed-use Commercial

Future land use: Residential and Commercial (homeless shelter and social services resource office)

*Tapwater is provided by the City of Beaverton and no private wells are currently on the property.

TABLES

Table 1
Sampling Design and Rationale - Soil
11380 SW Beaverton Hillsdale Highway
Beaverton, Oregon

Borehole ID	Sample ID	Sample Depth (feet)	Rationale	Test Method				
				Gasoline-Range Organics (NWTPH-Gx)	Diesel- and Oil-Range Organics (NWTPH-Dx)	Polycyclic Aromatic Hydrocarbons (EPA 8270D-SIM)	Volatile Organic Compounds (EPA 5035 and 8260)	RCRA 8 Total Metals[1] (EPA 6020/7471)
GP-1	GP-1-*x*-*x*	0.5–10[2]	REC #1	1	1	‡	◊	-
GP-2	GP-2-*x*-*x*	0.5–10[2]	REC #1	1	1	‡	◊	-
GP-3	GP-3-*x*-*x*	0.5–10[2]	REC#2	1	1	‡	◊	1
GP-4	GP-4-*x*-*x*	0.5–10[2]	REC #1	1	1	‡	◊	-
GP-5	GP-5-*x*-*x*	0.5–10[2]	REC #1	1	1	‡	◊	-
GP-6	GP-6-*x*-*x*	0.5–10[2]	REC #3	-	-	-	-	1
GP-7	GP-7-*x*-*x*	0.5–10[2]	REC #3	-	-	-	-	1
Quality Control Samples								
NA	TB-1	Trip Blank	--	-	-	-	1	-
NA	EB-1	Equipment Blank[3]	--	-	-	-	-	-
TBD	DUP-1	TBD	Duplicate Sample	1	1	‡	◊	1
TBD	Same ID as parent sample	TBD	MS/MSD Sample	1	1	‡	◊	1
			Total	7	7	TBD	TBD	5

Notes:

1. Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver

2. Sample will be collected from the depth interval exhibiting the greatest environmental impact ("worst case") based on field screening, visual, or olfactory observations. If no impact is observed, then from the boring terminus or just above encountered groundwater, whichever occurs first.

3. Reusable equipment is not expected to be used during this investigation and no equipment blank samples are expected to be collected.

NA = Not applicable

TBD = To be determined

‡ Sample will be analyzed only if diesel- or oil-range organics are detected at a combined concentration above DEQ residential direct contact risk-based concentrations.

◊ Sample will be analyzed only if gasoline-range organics are detected above DEQ residential direct contact risk based concentration.

Table 2
Sampling Design and Rationale - Groundwater
11380 SW Beaverton Hillsdale Highway
Beaverton, Oregon

Borehole ID	Sample ID	Rationale	Well Screen Interval	Test Method				
				Gasoline-Range Organics (NWTPH-Gx)	Diesel- and Oil-Range Organics (NWTPH-Dx)	Polycyclic Aromatic Hydrocarbons (EPA 8270D-SIM)	Volatile Organic Compounds (EPA 8260)	Total and Dissolved RCRA 8 Total Metals[1] (EPA 6020/7471)
GP-1	GP-1_Date	REC #1	TBD	1	1	‡	1	1
GP-2	GP-2_Date	REC #1	TBD	1	1	‡	1	1
GP-3	GP-3_Date	REC #2	TBD	1	1	‡	1	1
GP-6	GP-4_Date	REC #3	TBD	-	-	-	-	1
GP-7	GP-5_Date	REC #3	TBD	-	-	-	-	1
Quality Control Samples								
NA	TB-1	Trip Blank	--	-	-	-	1	-
NA	EB-1	Equipment Blank[2]	--	-	-	-	-	-
TBD	DUP-1	Duplicate Sample	--	1	1	‡	1	1
TBD	Same ID as parent sample	MS/MSD Sample	--	1	1	‡	1	1
		Total		5	5	TBD	TBD	7

Notes:

1. Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver.

2. Reusable equipment is not expected to be used during this investigation and no equipment blank samples are expected to be collected.

NA = Not applicable

TBD = To be determined

‡ Sample will be analyzed only if diesel- or oil-range organics are detected above Oregon Department of Environmental Quality residential direct contact risk based concentrations.