SECTION 00110

TABLE OF CONTENTS

END OF SECTION

SECTION 00115

LIST OF FIGURES AND ATTACHMENTS

FIGURE NO.	TITLE
1.1	Diagram of 8801 Property
1.2	Plan View of AS/SVE Extension
1.3	Connection Points of Extension to AS/SVE System
1.4	Line Diagram of AS System Extension
1.5	Line Diagram of SVE System Extension
1.6	Cross Section of an Air Sparging Well (A-A')
1.7	Cross Section of Existing AS/SVE Transfer Piping (B-B')
1.8	AS/SVE Extension with Architecture Plan
1.9	Cross Section of Cap, Drainage, and Landscaping
1.10	Cross Section of Existing AS/SVE Lines at Yellow-Shaded Areas
2.1	Remedial Action Excavations
2.2	Remedial Action Excavation Area 5 Detail
2.3	Key Map for Cross-Sections
2.4	Excavation Profiles EA1 and EA2
2.5	Excavation Profiles EB, EF, and EG
2.6	Excavation Profiles EC1 and EC2
2.7	Excavation Profiles ED and EE
2.8	Excavation Profile EH

ATTACHMENTS

PRICE QUOTATION FORM – Anderson Environmental Contracting dated July 1, 2021 with 7/30/2021 addition for compaction, and Anderson Environmental Contracting Standard Time and Materials Fee Schedule, dated January 1, 2021

ALTA/NSPS Land Title Survey, CenterPoint Properties, 8801 East Marginal Way, Tukwila, WA 98108, dated 2018

END OF SECTION

SECTION 01000

SUMMARY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project Description

B. Examination of Plans, Specifications, and Site of Work

C. Intent of Documents

D. Work Sequence

E. Glossary

F. Specific Conventions

G. Workmanship

H. Site Safety & Work Rules

I. Protection of Existing Facilities

J. Site Features

K. Contract Bond

L. Insurance Requirements

1.02 PROJECT DESCRIPTION

A. A brief description of project activities related to this Contract follow:

The project is intended to: (a) remove contaminated soil, and (b) modify a fully functional air sparge (AS) and soil vapor extraction (SVE) remediation system at the property at 8801 East Marginal Way S. in Tukwila, Washington (8801 Property). The work related to remedial excavations consists of the excavation, temporary storage, and transportation to a disposal facility of contaminated soil. In addition, borrow material will be backfilled into the excavations. Approximate locations of remedial excavations are shown on Figure 2.1.

The work related to the AS/SVE system will consist of installing new AS wells and SVE screens, modifying the existing system to operate with the new wells and screens, and modifying the system to allow installation of a river buffer area and stormwater lines (river buffer and stormwater lines installed by Others). A cross-section of the proposed landscaping at the river buffer is provided in Figure 1.9.

Engineering Design Reports (EDRs) for the remedial excavations and AS/SVE system extension and modifications are available for review. The EDRs are for review only and are not contract documents.

Concurrent with the Work described in these specifications, the property owner (CenterPoint) will be redeveloping the 8801 Property. CenterPoint will demolish most of the existing structures and pavement and install a new warehouse facility.

CenterPoint will also install a landscaped area within 100 feet of the Lower Duwamish Waterway (referred to as the river buffer). See Figure 1.1 for the approximate boundary of the river buffer and Figure 1.9 for a cross-section of the proposed installed landscaping in the river buffer. Several remedial excavations, components of the existing AS/SVE system, and the proposed new AS wells and SVE screens are within the river buffer. The Work described in these specifications will be sequenced to integrate with CenterPoint's redevelopment activities. Section 1.05 discusses the Work Sequence. Contractor is responsible for the sequence of Work unless described otherwise herein.

CenterPoint, as part of their redevelopment project, will be modifying the existing features. The Small Warehouse will be demolished (by others) except for the Equipment Room. Existing pavement throughout the property (except within the Equipment Room) will be removed although some may still be present in the Work Area for this contract at the time of the execution of this Work. Within the 100-foot river buffer, pavement and underlying soil will be removed to accommodate installation of a clay cap and overlying drainage blanket (by others). The drainage blanket will be sloped to drain eastwards and will connect with a north/south orientated drainpipe that will tie into the existing stormwater system at the 8801 Property. Topsoil will be placed (by others) over the clay cap and drainage blanket to support the landscaping.

The Work shall include, but not be limited to:

1. Development and implementation of a site-specific Health and Safety Plan (Section 01350) to manage project-related risks to workers, visitors, and the general public.
2. Complete all required Submittals to facilitate the timely progress of the Work. A list of submittals is provided in Section 01330.
3. Perform pre-construction utility location work and administrative requirements. Identify overhead or underground utilities that may require modified work practices prior to the start of the Work.
4. Obtain all permits required for work not previously obtained by Client or Engineer per Section 01410.
5. Mobilization of construction equipment and personnel to the Site.
6. Delivery of materials and equipment to the Site.
7. Site preparation including installing sedimentation control measures at storm drains as described in Section 02320, and establishing temporary facilities as needed.
8. Perform pre-construction survey, if necessary, of buildings, utilities, fences, and features in areas of planned remedial activities that may be impacted by excavation or any other aspect of work.
9. Demolish any previously unidentified subsurface structures and abandoned utilities encountered, as needed, to accommodate excavation and AS/SVE pipeline installation.

10. Install temporary controls to protect the Work in progress.
11. Excavate up to 9050 tons of contaminated soil and backfill up to 9050 tons of imported fill material in the remedial excavation areas.
12. Excavate pipe trenches and install AS/SVE piping.
13. Electrical service for the AS/SVE system will be furnished and installed by others up to a meter box. The Contractor shall connect electrical service from the meter box to the existing AS/SVE system.
14. Complete surface restoration as shown on the contract drawings.
15. Perform AS/SVE system startup and initial testing.
16. Perform AS/SVE system operation and maintenance.
17. Decontaminate equipment and personnel.
18. Provide project documentation including submittals, daily reports, results of quality control testing, etc.
19. Demobilize.

1.03 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE OF WORK

The Bidder shall carefully examine the documents included by reference in the solicitation of bid. Submittal of a bid shall be an acknowledgment that the Bidder has made these examinations and understands all requirements for the performance of the completed Work. The Bidder further warrants, agrees, and acknowledges by submitting a Bid that it:

A. Has taken steps reasonably necessary to ascertain the nature and location of the Work;

B. Has investigated and satisfied itself as to the general and local conditions which can affect the Work or its cost, including but not limited to:

1. Conditions bearing upon acquisition, transportation, disposal, handling, and storage of materials;
2. The availability of labor, materials, water, electric power, and roads;
3. Uncertainties of weather, river stages, tides, or similar physical conditions at the site;
4. The conformation and condition of the ground;
5. The character of equipment and facilities needed preliminary to and during Work performance, and
6. The site biological hazards and associated physical hazards.

C. Has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the Work site (including material

sites) as well as from the Bid Documents and other information made a part of this Contract, and

D. Has satisfied itself as to the adequacy of time allowed for the completion of the physical Work on the Contract.

Any failure of the Bidder to take the actions described and acknowledged in this clause shall not relieve the Bidder from responsibility for estimating properly the difficulty and cost of successfully performing the Work, or from proceeding to successfully perform the Work without additional expense to the Client.

The Bidder shall be familiar and comply with all Federal, State, tribal, and local laws, ordinances, and regulations which might affect the activities performed and those engaged in the Work. The Client will not consider any plea of misunderstanding or ignorance of such requirements. Bid prices shall reflect what the Bidder anticipates to be the cost of completing the Work, including methods, materials, labor, and equipment. Except as the Contract may provide, the Bidder shall receive no payment for any costs that exceed those in the Price Quotation Form.

Prospective Bidders are advised that projects with Work on or adjacent to water may require insurance coverage in compliance with:

1. The Longshoremen's and Harbor Worker's Compensation Act (administered by U.S. Department of Labor), or
2. The State Industrial Insurance (administrated by the Washington State Department of Labor and Industries), or
3. Both.

E. The successful Bidder shall bear all cost for such insurance listed in the insurance requirements portion of this section. No Claim shall be allowed because of any ambiguity in the Contract if:

1. The Bidder discovers an ambiguity but fails to notify the Client, or
2. The Bidder failed to discover a patent ambiguity that would be discovered by a reasonably prudent contractor in preparing its Bid.

1.04 INTENT OF DOCUMENTS

A. Contractor shall furnish the following:

1. All labor, tools, materials, equipment, transportation, and related items essential for completion of the Work.
2. All systems complete and left in good operating condition.
3. Apparatus, appliance, material or work not shown on Contract Drawings but mentioned in Specifications, or vice versa.
4. Accessories, reasonably inferable from Contract Drawings and Specifications, necessary to make work complete and ready for operation.
5. New equipment and material unless otherwise called for.

B. Notes, legends, or instructions shown on any one Contract Drawing apply, where applicable, to all other Contract Drawings.

C. References to codes, specifications and standards called for in the Specification Sections and on the Contract Drawings mean the latest edition, amendment, and revision of such referenced standard in effect on the date of these Contract Documents.

D. Code Compliance:

Provide Work in compliance with the following:

1. State Fire Prevention Code
2. State Department of Labor Rules and Regulations
3. OSHA Regulations
4. National Electric Code
5. Ordinances and building code of the City of Tukwila, Washington
6. All other Codes applicable to the Work.
7. Plans and Specifications in excess of code/regulations requirements and not contrary to the same.

1.05 WORK SEQUENCE

Perform Work in stages as shown on the project schedule (stages to be submitted in Contractor's bid) to limit the active Work Area. Contractor's construction sequence will require Engineer's review and must meet with Engineer's approval. During construction period, coordinate construction schedule, sequencing and operations with Engineer and Client.

The Contractor shall be prepared to start Work (remedial excavations and AS/SVE work) as early as August 23, 2021.

Due to activities associated with CenterPoint's redevelopment activities, the Contractor will mobilize multiple times. Three mobilizations are anticipated and included in the Bid Item 1. A brief outline of the scope of the three mobilizations is provided below.

1. First Mobilization: Complete remedial excavations and backfill. Removal of existing AS/SVE pipes in the river buffer area. Disconnection of two segments of the existing AS/SVE pipes to allow for CenterPoint to install stormwater lines.
2. Second Mobilization: Trench and install SVE pipes for the AS/SVE extension.
3. Third Mobilization: Trench and install AS wells and pipes for the AS/SVE extension. Connect the AS/SVE extension to the existing system. Reconnection two segments of the existing AS/SVE pipes that were disconnected to allow CenterPoint to install stormwater lines. Perform AS/SVE testing.

A. First Mobilization

The first mobilization will be to excavate and backfill the remedial excavations (Excavation Areas 1 through 8) as shown on Figure 2.1. For the remedial excavations, the

Contractor shall note that two weeks are required from collection of confirmation samples until a determination can be made whether to expand the excavations. The first mobilization may occur as early as late August 2021.

During the first mobilization that Contractor shall also expose the existing AS and SVE piping that is within the river buffer, remove the subsurface AS and SVE pipes that are within the river buffer, cap and label each pipe, and backfill the excavation. The pipe ends will be re-plumbed during the third mobilization. The existing AS and SVE piping that is within the river buffer is shown in Figure 1.2 and extends south from the Equipment Room and then east past the river buffer boundary. The green-shaded pipes in Figure 1.2 show the approximate extent that are within the river buffer.

Also, during the first mobilization, the Contractor shall disconnect existing AS/SVE pipes at two locations (shown in yellow shading in Figure 1.2) to allow CenterPoint to install stormwater lines. The Contractor shall expose, label, disconnect, and cap the existing pipes at approximately 10 feet apart at each location. The bedding material (sand and pea gravel) shall be protected from sluffing. Cross-sections of the existing AS/SVE system in the yellow-shaded areas is shown in Figure 1.10. The pipes will be reconnected and tested during the third mobilization.

B. Second Mobilization

The second mobilization will commence after CenterPoint has stripped the pavement and overlying soil in the river buffer area but before the clay cap layer has been installed (by Others). CenterPoint will strip overlying soil to the top elevation of the SVE trench as shown in Figure 1.6. The Contractor shall excavate the trench for the extension SVE piping, and install the SVE screens in the trench, and backfill. A cross-section of the SVE trench is shown in Figure 1.6.

C. Third Mobilization

The Contractor will mobilize a third time after CenterPoint has installed the clay cap and landscaping soil in the river buffer. The AS wells for the extension will be installed using sonic drilling and the newly installed AS wells and SVE screens will be connected to the existing system in the Small Warehouse. A cross-section of the AS wells and AS conduit is provided in Figure 1.6.

During the third mobilization, the AS/SVE piping in the river buffer area that was capped during the first mobilization will be exposed and re-plumbed into the Equipment Room via a shallow trench as shown in Figures 1.7 and 1.8.

During the third mobilization, the AS/SVE piping that was disconnected to allow for CenterPoint to install stormwater lines will be reconnected.

During the third mobilization and on completion of the plumbing, mechanical and electrical work for the AS/SVE system, the AS/SVE system will be started and checked to ensure it operates as designed. This system optimization is expected to occur over one week with non-operational periods interspersed with operational periods. Once operational, the system will be turned on and allowed to commence normal operation.

1.06 GLOSSARY

8801 Property	Property at 8801 East Marginal Way S. in Tukwila, Washington
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
API	American Petroleum Institute
AS	air sparging
AWSC	American Welding Society
Bid	Proposal for services and price submitted by the Bidder to perform the work as specified in the contract documents.
Bidder	Prospective Contractor
CenterPoint	CenterPoint 8801 Marginal LLC. Owner of property at 8801 East Marginal Way S. in Tukwila, Washington
Contractor	A properly licensed individual of company that agrees to furnish labor, materials, equipment and associated services to perform the work as specified in the contract documents for a specified price and is selected for the Project.
EDR	Engineering Design Report
IEE	Institute of Electrical and Electronics Engineers
NEC	National Electrical Code
NEMA	National Electrical Manufacturers' Association
NESC	National Electrical Safety Code
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Administration
UFPO	Underground Facilities Protective Organization
UL	Underwriters' Laboratories, Inc.
As Called For	Material, equipment including the execution specified/shown in the Contract Documents.
Client	PACCAR Inc
Code Requirements	Minimum requirements
Contract Documents	All drawings, specifications, and addenda association with the Project so referenced in this document.
Days	Workdays
Engineer	Shannon & Wilson, Inc.

Equipment Room	Existing room in the Small Warehouse that contains the AS/SVE aboveground components (e.g., compressors and control panels)
Equal or Equivalent	Equally acceptable as determined by the Engineer.
Final Acceptance	Client acceptance of the project from Contractor upon certification by the Engineer.
Furnish	Supply and deliver to installed location.
Inspection	Visual observations by Engineer.
Install	Mount and connect equipment and associated materials ready for use.
Or Approved Equal	Approved equal or equivalent as determined by Engineer.
Project	The project intended to remove contaminated soil and modify a fully functional AS/SVE remediation system at the 8801 property as described in Contract Documents.
Provide	Furnish, install, and connect ready for use.
Relocate	Disassemble, disconnect, and transport equipment to new location, then clean, test and install ready for use.
Replace	Remove and provide new item.
Satisfactory	As specified in Contract Documents.
Site	Work Area
Small Warehouse	Existing structure on the west portion of the property which contains the Equipment Room and other areas.
Specification	The written material containing the minimum acceptable standards and actions, as may be necessary to complete the project. Including the minimum acceptable quality standards and aesthetic values expected upon completion of the project.
Specification Section	Section in the contract specifications (e.g. specification section 00110 – Table of Contents)
Substantial Completion	Contractor's completion of specified work ready for final inspection by Engineer.
Subcontractor	Any Firm Contracted Directly by Contractor to complete Contract Work.
SVE	soil vapor extraction
Work	Activities related to these specifications undertaken by the Contractor
Work Area	Area directly or indirectly impacted by Contractor activities

1.07 SPECIFICATION CONVENTIONS

A. For convenience, these specifications are divided into various sections. Such division is not intended to limit or define Contractor's work. The complete performance of the Work will be the responsibility of the Contractor.

B. These specifications are written in the imperative mood and streamlined form. This imperative language is directed to the Contractor, unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

1.08 WORKMANSHIP

A. All workers employed on this project shall be persons skilled in that work which they are to perform. Work will not be approved if it does not meet the quality of workmanship called for in these specifications. If this quality of workmanship is not exactly defined herein, it shall be assumed to be the best standards of workmanship for that trade. The Engineer shall determine whether or not the quality of workmanship is acceptable.

B. If workmanship for a portion of this Work is not acceptable, same shall be removed and replaced at the Contractor's expense.

1.09 SITE SAFETY & WORK RULES

A. Contractor and subcontractors shall be responsible for strict adherence to the Project Health and Safety Plan as well as all applicable OSHA and Washington State's Department of Labor and Industries safety regulations. Adherence shall be applied continuously and not be limited to normal working hours.

B. Contractor and subcontractors shall take all necessary precautions to provide safety provisions to adequately protect the public, the personnel and property of Client, Engineer, and all other persons, property, and equipment, involving his work at the job site.

C. Contractor and subcontractors shall protect the Work from theft, vandalism, and unauthorized entry. Contractor shall maintain responsibility for security of the Work throughout the construction period until Client acceptance precludes the need for Contractor security. Contractor shall maintain a list of authorized personnel and visitors, and submit a copy to Engineer/Client on request.

D. Contractor's equipment shall be managed in such a way as not to inhibit activity at adjacent properties or other on-site activities.

E. Contractor's personnel shall sign in and out daily on the daily sign-in log.

F. Personal protective equipment (PPE) is required to be worn by all personnel authorized to enter the site, and must be worn at all times while within the facility. All workers must wear steel-tipped boots, hard hats, and safety glasses. All PPE must be supplied by the Contractor while conducting activities at the site.

1.10 PROTECTION OF EXISTING FACILITIES

A. Utilities

Prior to Work on Site, the Contractor shall determine the location of underground and overhead utilities on and adjacent to the Site, perform Work in a manner which will avoid possible damage, and hand-excavate or utilize other soft excavation methods as required. This notification and mark out shall include, but is not limited to, notification to Washington Utility Notification Center, and the City of Tukwila water and sewer utilities. Utilities that are destroyed, disturbed, or otherwise altered in any way or form during construction shall be re-installed by the Contractor at no cost to the Client or the Engineer.

B. Wells

1. Contractor shall be responsible for locating and preserving all wells in the vicinity of the Work Area.
2. Wells that are destroyed, disturbed, or otherwise altered in any way or form during construction shall be re-installed by the Contractor at no cost to the Client or the Engineer.

1.11 SITE FEATURES

Site features that should be noted during remedial construction consist of the following:

A. Features shown on the attached ALTA/NSPS Land Title Survey.

B. The planned AS/SVE system layout shown on Figure 1.2.

C. The planned remedial excavations areas shown on Figure 2.1.

D. The Client or their representative makes no representation or warranty expressed or implied that:

1. The Bidders' interpretations from the boring logs are correct,
2. Moisture conditions and indicated water tables will not vary from those found at the time the borings were made, and
3. The ground at the location of the borings has not been physically disturbed or altered after the boring was made.
4. The Client specifically makes no representations, guarantees, or warranties as to the condition, materials, or proportions of the materials between the specific borings regardless of any subsurface information the Client or their representative may make available to the prospective Bidders.

1.12 CONTRACT BOND

The successful Bidder shall provide an executed Contract Bond for the full Contract amount. This Contract Bond shall:

A. Be signed by an approved Surety (or Sureties) that:

1. Is registered with the Washington State Insurance Commissioner, and

2. Appears on the current Authorized Insurance List in the State of Washington published by the Office of the Insurance Commissioner,

B. Be conditioned upon the faithful performance of the Contract by the Contractor within the prescribed time;

C. Be conditioned upon the payment of taxes, increases, and penalties incurred on the project under titles 50, 51, and 82 RCW; and

D. Guarantee that the Surety shall indemnify, defend, and protect the Client and their representative against any claim of direct or indirect loss resulting from the failure:

1. Of the Contractor (or any of the employees, Subcontractors, or lower tier subcontractors of the Contractor) to faithfully perform the Contract;

2. Of the Contractor (or the Subcontractors or lower tier subcontractors of the Contractor) to pay all laborers, mechanics, Subcontractors, lower tier subcontractors, material person, or any other person who provides supplies or provisions for carrying out the Work.

E. The Client may require Sureties or Surety companies on the Contract Bond to appear and qualify themselves. Whenever the Client representative deems the Surety or Sureties to be inadequate, it may, upon written demand, require the Contractor to furnish additional Surety to cover any remaining Work. Until the added Surety is furnished, payments on the Contract will stop.

1.13 INSURANCE REQUIREMENTS

The Contractor shall bear all cost for such insurance as provided below:

Commercial General Liability including Broad Form Contractual Liability (oral & written) Products/Completed Operations, Independent Contractors, Premises/Operations, Broad Form Property Damage	$5,000,000 Each Occurrence $5,000,000 Personal & Advertising Injury $10,000,000 General Aggregate $5,000,000 Products-Comp/Op. Aggregate
Automobile Liability covering owned, non-owned and hired vehicles	Pursuant to DOT requirements but not less than $1,000,000 each occurrence. Each policy will include an MCS90 and CA9948 endorsement adding broadened pollution coverage.
Workers' Compensation	Statutory limits or evidence of qualified self-insurer status in the state in which the services are to be performed
Pollution Liability covering sudden and non-sudden accidental occurrences both on and off site	$5,000,000 Each Occurrence/claim $10,000,000 Annual Aggregate
Professional Liability	$2,000,000 Per Claim $2,000,000 Annual Aggregate

Coverages under Commercial General Liability, Automobile Liability, Pollution Liability, and Professional Liability shall be maintained for two years after termination of this Agreement. A certificate of insurance naming PACCAR Inc, CenterPoint 8801 Marginal LLC and Shannon & Wilson, Inc., as additional insured under coverages Commercial General Liability, Automobile Liability, and Pollution Liability shall be made available to PACCAR and Shannon & Wilson prior to commencement of any work. Each certificate shall disclose each applicable deductible and/or self-insured retention. Contractor shall notify PACCAR, CenterPoint 8801 Marginal LLC and Shannon & Wilson at least thirty (30) days prior to cancellation, expiration or material change in any policy covered thereunder. Any policy that provides the insurance required shall be endorsed to be primary to and noncontributory with any insurance maintained by PACCAR and Shannon & Wilson. Any deductible amount or self-insured retention is the sole responsibility of Contractor. All PACCAR certificates of insurance shall be addressed to the PACCAR Corporate Environmental Department at 777 106th Avenue NE, Bellevue, WA 98004. All CenterPoint 8801 Marginal LLC certificates of insurance shall be addressed to CenterPoint 8801 Marginal LLC at 8801 East Marginal Way S, Tukwila, WA. All Shannon & Wilson certificates of insurance shall be addressed to Shannon & Wilson, 400 N 34th Street, Seattle, WA 98103. Further, the Contractor warrants the insurance policy will contain a severability of interest endorsement ("cross liability") on the coverages evidenced under items Commercial General Liability and Pollution Liability, above.

END OF SECTION

SECTION 01110

MEASUREMENT & PAYMENT

Proposal is hereby submitted to furnish all labor, materials, and equipment necessary to perform all work associated with the remedial excavation and extension and modification of an AS/SVE system in accordance with the Contract Documents. The following items describe the measurement and payment for the work to be done under the respective items listed on the Price Quotation Form (attachment). Contractor's proposal contains all work required to complete the work as specified in the Contract Documents.

Compensation under each item shall include all required labor, management, equipment, testing, submittals, storage of material, transportation, permit and disposal fees (where applicable), and cleanup of facilities upon completion of construction.

The quantities shown in the referenced reports and Price Quotation Form are estimates and are stated only for bid purposes. Quantities are not warranted expressly or by implication, that the actual quantities of Work will correspond with those estimates. Payment will be made on the basis of the actual quantities of each item of Work completed in accordance with the Contract requirements.

The Price Quotation Form is provided as an attachment. A description of the bid items is summarized as follows.

A. BID CONTRACT PRICE (BASE BID)

BID ITEM 1 – REMEDIAL EXCAVATIONS AND AS/SVE EXTENSION AND MODIFICATIONS

This item is bid and paid as lump sum. This bid item includes the labor, materials, equipment, and other items necessary for:

1. Preparation of required submittals described in the specifications, including but not limited to: Project Work Plan, Construction Quality Control Plan, Schedule, Health and Safety Plan, Spill Control and Response Plan, and Contaminated Material Handling Plan.
2. Attendance at a pre-construction meeting.
3. Procurement of electrical permits.
4. Preparation of Work Areas, grubbing, utility location, pre-construction surveying, and any other necessary work to accommodate the construction work. The Engineer shall be responsible for the marking of the limits of the hotspot locations, and the Contractor shall be responsible for marking the AS/SVE related work.
5. Multiple mobilizations will be required. This bid item includes the labor, materials, equipment, personnel, incidentals, and subcontractors necessary to mobilize and demobilize for field activities during three construction events (three mobilizations/de-mobilizations). Mobilization/de-mobilization activities include, but are not limited to, setup and removal of: construction equipment and materials, stormwater protection devices, site

access and control devices, temporary storage areas for excavation spoils, and liquid waste storage equipment.

6. Construction activities related to the AS/SVE system, including:
    a. Trenching, removal, and disposal of existing underground AS/SVE lines within the river buffer area. The lines shall be labeled, disconnected, and capped below the surface. During a separate mobilization, the pipes will be replumbed in a new trench. This bid item includes backfilling.
    b. Replumbing of the AS/SVE lines that were previously disconnected in the river buffer area. This bid item includes the associated materials (such as the pipe, bedding material, and geotextile) and labor and equipment to install and connect the lines.
    c. Trenching and installation for the extension SVE piping, bedding material and geotextile, and compacted backfill. This bid item includes saw cutting, removal, and stockpiling of the foundation slab of the Small Warehouse as necessary for the extension SVE trench.
    d. Trenching, installation, and backfilling of the extension AS lines. This bid item includes sonic drilling of the AS wells, installation of the AS wells, installation of the wellhead components, installation of the AS transfer pipes connecting the wellheads to the existing AS/SVE system in the Small Warehouse, flowmeters, valves, pressure gauges, and fittings.
    e. Transport and stockpiling of soil from the AS/SVE excavations to a location on the 8801 Property designated by the Engineer/Client.
    f. Electrical connection and programming for the two AS electronic ball valves.
    g. Electrical connection of the existing AS/SVE system to the new service meter on the exterior of the Small Warehouse.
    h. System testing and optimization.
    i. System documentation and data to verify the system has been installed as specified, such as surveys and as-builts of pipelines, and vendor-supplied data.
7. Construction activities related to the remedial excavations, including:
    a. At remedial excavation, excavation of up to 9050 tons of soil and backfill up to 9050 tons of imported fill material. Shoring of remedial excavations is not included in the Bid Item 1.
    b. Dewatering and treatment.
    c. Stockpiles, if required for the remedial excavation spoils, shall be segregated from stockpiles from the AS/SVE excavations.

d. Installation of compacted backfill.

e. Transport of excavations spoils to the Waste Management Duwamish Reload center for disposal. Tipping and disposal fees will be direct billed to the Client.

f. Documentation of surveyed excavation extents.

g. Note that two weeks are required between collection of confirmation samples and a determination by the Engineer/Client whether to expand the excavation or backfill. Expansion of remedial excavations is included in Bid Items 7 and 8.

BID ITEM 2 – AS/SVE DISCONNECTION AND RECONNECTION FOR CENTERPOINT TO INSTALL STORMWATER LINES

This item is bid and paid as lump sum on a percent complete basis. This bid item includes the labor, materials, equipment, and other items necessary for:

1. Preparation of Work Areas, utility location, pre-construction surveying, and any other necessary work including shoring to accommodate the construction work. Other mobilization costs are included in Bid Item 1 since work for Bid Item 1 and Bid Item 2 will be occurring during shared mobilizations.
2. Construction activities related to the AS/SVE system, including:
    a. During the first mobilization, the Contractor shall expose existing AS/SVE lines in two areas (shown in yellow shading on Figure 1.2). The lines will be exposed, labeled, disconnected, and capped at 10 feet apart in each area. Sand, pea gravel and geotextile are present as bedding material and shall be protected to prevent sluffing. The excavation shall be backfilled with excavation spoils from same excavation, gravel borrow, and asphalt surface patch.
    b. Pavement removal for the initial excavations is not included in Bid Item 2. Pavement removal for the initial excavations, if required, is included in Bid Items 4 and 5.
    c. During the third mobilization, the Contractor shall expose the lines, reconnect, test, and backfill the excavations. The SVE screens shall be bed in pea gravel wrapped in a geotextile. A 6-inch thick seal of CDF shall be placed above the SVE screens and under the AS lines. The AS lines shall be tested prior to backfilling with pea gravel to surface level. The backfill shall be compacted.
    d. Testing of the reconnected AS/SVE lines shall consist of testing the AS lines. The AS lines shall hold 30 psig for 15 minutes.
    e. Excess excavation spoils shall be transported and stockpiled at a location on the 8801 Property designated by the Engineer/Client.

B. OPTIONAL BID ITEMS

BID ITEM 3 – OPTIONAL ITEM – ADDITIONAL MOBILIZATIONS/DE-MOBILIZATIONS

Additional mobilizations may be required to coordinate with CenterPoint's development schedule. Additional mobilizations (in excess of the three included in Bid Item 1) that are required to coordinate with CenterPoint's development schedule will be billed on a "per mobilization" basis. Additional mobilizations that are not required due to coordination with CenterPoint's development schedule are not included in this bid item and are the responsibility of the Contractor.

This bid item includes the labor, materials, equipment, personnel, incidentals, and subcontractors necessary to mobilize and demobilize for field activities during one construction event. This bid item includes the setup and removal of: construction equipment and materials, stormwater protection devices, site access and control devices, temporary storage areas for excavation spoils, and liquid waste storage equipment.

This bid item is optional at the direction of the Engineer/Client.

BID ITEM 4 – OPTIONAL ITEM – CONCRETE/ASPHALT PAVEMENT SAW CUTTING

This bid item includes the labor, materials, and equipment necessary to saw cut pavement on the property. The Contractor shall saw cut pavement for the remedial excavation areas and for the trench to expose the existing AS/SVE pipes and for any expansion to remedial excavations.

This bid item does not include saw cutting, removal, or stockpiling of the concrete foundation slab of the Small Warehouse for the extension SVE trench, which is included in Bid Item 1.

This bid item is optional at the direction of the Engineer/Client. The unit of measure of this bid item is linear feet of saw-cut. The actual quantity of "linear feet of saw-cut" shall be determined via survey as the linear feet of saw-cut through concrete/asphalt pavement. The estimated quantities are 2,550 linear feet of saw-cut.

BID ITEM 5 – OPTIONAL ITEM – CONCRETE/ASPHALT PAVEMENT REMOVAL

This bid item includes the labor, materials, and equipment necessary to remove and stockpile pavement in Bid Item 4 on the property. The pavement shall be stockpiled at a location on the 8801 Property designated by the Engineer/Client.

This bid item does not include removal or stockpiling of the concrete foundation slab of the Small Warehouse for the extension SVE trench, which is included in Bid Item 1.

This bid item is optional at the direction of the Engineer/Client. The unit of measure of this bid item is cubic yards of pavement removed. The actual quantity of "cubic yards of pavement removed" shall be determined via survey of the perimeter of the removal area multiplied by the average thickness of pavement,

agreed by the Engineer/Client. The estimated quantity is 750 cubic yards of pavement removed.

BID ITEM 6 – OPTIONAL ITEM – TRANSPORT OF AS/SVE EXCAVATION SPOILS AND CONCRETE/ASPHALT FOR OFFSITE DISPOSAL

This item includes the labor, materials, and equipment for the loading and transport of excavation spoils from the AS/SVE excavations and concrete/asphalt from pavement removal for offsite disposal. The Contractor shall transport stockpiles of concrete/asphalt designated by the Engineer/Client to the Waste Management Duwamish Reload center for disposal. The Client is responsible for the tipping and disposal fees. Soil may be transported from stockpiles on the 8801 Property or direct loaded from the excavations.

This bid item does not include stockpiling or transport of excavation spoils (soil) from the remedial excavations, which is included in Bid Item 1.

This bid item is optional at the direction of the Engineer/Client. This item is bid and paid on a "per ton" basis. The estimated quantity is 1,850 tons. The disposal facility tipping measurements shall be used to determine the actual quantity.

BID ITEM 7 – OPTIONAL ITEM – ADDITIONAL VOLUME FOR REMEDIAL EXCAVATION AND EXPANSION OF REMEDIAL EXCAVATION

This bid item includes the labor, materials, equipment, fuel, trucking, and transport for remedial excavation volume greater than the 9050 tons addressed in Bid Item 1, and expansion of the remedial excavations as directed by the Engineer/Client. Saw cutting, removal, and stockpiling of pavement, as necessary to expand the excavations are per Bid Items 5 & 6.

Activities included in this bid item include:

1. Excavation of soil as designated by the Engineer/Client.
2. Stockpiling and transport of soil to the Waste Management Duwamish Reload center for disposal. Soil may be transported from on-site stockpiles or direct loaded from the excavations. Tipping and disposal fees are the responsibility of the Client.
3. Stockpiles, if required for the remedial excavation spoils, shall be segregated from stockpiles from the AS/SVE excavations.

Note that two weeks are required between collection of confirmation samples and a decision by the Engineer/Client whether to expand the excavation or backfill.

This bid item is optional. This bid item will be activated, and the remedial excavations will be expanded (vertically and/or horizontally) as designated by the Engineer/Client. This item is bid and paid on a "per ton" basis. The disposal facility tipping measurements shall be used to determine the actual quantity.

BID ITEM 8 – OPTIONAL ITEM – ADDITIONAL VOLUME FOR BACKFILLING AND COMPACTION OF REMEDIAL EXCAVATIONS AND EXPANSION OF REMEDIAL EXCAVATION

This bid item includes the labor, materials, equipment, fuel, trucking, and transport to procure, install, and compact imported backfill material for remedial excavation volume greater than the 9050 tons addressed in Bid Item 1, and expansion of the remedial excavations as directed by the Engineer/Client. Activities included in this bid item include:

1. Procurement, installation, and compaction of backfill (including geotextile, gravel borrow, or quarry spalls).
2. Survey of final excavation extents.

Note that two weeks are required between collection of confirmation samples and a decision by the Engineer/Client whether to expand the excavation or backfill.

This bid item is optional. This bid item will be activated, and the remedial excavations will be backfilled as designated by the Engineer/Client. This item is bid and paid on a "per ton" basis. The disposal facility tipping measurements shall be used to determine the actual quantity.

BID ITEM 9 – OPTIONAL ITEM – SOIL STABILIZATION TO PASS PAINT FILTER TEST

This bid item includes the labor, materials, and equipment to stabilize excavation spoils to pass the paint filter test.

This bid item is optional. This bid item will be activated as designated by the Engineer/Client. This item will be billed to the client on a "time and materials" basis per Anderson Environmental Contracting's Standard Time and Materials Fee Schedule, dated January 1, 2021 and are incorporated in these specifications.

BID ITEM 10 – INSURACE COVERAGE

This bid item includes insurance coverage beyond standard levels that is required per Section 1.13. The bid item will be billed to the Client and paid on a "lump sum" basis.

C. COMPENSATION

Subject to the terms and conditions of the Subcontract (blank template attached for review), Engineer shall pay Contractor the compensation described in the applicable statement of work as full compensation for the satisfactory performance of services.

The Contractor shall submit to Engineer within thirty (30) days after the end of each calendar month, Contractor's invoice for the compensation payable under the Contract for services performed during such month. Each of Contractor's invoices shall set forth a detailed description of the services performed during the applicable month, the number of hours spent performing such services, the dates

on which such services were performed, and a detailed itemization of any reimbursable costs and expenses incurred in connection with such services. Contractor shall provide such receipts, documents, compensation segregation, time sheets, information, and other items as Engineer may reasonably require to verify the invoice. Compensation for lump sum bid items shall be based on percentage of services completed. The percentage completed shall be agreed by the Engineer. The final 15% of the Contract will not be paid until after the Engineer has approved all final punchlist items.

Contractor shall submit the invoices to the Engineer consistent with procedures in the Contract.

Any sales, service, use, consumption, or other similar taxes imposed upon the services shall be separately disclosed and added to the amount of each invoice unless Engineer provides Contractor with appropriate evidence of a tax exemption claimed for the relevant jurisdiction(s). In no event shall Engineer be obligated to pay or reimburse Contractor for any taxes based on the Contractor's net income, gross receipts on property, or for withholding and payroll taxes with respect to any wages or other compensation payable to Support.

No payment by Engineer shall constitute acceptance of, or a waiver of Engineer's right with respect to, any services not in accordance with the terms of the agreement and the statement of work.

END OF SECTION

SECTION 01310

PROJECT MANAGEMENT & COORDINATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Coordination and Project Conditions

B. Examination

C. Pre-construction Meeting

D. Daily Site Safety Meetings

E. Reports

F. Progress Meetings

G. Construction Photographs

1.02 COORDINATION AND PROJECT CONDITIONS

A. Coordinate scheduling, submittals, and Work to ensure efficient and orderly sequence of installation of interdependent construction elements.

B. Verify utility requirements and characteristics of operating equipment are compatible with Site utilities.

C. Coordinate space requirements, delineation of health and safety zones, other Work Areas and materials storage areas.

D. Coordinate Work related to loading and off-site transportation of contaminated materials for off-site disposal.

E. Coordinate completion and clean-up Work of separate sections in preparation for Substantial Completion.

F. Coordinate access to Site for correction of defective Work and Work not in accordance with Contract Documents.

1.03 EXAMINATION

A. Verify that existing site conditions and surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

B. Examine and verify specific conditions described or referred to in individual specification sections.

C. Verify that utility services are available, of the correct characteristics, and in the correct location.

D. Maintain a complete and accurate log of Work progress.

1.04 PRECONSTRUCTION MEETING

A. Engineer will schedule meeting after the Notice of Award.

B. Attendance Required: Engineer, and Contractor Site Superintendent, Contractor Project Manager, and representatives from major subcontractors (as determined by Engineer).

C. Agenda:

1. Designation of personnel representing parties in Contract.
2. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal requests, Change Orders and Contract closeout procedures.
3. Submission of list of products, submittals, and progress schedule.
4. Means and methods of construction and construction sequencing.
5. Scheduling.
6. A discussion of health and safety issues outlined in the Contractor's Health and Safety Plan (HASP), health and safety compliance and job hazard analyses, incident reporting, work zone monitoring as well as site access control and restricted areas.
7. Topics for weekly progress meetings.

1.05 DAILY SITE SAFETY MEETINGS

A. Contractor shall hold daily site safety meetings at the start of each workday and Engineer will participate.

B. Attendance Required: All Contractor and Subcontractor personnel, and any other authorized personnel at the Site.

C. Agenda:

1. Summarize the Work planned for the day.
2. Ensure that job hazard analyses have been prepared and reviewed for planned work tasks. Review relevant job hazard analyses and modify as needed to address Site conditions and means and methods of construction.
3. Review worker health and safety requirements established for the Work.
4. Review daily work zone monitoring procedures for protection of public health and safety and avoidance of nuisance conditions.
5. Review relevant contingency plans and emergency procedures.

D. Notwithstanding the above, Contractor shall be fully responsible for site safety and daily documentation of work zone conditions and monitoring results.

1.06 SUBMITTALS

A. Contractor shall prepare and submit a weekly construction report by 11 a.m. the next business day following each week's activities. The report shall include the following information concerning events at the Site as approved by the Engineer:

1. Approximate count of personnel at the Project Site.
2. List of Subcontractors present.
3. List of Equipment at the Site.
4. Material/equipment deliveries.
5. Material/equipment shipped off-site.
6. General weather conditions.
7. A summary of Work planned and work accomplished.
8. Meetings, Inspections, and any significant decisions.
9. Unusual events (refer to Field Condition Reports).
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
12. Orders and requests of authorities having jurisdiction.
13. Change Orders received and implemented.
14. Work Change Directives received and implemented.

B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, Contractor shall prepare and submit a detailed report describing the differing conditions and including recommendations.

1.07 PROGRESS MEETINGS

A. Engineer will schedule and administer weekly meetings, or more frequently if warranted, prior to mobilization and throughout progress of the Work. Engineer will prepare agenda with copies for participants, and preside at the meetings.

B. At meetings, the schedule will be coordinated to deconflict with other site activities and to limit the potential for delays.

C. The Contractor shall prepare the following in advance of each weekly meeting, to be included as attachments to the meeting minutes:

1. A summary of outstanding submittals and anticipated completion date.
2. A bullet list summary of work completed the previous week.
3. A bullet list summary of work anticipated to be completed during the next week.
4. An updated project schedule, when requested by Engineer.

D. Attendance Required: Engineer, Contractor's Superintendent, and major Subcontractors, as designated by Engineer.

E. Agenda:

1. Review of safety issues and near misses, as appropriate.
2. Review minutes of previous meetings.

3. Review of Work progress.
4. Field observations, problems, and decisions.
5. Identification of problems impeding planned progress.
6. Review of Submittals schedule and status of submittals.
7. Review of off-site fabrication and delivery schedules.
8. Maintenance of progress schedule.
9. Corrective measures to regain projected schedules.
10. Planned progress during succeeding work period.
11. Coordination of projected progress.
12. Maintenance of quality and work standards.
13. Other business relating to Work.

F. The Engineer will record minutes and distribute copies within three days after meeting to participants and those affected by decisions made.

PART 2 **PRODUCTS**

Not Used

PART 3 **EXECUTION**

Not Used

END OF SECTION

SECTION 01320

CONSTRUCTION SURVEYING

PART 1 GENERAL

1.01 SUMMARY

A. Contractor shall provide a Washington professional licensed surveyor to perform construction surveys as needed herein referred to as Surveyor.

B. The Surveyor shall provide all labor, materials, equipment, and incidentals necessary to perform survey work necessary for construction surveying.

1.02 SECTION INCLUDES

A. Quality assurance

B. Submittals

C. Record documents

D. Examination

E. Survey reference points

1.03 QUALITY ASSURANCE

A. Surveyors are required to comply with all applicable health and safety requirements for the Site as described in the Contractor's HASP.

1.04 SUBMITTALS

A. Surveyor shall provide documentation verifying accuracy of survey work.

B. Contractor shall submit the name and qualifications of the Surveyor to Engineer for approval. Client or Engineer reserves the right to reject the Contractor's proposed Surveyor and require replacement if qualifications or performance are deemed inadequate for performance of the project.

1.05 RECORD DOCUMENTS

A. Contractor shall maintain a complete and accurate log of control and survey work as it progresses which shall be obtained from Surveyor.

1.06 EXAMINATION

A. Verify locations of survey control points as shown on the Contract Drawings prior to starting the Work.

B. Promptly notify Engineer of any discrepancies discovered.

1.07 AVAILABILITY OF DATA

A. Provide all results of field survey data to Engineer at the time of collection and submit a summary on a weekly basis.

1.08 SURVEY REFERENCE POINTS

A. Contractor to locate and protect survey control and reference points.

B. Control datum for survey is that established by Client provided survey: Washington State Plane Coordinates NAD 83 2011 - South Vertical Datum: NAVD 88.

C. Contractor shall protect survey control points prior to starting Site work and preserve permanent reference points during construction, as necessary to complete the Work.

D. Contractor shall promptly report to Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

E. Contractor shall coordinate with Surveyor to replace dislocated survey control points based on original survey control. Make no changes without prior written notice to the Engineer.

F. Contractor shall protect survey layout work from damage/destruction until work item is completed/installed. Destruction of survey layouts due to Contractor's negligence that requires repeat survey layout shall be at Contractor's expense.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 SURVEY REQUIREMENTS - GENERAL

A. Surveyor will provide construction surveying services utilizing recognized engineering survey practices.

B. Establish elevations, lines, and levels as necessary to locate proposed locations of structures, excavations, and Site features to conduct the Work or to verify locations of features shown on the Drawings.

C. Surveys of extents of remedial excavations shall include lateral and vertical extents of sidewalls and bottoms.

D. Periodically verify layouts by similar means.

3.02 PROJECT-SPECIFIC SURVEY REQUIREMENTS

A. Contractor shall provide the survey tasks identified below. Contractor shall coordinate all survey work. Contractor shall identify any other required survey work not described below and coordinate execution with Surveyor.

B. Pre-Construction Survey

1. Locate and flag all survey controls.

2. Locate and flag all monitoring wells, manholes, gas valves, and other features requiring protection in the area of work.

3. Locate and mark all active utilities within and adjacent to the limits of work.
4. Locate proposed locations of structures, excavations, and Site features.

C. Post-Construction Survey

1. Survey locations of all installed aboveground structures.
2. Pipelines shall be surveyed as-built prior to final surface restoration.

END OF SECTION

SECTION 01330

SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittal Procedures

B. List of Required Submittals

C. Project Work Plan

D. Engineer Data and Documentation

E. Proposed Product List

F. Substitutions

G. Shop Drawings

H. Certificates

I. Regulatory Submittals

J. Project Record Documents

K. Record Drawings

1.02 SUBMITTAL PROCEDURES

A. Unless otherwise noted, submit one electronic and one hard copy of all submittals to Client and Engineer.

B. All correspondence with the Client and Engineer shall be submitted with a sequentially numbered transmittal. Revise submittals, if necessary, with original number and a sequential, alphabetic suffix.

C. Identify Project, Contractor, Subcontractor, and supplier; pertinent drawing and detail number, and specification section number as appropriate to submittal.

D. Schedule submittals to expedite Project, and deliver to the Engineer as established in the submittal schedule. Coordinate submission of related items.

E. For each submittal for review, allow a minimum of 2 calendar days excluding delivery time to and from Contractor, for Client and Engineer review. Provide additional review time where specified.

F. For each submittal, review time shall exclude delivery time to and from the Contractor. The Engineer may require additional review time depending on submission complexity and magnitude. Expedited review shall be at the discretion of the Client and Engineer.

G. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of completed Work.

H. When revised for resubmission, identify changes made since previous submission.

I. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.

1.03 LIST OF REQUIRED SUBMITTALS

A. A table for minimum required submittals is available later in this Section. Additional submittals may be required based on project requirements and needs and quality control testing.

1.04 PROJECT WORK PLAN

The Contractor shall prepare and submit for Client and Engineer review and approval a brief Project Work Plan. The Project Work Plan shall be in accordance with the drawing and specifications. The Project Work Plan shall be submitted within 10 business days of execution of Contract with Engineer. The Engineer shall review the submitted plan in three business days. The Project Work Plan shall contain, but not be limited to, the following information:

A. An organizational chart of the proposed key staff and responsibilities.

B. Identify and provide qualifications for the Project Manager, Site Supervisor, Site Construction Quality Control (CQC) Manager, and Site Safety Officer. Personnel can have multiple roles. A minimum of two individuals shall be required. Engineer reserves the right to require replacement of Contractor's staff should they demonstrate the inability to adequately perform their required function.

C. A complete project directory by organization with name, title, address, telephone number(s), cell phone numbers, fax number and internet addresses.

D. The Contractor's proposed approach (means and methods) to the Work, construction sequencing, project schedule, list of proposed equipment and materials, name of drilling company and survey control.

E. The Contractor's proposed schedule to provide submittals to the Engineer.

F. A discussion of the Contractor's procedures for dust, odor, vapor emissions control to prevent nuisance conditions.

G. A discussion of the Contractor’s shoring plan and procedures with engineer stamped designed drawings, if necessary.

H. Waste and material handling procedures.

I. Dewatering and liquid waste handling, treatment, storage, and discharge procedures.

J. Construction Quality Control Plan as described in Section 01450

K. Pressure testing of installed piping as described in Section 02510

L. Health and Safety Plan as described in Section 01350

CONTRACTOR DATA AND DOCUMENTATION

Contractor daily data and documentation to be provided to Client and Engineer shall include the following:

M. Manifests/Bills of Lading with certified weight slips and certificates for all materials and products transported to or from the site. Individual truck weight tickets shall be labeled with the Excavation Area number. Truck weight tickets shall be reviewed by the Engineer prior to submittal to the Client.

N. Contractor's daily field reports (electronic) and inspection reports required by contract documents.

1.05 PROPOSED PRODUCT LIST

A. Within 10 business days of execution of Contract with Client, submit list of major products proposed for use, with name, manufacturer, trade name and model number of each product. The Engineer shall review the submitted major products proposed for use in three business days.

B. For products specified by reference standards or by description only, give manufacturer, trade name, model or catalog designation and reference standard and lead time for delivery.

1.06 SUBSTITUTIONS

A. Client and Engineer will consider requests for Substitutions.

B. Substitutions may be considered when a Product becomes unavailable through no fault of the Contractor.

C. A request constitutes a representation that the Contractor:

1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.
2. Will provide the same warranty for the Substitution as for the specified Product.
3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Client.

D. Substitution Submittal Procedure:

1. Submit copy of request for Substitution for consideration. Limit each request to one proposed Substitution.
2. Submit shop drawings indicating proposed installation of equipment, maintenance/removal space required, and other pertinent revisions to the design, product data, and certified test results attesting to the proposed Product equivalence. Burden of proof is on proposer.
3. The Client and Engineer will notify Contractor in writing of decision to accept or reject request.

1.07 CERTIFICATES

A. When specified in individual Specification sections, submit certification by manufacturer to Engineer.

B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

1.08 PROJECT RECORD DOCUMENTS

A. Maintain one set of the following record documents; record daily actual deviations, modifications, or revisions to the Work:

1. Change Orders and other modifications to the Contract.
2. Reviewed Product Data and Samples.
3. Manufacturer's instruction for assembly, installation and adjusting.
4. Permits obtained.
5. Results of daily Health & Safety monitoring conducted during the Work.
6. Waste manifests, bills of lading and other transportation and disposal documentation. Individual truck weight tickets shall be labeled with the Excavation Area number.
7. Permit compliance reports.
8. Other progress and monitoring reports prepared during the course of the Work.

B. Ensure entries are complete and accurate, enabling future reference by Client and Engineer.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with work progress, not less than weekly. Changes to drawings shall be annotated in red.

E. Specifications: Legibly mark and record at each product section a description of actual products installed, including the following:

1. Manufacturer's name and product model and number.
2. Product substitutions or alternates used.
3. Changes made by Addenda and modifications.

4. Details not on original Contract Drawings.

1. Field summary documents.

F. Submit one printed set of project record documents to Engineer.

1.09 RECORD DRAWINGS

A. The Contractor shall coordinate with Surveyor to provide a complete set of record drawings for all constructed systems. The record drawings shall be prepared and stamped by a Land Surveyor or Professional Engineer licensed in the State of Washington.

Section 01330 - Table 1

Minimum Submittal Requirements

Specification Section	Title	Part	Description	Schedule
01310	Project Management & Coordination	1.06	Weekly Construction Report	*11 a.m. the next business day following each week's activities*
01320	Construction Surveying	1.04A.	Documentation verifying accuracy of survey work	*14 days prior to the start of site work*
		1.04B.	Surveyor name and qualifications	*14 days prior to the start of site work*
01330	Submittals	1.04	Project Work Plan	*Within 10 business days of execution of Contract*
		1.05A.	Manifests/Bills of Lading with certified weight slips and certificates for all materials and products transported to or from the site.	*Daily*
		1.05B.	Daily field reports (electronic)	*Daily*
		1.05B.	Inspection report	*As created*
		1.06A.	Proposed Product List	*Within 10 business days of execution of Contract*
		1.07D.	Substitutions	*14 days before substitute required*
		1.08	Certificates	*14 days prior to product use*
		1.09	Project Record Documents	*10 days following completion of work*
		1.10	Record Drawings	*10 days following completion of work*
01350	Health & Safety	1.07A.I	Names, qualifications, and experience of the environmental health professional responsible for the preparation of the HASP	*Prior to submittal of the HASP*
		1.07A.2	Name, qualifications, and experience of the Site Safety Officer	*Prior to submittal of the HASP*
		1.07B.2	A list of all personnel who will enter the Site, copies of certification of training and certification of compliance with medical monitoring requirements.	*14 days prior to the start of site work*
		1.07B.3	Substance Abuse policy for Contractor and subcontractors	*With HASP*

		1.07C.	Health and Safety Plan (HASP)	*14 days prior to the start of site work*
01410	Permits	1.02	Copies of all permits	*14 days prior to the start of work addressed by permit*
01450	Construction Quality Control	1.02A.	Construction Quality Control Plan (CQC Plan)	*With Project Work Plan*
01500	Temporary Facilities & Controls	1.14	Spill Prevention and Response Plan	*With HASP*
02320	Excavation, Trenching, And Backfilling	1.05A.	Manufacturer's Data for pipe bedding material and backfill material, to include results of chemical testing, and to include WSDOT Clean Fill Certifications if applicable	*14 days prior to use*
		1.05B.	Detectable warning tape manufacturer's technical data	*14 days prior to use of tape*
		1.05C.	Stockpile liner manufacturer's technical data	*14 days prior to use of liner*
		1.05D.	Surface water runoff storm drain protection plan	*14 days prior to the start of site work*
		1.05E.	Contaminated Material Handling (CMH) plan	*30 days after notice to proceed*
02510	Piping And Wells	1.04A.	Manufacturer's technical data	*14 days prior to use*
		3.05A.	Pressure testing procedures	*With Project Work Plan*
		3.05E.	Pressure testing data and calculations	*Following installation*
10200	Air Sparge And Soil Vapor Extraction (AS/SVE) Mechanical Systems	1.03A.1.	Manufacturer's technical data	*60 days after execution of Contract*
16000	Electrical	1.04A.	Product Data	*14 days prior to use*
		3.02D	Testing and Inspection Results	*Following testing, prior to equipment use*

PART 2 **PRODUCTS**

Not Used

PART 3 **EXECUTION**

Not Used

END OF SECTION

SECTION 01350

HEALTH & SAFETY

PART 1 GENERAL

1.01 GENERAL REQUIREMENTS

A. The Contractor is solely responsible for the health, safety, and protection of on-site workers including its employees, Subcontractors, and material vendors during performance of the work described herein. Therefore, the Contractor shall provide a Health and Safety Plan (HASP) meeting all applicable Federal, State, and Local requirements and implement the HASP. Contractor's HASP shall be subject to review and approval by Engineer and Client prior to the start of Site work.

B. Examine all other sections of the Specifications for requirements that affect work described in this Section, whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Coordinate with such trades to assure the steady progress of all work under the Contract.

1.02 DESCRIPTION OF WORK

Work included: work under this Section includes, but is not limited to, the following items including all labor, materials, equipment, and services necessary and incidental to adhere to the requirements of a HASP during execution of the Work.

A. Preparation of a HASP for all workers engaged in work at the Site. The HASP shall be prepared by a Certified Industrial Hygienist (CIH), Certified Safety Professional (CSP) or equal environmental health professional acceptable to the Engineer that is qualified by training and experience to prepare the HASP.

B. The activities to be performed by the selected contractor will require providing installation and shakedown services in support of an in-situ air sparge/soil vapor extraction (AS/SVE) system constructed to reduce the concentration of volatile organic compounds present in groundwater. There may be some potential for Contractor personnel to encounter hazardous waste in the performance of their tasks. Therefore, the requirements of OSHA standard 29 CFR 1910.120 (entitled Hazardous Waste Operations and Emergency Response) are applicable to Contractor services. The Contractor will also be required to recognize and comply with any other OSHA or other regulatory requirements applicable to their services. All employees who will be working on-site that could potentially encounter or be exposed to hazardous substances or related contaminants shall have successfully completed an OSHA 40-hour Health and Safety training course and be current in OSHA training certifications through annual 8-hour refresher training in compliance with the OSHA hazardous waste operations and emergency response codified at 29 CFR 1910.120, and specific training for Site activities. In addition, any personnel who may need to use respiratory protection as part of the Work shall provide documentation of a recent fit test. Submit documentation of training for all

on-Site personnel and enrolled in a medical monitoring program. Documentation must be maintained on-Site for the duration of the project.

C. Contractor shall submit a copy of the Drug and Alcohol/Substance Abuse Policy for their firm and those of all subcontractors for review by Client and Engineer.

D. Providing health and safety equipment including protective clothing, respiratory equipment, and monitoring instruments.

E. Decontamination of construction equipment, tools and other non-disposable items that may have been in contact with Site contaminants prior to removal of such equipment from the Site.

1.03 SPECIAL SITE CONDITIONS

A. Levels of personal protection are established in reference standards. It is anticipated that most of the work at this Site may be conducted using typical construction health and safety practices as described in OSHA safety and health regulations for construction codified at 29 CFR 1926. The Work to be conducted at the Site is not anticipated to require personal protection above that provided by Level D.

B. The Work will involve handling of potentially impacted soil and water. Handling of the impacted material could result in the emission of vapors, dust, and odors. The Contractor is required to mitigate such emissions within the Work Area and to prevent the emission of vapors, dust and odors that may cause risk to the public or cause nuisance conditions. The HASP prepared for the Site must include a description of the Contractor's proposed methods and materials for mitigation of such emissions.

C. Client and Engineer will conduct periodic health and safety audits. If audits discover discrepancies or issues, Contractor shall promptly address all issues to Engineer's and Client's satisfaction at no additional cost to Client or Engineer for labor, equipment, materials, or lost time rectifying issues identified.

D. Personal protective equipment (PPE) is required to be worn by all personnel authorized to enter the Site, and must be worn at all times while within the facility. All workers must wear steel-tipped boots, hard hats, and safety glasses. All PPE must be supplied by the Contractor while conducting activities at the Site.

1.04 NEW MATERIALS AND PRODUCTS

Follow Material Safety Data Sheets (or Safety Data Sheets) and the manufacturer's recommendations for worker protection, use, storage, and disposal of products used onsite.

1.05 REFERENCE STANDARDS

A. NIOSH/OSHA/USCG/EPA: "Occupational Safety and Health guidance Manual for Hazardous Waste Site Activities," October 1985.

B. OSHA: 29 CFR Parts 1910 and 1926

C. EPA: Executive Orders 12223 and 1440.2

D. EPA: Executive Order 3100.1

1.06 HEALTH & SAFETY OVERSIGHT

A. A Contractor shall have sole responsibility for implementation of the HASP. Contractor shall also be responsible for implementation of the HASP by all subcontractors. The Contractor shall designate a qualified Site Safety Officer (SSO) who shall be assigned to the Site at all times during the project. The SSO acceptable to the Engineer and Client shall be responsible for ensuring that the HASP is properly implemented. The SSO will be charged with overseeing Site health and safety; monitoring and protection of public health and safety as it is related to the work; instrument monitoring; personnel and equipment decontamination; control of equipment check-out; Site traffic control; and emergency response. Other responsibilities include monitoring workers for weather-related exposures or stresses.

B. The SSO shall have a working knowledge of State and Federal occupational safety and health regulations and formal training in occupational safety and health and remediation site construction safety. The SSO shall have successfully performed that position previously on at least three (3) other remediation projects. Prior to commencement of any Site activities, the SSO shall review the HASP and provide training on PPE use to all on-Site employees who will be working in or near contaminated materials. All new employees or visitors to these areas shall also require training.

C. The SSO shall provide pre-work safety training to all Site workers and all Site workers shall sign the HASP log acknowledging they have read and understand the HASP.

D. Pre-work training on the Site Health and Safety program shall be provided and documented to all Site workers at the start of the project, and before each major phase of remedial activity commences to review Job Hazard Analysis (JHA) and Site risks. All personnel working at the Site must attend the training prior to being allowed to work on the Site. Workers found to be blatantly disobeying health and safety requirements will be permanently removed from the Site at the discretion of the Engineer or Client.

1.07 SUBMITTALS

A. Submit the names, qualifications and experience of the following individuals identified by the Contractor for approval by the Engineer, prior to the submittal of the HASP:

1. CIH, CSP or environmental health professional responsible for the preparation of the HASP.
2. Site Safety Officer

B. Submit the following information to the Engineer for review:

1. HASP which includes levels of protection and a schedule for training of Contractor's and subcontractor's workers in the use of respiratory equipment (if necessary) and use of protective clothing. This training will not be provided by Client or Engineer.
2. A list of all personnel who will enter the Site, copies of certification of training and certification of compliance with medical monitoring requirements. This documentation must be submitted and reviewed by Engineer prior to personnel performing on-Site work.
3. Substance Abuse policy for Contractor and subcontractors.

C. The HASP shall be submitted at least 14 days prior to the commencement of Site work for review by Client and Engineer.

PART 2 **PRODUCTS**

Not Used.

PART 3 **EXECUTION**

3.01 HEALTH AND SAFETY PLANNING AND IMPLEMENTATION

A. Prepare a HASP which will ensure the health and safety of all workers at the Site at all times. The plan shall include, but not be limited to, the following information:

1. Chemicals of Concern (COCs) and signs/symptoms of exposure.
2. Potential for worker exposure to the COCs for each work task.
3. Safety issues related to operation of heavy equipment and excavation safety.
4. Provisions for work zone security and protection of the public and workers who access the perimeter of the Work Area.
5. Requirements for OSHA training for each work task and a record, or schedule for training, of Contractor's workers in the use of personal protective equipment. OSHA-required training will not be provided by Client or Engineer.
6. Work task specific levels of protection and a description of health and safety equipment including protective clothing, respiratory equipment, and monitoring instruments.
7. Procedures for and frequency of monitoring of hazardous gases or vapors for each work task and action levels for donning personal protective equipment; description of monitoring instruments.
8. Procedures for decontamination of heavy equipment and tools.
9. Emergency Response Plan, including the names and phone numbers of individuals or agencies who shall be contacted in the event of on-Site injury or release of oil or hazardous material.
10. Spill Prevention and Response Plan.

11. Identification and qualifications of Subcontractor's SSO.
12. Management of lower tiered subcontractors.
13. Written JHA for all tasks performed on Site.
14. Heat or cold stress monitoring procedure.

B. The Contractor shall monitor ambient air in the area of the Work (i.e., exclusion zone) in accordance with the HASP and shall provide the Engineer with written monitoring results relevant to the selection of levels of personnel protective equipment on a daily basis.

C. The Contractor shall require all workers who will engage in work at the Site that might result in exposure to contaminated materials to attend a pre-work health and safety briefing and daily tailgate safety briefings.

D. The Contractor shall provide adequate health and safety training for all personnel who will be engaged in work at the Site that might result in exposure to contaminated air, soil, sediment, or water.

E. The Contractor shall conduct health and safety meetings at the beginning of each workday to review specific hazards associated with the work planned for that day, PPE, and operational controls to mitigate those hazards, and contingency plans and emergency procedures to respond to potential problems.

F. Personnel who have not received training or who are not equipped with the required protective clothing and equipment shall not be permitted access to the Work Area during execution of work that may result in exposure to contaminated soil or water or other materials.

G. Air monitoring data shall be recorded for each monitoring event. Provide the Engineer with all air monitoring data at the completion of each workday.

H. A JHA must be prepared for each major work task. JHAs must be reviewed prior to the start of each task and updated whenever a change in Site conditions or work procedures occurs, or upon discovery of additional hazards.

3.02 DECONTAMINATION

A. Contractor shall decontaminate all equipment and tools which have come in contact with contaminated soil, groundwater, and other materials to prevent the spread of contamination within the Site and outside the Site limits.

B. Liquid collected from excavations, stockpiles, and decontamination processes shall be temporarily stored in multi-gallon Baker or equivalent tanks. Liquid storage containers shall be water-tight. The Contractor shall be responsible for treating the liquid waste and discharging to the sanitary sewer under CenterPoint’s discharge permit or transferring the waste to an appropriate facility, if necessary. CenterPoint’s discharge permit is not available at this time. For the purposes of the contract specifications, the Contractor shall assume that applicable discharge limits, prohibitions, and regulations for CenterPoint’s discharge permit are those limits, prohibitions, and regulations stated at King County’s website for discharge.

The Contractor is responsible for the discharge fee, assume at least 1,200,000 gallons will be discharged.

C. At a minimum, decontamination of construction equipment shall include the steam cleaning of all equipment which comes in contact with contaminated soil or water, prior to leaving the job Site. Soap and water decontamination of non-disposable worker protective equipment shall be performed.

D. Contractor shall provide on-Site facilities for Subcontractor personnel to decontaminate their protective clothing or other equipment.

3.03 ACCIDENT REPORTING REQUIREMENTS

The Contractor shall comply with the following near miss, accident and/or incident reporting requirements.

A. Should any unforeseen safety-related factor, hazard, or condition become evident during the performance of the Work, the Contractor shall immediately take prudent action to establish, maintain, and secure the Site and working conditions. This shall be followed by immediate notice to the Engineer and Client.

B. If a serious injury (requiring medical attention) to a person or damage to property, environment, or natural resources result from an incident, the Contractor shall immediately report the incident to the Engineer and Client. The report shall be followed by a written document describing the incident, what hazards were created, and a detailed statement of what actions were taken to correct the problem. The Contractor shall also include a description of why the actions taken were prudent. Incident reporting protocol shall be provided in the Contractor's Project HASP.

C. Should any sudden, continuous, or intermittent release of oil or hazardous material occur during the course of work, the Contractor shall notify the Engineer immediately and shall immediately begin actions to contain or abate the release. The Contractor shall immediately arrange for clean-up activities. The Engineer or Client will make necessary notifications to the State of Washington Department of Ecology (DOE) when required. Contractor shall maintain a sufficiently stocked spill kit onsite to immediately respond to an oil or hazardous material release.

END OF SECTION

SECTION 01410

PERMITS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Applicable permits, approvals and associated fees required for completion of the Work.

B. Party responsible for obtaining the approvals and Permits.

1.02 PROJECT REQUIREMENTS

A. Engineer/Client

1. Engineer/Client will complete waste profiling for excavation spoils for remedial excavations and landfill disposal of excavated trench spoils if necessary.

2. Engineer/Client will obtain the use of permits for disposal of dewatered water to public sewer, if needed.

B. Contractor

1. Contractor shall obtain any applicable City of Tukwila permits/licenses for electrical work. Contractor shall review City permitting requirements with the Engineer and Client.

2. Any other permits as required to execute the scope of work not obtained by the Engineer or Client.

C. Client Fees

1. Client will pay for fees associated with all permits and approvals of their responsibility.

D. Contractor Fees

1. Contractor shall pay for fees associated with all permits and approvals of their responsibility.

E. Copies of permits and approvals obtained by the Engineer/Client will be made available to the Contractor.

F. Copies of permits obtained by the Contractor shall be provided to the Engineer/Client.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01450

CONSTRUCTION QUALITY CONTROL

PART 1 GENERAL

1.01 DESCRIPTION

A. Construction Quality Control (CQC) is the means by which the Contractor assures himself that his construction and that of all Subcontractors complies with the requirements of the Contract Documents. The control shall be adequate to cover all construction operations, including both on-site and off-site operations, and shall be keyed to the proposed construction sequence.

B. The quality controls shall include at least three phases of inspection for all definitive features of work as follows:

1. Pre-Construction Inspection
2. Construction Inspection
3. Post-Construction Inspection

C. The controls shall also include site testing, reporting of noncompliance conditions, field change activities and auditing of all site activities.

1.02 SUBMITTALS

A. The Contractor shall prepare a Construction Quality Control Plan (CQC Plan) for material supplied to the work site, and controlling the quality of construction activities including that of Subcontractors. No Work shall begin at the Site until the CQC Plan has been approved by the Engineer. The CQC Plan shall be included in the Contractor's Project Work Plan (Section 01330).

B. The CQC Plan shall include at a minimum, the following:

1. Communication
2. Contractor's CQC personnel and qualifications
3. Documentation
4. Schedule of inspection and testing
5. Procedures for implementing and scheduling inspections, documentation, and submittals, including those of Contractor's, off-site fabricators, suppliers and purchasing agents
6. Noncompliance conditions control procedure
7. Procedures for field changes
8. Procedures for auditing construction activities
9. Provide narrative report, including:

a. Discussion of problem areas, including current and anticipated delay factors.

b. Corrective action taken or proposed.

c. Description of revisions that may affect schedules.

PART 2 **PRODUCTS**

Not used.

PART 3 **EXECUTION**

3.01 CONTROL INSPECTIONS

A. The execution of the CQC Plan shall be in accordance with the following:

1. Pre-construction - The inspection shall be performed prior to beginning any work on any definable feature of the construction work. It shall include a review of Contract requirements; a check to assure that the pre-construction Site conditions have been properly recorded, submitted and accepted by the Engineer/Client; a check to assure that all materials and/or equipment have been tested, submitted and accepted by the Engineer/Client; a check to assure provisions have been made to provide required testing; examination of the Work Area to ascertain all preliminary work has been completed; and a physical examination of materials, equipment and samples to assure they conform to accepted shop drawings or submittal data. Further, verification shall be made that all materials and/or equipment are on hand, and all equipment is properly calibrated and in proper working condition. The Engineer/Client shall be notified at least 24 hours in advance of the preparatory inspection and such inspection shall be recorded in the Contractor's CQC documentation as required below. Subsequent to the preparatory inspection and prior to commencement of work, the Contractor shall instruct each applicable worker as to the level of workmanship required in his plan in order to meet the requirements of the Contract Documents. The Contractor shall appoint an individual to be designated to act as CQC Manager.

2. Construction Inspection

a. The initial inspection shall be performed as soon as a representative portion of a particular feature of work has been accomplished. The inspection shall include examination of the quality of workmanship and a review of testing for compliance with contract requirements. The Engineer shall be notified at least 24 hours in advance of the initial inspection and such inspection shall be recorded in the CQC documentation as required below.

b. Follow-up inspection shall be performed daily to assure continued compliance with contract requirements, including control testing, until

completion of the particular feature of work. Such inspections shall be recorded in the CQC documentation. Final follow up inspections shall be conducted, and test deficiencies corrected, prior to the addition of new features of work.

3. Post Construction Inspection - At the completion of all work or any increment thereof established by a completion time stated elsewhere in the Contract Documents, the CQC Manager shall conduct a post construction inspection of the work and develop a "punch list" of items which do not conform to the approved plans and specifications. Such a list shall be included in the CQC documentation, and shall include the estimated date by which the deficiencies will be corrected. The CQC Manager or his designee shall make a second completion inspection. Deficiencies requiring correction shall be accomplished within the time stated for completion of the entire work.

B. Contractor shall inspect and verify compliance of all Subcontractor work.

3.02 TESTS

A. Test Procedures: The Contractor shall perform tests specified or required to verify that control measures are adequate to provide a product which conforms to contract requirements. A list of tests which the Contractor understands he is to perform shall be furnished as a part of the CQC Plan to the Engineer/Client. The list shall give the test name, specification paragraph containing the test requirements, and the personnel responsible for each type of test. The Contractor shall perform the following activities and record and provide the following data:

1. Verify that testing procedures comply with Contract requirements.
2. Verify that testing equipment is available and comply with testing standards.
3. Check test instruments calibration data against certified standards.

3.03 DOCUMENTATION

A. The Contractor shall maintain current records of quality control operations, activities, and tests performed including the work of suppliers and Subcontractors. These records shall be on an acceptable form and indicate a description of trades working, the weather conditions encountered, delays encountered, and acknowledgments of deficiencies noted along with the corrective actions taken on current and previous deficiencies. In addition, these records shall include factual evidence regarding required site-specific activities or tests and their results. These records shall include but not be limited to the following:

1. Type and number of control activities and test involved.
2. Results of control activities or tests, with authorized signature.
3. Nature of defects, causes for rejection, proposed remedial action, and corrective actions taken.
4. Results of retests if required.

B. These records shall cover both conforming and defective or deficient features, and shall include a statement that the supplies and materials incorporated in the work comply with the Contract. Legible copies of these records shall be furnished to the Engineer/Client for review on an ongoing basis throughout construction of the project.

3.04 NOTIFICATION OF NONCOMPLIANCE

A. The Engineer/Client will notify the Contractor immediately of any noncompliance with the foregoing requirements which he may become aware of. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his representative at the site of work, shall be deemed sufficient for the purpose of notification.

B. The Contractor shall notify the Engineer and Client of proposed corrective actions to be taken to address noncompliance items. The corrective action shall address the specific item not in compliance and shall also address any systematic conditions of the Contractor's operations that may have contributed to the noncompliance.

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES & CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary Utilities including lighting for construction purposes (as needed), water service to Work Areas and sanitary facilities.

B. Construction Facilities including field offices, parking, progress cleaning and waste containment, and project identification.

C. Temporary Controls including barriers, fencing, and stormwater control.

D. Removal of utilities, facilities, and controls.

1.02 ELECTRICITY & COMMUNICATIONS

A. Electrical needs, including generators and installation of temporary site utilities shall be the responsibility of Contractor.

B. Contractor shall provide their own communication service for their needs.

1.03 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

Contractor shall provide and maintain lighting for construction operations, if needed. If flood lights are brought on site, they shall not be used between the hours of 7:00 p.m. and 7:00 a.m. unless otherwise approved by Engineer for emergency situations.

1.04 TEMPORARY WATER SERVICE

A. Contractor shall apply to the City of Tukwila for a hydrant use permit for construction water needs from nearby hydrants in public rights-of-way as necessary.

B. Contractor shall provide temporary hose/pipe connection for temporary service for construction water needs. Contractor shall provide all necessary freeze protection.

C. Contractor shall provide temporary hose/pipe bridge(s) for driveway crossing(s) as required.

1.05 TEMPORARY SANITARY FACILITIES

Contractor shall provide adequate sanitary facilities (Porta-Johns) for Contractor's on-site personnel and Subcontractor's use for the duration of work

1.06 TEMPORARY OFFICE FACILITIES

A. Provide temporary office facilities as needed for the Engineer, Contractor, and subcontractors.

B. Temporary construction office facility for Engineer shall be minimum 8 feet wide by 20 feet long. Interior configuration to be approved by Engineer/Client prior to delivery.

C. Temporary electric hook up, electrician services for construction trailer connections shall be provided by Contractor.

1.07 SITE ACCESS

A. The Contractor shall provide a wheel wash and quarry spall at the site exit. The Contractor shall minimize the tracking of mud, soil, or other material on equipment moving across the property. The wheel wash and spall shall be installed prior commencing remedial excavations and removed after completion of the remedial excavations. For the purpose of these specifications, assume the wheel wash will be installed for at least three months. The Contractor shall remove the wheel wash and spall upon completion of the remedial excavation activities.

B. Street sweeping shall be required if mud, soil, or other material are tracked off site.

C. Delivery and/or transport vehicles will not be permitted to park or queue on any public roads. Contractor shall be responsible for traffic flow in and out of the project site as required, including provision of flaggers as needed.

D. The Contractor shall provide sufficient personnel to direct traffic as necessary to facilitate the smooth flow of traffic and not impede public ways.

1.08 PARKING

A. Contractor and subcontractor personnel may park personal vehicles and non-construction-related company vehicles in parking areas approved by the Engineer/Client.

B. Heavy equipment, trucks and other construction related vehicles shall be parked in designated areas as directed by Engineer/Client.

1.09 PROGRESS CLEANING AND WASTE CONTAINMENT

A. Maintain areas free of waste materials, debris, and rubbish. Maintain Site in a clean and orderly condition.

B. Contractor shall provide solid waste containers and service as needed to contain waste materials, debris, and rubbish.

C. Conduct vehicle, personnel, and equipment decontamination as required by the Contract Documents.

1.10 PROJECT IDENTIFICATION

A. No signs, other than those required by law, may be posted without Client's permission.

1.11 BARRIERS

A. Provide and install barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.

B. Provide and install barriers and demarcation of work zones as directed by Engineer/Client.

1.12 SITE ACCESS CONTROL

A. Site security and control of access to the Work Areas shall be maintained by the Contractor to protect Work, the Work Area, and existing facilities from unauthorized entry, injury, vandalism, and theft.

1.13 REMOVAL OF UTILITIES, FACILITIES AND CONTROLS

A. Remove temporary utilities, equipment, facilities, and materials prior to Final Application for Payment.

B. Clean and repair damage caused by installation or use of temporary work.

C. Restore existing and permanent facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

1.14 SPILL AND DISCHARGE CONTROL

A. Prior to beginning work the Contractor shall develop, implement, maintain, supervise, and be responsible for a Spill Prevention and Response Plan. The Spill Prevention and Response Plan shall be included as a section in the HASP (HASP is described in Section 01350). The Spill Prevention and Response Plan shall provide contingency measures for potential spills of oil and hazardous materials and construction-related materials including, but not limited to fuels, hydraulic fluids, lubricants, and construction water.

B. The plan shall, at a minimum, contain the following:

1. Procedures for containing dry and liquid spills.
2. Absorbent material available on-site.
3. Procedures for storage of spilled materials.
4. Decontamination procedures may be required after cleanup to eliminate traces of the substance spilled or reduce it to an acceptable level. The Contractor shall provide methods, means, equipment, facilities, and personnel to perform decontamination measures that may be required to remove contaminants or spillage from haul trucks, previously uncontaminated structures, equipment, or material. Acceptable level shall be in accordance with all applicable local, state, and federal laws and regulations. Complete cleanup may require removal of contaminated soils. All contaminated materials that cannot be decontaminated must be properly containerized and labeled. Any and all testing and disposal costs related to

the cleanup of a spill caused by the Contractor's activities shall be borne by the Contractor.

5. A written report detailing the spill or discharge shall include, at a minimum, the cause and resolution of the incident, outside agencies involved, and date the incident occurred. The report shall be submitted to the Engineer within 24 hours of the incident, and earlier if necessary, to comply with local, state, or federal regulations. The Contractor shall document the location of all spills on site drawings and submit the drawings to the Engineer/Client at project completion.

C. Spill and Discharge Control

1. The Contractor shall provide methods, means, equipment, facilities, and personnel required to prevent contamination of soil, water, air, equipment, or materials by the discharge of bulk wastes from spills due to Contractor's operations.

2. The Contractor shall provide methods, means, equipment, facilities, and personnel to perform emergency measures required to contain any spillage and to remove spilled materials and soils or liquids that become contaminated due to spillage. All collected spill material shall be properly disposed of at the Contractor's expense.

3. Contractor shall maintain adequate spill containment and cleanup equipment on- site.

D. General

1. Contractor shall be responsible for all liabilities and fines related to spills, discharges, leaks, or emissions from equipment, tankage vessels, drums, or any other devices owned, operated, or controlled by the Contractor, subcontractors, vendors, personnel, agents, or assigns.

2. In the case of a spill or discharge, the Contractor shall follow procedures outlined in the Plan.

3. Fines related to releases due to spills by Contractor shall be paid for by Contractor and shall not be reimbursed by Engineer or Client.

E. Notification

1. The Contractor shall notify Engineer/Client as soon as possible in the event of a spill or discharge.

2. Engineer/Client shall report spills or discharges to regulatory agencies, as necessary to comply with local, state, and federal regulations.

PART 2 **PRODUCTS**

Not Used

PART 3 **EXECUTION**

Not Used

END OF SECTION

SECTION 01700

EXECUTION REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Noise Requirements

B. Work Hours

1.02 NOISE REQUIREMENTS

A. Due to the proximity of the Work Area to the surrounding neighborhood and businesses, noise levels should be minimized and maintained in accordance with the City of Tukwila noise regulations.

B. The Contractor shall mitigate noise and obtain all permits necessary to facilitate work hours necessary to complete the project within the schedule provided.

1.03 WORK HOURS

A. All work conducted at the Site shall be performed between the hours of 7:00 AM and 6:00 PM, excluding holidays.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 02320

EXCAVATION, TRENCHING, AND BACKFILLING

PART 1 GENERAL

1.01 SCOPE

A. This section describes requirements for excavation, trenching and backfilling of remedial excavations and AS/SVE work.

1.02 REFERENCES

A. Washington State Department of Transportation (WSDOT) M 41-102021, Standard Specifications for Road, Bridge, and Municipal Construction

1.03 RELATED SECTIONS

A. 02510 PIPING AND WELLS

B. 16000 ELECTRICAL

1.04 PROPERTY PROTECTION AND SAFETY

A. Buildings, utilities, poles, fences, pavement, and all other property shall be protected unless their removal is authorized. Aboveground structures in the remedial excavations and AS/SVE excavations, if present, will be removed by others prior to commencing work, except for the portion of the Small Warehouse that houses the treatment system. The portion of the Small Warehouse that houses the treatment system will remain.

B. Prior to any excavation activity, the Contractor shall notify the Washington Utility Notification Center of any below-grade intrusive activities, in order to determine the location of underground utilities in proximity to the intrusion location. The intrusion work cannot proceed until all utility locations have been cleared through the Washington Utility Notification Center. The notification must be placed at least 10 days prior to the scheduled intrusion work by the Contractor. Washington Utility Notification Center can be notified by phone at 811 or 1-800-424-5555. All utility mark-outs at Site are the responsibility of the Contractor to place and identify prior to initiating any earth disturbance activities on-site. If an on-site utility mark-out and clearance is not feasible, manual clearance or soft-dig/vacuum enhanced excavation methods must be utilized by the Contractor to ensure safe practices while excavating soil in unmarked utility areas.

C. If any unknown utilities are encountered during excavation, the Contractor shall immediately notify Engineer/Client. The Contractor shall preserve intact any utilities encountered.

D. All work shall comply with OSHA requirements.

E. Dust Control and Monitoring

Best management practices for dust control (e.g., misting/watering of dry soil) will

be implemented to suppress dust during construction activities and eliminate visible dust. Misting/watering will not be conducted for stockpiles of potentially contaminated material to minimize contaminant transport to stormwater. Designated construction entrances and wheel washes will be used to prevent contaminated dirt from leaving the site.

Airborne dust monitoring will be conducted during soil excavation activities. Real-time monitoring will be conducted each workday for the duration of the workday at one reasonable maximum exposure sample location (e.g., next to heavy-equipment operators). Each workday may have a different monitoring location depending on the nature of work being conducted that day. A calibrated dust monitor will be used to measure the amount of respirable dust (i.e., particulates less than 10 microns in diameter) in the air. The respirable dust measurements will be logged throughout the day. The field meter will be configured to collect measurements approximately every minute and to emit an alarm if a concentration exceeds the site's Airborne Dust Action Level of 5 milligrams per cubic meter (mg/m3). The Airborne Dust Action Level is the permissible exposure limit for the respirable fraction of nuisance dust of 5 mg/m3 per WAC 296-841-20025.

Special care should be taken to avoid dust from migrating beyond the north property line to limit impact to operations on the north adjoining property.

F. If workers must enter the excavation, it shall be evaluated, shored, sloped or braced as required by 29 CFR 1926 section 650 and WAC 296-62. Adjacent structures not intended to be removed for the work shall be protected. Damage to existing structures resulting from the Contractor's operations shall be repaired at no additional cost to the Client/Engineer (unless agreement is reached not to repair the structure).

G. Surface water shall be diverted to prevent entry into the excavation. Dewatering shall be limited to that necessary to assure adequate access for environmental sampling, a safe excavation, prevent the spread of contamination, and to ensure that compaction requirements can be met. No dewatering shall be performed without prior approval of the Engineer.

H. The Contractor shall take proper care during site activities to eliminate sediment from entering the storm drain system with socks or drain covers. The storm drains shall not be removed to install sediment controls. The Contractor shall submit a plan for protecting the storm drains to the Engineer for approval prior to commencing intrusive activities.

I. Areas where earthwork is designated have at least 20 feet of overhead clearance, except Excavation Area 1 and the Small Warehouse. Excavation Area 1 has overhead electrical lines that will be removed by others prior to commencement of excavation activities at Area 1. The Small Warehouse will be demolished by others except a portion of the Small Warehouse that houses the treatment system.

1.05 SUBMITTALS

A. Manufacturer's Data for pipe bedding material and backfill material, to include results of chemical testing (Section 2.01E), and to include WSDOT Clean Fill Certifications if applicable.

B. Detectable warning tape manufacturer's technical data.

C. Stockpile liner manufacturer's technical data.

D. Surface water runoff storm drain protection plan and details.

E. Contaminated Material Handling (CMH) Plan. Submit a CMH Plan within 30 calendar days after notice to proceed. No work at the site, with the exception of site inspections and surveys, shall be performed until the CMH Plan is accepted. Allow 30 calendar days in the schedule for the Engineer's review. No adjustment for time or money will be made if resubmittals of the CMH Plan are required due to deficiencies in the plan. At a minimum, the CMH Plan shall include:

a. Schedule of activities.

b. Method of excavation and equipment to be used.

c. Shoring or side-wall slopes proposed.

d. Dewatering plan.

e. Storage methods and locations for liquid and solid contaminated material.

f. Borrow sources and haul routes.

g. Methods and procedures for the transportation, and disposal of contaminated materials, in compliance with applicable federal, state, and local laws and regulations, including the documentation associated with contaminated material and the use of certified, licensed transporters.

h. Decontamination procedures.

PART 2 PRODUCTS

2.01 BEDDING AND BACKFILL MATERIAL

A. Bedding and backfill material shall be procured and installed by the Contractor. Material excavated from the remedial excavations shall not be used as backfill.

B. For AS/SVE excavations, bedding material shall be placed around the SVE lines and AS conduits as shown in Figures 1.6, 1.7, and 1.10. Bedding material shall be round washed gravel meeting the gradation requirements of WSDOT M 41-10, Section 9-03.1(4)C, Course Aggregate for Concrete, AASHTO Grading No. 8, or equal as approved by the Engineer. The bedding material shall be free from roots and other organic matter, trash, contamination, debris, snow, ice or frozen materials.

C. For remedial excavations, backfill material above the water table shall include clean well-graded mixtures of sand and gravel (commonly called "gravel borrow" or "pit-run") meeting the gradation requirements of WSDOT M 41-10, Section 9-03.14(1) Gravel Borrow, and shall be free from roots and other organic matter, trash, contamination, debris, snow, ice or frozen materials. Groundwater level in the vicinity has been observed at 8 to 10 feet below existing ground surface (begs).

D. For remedial excavations, backfill material below the water table shall be clean quarry spall meeting the gradation requirements of WSDOT M 41-10, Section 9-13.1(5) Quarry Spall, and shall be free from roots and other organic matter, trash, contamination, debris, concrete, recycled material, snow, ice or frozen materials.

E. One sample of material per backfill/bedding material source shall be collected and tested for chemical parameters at a frequency of once per 5,000 tons. The chemical parameters are listed below.

Chemical Parameter	Test Frequency	Criteria
Polychlorinated biphenyls (PCBs)	One per source	Non-detect at less than 0.1 milligrams per kilogram (mg/kg)
Total Petroleum Hydrocarbons (TPH)	One per source	Non-detect
Carcinogenic polycyclic aromatic hydrocarbons (cPAHs)	One per source	Below 0.001 mg/kg
Lead	One per source	Below 250 mg/kg
Arsenic	One per source	Below 7.3 mg/kg
Copper	One per source	Below 36 mg/kg

F. The SVE screens, AS conduits, and adjacent gravel bedding material will be wrapped in a nonwoven geotextile to limit introduction of fines into the SVE screens. The geotextile will be Mirafi® 140N by Tencate Geosynthetics.

G. Surface restorations for remedial excavations and AS/SVE excavations shall consist of gravel borrow.

H. Material specifications and certifications shall be submitted to the Engineer for approval prior to use on site.

2.02 STOCKPILES

A. If required, Contractor shall construct a stockpile for the temporary storage of excavation and trench spoils. The maximum stockpile size shall be 500 cubic yards. Stockpiles shall be constructed to include:

1. A chemically resistant geomembrane liner placed underneath the stockpile material. The liner shall be free of holes or other damage. Non-reinforced

geomembrane bottom liners shall have a minimum thickness of 10 mils. The ground surface on which the geomembrane liner is to be placed shall be free of rocks greater than 0.5 inches in diameter and any other object which could damage the membrane.

2. A geomembrane top liner free of holes or other damage to prevent precipitation from entering the stockpile. The top liner shall be extended over the berms and anchored or ballasted to prevent it from being removed or damaged by wind. Non-reinforced geomembrane top liners shall have a minimum thickness of 6 mils.

3. Berms surrounding the stockpile, a minimum of 8 to 12 inches in height. Vehicle access points shall also be bermed.

4. The liner system shall be sloped to allow collection of leachate. Storage and removal of liquid which collects in the stockpile, in accordance with Section 3.07.D Liquid Storage, Treatment, and Disposal.

PART 3 **EXECUTION**

3.01 SURVEYS

A. Perform surveys immediately prior to and after excavation of contaminated material to determine the volume of contaminated material removed. Locations of confirmation samples shall also be surveyed and shown on the drawings.

3.02 DISCONNECTION AND RECONNECTION OF EXISTING AS/SVE LINES (YELLOW SHADED AREA IN FIGURE 1.2)

A. During the first mobilization, the Contractor shall expose existing AS/SVE lines in two areas (shown in yellow shading on Figure 1.2). Cross-sections of the existing system is shown in Figure 1.10. The lines will be exposed, labeled, disconnected, and capped at 10 feet apart in each area. Sand, pea gravel and geotextile are present as bedding material and shall be protected to prevent sluffing. The excavation shall be backfilled with excavation spoils from same excavation, gravel borrow, and asphalt surface patch. No compaction testing required.

B. CenterPoint will use the areas with disconnected AS/SVE pipes to install stormwater lines.

C. During the third mobilization, the Contractor shall excavate to expose the lines, reconnect, test, and backfill the excavations. The SVE screens shall be bed in pea gravel wrapped in a geotextile. A 6-inch thick seal of CDF shall be placed above the SVE screens and under the AS lines. The AS lines shall be tested prior to backfilling with pea gravel to surface level. Backfill shall be compacted to 95 percent and tested in accordance with ASTM D1557.

D. Excess excavation spoils shall be transported and stockpiled at a location on the 8801 Property designated by the Engineer/Client.

3.03 LIMITED EXCAVATION FOR REPLUMBING EXISTING AS/SVE LINES

A. Prior to the river buffer cover installation by Others, the Contractor shall saw cut concrete/asphalt pavement, if required, to expose the existing AS/SVE lines within the river buffer area (within approximately 40 feet east of the Small Warehouse, Contractor shall field verify) and remove concrete/asphalt pavement. The excavation area is shown in green in Figure 1.2. Concrete/asphalt pavement shall be transported to a location on the 8801 Property designated by Engineer/Client and stockpiled. As directed by the Client or Engineer, stockpiled concrete/asphalt shall be transported by the Contractor for offsite disposal or reuse on site (separate bid items).

B. Excavation spoils are not known to have concentrations of chemicals above regulatory levels.

C. Excavation spoils shall be transported to a location designed by the Client or Engineer and stored in stockpiles or equal equivalent method approved by the Engineer. The excavation spoils shall be stored in a manner that prevents comingling with known contaminated soil. As directed by the Client or Engineer, stockpiled soil shall be transported by the Contractor for offsite disposal or reuse on site (separate bid items).

D. Topsoil excavated from the extension AS conduit trench may be used as backfill for the surface of the same AS trench as shown in purple in Figure 1.6.

E. Backfill shall be compacted to 95 percent and tested in accordance with ASTM D1557.

3.04 TRENCH EXCAVATIONS FOR EXTENSION AS/SVE

A. Following removal of surface material in the river buffer area by Others, excavate the trench for the extension SVE lines (purple lines on Figure 1.2). The portion of the SVE trench that is inside the Small Warehouse will require the foundation slab to be cut (by the Contractor). The concrete slab cuttings shall be segregated from the excavation spoils and stockpiled on the 8801 Property at a location designated by the Engineer/Client. As directed by the Client or Engineer, stockpiled concrete shall be transported by the Contractor for offsite disposal or reuse on site (separate bid items).

B. Excavation spoils are not known to have concentrations of chemicals above regulatory levels.

C. Excavation spoils shall be transported to a location designed by the Client or Engineer and stored in stockpiles or equal equivalent method approved by the Engineer. The excavation spoils shall be stored in a manner that prevents comingling with known contaminated soil. As directed by the Client or Engineer, stockpiled soil shall be transported by the Contractor for offsite disposal or reuse on site (separate bid items).

D. Excavate trenches to the dimensions shown in the drawings. Trench width shall be as required for the number of pipes to be placed. Trench depth for the extension SVE pipeline shall be 8 inches to the top of the SVE pipe. Trench depth for the

extension AS pipeline shall be 8 inches to the top of the AS conduit. Trench depth for the existing AS/SVE pipeline (orange lines on Figure 1.2) shall be 16 inches to the top of the SVE pipe.

E. Promptly remove and contain water entering trench as necessary to grade trench bottom, compact backfill and install pipe. Remove water in a manner that minimizes soil erosion from trench sides and bottom. Do not lay pipe in water.

F. If material is encountered that may require removal to prevent pipe settlement or other reasons, notify Engineer/Client. Engineer/Client will determine depth of over excavation, if required.

G. The Contractor shall use concrete to restore the surface of the trench excavation completed for the extension SVE piping inside the Small Warehouse. The concrete shall be at least as thick as the surrounding building slab and the surface of the restoration shall be flush with the surrounding surface. The portion of the extension SVE trench requiring concrete shall be 30 feet in length.

H. Backfill for the trenches for the extension SVE lines and extension AS conduits (purple lines in Figure 1.2) shall be compacted to provide a firm surface. Compaction shall be performed with a vibrator plate, hand or mechanical tamper, roller or approved equal. No testing shall be required.

3.05 REMEDIAL EXCAVATIONS

A. The Contractor shall saw cut concrete/asphalt pavement as necessary to allow excavation in the remedial excavation areas as shown in Figure 2.1. The concrete/asphalt shall be segregated from the excavation spoils and stockpiled on the 8801 Property at a location designated by the Engineer/Client. As directed by the Client or Engineer, stockpiled concrete/asphalt shall be transported by the Contractor for offsite disposal or reuse on site (separate bid items).

B. Excavate remedial excavations to the dimensions shown in the figures.

C. Excavation spoils are known to have concentrations of chemicals above regulatory levels. Excavations spoils shall not be reused on site.

D. The Contractor shall transport excavations spoils for offsite disposal. Spoils shall be placed in temporary storage immediately after excavation if materials are unable to be direct loaded for disposal.

E. Backfill shall be compacted to 95% of the maximum dry density per WSDOT M 41-10, Section 2-03.3(14)C. The Contractor shall certify that the backfill is compacted to 95% of the maximum dry density and tested in accordance with WSDOT M 41-10, Section 2-03.3(14)D. The Contractor shall direct the in-place density and moisture testing of backfill with a nuclear moisture-density gauge. At a minimum, one test shall be performed every 10,000 square feet per lift, or at any change in material. For quarry spalls used in remedial excavations, quarry spalls shall be compacted to a dense condition as approved by the Engineer. Backfill that does not meet this criteria shall be: (a) recompacted until the criteria are met, or (b) replaced and compacted until the criteria are met. Replacement and/or re-compaction shall be performed by the Contractor at no cost to the Client or the

Engineer. Documentation of backfill compaction and testing shall be submitted to the Client/Engineer.

3.06 BEDDING MATERIAL AND BACKFILL

A. Joined pipe shall be placed directly on the prepared trench bottom as shown in the drawings. Pipe shall not be dumped, pushed, dropped, or rolled into the trench.

B. Place backfill in 6" lifts until 6" above the top of the pipe.

C. Backfill shall not be dropped from higher than 3 feet. Backfill may be pushed into the trench if performed in a controlled manner that maintains proper lift thickness.

D. Coordinate with piping installation described in Section 02510.

3.07 CONFIRMATION SAMPLING AND ANALYSIS

A. Confirmation Sampling is required for remedial excavations.

B. The Engineer's Field Representative shall be present to inspect the removal of contaminated material from each excavation. After all material suspected of being contaminated has been removed, the excavation shall be examined for evidence of contamination. If the excavation appears to be free of contamination, field analysis shall be used to determine the presence of contamination using a real time vapor monitoring instrument. Excavation of additional material shall be as directed by the Engineer Field Representative.

C. Others shall collect confirmation samples of the excavation sidewalls and bottom. Based on test results, additional excavation may be required to remove material which is contaminated above action levels beyond the limits currently defined. Once sampling has been performed, up to two weeks may be required for receipt and evaluation of analytical results. Additional excavation shall be directed by the Engineer. Locations of samples shall be surveyed in the field.

3.08 OFF-SITE DISPOSAL

A. Offsite Disposal

1. Excavations spoils from the remedial excavations are considered contaminated soil shall be disposed offsite. Excavation spoils from the AS/SVE excavations and removed concrete/asphalt pavement may be disposed offsite as designated by the Engineer/Client.

2. The Client is responsible for the tipping and disposal fees. The Contractor shall be responsible for soils that are determined by the disposal facility to be non-conforming waste, due to presence of free liquids, upon arrival at the disposal facility. Contaminated soils shall pass paint filter liquids test by EPA Method 9095B prior to leaving the 8801 Property for transport to the Waste Management Duwamish Reload center.

3. Transport in accordance with Department of Transportation (DOT) Hazardous Material Regulations and federal, state, and local requirements, including obtaining necessary permits, licenses, and approvals.

4. Final disposal shall occur at Waste Management Duwamish Reload center in accordance with applicable laws and regulations and for requirements of this Section.

5. Provide records in accordance with applicable federal, state, and local statutes, regulations, and standards. The records shall become the property of the Engineer/Client. Provide Disposal Records as follows:

   a. Records of waste determinations, including appropriate results of all chemical testing performed (Engineer/Client and Contractor), substances and sample location, and time of collection.

   b. Transportation records, disposal dates, the certified quantities of waste as weighed at the disposal facility, the names and addresses of each transporter and the disposal or reclamation facility, as well as copies of the manifests/bills of lading. Individual truck weight tickets shall be labeled with the Excavation Area number. Truck weight tickets shall be reviewed by the Engineer prior to submittal to the Client.

B. Disposal Approval

Obtain Engineer approval for trucks leaving the site and provide records. Include the following:

1. Type (Concrete, Asphalt or Contaminated Soil or Liquid) being transported.
2. Location of disposal.
3. Approximate amount of material being transported.
4. Submit daily.

C. Liquid Storage, Treatment, and Disposal

Liquid collected from excavations and stockpiles shall be temporarily stored in multi-gallon Baker or equivalent tanks. Liquid storage containers shall be water-tight. The Contractor shall be responsible for treating the liquid waste and discharging to the sanitary sewer under CenterPoint's discharge permit or transferring the waste to an appropriate facility, if necessary. For batch discharge to the sanitary sewer the Engineer shall collect water samples from the storage tanks for discharge parameter analysis.

END OF SECTION

SECTION 02510

PIPING AND WELLS

PART 1 GENERAL

1.01 SCOPE

A. This section includes installation of the Air Sparging (AS) and Soil Vapor Extraction (SVE) underground pipelines, aboveground pipelines, points, wellheads, and pipeline connections to the AS and SVE wells and SVE screens. All materials shall be as specified or approved equal.

B. AS Wells installed by the Contractor as designated as AS-34 through AS-55, shown on Figure 1.2. SVE Screens to be installed by the Contractor as designed as SVE-7, SVE-8, and SVE-9, shown on Figure 1.2.

C. Others will evaluate the Small Warehouse and install bracing and/or supports or perform other work to ensure the structural integrity of the building, if needed.

1.02 REFERENCES

A. ASTM Dl785-12

B. ASTM D2467-13a

C. ASTM F1668

D. Wilkes, Charles E., et.al.

E. PPI

1.03 RELATED SECTIONS

A. Standard Specification for Polyvinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120

B. Standard Specification for PVC Plastic Pipe Fittings, Schedule 80

C. Standard Guide for Construction Procedures for Buried Plastic Pipe

D. PVC Handbook. ISBN 3-446-22714-8. April 2005

E. Handbook of Polyethylene Pipe. Plastic Pipe Institute. Second Edition, 2013.

F. 02320 EXCAVATION, TRENCHING, AND BACKFILLING

G. 10200 AS/SVE MECHANICAL SYSTEMS

1.04 SUBMITTALS

A. Manufacturer's technical data to include installation guidelines shall be submitted and approved for all pipeline appurtenances (i.e., pipe, valves, flow meters, etc.).

PART 2 **PRODUCTS**

2.01 SVE SYSTEM COMPONENTS

A. Extension SVE Screens shall be 110-feet-long 4-inch Schedule 40 PVC, IPS or approved equal, with 0.020" slots. Extension SVE Blank Casing shall be 4" Schedule 40 PVC, IPS or approved equal.

B. The replumbed SVE lines (orange lines in Figure 1.2) shall be 4" Schedule 40 PVC, IPS or approved equal.

C. The reconnected SVE lines (yellow shading in Figure 1.2) shall be 4" Schedule 40 PVC, IPS or approved equal.

2.02 AIR SPARGING (AS) SYSTEM COMPONENTS

A. AS Well Screens shall consist of 1" Schedule 80 PVC with 0.020" slots. AS Well Blank Casing shall be 1" Schedule 80 PVC.

B. AS Wellheads shall be placed within a 24" Schedule 80 PVC Well Collar and Cap.

C. Within the Well Collar, AS Wellheads will be connected to a check valve, isolation valve, union to 1-inch Red Rubber Hose. See Figure 1.6.

D. AS Wells AS-34 through AS-55 and the existing AS lines that were excavated and protected during the first mobilization will be connected to transfer hoses which shall be 1-inch EPDM Red Rubber hose, Gates Adapta Flex 3204-1361 or approved equal. Connections for hose shall be stainless steel hose barbs and banded.

E. AS Transfer Hoses for the extension AS system and replumbed (orange lines in Figure 1.2) shall be placed within an 8-inch Schedule 80 PVC conduit (See Figures 1.6 and 1.7).

F. AS lines for the reconnected AS system (yellow shading in Figure 1.2) shall be 1.25" Schedule 80 PVC or chlorinated PVC (Contractor to field verify existing components and match existing).

G. Fittings

1. PVC pipe fittings shall be manufactured by the same manufacturer as the pipe or approved equal. Fitting for PVC shall be glued.
2. AS wellhead fittings shall be galvanized steel.

2.03 DETECTABLE WARNING TAPE

A. Detectable warning tape shall meet the requirements of the APWA or approved equal.

B. One strip of 2" wide detectable warning tape shall be placed on top of each underground SVE line and AS Conduit (see Figures 7 and 8).

C. The detectable warning tape shall be yellow with "WARNING BURIED UTILITIES" in black lettering.

PART 3 **EXECUTION**

3.01 REPLUMBING OF EXISTING AS AND SVE PIPELINES (GREEN AND ORANGE LINES ON FIGURE 1.2)

A. During the first mobilization, the existing AS and SVE underground pipes shall be disconnected between the Equipment Room and the boundary of the river buffer area (approximately 40 feet east of the Equipment Room; Contractor shall verify) as shown on Figure 1.2. The Contractor shall excavate and dispose of the existing AS and SVE lines in the excavation. The disconnected pipe ends at the Equipment Room and the boundary of the river buffer area shall be capped below the surface, and labelled for reattachment, and the trench shall be backfilled.

B. Later, during the third mobilization when the river buffer clay liner and topsoil have been installed (by Others), the Contractor shall trench a new route and reconnect the capped pipe ends and then backfilled. The purpose of this replumbing is to prevent interfering with the clay liner and drainage blanket that will be installed in the river buffer (by Others).

C. The replumbed AS and SVE lines are shown in Figure 1.7. The replumbed AS and SVE lines will be placed in a common trench.

D. The SVE blank casing shall be sloped towards the SVE screens so that condensate flows to the SVE screens when not operational.

E. A protective sleeve of Schedule 80 PVC shall be installed where the SVE piping emerges from the subsurface. The 4” SVE pipelines shall have a 6" ID sleeve. The sleeves shall extend 1” above the surface and 2” below the subbase.

3.02 DISCONNECTION AND RECONNECTION OF EXISTING AS AND SVE PIPELINES (YELLOW SHADED AREAS ON FIGURE 1.2)

A. During the first mobilization, the existing AS and SVE underground pipes in the yellow shaded areas shown in Figure 1.2 shall be exposed, labeled, disconnected, and capped. Cross-sections of the existing AS/SVE system is shown in Figure 1.10. The disconnected pipes shall be 10 feet apart at each excavation. The bedding material (sand and pea gravel) shall be protected from sluffing (Figure 1.10).

B. Between the first and third mobilizations, CenterPoint will use the areas with disconnected AS/SVE lines to install stormwater pipes.

C. During the third mobilization, the previously disconnected AS/SVE pipes will exposed, reconnected, tested, and backfilled. The SVE screens shall be bed in pea gravel wrapped in a geotextile. A 6-inch thick seal of CDF shall be placed above the SVE screens and under the AS lines. The AS lines shall be tested prior to backfilling with pea gravel to surface level.

D. Testing of the reconnected AS/SVE lines shall consist of testing the AS lines. The AS lines shall hold 30 psig for 15 minutes.

3.03 EXTENSION SVE SCREENS AND PIPELINE (PURPLE LINES ON FIGURE 1.2)

A. Extension SVE screens and piping associated with SVE-7, SVE-8, and SVE-9, shown on Figure 1.2, shall be installed during the second mobilization, which is prior to the installation of the river buffer geosynthetic clay liner by Others.

B. The SVE blank casing shall be sloped to the SVE horizontal screens so that condensate flows to the SVE well when not operational.

C. A protective sleeve of Schedule 80 PVC shall be installed where the SVE piping emerges from the ground. The 4" SVE pipelines shall have a 6" ID sleeve. The sleeves shall extend 1-inch above the river buffer surface cover and 2" below the subbase.

3.04 EXTENSION AS WELLS AND PIPELINE (PURPLE LINES ON FIGURE 1.2)

A. Extension AS wells and piping associated with AS Wells AS-34 through AS-55 shall be installed during the third mobilization, which is after the installation of the river buffer landscaping by Others, but prior to revegetation by Others.

B. AS Wells shall be installed using sonic drilling methods using a licensed driller. The depth of the screened interval will be determined from in situ conditions. The screened interval will be placed in the saturated zone above the transition from Poorly Graded Sand to Silty Sand. This transition has been observed in nearby borings at approximately 28 to 32 feet below existing ground surface (begs). Groundwater level in the vicinity has been observed at 8 to 10 feet begs.

C. The AS wells shall have a filter pack of 12/20 silica sand extending to 2 feet above the screen. A bentonite seal, consisting of hydrated ⅜-inch bentonite chips, will be installed above the filter pack and extend into the PVC well collar.

D. AS transition fittings shall be installed in accordance with the manufacturer's guidelines and recommendations. The connection shall be as shown on Figure 1.6. The fitting shall be shop fabricated and factory tested by the fabricator.

E. The AS wells shall be connected to infrastructure in the Small Warehouse via AS Transfer Hoses. The AS Transfer hoses shall be 1-inch EPDM Red Rubber hose, Gates Adapta Flex 3204-1361 or approved equal and placed within an 8-inch Schedule 80 PVC conduit. The conduit shall be placed within the river buffer as shown in Figure 1.6; except immediately adjacent to the Small Warehouse. Since the river buffer berm slopes down to ground surface near the Small Warehouse, the AS conduit shall daylight from the berm prior to entering the Small Warehouse. The aboveground AS conduit shall be supported with an appropriate support structure to prevent movement, sagging, or other damage to the conduit.

3.05 ADDITIONAL INFORMATION

A. Pipelines and conduits shall be installed in areas of pavement and landscape surfaces. Final surfaces shall match the existing conditions as close as possible and practical. The Contractor shall be responsible for matching the existing condition.

B. Pipe and accessories shall be handled and installed in accordance with the manufacturer's recommendations. Pipe shall be carried into position and not dragged. The pipe shall be inspected for defects before and during installation. Material found to be defective shall be replaced with sound material.

C. All connections for the PVC pipe shall be glued in accordance with the manufacturer's recommendations.

D. Special care shall be taken during installation of underground piping to assure airtight connections. The Engineer shall be present during all pipe connection work.

3.06 PRESSURE TESTING

A. All installed underground piping shall be pressure tested. Proposed pressure testing procedures shall be submitted in writing to Engineer for review and approval in the Project Work Plan (Section 01330 of these Specifications).

B. AS Piping shall be pressure tested in accordance with manufacturer's guidance.

C. The design pressure of the AS system is 15 pounds per square inch gauge (psig). Prior to backfilling over the installed AS lines, each new and existing AS line will be pressure tested and inspected to hold 30 psig (twice the design air pressure) for 15 minutes.

D. SVE Piping must also be pressure tested after installation. For proposal purposes, assume a testing pressure of 5 psi, to be maintained for one hour with no pressure drop.

E. Results of testing shall be submitted to the Engineer/Client following completion.

3.07 WELLHEAD CONSTRUCTION

A. The extension AS wellheads shall be constructed following extension AS well installation and during extension AS pipeline installation. The wells themselves will be installed by the drillers. See Figure 1.6 for extension AS wellhead construction details.

B. Wellhead access will be restricted in several locations (e.g., fences, underground utilities, structures, etc.). The Contractor shall evaluate and plan activities with the Engineer in restricted areas.

C. Pipe to well riser connections, wellhead manholes, bedding material, backfill and surface repair shall be accordance with the manufacturer's guidance and these specifications.

D. Proper care shall be taken to assure proper compaction around the well head to prevent future settling.

3.08 CLEANUP

A. Upon completion of the installation of pipeline and appurtenances, all debris and surplus materials resulting from the work shall be removed from site.

END OF SECTION

SECTION 10200

AIR SPARGE AND SOIL VAPOR EXTRACTION (AS/SVE) MECHANICAL SYSTEMS

PART 1 GENERAL

1.01 SCOPE

A. This section includes general requirements for the Air Sparge (AS) and Soil Vapor Extraction (SVE) Systems and mechanical components. All equipment and materials shall be as specified. The Contractor shall design and specify the systems to be provided for approval by the Engineer and Client.

1.02 REFERENCES

A. National Electrical Code (NEC)

1.03 SUBMITTALS

A. The Contractor shall prepare and submit for approval by the Engineer and Client the following documents in the Project Work Plan prior to construction:

1. Manufacturer's publications to include technical specifications, installation guidelines, operational recommendations, certifications, and warranties.

1.04 SYSTEMS DESCRIPTIONS

A. Extension SVE System

The extension SVE system shall consist of three (3), 110-foot long, 4-inch-ID horizontal wells (see Figure 1.2). Each well shall be individually piped extending from the existing SVE Manifold to the screens using 4-inch diameter Schedule 40 PVC (Figure 1.5). Each SVE pipe shall be connected to a vacuum gage and gate valve as shown in Figure 1.5. The piping shall daylight in the Small Warehouse. Aboveground equipment for the SVE system shall be installed in the Small Warehouse. Extracted air flow is estimated to be 130 scfm per SVE screen.

B. Extension AS System

The extension AS system shall consist of twenty-two (22), 1-inch wells spaced at approximately 15 feet (Contractor shall verify, see Figure 1.2). Each extension AS well shall be individually piped from the existing AS header to the well (Figure 1.4). Aboveground pipes shall consist of 1” Schedule 40 galvanized steel. Belowground pipes shall consist of 1-inch EPDM Red Rubber hose. AS wells will be connected to the existing AS Manifold using two (2) groups consisting of 11 well each (see Figure 1.4) for pulsed or staggered operation. Each AS pipe shall be connected to a pressure gauge, flowmeter with control valve, and globe valve. Each 11-well group shall be connected to an electronic ball valve. and A pressure of 15 psig is required at each well head at a flow of 10 scfm (110 scfm for each group).

PART 2 **PRODUCTS**

2.01 MATERIALS FOR THE EXTENSION SVE SYSTEM

A. 6" Schedule 40 PVC manifold connecting the three SVE Screens to the existing SVE header.

B. Each 4" SVE line (SVE-7, SVE-8, and SVE-9) shall be Schedule 40 PVC and include:

1. Vacuum gauge [0-160" H_2O] with isolation valve
2. 4" Gate valve

C. Mounting materials for extension SVE piping, valves, and fittings

2.02 MATERIALS FOR THE EXTENSION AS SYSTEM

A. Piping and Fittings

1. Extension AS Manifold aboveground piping and fittings shall be 1-inch-ID Schedule 40 galvanized steel. Fittings shall be threaded.
2. Extension AS Manifold Valves
   a. Two (2) AS Manifold Control Valves shall be Triac 2" 22TX-200/WEA1-XX electric automated ball valves, or approved equal.

B. Extension AS Isolation Valves

1. Twenty-two (22) AS Isolation Valves shall be 1" forged steel rising valve stem globe valve, Velan or approved equal. Connections for isolation valves shall be threaded.

C. Extension AS Line Flowmeters

1. Twenty-two (22) AS Line Flowmeters shall be Dwyer VFC-121-EC Visi-Float Acrylic Flowmeters or approved equal.

D. Mounting for extension AS piping, valves, and fittings

PART 3 **EXECUTION**

3.01 SVE AND AS MECHANICAL SYSTEM

A. Existing AS and SVE System appurtenances shall be handled and installed in accordance with the manufacturer's recommendations. All materials shall be inspected for defects before and during installation. Material found to be defective shall be replaced with sound material.

B. Existing AS and SVE piping shall be reconnected following installation of riverbank area cover and installation and pressure testing of existing AS transfer hose and conduit and SVE transfer piping.

C. Extension AS and SVE piping manifolds shall be installed following installation of extension AS and SVE wells and transfer piping/hose/conduit.

3.02 ELECTRICAL

A. Electrical products and execution will be provided and performed under Section 16000.

3.03 WARRANTY

A. Equipment shall be warranted to be free of defects in material and workmanship for a period of one (1) year from Engineer/Client acceptance.

3.04 CLEANUP

A. Upon completion of the installation of mechanical systems, all debris and surplus materials resulting from the work shall be removed, and site area cleaned to restore pre-project conditions.

END OF SECTION

SECTION 16000

ELECTRICAL

PART 1 GENERAL

1.01 CODES AND STANDARDS

A. Unless noted otherwise, the design, fabrication, testing, and performance of the electrical equipment shall be in accordance with the latest edition of the following standards and codes where applicable:

1. American National Standards Institute (ANSI)
2. National Fire Protection Association (NFPA)
3. National Electric Manufacturer's Association (NEMA)
4. Institute of Electrical and Electronics Engineers (IEEE)

1.02 SUMMARY

A. This section covers the requirements for the functional design, performance, materials, construction features, testing, quality, and handling of all electrical equipment described herein.

B. Direct Electrical Contractors shall be subcontracted by the Contractor to perform the work described in specification Section 16000. Terry DeVries of Direct Electrical Contractors can be contacted at 503-756-3457.

C. The work shall consist of furnishing all materials, labor, supervision, drawings, erection, installation, testing and delivery of services as specified in this or previous sections and/or on the drawings for completion and proper operation as included in the Project Documents.

D. It is not the intent of this section and associated drawings to specify all details of design, fabrication, and construction. It shall be the responsibility of the Contractor to provide equipment and systems that have been designed, fabricated, and equipped in accordance with stated standards and high standards of engineering and workmanship that is suitable for the specific service.

E. All work shall be properly coordinated.

F. Under no circumstances shall any work begin without first obtaining permission from the appropriate agency. Existing utility lines that might interfere during construction shall be identified.

G. For any specific use not covered in this section, or if a conflict arises in a specific situation, the latest revision of the NEC (National Electric Code) shall be the governing body.

H. The following will be supplied and installed by Others:

1. Service meter and fused disconnect switch mounted to the exterior of the Small Warehouse. The service meter and fused disconnect switch will be connected to 480 Volt, 3 phase, alternating current supplied by others.

1.03 SCOPE OF WORK

A. The scope of work generally includes supply, erection, complete installation and testing of the following

1. On the exterior of the Small Warehouse, a 480V electrical panel with 3 breakers. The 480V electrical panel shall be fed from the disconnect switch

   a. One breaker on the 480V electrical panel shall be connected to the AS control panel inside of the Equipment Room

   b. The second breaker on the 480V electrical panel shall be connected to the SVE control panel inside of the Equipment Room.

   c. The third breaker on the 480V electrical panel shall be rated for 90 amps and connected to a 480V-to-240/120V stepdown transformer.

2. A 480V-to-240/120V stepdown transformer at the exterior of the Small Warehouse and adjacent to the 480V electrical panel.

3. A 240/120V electrical panel on the exterior of the Small Warehouse adjacent to the 480V-120V stepdown transformer. The 240/120V electrical panel shall be fed from the 480V-120V stepdown transformer and shall have six 20 amp breakers.

4. Connect Power and control wiring from local control panel mounted on the AS and SVE units to control panel inside the Equipment Room to the 240/120V electrical panel.

5. Cable, conduit, wiring, panels, and breakers shall be type as specified under Part 2- Products.

6. Shielded wire and cable shall be run separate from power or 110V control wiring.

1.04 SUBMITTALS

A. In accordance with requirements of general specification for submittals, submit the following.

1. The manufacturer's name, product designation or catalog number, descriptive literature and data shall be submitted for the following material and equipment.

   a. Wires and cables.

   b. Conduit.

   c. Grounding materials.

d. Transformers.

e. Electrical cabinets.

f. Circuit breakers.

B. Prior to submittal, all shop drawings and manufacturer's literature shall be checked for accuracy and conformance to specifications and drawings.

C. Documentation and results of all testing.

PART 2 PRODUCTS

2.01 EQUIPMENT

Not used.

2.02 MATERIALS

A. Conduit

1. Liquid-Tight flexible metallic conduit shall be used for all aboveground applications unless otherwise noted.

   a. Flexible galvanized steel core with continuous copper ground in the convolutions covered with extruded polyvinyl chloride. Conduit shall be UL listed.

   b. Connectors: Nylon-insulated screw-in ground-core type connectors constructed of malleable iron, Thomas & Betts liquid-tight fittings or an approved equal.

B. Wires and Cables

Wire and cable shall meet all standards and specifications applicable and shall be in conformance with the latest edition of the NEC. Insulated wire and cable shall have size, type of insulation, voltage, and manufacturer's name permanently marked on outer covering at regular intervals not exceeding four feet. Wire and cable shall be delivered in complete coils and reels with identifying tags, stating size, type of insulation, and other pertinent information.

1. Low Voltage Power Cable

   a. Wires installed in conduit for services 600 volt and below, shall be 600 volt, stranded copper, single conductor, heat and moisture resistant thermoplastic insulation, 75°C type THHN/THWN.

   b. Cables installed for overhead service 600 volt and below, shall be 600 volt, stranded copper, multi conductor, flame retardant Cross-linked Polyethylene (XLPE) insulation. 90 degree C type XHHW-2. With overall Cross-linked chlorinated polyethylene (XL-CPE) jacket.

c. Minimum size for power wire shall be #12 AWG, except that #14 AWG shall be used for control.

2. Instrument Signal Cable

a. Instrument signal cable shall be twisted single pair #16, stranded copper, 300V PVC insulation with overall aluminum mylar shield, UL listed as PLTC and overall PVC jacket.

C. Outlet Boxes

1. All outlet boxes for concealed wiring shall be sheet metal, galvanized, or cadmium plated at least one and one-half inch deep, single, or gauged, of a size to accommodate devices and number of conductors noted. Boxes shall be equipped with plaster ring or cover as necessary.

2. Boxes for exposed wiring shall be malleable iron, cadmium finish, or cast aluminum alloy and shall not be less than four inches square by one and one-half inch deep unless otherwise noted. Provide gasketed cover.

D. Pull and Junction Boxes

1. Junction boxes and pull boxes inside building shall be furnished and installed as shown on the drawings and as required.

2. Boxes shall be formed from sheet steel, with comers folded in and securely welded, with three-quarters inch inward flange on all four edges, with box drilled for mounting and with flanged drilled for attachment of cover. Box shall be galvanized after fabrication. Cover shall be made of one piece galvanized steel and provided with gasket and round head brass machine screws for fastening to box. Box and cover shall be made of code gage steel, or heavier as specified. Boxes shall be a minimum of four and one-half inches deep, and sized as required to meet NEC standards, or larger as specified, utilizing manufacturer's standard size or next larger to meet dimensional requirements.

3. Pull and junction boxes shall be furnished without knockouts for field drilling. All unused knockouts shall be plugged.

4. If pull or junction box is exposed, the box shall be painted to match the finish of the building surfaces adjacent to the box, unless indicated otherwise by the Client.

E. Cabinets

Cabinets used for cable supports for service entrance, feeders, and other cables or electrical components shall be of steel and shall be furnished and installed where indicated on the drawings. Boxes shall have removable screw covers fastened by corrosion-resistant machine screws and shall be of a size large enough to accommodate the feeder conduits indicated and also provide ample space to install cable supports. Cabinets installed outside of the Small Warehouse shall be rated NEMA 3R for outdoor use.

F. Disconnect Switches

1. The minimum wires bending space at terminals and minimum gutter space provided in switch enclosure shall be as required in NEC Article 373-6.

2. All switchblades shall be fully visible in the "OFF" position when the switch door is open. All current carrying parts shall be plated to resist corrosion and promote cool operation. Switches shall have removable arc suppressers where necessary to permit easy access to line side lugs. Lugs shall be front removable and UL listed for 60°C or 75°C, aluminum, or copper wires.

3. Switches shall be quick-make; quick-break such that, during normal operation of the switch, the operation of the contacts shall not be capable of being restrained by the operating handle after the closing or opening action of the contacts has started. The operating handle shall be an integral part of the box, not the cover. Provisions for padlocking the switch in the "OFF" position shall be provided. Switches shall have a dual cover interlock to prevent unauthorized opening of the switch door when the handle is in the "ON" position, and to prevent closing of the switch mechanism with the door open. The handle position shall indicate whether the switch is "ON" or "OFF".

4. 4. Switches shall have an attached clearly legible and durable nameplate. Nameplate shall indicate: Name of manufacturer, type and model number of the device, maximum volts and ampere ratings, and maximum horsepower rating.

G. 480V-to-240/120V Stepdown Transformer shall be a Cutler-Hammer dry type distribution transformer with NEMA 3R enclosure rated for outdoor use.

PART 3 **EXECUTION**

3.01 ERECTION/INSTALLATION

A. Codes

1. All materials and workmanship shall comply with National Electrical Code (NEC) and all other applicable codes, specifications, local ordinances, industry standards, utility company, and fire insurance carrier's requirements.

2. Noncompliance: Should any work be performed that does not comply with the requirements of the applicable building codes, state laws, local ordinances, industry standards, fire insurance carrier's requirements, and utility company regulations, the Client will not bear the cost arising in correcting any such deficiency. Such work will be corrected at no extra cost.

B. Grounding

1. Ground neutral leg of service and all non-current carrying metallic parts of electrical equipment to ground grid, made of eight-feet by three-quarter-inch copper-weld ground rods and 2/0 bare copper ground cable.

2. Metallic parts to be grounded shall include cable tray, transformer, cabinets, panel boards, outlet boxes, fixtures, receptacles, and any other equipment required by the latest edition of the NEC article 250.
3. Run separate green insulated ground conductor in conduit with power conductors to each motor for grounding.

C. Conduit

1. Conduit sizes shall be in accordance with the NEC, including provision for given equipment-grounding conductor.
2. Conduit systems shall be installed in accordance with the latest edition of the NEC and shall be installed in a neat workmanlike manner.
3. The entire conduit system shall be installed to provide a continuous bond throughout the system to provide a grounding system.
4. Install conduit concealed in walls, ceilings, and floors where possible.
5. Install conduit in unfinished areas exposed; run square with ceilings and walls.
6. All conduit joints shall be cut square, threaded, reamed smooth, and drawn up tight. Bends or offsets shall be made with an approved bender or hickey, or hub-type conduit fittings. Number of bends per run shall conform to the NEC limitations.
7. Concealed conduits shall be run in a direct line with long sweep bends and offsets. Exposed conduits shall be parallel to and at right angles to building lines, using conduit fittings for all turns and offsets.

D. Wires and Cables

1. No wire and cable shall be pulled until the conduit system is complete from pull point to pull point.
2. Pull boxes are required in conduit runs over 100 feet or when more than three 90 degree bends are used or as indicated on the drawings.
3. Care shall be exercised while installing wire in conduits so as not to damage the conductor insulation. Wire pulling lubricant may be used in pulling on or moved conductors and shall be used if wire is pulled by mechanical means.
4. Use no wire smaller than No. 12 AWG for power and lighting circuits and no smaller than No. 14 AWG for control wiring.
5. Splices only in junction or outlet boxes.
6. Neatly train and lace wiring inside boxes, equipment, control panel and panel boards.
7. The bending radius of any wire or cable shall not be less than the minimum recommended by the manufacturer. Maximum pulling tension and sidewall pressure of any wire or cable shall not exceed manufacturer's recommended values.

8. Pull all conductors into raceway at same time.
9. Conductor shall be color coded in accordance with NEC. Identify each conductor with numbers at both ends as shown in drawings. Use Brady or equal wire marker.
10. Inspect wire and cable for physical damage and proper connection.
11. Perform test for continuity and correctness of wiring and identification of all conductors of lighting and receptacle branch circuits, power and contact circuits and motor leads.
12. All 600V insulated cables for power and motor leads shall be given an "Insulation Resistance Test" using a 1,000 V insulation tester.

E. Wire, Cable Termination and Splices

1. Joints on branch circuits shall occur only where circuits divide and shall consist of one through circuit to which shall be spliced the branch from the circuit. In no case shall joints in branch circuits be left for the fixture hanger to make. No splices shall be made in conductor except at outlet boxes, junction boxes, or splice boxes.
2. Conductors No. 8 and larger terminated and spliced with Burndy or T&B or an approved equal mechanical compression connectors. After the conductors have been made mechanically and electrically secure, the entire joint or splice shall be covered with Scotch No. 33 tape or an approved equal to make the insulation of the joint or splice equal to the insulation of the conductors. The connector shall be UL approved. The tape shall be seven-mil vinyl, self-adhesive tape.
3. Conductors No. 10 and smaller terminated and spliced with Buchanan "B-Cap" or 3M-Scotchlok self-insulated, screw-on connectors; Bakelite wire nuts are not acceptable.
4. Connect conductors to panel boards and apparatus by means of approved lugs or connectors as by Gorilla Grip, Thomas and Betts, or an approved equal.

F. Boxes

1. Install boxes appropriately as indicated.
2. Set boxes true and flush and rigidly secure in position.
3. Use painted or galvanized iron hangers to support ceiling outlets.
4. Set boxes so that front edges of box are flush with finished wall or ceiling line or not more than one-quarter-inch back of it except where conduit is exposed.

G. Accessories

All accessories as noted or required to install and make workable all electrical and related items contained under this section of the specification shall be furnished and installed.

H. Painting of Zinc Surfaces

All outdoor surfaces that are exposed to weather (i.e., not inside of an enclosure) and that are coated with zinc (e.g., galvanized) or a zinc alloy shall be painted with an exterior-rated paint suitable to adhere to metal. The paint color shall approximate the color of nearby equipment or the building exterior. The paint may not contain leachable zinc or copper.

3.02 TESTING AND INSPECTIONS

A. Each system component shall be given requisite factory tests as necessary to determine that the work and materials are free from defects and to establish that the design and construction meet the requirements of the contract documents.

B. Make the following minimum tests and checks prior to energizing electrical equipment:

1. Mechanical inspection, testing of circuit breakers, disconnect switches, motor starters, control equipment, etc. for proper operation.
2. Test grounding system for resistance to ground.
3. Test 600 volt power wires and cables by meg-ohm resistance testing.
4. Check wire and cable terminations for tightness.

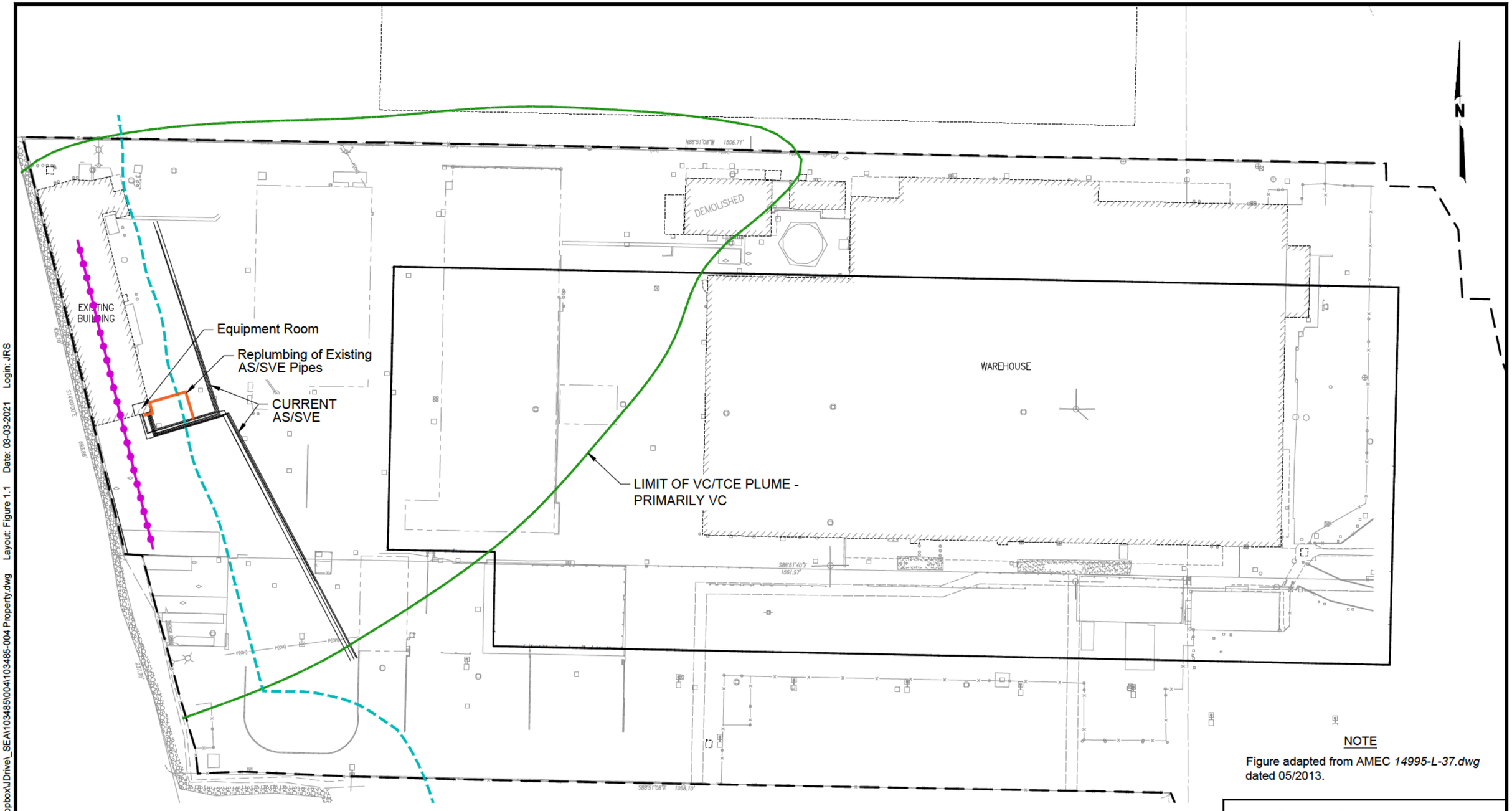
C. Testing shall be scheduled and coordinated with the Engineer at least two weeks in advance. Provide qualified test personnel, instruments, and test equipment.

D. Test results shall be documented and submitted to Client/Engineer prior to equipment use.

E. The local authority having jurisdiction must be notified in order that local inspection may be carried out at the proper stage

F. All local permits shall be obtained and paid by the Contractor. When available, Contractor shall apply for expedited permitting.

END OF SECTION



NOTE

Figure adapted from AMEC *14995-L-37.dwg* dated 05/2013.

AS/SVE System Extension and Modification
8801 East Marginal Way S.

DIAGRAM OF 8801 PROPERTY

July 2021 103485-004

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 1.1

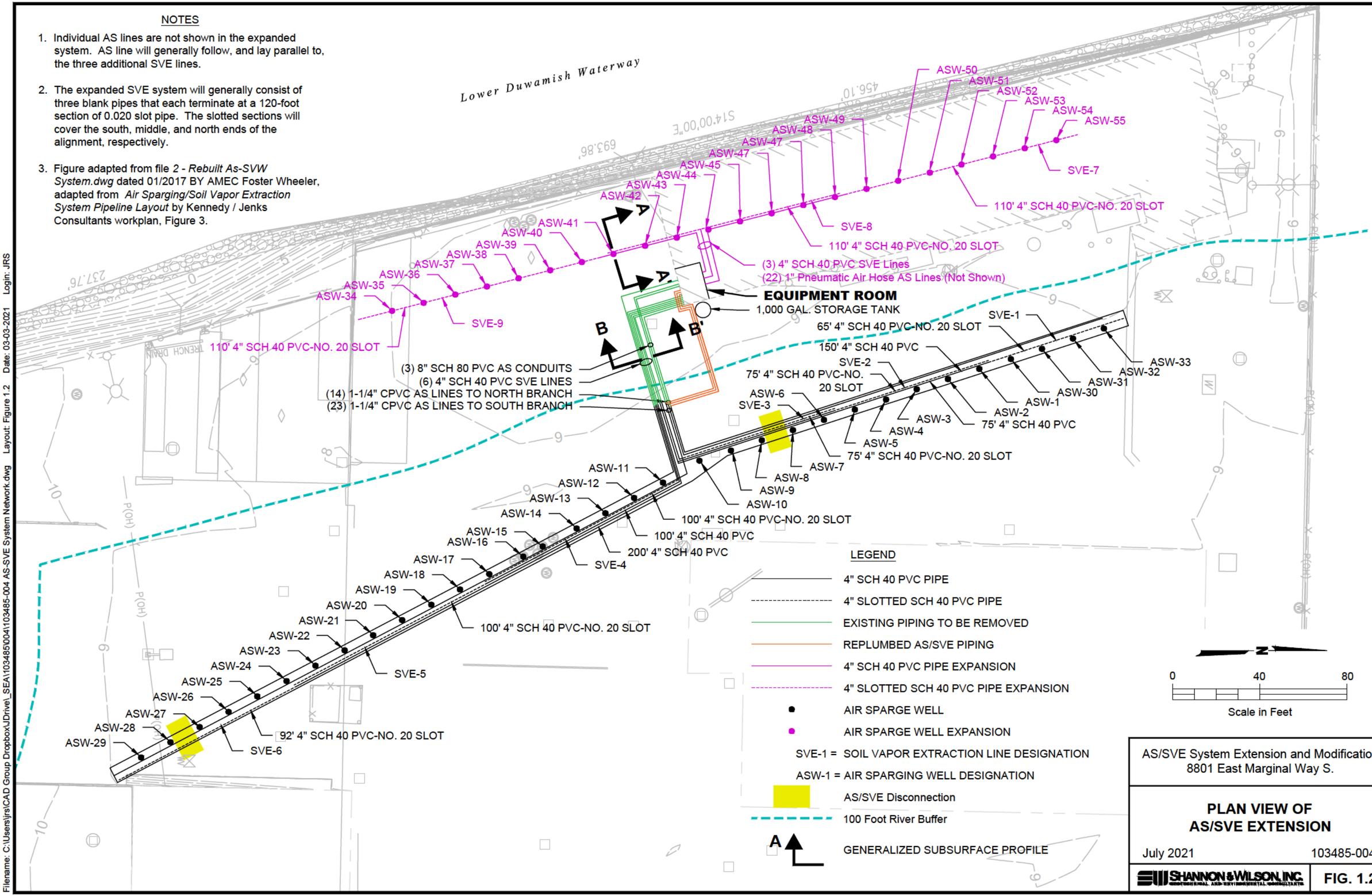
Filename: C:\Users\jrs\CAD Group Dropbox\JDrivel_SEA\103485\004\103485-004 Property.dwg Layout: Figure 1.1 Date: 03-03-2021 Login: JRS

NOTES

1. Individual AS lines are not shown in the expanded system. AS line will generally follow, and lay parallel to, the three additional SVE lines.

2. The expanded SVE system will generally consist of three blank pipes that each terminate at a 120-foot section of 0.020 slot pipe. The slotted sections will cover the south, middle, and north ends of the alignment, respectively.

3. Figure adapted from file *2 - Rebuilt As-SVW System.dwg* dated 01/2017 BY AMEC Foster Wheeler, adapted from *Air Sparging/Soil Vapor Extraction System Pipeline Layout* by Kennedy / Jenks Consultants workplan, Figure 3.



AS/SVE System Extension and Modification
8801 East Marginal Way S.

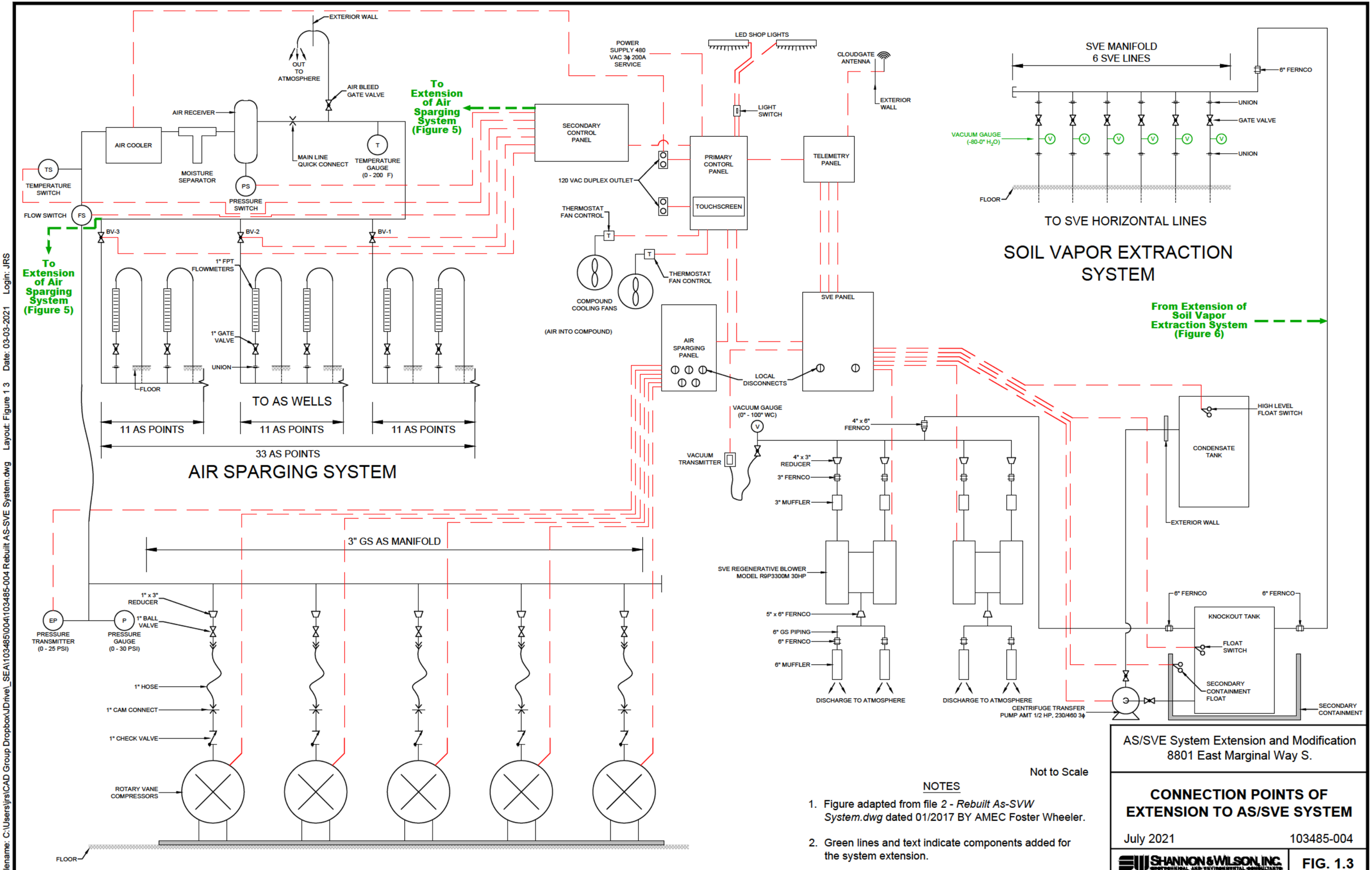
PLAN VIEW OF AS/SVE EXTENSION

July 2021 103485-004

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 1.2

Filename: C:\Users\jrs\CAD Group Dropbox\JDrive_SEA\103485\004\103485-004 AS-SVE System Network.dwg Layout: Figure 1.2 Date: 03-03-2021 Login: JRS



Not to Scale

NOTES

1. Figure adapted from file *2 - Rebuilt As-SVW System.dwg* dated 01/2017 BY AMEC Foster Wheeler.
2. Green lines and text indicate components added for the system extension.

AS/SVE System Extension and Modification
8801 East Marginal Way S.

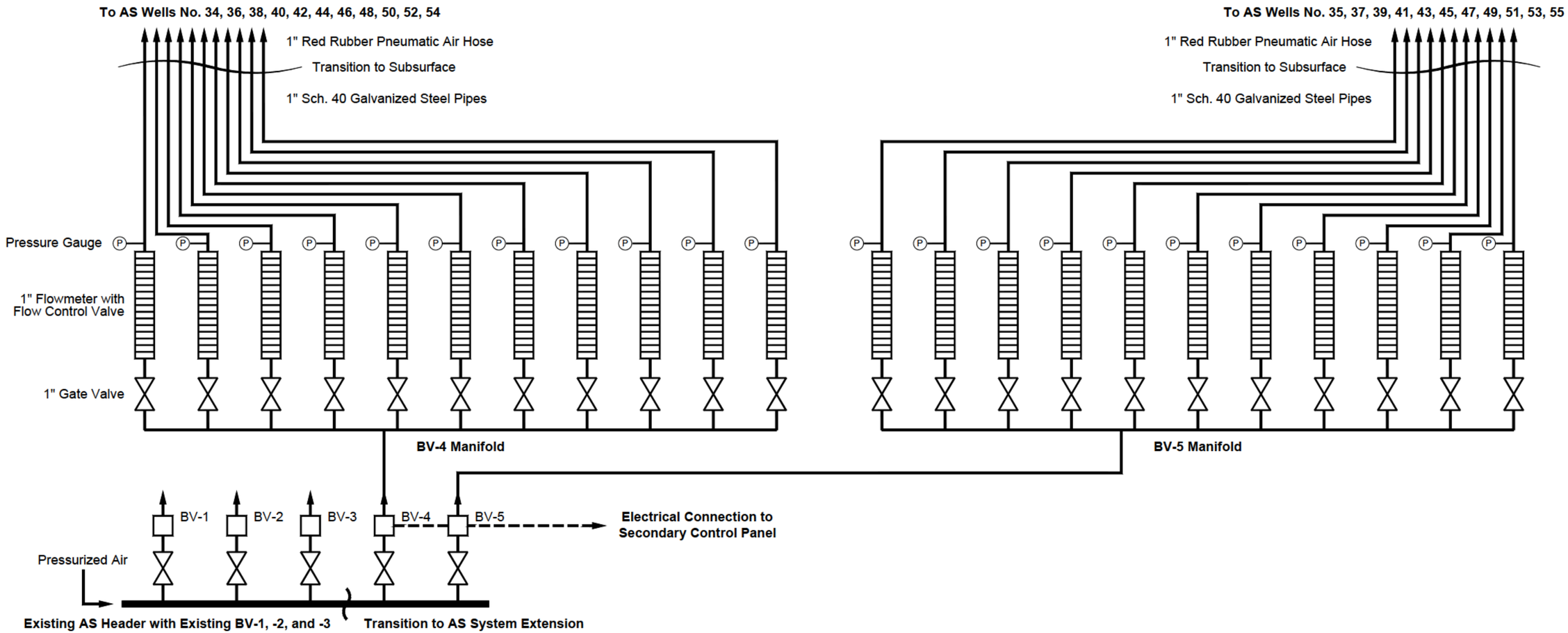
CONNECTION POINTS OF EXTENSION TO AS/SVE SYSTEM

July 2021 103485-004

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 1.3

Filename: C:\Users\jrs\CAD Group Dropbox\JDrive_SEA\103485\004\103485-004 Rebuilt AS-SVE System.dwg Layout: Figure 1 3 Date: 03-03-2021 Login: JRS



AS/SVE System Extension and Modification
8801 East Marginal Way S.

LINE DIAGRAM OF AS SYSTEM EXTENSION

July 2021 103485-004

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 1.4

Filename: C:\Users\jrs\CAD Group Dropbox\JD\rvel_SEA\103485\004\103485-004 AS-SVE System.dwg Layout: Figure 1.4 Date: 03-03-2021 Login: JRS

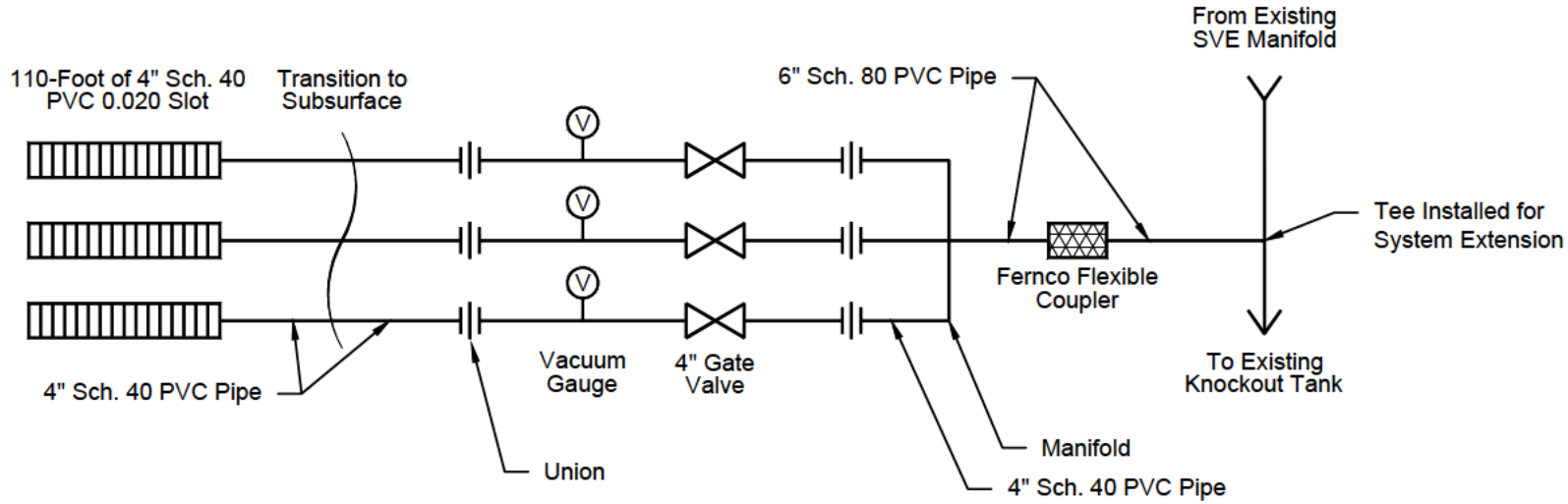


FIG. 6

AS/SVE System Extension and Modification
8801 East Marginal Way S.

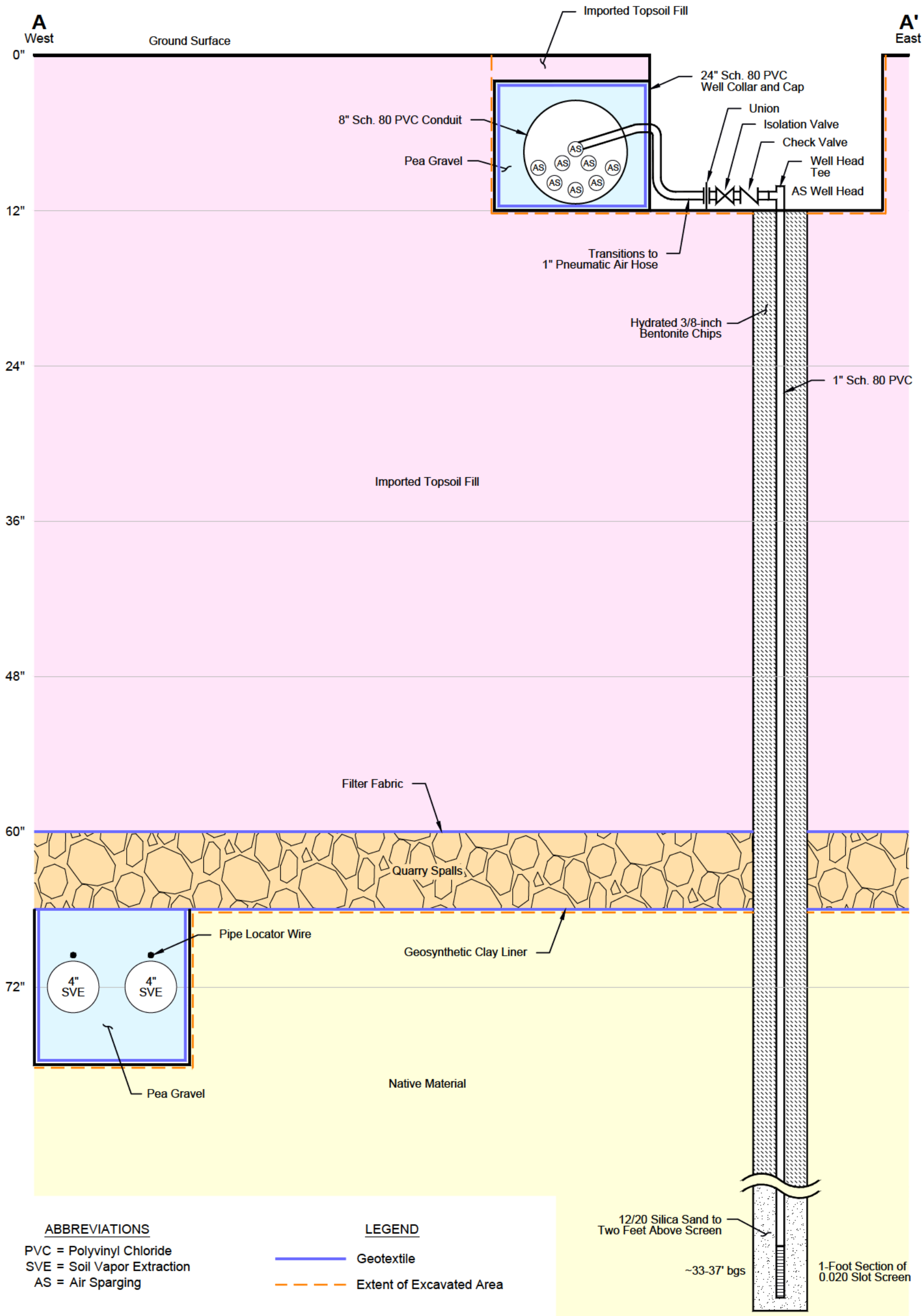
LINE DIAGRAM OF SVE SYSTEM EXTENSION

July 2021 103485-004

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 1.5

Filename: C:\Users\jrs\CAD Group Dropbox\JDrive_SEA\103485\004\103485-004 Air Sparging Well.dwg Layout: Figure 1.6 Date: 03-03-2021 Login: JRS



ABBREVIATIONS

PVC = Polyvinyl Chloride
SVE = Soil Vapor Extraction
AS = Air Sparging

LEGEND

Geotextile
Extent of Excavated Area

NOTES

1. Pea gravel will be round washed gravel sized from 3/8-inch down to 1/4-inch.
2. The backfill will be compacted consistent with requirements in the WSDOT's Standard Specifications for Road, Bridge, and Municipal Construction (WSDOT, 2019).
3. Figure is not to scale.

FIG. 7

AS/SVE System Extension and Modification
8801 East Marginal Way S.

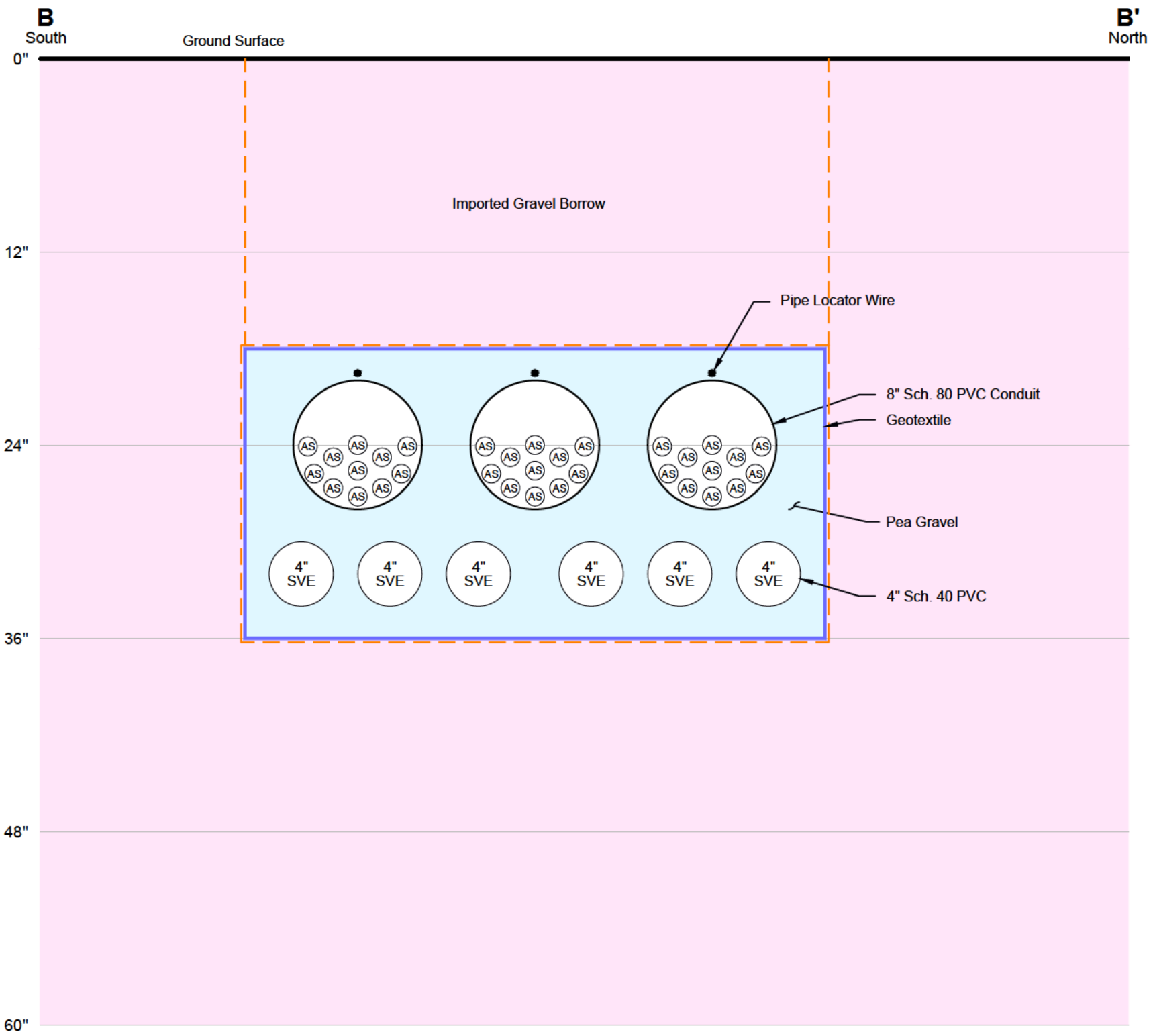
CROSS SECTION OF AN AIR SPARGING WELL (A-A')

July 2021 103485-004

SHANNON & WILSON, INC.

FIG. 1.6

Filename: C:\Users\jrs\CAD Group Dropbox\JDrive_SEA\103485\004\103485-004 Air Sparging Well.dwg Layout: Figure 1.7 Date: 03-03-2021 Login: JRS



ABBREVIATIONS

PVC = Polyvinyl Chloride
SVE = Soil Vapor Extraction
AS = Air Sparging

LEGEND

Geotextile
Extent of Excavated Area

NOTES

1. Pea gravel will be round washed gravel sized from 3/8-inch down to 1/4-inch.
2. The backfill will be compacted consistent with requirements in the WSDOT's Standard Specifications for Road, Bridge, and Municipal Construction (WSDOT, 2019).
3. Figure is not to scale.

FIG. 8

AS/SVE System Extension and Modification
8801 East Marginal Way S.

CROSS SECTION OF EXISTING AS/SVE TRANSFER PIPING (B-B')

July 2021 103485-004

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 1.7

NOTE

Figure adapted from file *Centerpoint Metal Building - Arch&Struc Permit Set - ME Stamp_reduced.pdf* dated 08/20/2020 by Nelson - Nelco Architecture, Inc., adapted from *Architecture Site Plan* by Nelson - Nelco Architecture, Inc., Sheet A0.1.

Lower Duwamish Waterway

ASW-50
ASW-51
ASW-52
ASW-53
ASW-54
ASW-55
SVE-7
ASW-49
ASW-48
ASW-47
ASW-46
ASW-45
ASW-44
ASW-43
ASW-42
ASW-41
ASW-40
ASW-39
ASW-38
ASW-37
ASW-36
ASW-35
ASW-34
SVE-9
110' 4" SCH 40 PVC-NO. 20 SLOT
SVE-8
110' 4" SCH 40 PVC-NO. 20 SLOT
(3) 4" SCH 40 PVC SVE Lines
(22) 1" Pneumatic Air Hose AS Lines (Not Shown)
EQUIPMENT ROOM
1,000 GAL. STORAGE TANK
(3) 8" SCH 80 PVC AS CONDUITS
(6) 4" SCH 40 PVC SVE LINES
(14) 1-1/4" CPVC AS LINES TO NORTH BRANCH
(23) 1-1/4" CPVC AS LINES TO SOUTH BRANCH
SVE-1
65' 4" SCH 40 PVC-NO. 20 SLOT
150' 4" SCH 40 PVC
SVE-2
75' 4" SCH 40 PVC-NO. 20 SLOT
ASW-33
ASW-32
ASW-31
ASW-30
ASW-1
ASW-2
ASW-3
ASW-4
ASW-5
75' 4" SCH 40 PVC-NO. 20 SLOT
SVE-3
ASW-6
ASW-7
75' 4" SCH 40 PVC
ASW-8
ASW-9
ASW-10
100' 4" SCH 40 PVC-NO. 20 SLOT
ASW-11
ASW-12
ASW-13
ASW-14
ASW-15
ASW-16
ASW-17
ASW-18
ASW-19
ASW-20
ASW-21
ASW-22
ASW-23
ASW-24
ASW-25
ASW-26
ASW-27
ASW-28
ASW-29
100' 4" SCH 40 PVC
200' 4" SCH 40 PVC
SVE-4
100' 4" SCH 40 PVC-NO. 20 SLOT
SVE-5
SVE-6
92' 4" SCH 40 PVC-NO. 20 SLOT

N

0 40 80

Scale in Feet

LEGEND

- 4" SCH 40 PVC PIPE
- 4" SLOTTED SCH 40 PVC PIPE
- EXISTING PIPING TO BE REMOVED
- REPLUMBED AS/SVE PIPING
- 4" SCH 40 PVC PIPE EXPANSION
- 4" SLOTTED SCH 40 PVC PIPE EXPANSION
- AIR SPARGE WELL
- AIR SPARGE WELL EXPANSION
- SVE-1 = SOIL VAPOR EXTRACTION LINE DESIGNATION
- ASW-1 = AIR SPARGING WELL DESIGNATION
- AS/SVE Disconnection
- 100 Foot River Buffer

AS/SVE System Extension and Modification
8801 East Marginal Way S.

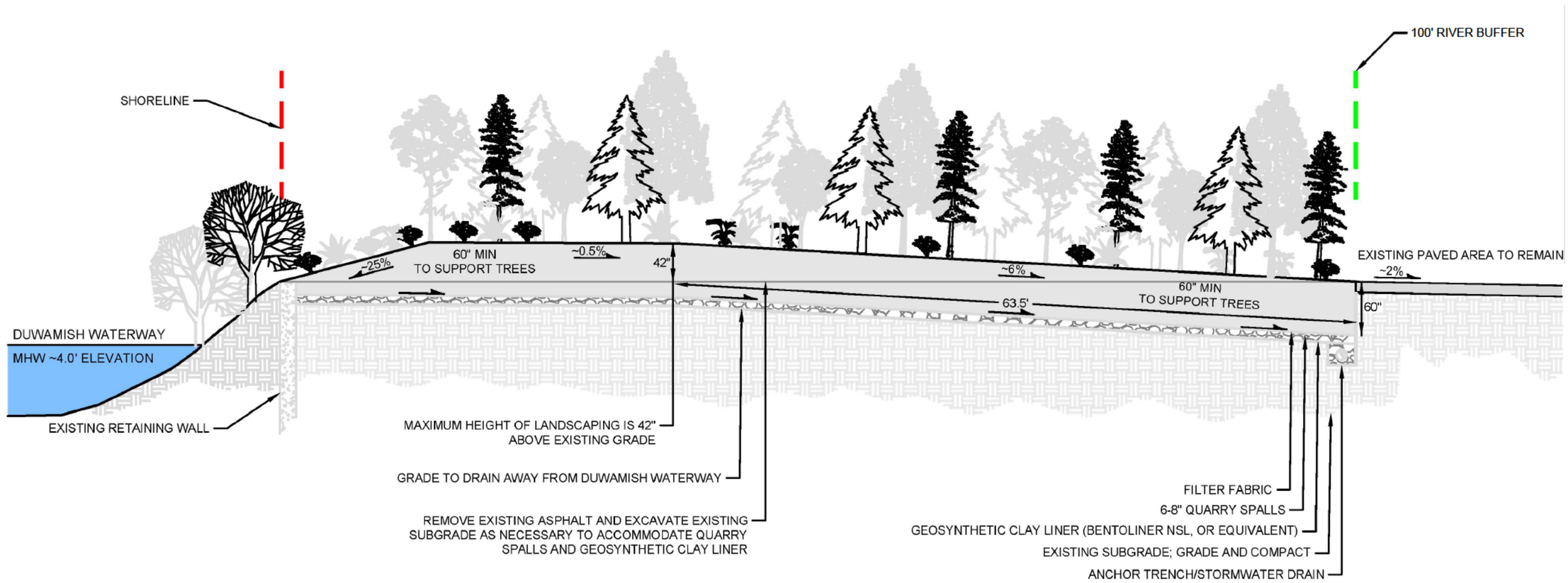
AS/SVE EXTENSION WITH ARCH PLAN

July 2021 103485-004

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 1.8

Filename: C:\Users\jrs\CAD Group Dropbox\JDrive_SEA\103485\004\103485-004 Proposed AS-SVE System Network.dwg Layout: Figure 1.8 Date: 03-03-2021 Login: JRS



0 10 20

Approximate Scale in Feet

NOTES

1. Landscaping is Consistent with the Planting Plan prepared by Soundview Consultants, Dated 02/12/2020.
2. Figure adapted from "Centerpoint Tukwila - Proposed Shoreline Cross-Section" of *Centerpoint Tukwila* dated 10/29/2020 by Soundview Consultants, Inc.

Washington
Issaquah | Bellingham | Seattle
Oregon
Portland | Baker City
California
Oakland | Folsom | Irvine
FARALLON CONSULTING
Quality Service for Environmental Solutions | farallonconsulting.com

AS/SVE System Extension and Modification
8801 East Marginal Way S.

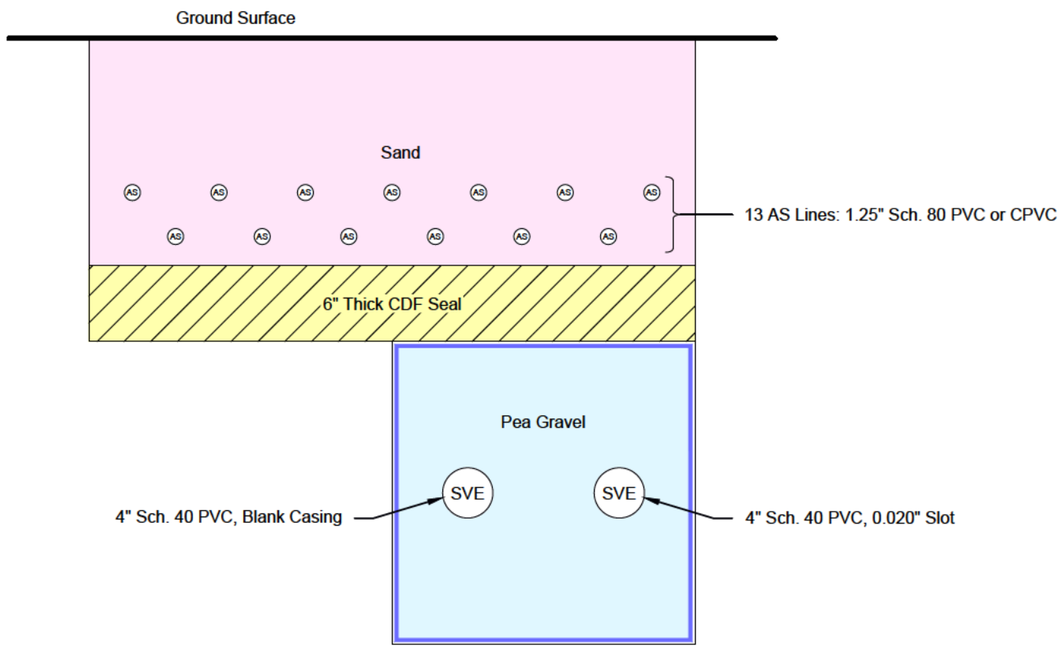
CROSS SECTION OF CAP, DRAINAGE AND LANDSCAPING

July 2021 103485-004

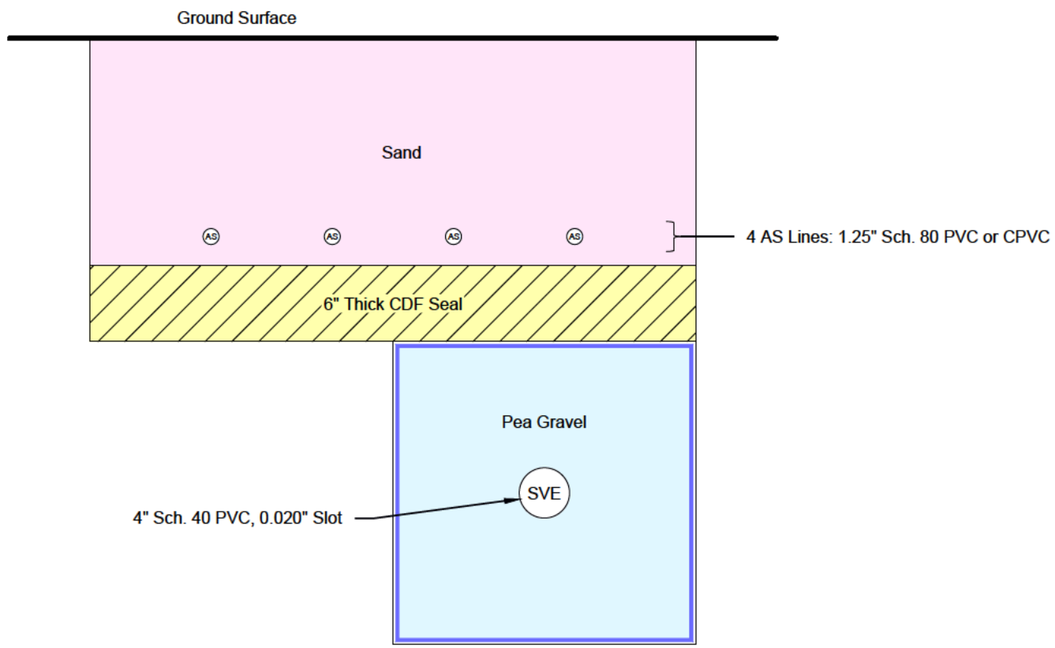
SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 1.9

NORTH AS/SVE EXCAVATION AREA



SOUTH AS/SVE EXCAVATION AREA



NOTES

1. Pea gravel will be round washed gravel sized from 3/8-inch down to 1/4-inch.
2. The backfill will be compacted consistent with requirements in the WSDOT's Standard Specifications for Road, Bridge, and Municipal Construction (WSDOT, 2019).
3. Figure is not to scale.

ABBREVIATIONS

PVC = Polyvinyl Chloride
SVE = Soil Vapor Extraction
AS = Air Sparging

LEGEND

Geotextile

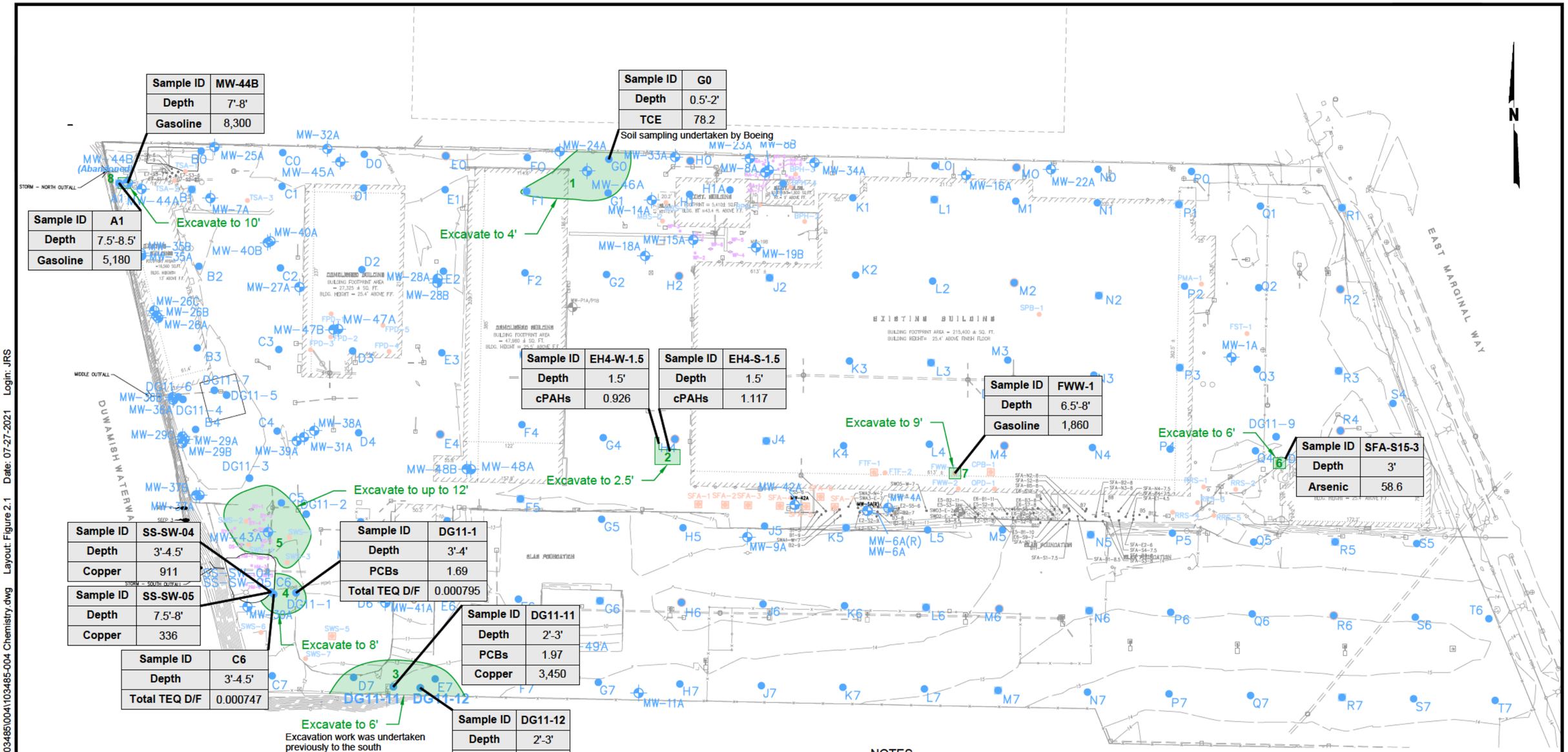
AS/SVE System Extension and Modification
8801 East Marginal Way S.

CROSS SECTION OF EXISTING AS/SVE LINES AT YELLOW-SHADED AREAS

July 2021 103485-004

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 1.10



LEGEND

- 3 — Proposed Estimated Excavation Extents with Area Number Designation
- Soil Sample
- MW-36B — Groundwater Monitoring Well
- Fenceline
- ' — Feet

Abbreviations

PCBs = Polychlorinated Biphenyls
cPAHs = Carcinogenic Polycyclic Aromatic Hydrocarbons
TCE = Trichloroethylene
TEQ = Total Equivalency Quotient
D/F = Dioxin/Furan

NOTES

1. Exploration locations are approximate.
2. Base map and historic exploration points are from Kennedy-Jenks Figures 2 and 3, 046001.00/Report/Po4SK003.
3. Concentrations are expressed in milligrams per kilograms (mg/kg).
4. Established project specific remediation level (mg/kg):

PCBs	0.5
cPAHs	0.6
TCE	5
Arsenic	14.6
Copper	250
Lead	250
TEQ D/F	1.3E-05
Gasoline	250
Oil	4,000

Remedial Action Excavations
8801 East Marginal Way S.
Tukwila, Washington

REMEDIAL ACTION EXCAVATIONS

July 2021 103485-004

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2.1

Filename: C:\Users\jrs\CAD Group Dropbox\JDrive_SEA\103485\004\103485-004 Chemistry.dwg Layout: Figure 2.1 Date: 07-27-2021 Login: JRS

Sample ID	BY-1	
Depth	0'-1'	1'-3'
Lead	631	9,220
cPAHs	0.7	--
Oil	5,000	--

Sample ID	SWS-2		
Depth	3'-5.5'	6'-7.5'	9.5'-11'
Lead	476	1,600	3,430

Sample ID	S5
Depth	4'
Lead	619

Sample ID	S8
Depth	4'
Lead	261

Sample ID	S1
Depth	3'
Lead	1,180

Sample ID	BY-5
Depth	7'-9'
Lead	1,310

Sample ID	BY-4	
Depth	4'-6'	6'-7.5'
Lead	3,330	3,780

Sample ID	C5
Depth	3'-4.5'
Lead	287

Sample ID	BY-3		
Depth	3'-5'	6'-8'	8'-9'
Arsenic	14.7	--	--
Lead	5,200	6,080	520
Copper	380	--	--

Sample ID	MW-43A		
Depth	2'-3'	6.5'-7.5'	11'-12'
Lead	382J	4,430	463
Copper	8,475	2,560	103

Sample ID	SWS-1	
Depth	3.5'-5'	6'-7'
PCBs	--	1.75
Lead	626	1,030

Sample ID	DS-2
Depth	6'-8'
Total TEQ cPAHs	320

Sample ID	SWS-3
Depth	6'-7.5'
Arsenic	10.0

Excavate up to 12'

MW-37B MW-37A MW-43A MW-12A D5 C5

SEEP 4 SEEP 3 SEEP 2 SEEP 1 SEEP 6

STORM – SOUTH OUTFALL

P(OH)

N

0 20 40

Scale in Feet

LEGEND

- 5 — Proposed Estimated Excavation Extents with Area Number Designation
- Approximate Stormwater Soil Excavation Area (2007)
- Soil Sample
- MW-36B — Groundwater Monitoring Well
- Fenceline
- ' — Feet

ABBREVIATION

PCBs = Polychlorinated Biphenyls

cPAHs = Carcinogenic Polycyclic Aromatic Hydrocarbons

mg/kg = Milligrams per Kilograms

HC = Hydrocarbons

NOTES

1. Exploration locations are approximate.
2. Base map and historic exploration points are from Kennedy-Jenks Figures 2 and 3, 046001.00/Report/Po4SK003.
3. Concentrations are expressed in milligrams per kilograms (mg/kg).
4. Established project specific remediation levels (mg/kg):

Arsenic	14.6
Copper	250
Oil-Range HC	4,000
Total cPAH TEQ	0.6
Total PCB Aroclors	0.5

5. Established project specific cleanup levels for select analytes (mg/kg):

Lead	250
Gasoline-Range HC	250

Remedial Action Excavations
8801 East Marginal Way S.
Tukwila, Washington

REMEDIAL ACTION EXCAVATION AREA 5 DETAIL

July 2021 103485-004

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2.2

Filename: C:\Users\jrs\CAD Group Dropbox\JDrivel_SEA\103485\004\103485-004 Area 5.dwg Layout: Figure 2.2 Date: 02-16-2021 Login: JRS

Soil sampling undertaken by Boeing

EC1

EC2

EH

EB

EF

EG

EE

ED

EA1

EA2

1

2

3

4

5

6

7

8

EAST MARGINAL WAY

DUWAMISH WATERWAY

EXISTING BUILDING

DEMOLISHED BUILDING

STORM NORTH OUTFALL

MIDDLE OUTFALL

STORM – SOUTH OUTFALL

MW-44B (Abandoned)

LEGEND

1 Estimated Excavation Extents and Designation

MW-47A Groundwater Monitoring Well

DG11-8 Soil Sample

SFA-1

TSA-3

SW03-E-7

EC1 Proposed Excavation Profile (See Figures 4 and 5)

0 120 240

Scale in Feet
Contour Interval = 1 Foot
Datum = NGVD29

NOTES

1. Exploration locations are approximate.
2. Base map and historic exploration points are from Kennedy-Jenks Figures 2 and 3, 046001.00/Report/Po4SK003..

N

Remedial Action Excavations
8801 East Marginal Way S.
Tukwila, Washington

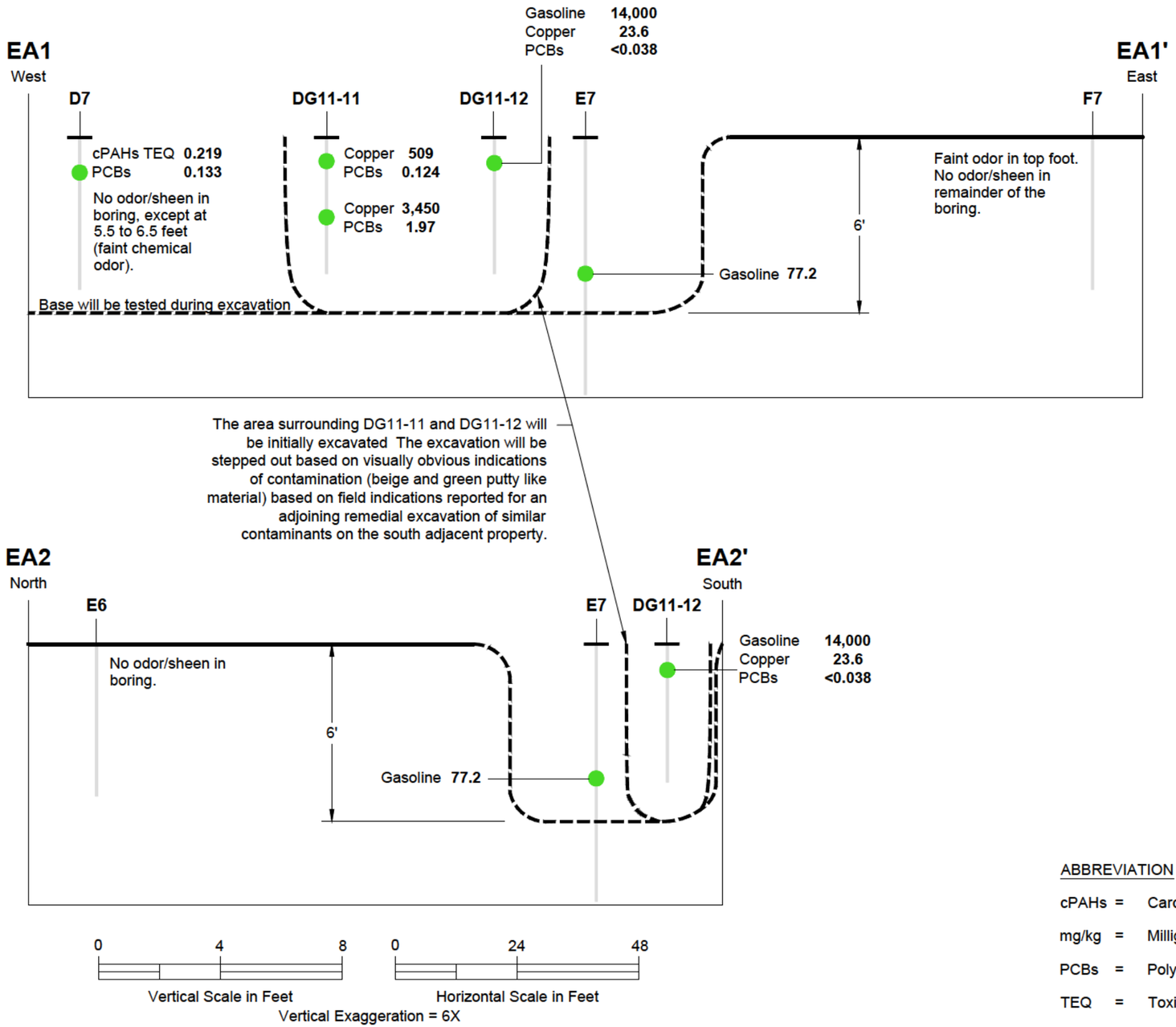
KEY MAP FOR CROSS-SECTIONS

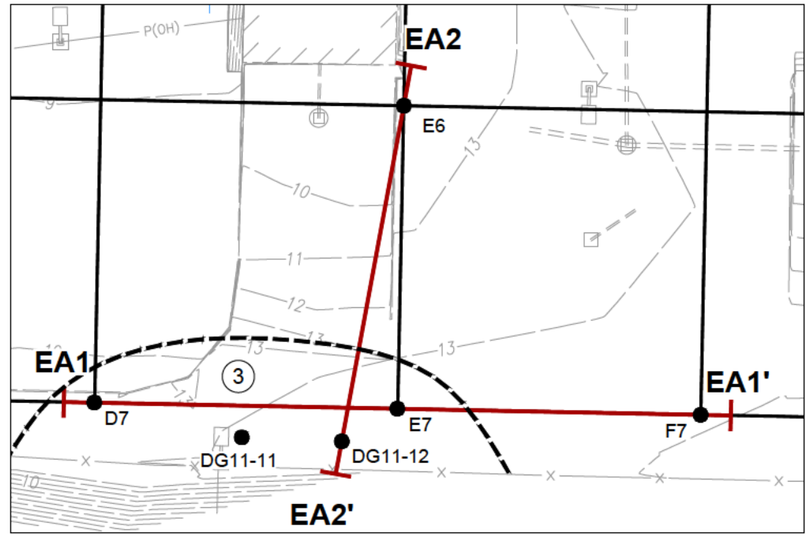
July 2021 103485-004

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2.3

Filename: C:\Users\jrs\CAD Group Dropbox\JDrive_SEA\103485\004\103485-004 Proposed Excavation Plan and Profiles.dwg Layout: Figure 2.3 Date: 02-16-2021 Login: JRS





PLAN - PROFILE LOCATIONS

0 50 00

Scale in Feet

PLAN LEGEND

E7 ● Soil Sample

Proposed Excavation

EA1 Excavation Profile Location

PROFILE LEGEND

E6 ← Designation of Boring

Proposed Excavation Limits

Data Result in mg/kg

< ← Not Detected Above Laboratory Reporting Limit

DATA TABLE	REMEDIATION LEVELS (mg/kg)
Copper	250
Total cPAH TEQ	0.6
Total PCB Aroclors	0.5

DATA TABLE	CLEANUP LEVELS (mg/kg)
Gasoline-Range HC	250

ABBREVIATION

cPAHs = Carcinogenic Polycyclic Aromatic Hydrocarbons

mg/kg = Milligrams per Kilograms

PCBs = Polychlorinated Biphenyls

TEQ = Toxicity Equivalency Quotient

HC = Hydrocarbons

Remedial Action Excavations
8801 East Marginal Way S.
Tukwila, Washington

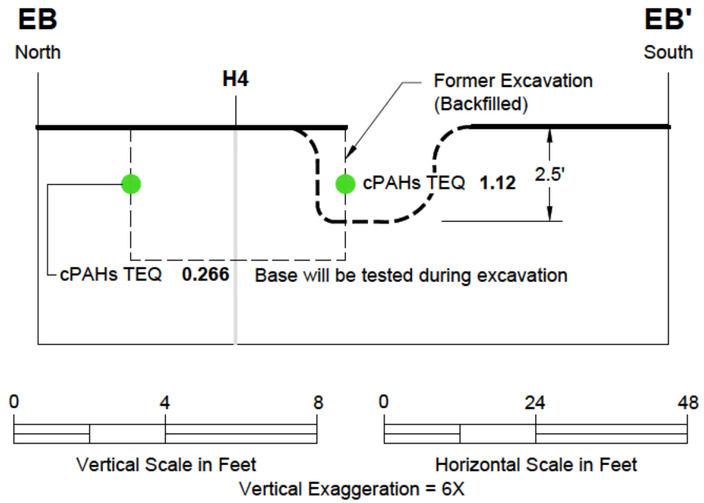
EXCAVATION PROFILES EA1 AND EA2

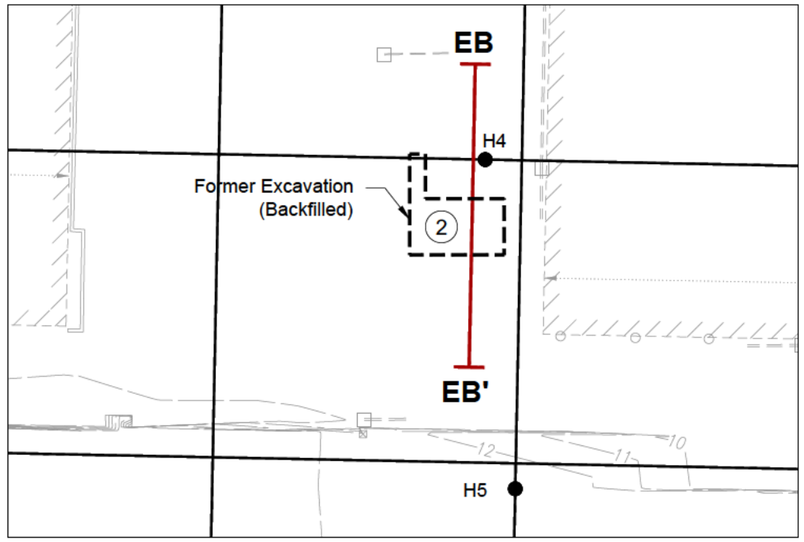
July 2021 103485-004

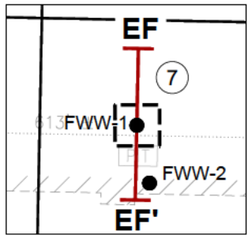
SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

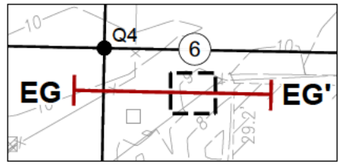
FIG. 2.4

Filename: C:\Users\jrs\CAD Group Dropbox\JDrivel_SEA\103485\004\103485-004 Proposed Excavation Plan and Profiles.dwg Layout: Figure 2.4 Date: 02-16-2021 Login: JRS

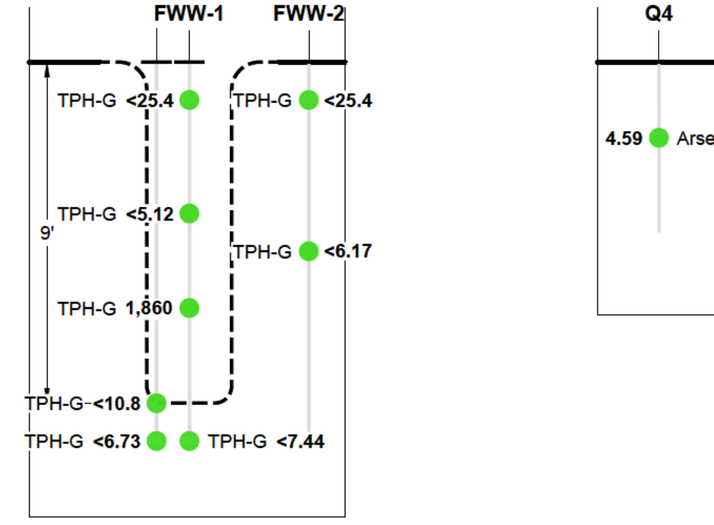


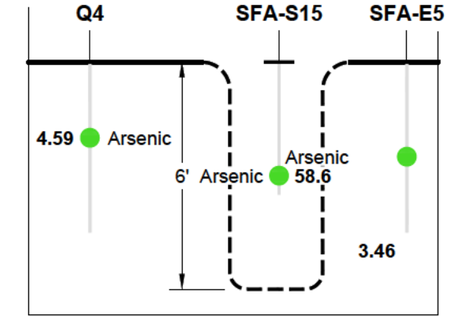






A7-1 offset for graphical representation.
A7-1 was placed approximately center of the proposed excavation area.





PLAN - PROFILE LOCATIONS

0 50 00

Scale in Feet

PLAN LEGEND

H4 ● Soil Sample

Proposed Excavation

EB Excavation Profile Location

PROFILE LEGEND

E6 ← Designation of Boring

Proposed Excavation Limits

Data Result in mg/kg

mg/kg ← Milligrams per Kilogram

No Data

< ← Indicates Not Detected at or Above Value Shown

DATA TABLE	REMEDIATION LEVEL (mg/kg)
Arsenic	14.6
cPAHs TEQ	0.6
TPH-G	250

ABBREVIATIONS

TPH-G = Gasoline-Range Hydrocarbons

cPAHs TEQ = carcinogenic Polycyclic Aromatic Hydrocarbon Toxicity Equivalent

Engineering Design Report
Excavation in Areas 1, 2, 6, and 7;
Asphalt/Concrete Cover; and Institutional Controls

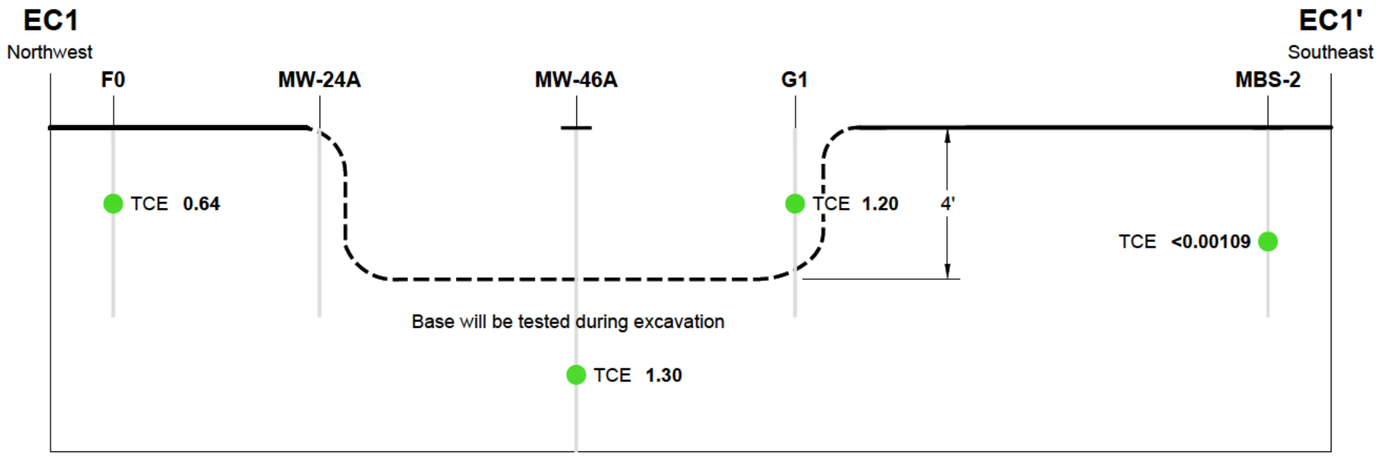
PROPOSED EXCAVATION PROFILES EB, EF AND EG

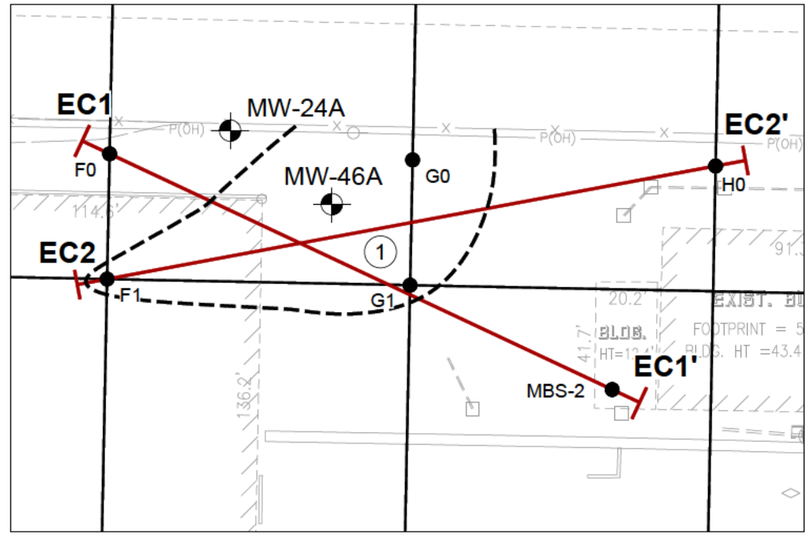
July 2021 21-1-12567-024

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 4

Filename: C:\Users\jrs\CAD Group Dropbox\JDrive\21\1\12567\024\21-1-12567-024 Proposed Excavation Plan and Profiles.dwg Layout: Figure 4 Date: 07-27-2021 Login: JRS

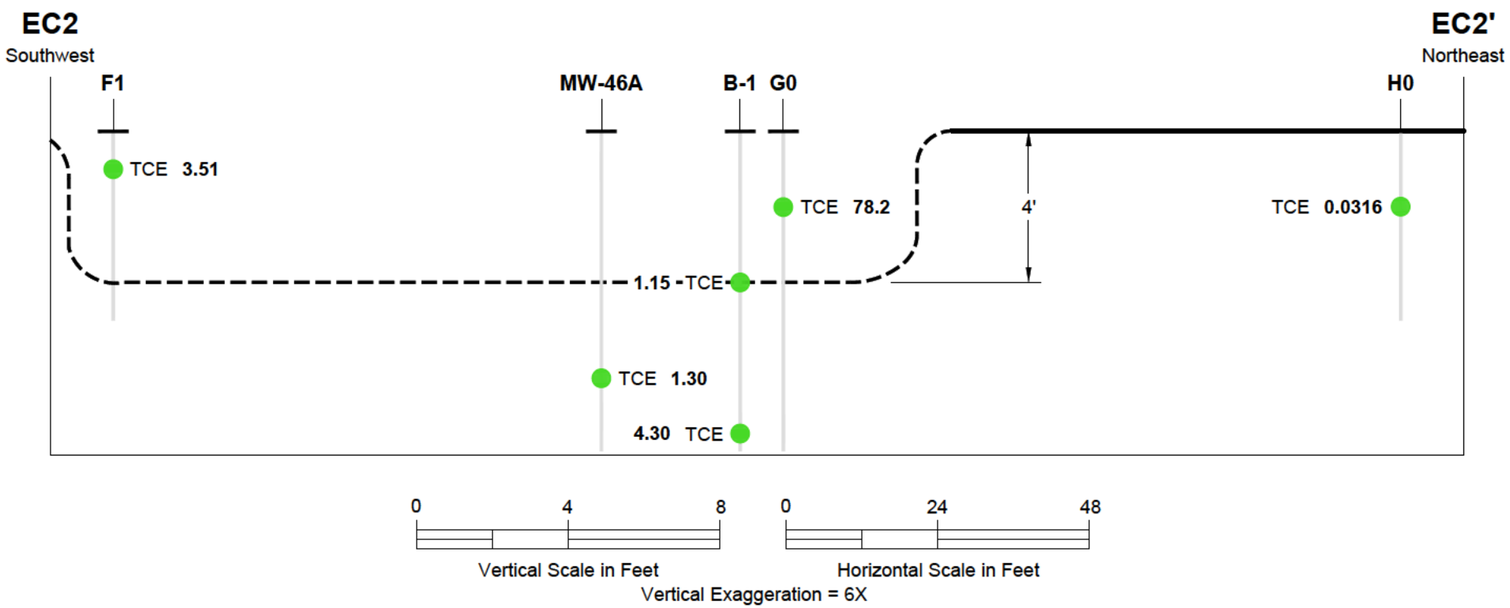




PLAN - PROFILE LOCATIONS

0 50 00

Scale in Feet



PLAN LEGEND

- MW-46A — Groundwater Monitoring Well
- F1 — Soil Sample
- Proposed Excavation
- EC1 — Excavation Profile Location

PROFILE LEGEND

- E6 — Designation of Boring
- Proposed Excavation Limits
- Data Result in mg/kg
- mg/kg — Milligrams per Kilogram
- < — Not Detected Above Laboratory Reporting Limit

DATA TABLE	REMEDIATION LEVEL (mg/kg)
Trichloroethylene (TCE)	5

Remedial Action Excavations
8801 East Marginal Way S.
Tukwila, Washington

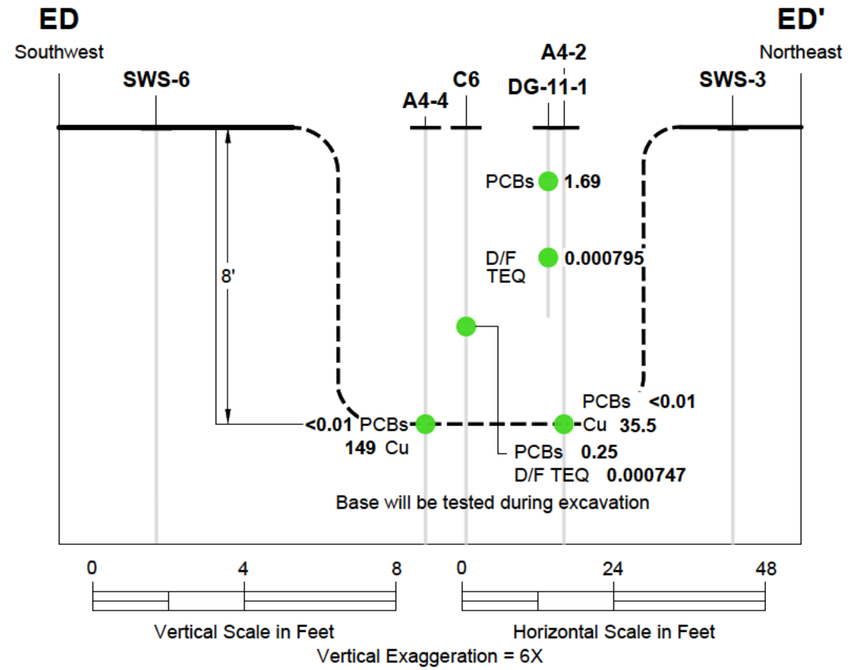
PROPOSED EXCAVATION PROFILES EC1 AND EC2

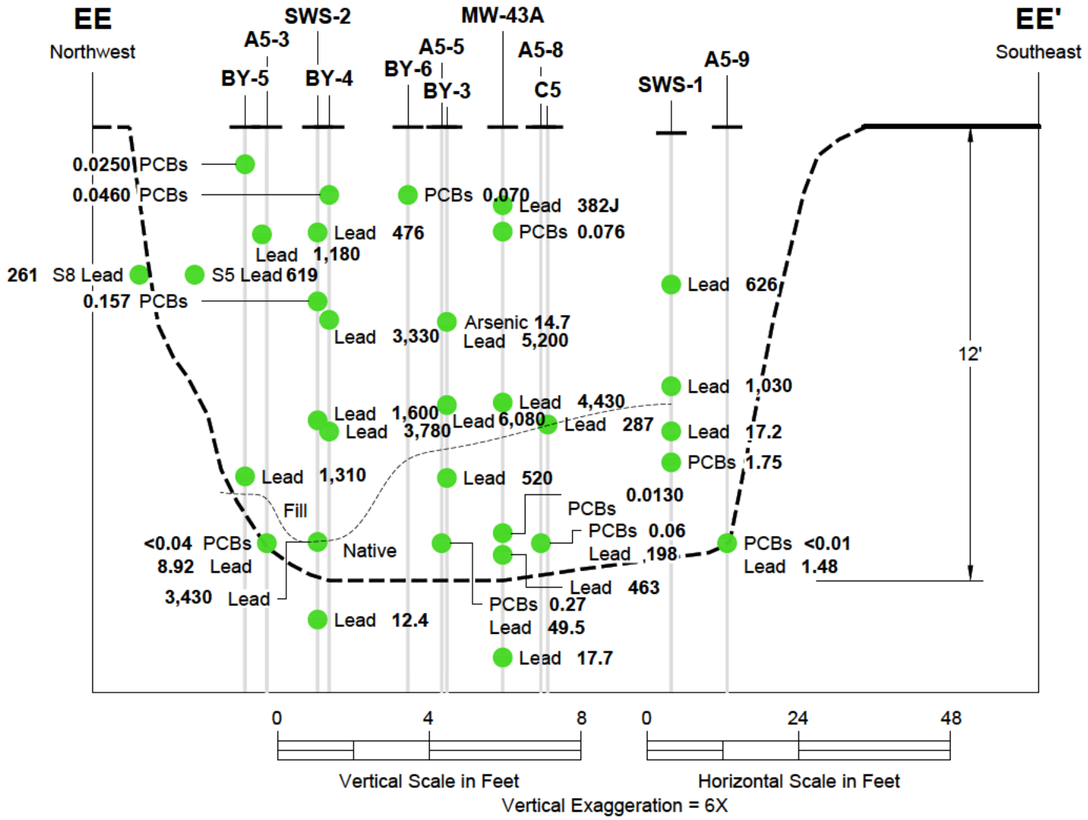
July 2021 103485-004

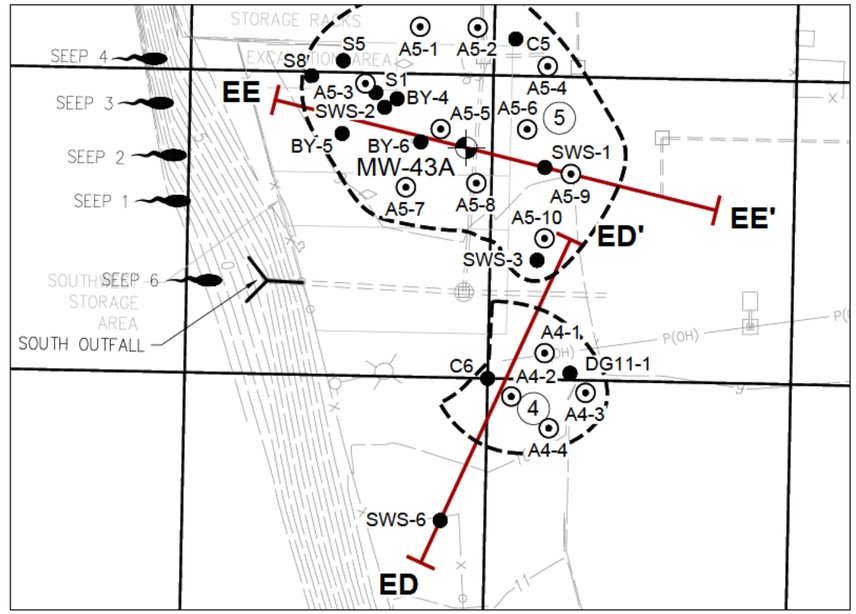
SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2.6

Filename: C:\Users\jrs\CAD Group Dropbox\JDrivel_SEA\103485\004\103485-004 Proposed Excavation Plan and Profiles.dwg Layout: Figure 2.6 Date: 07-27-2021 Login: JRS







PLAN - PROFILE LOCATIONS

0 50 00

Scale in Feet

PLAN LEGEND

- MW-43A — Groundwater Monitoring Well
- C6 — Soil Sample
- A5-1 — Borings
- Proposed Excavation
- ED — Excavation Profile Location

PROFILE LEGEND

- E6 — Designation of Boring
- Proposed Excavation Limits
- Data Result in mg/kg
- < — Not Detected Above Laboratory Reporting Limit

DATA TABLE	REMEDIATION LEVELS (mg/kg)
Arsenic	14.6
Total PCB Aroclors	0.5
Copper	250

DATA TABLE	CLEANUP LEVELS (mg/kg)
D/F TEQ	0.0000052
Lead	250

ABBREVIATION

Cu	=	Copper
D/F	=	Dioxin/Furans
mg/kg	=	Milligrams per Kilograms
PCBs	=	Polychlorinated Biphenyls
TEQ	=	Toxicity Equivalency Quotient

Remedial Action Excavations
8801 East Marginal Way S.
Tukwila, Washington

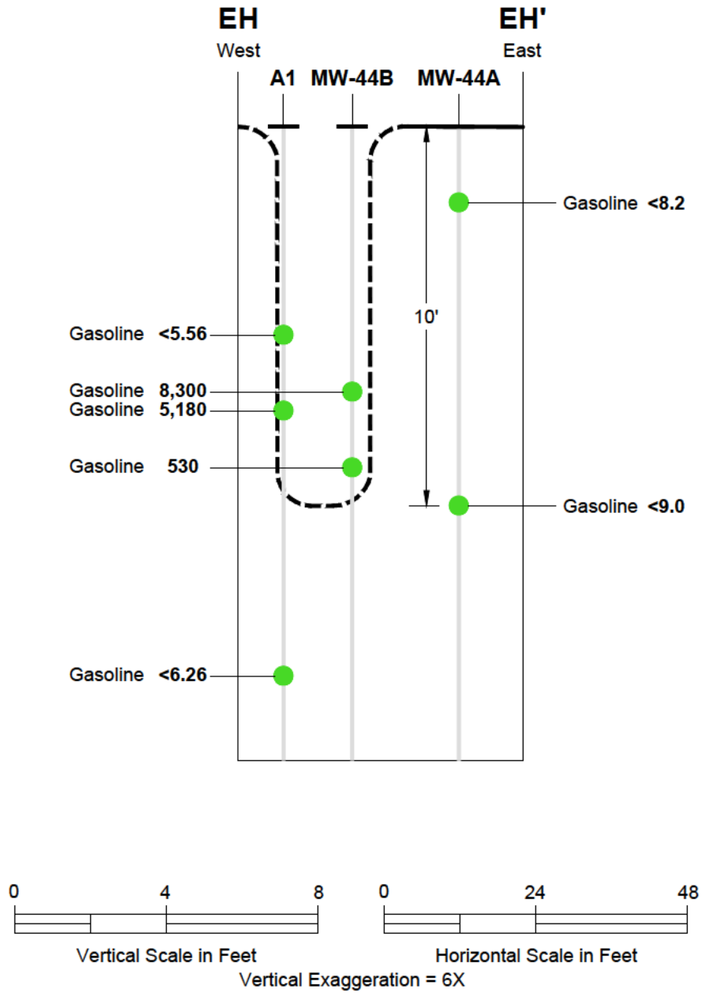
PROPOSED EXCAVATION PROFILES ED AND EE

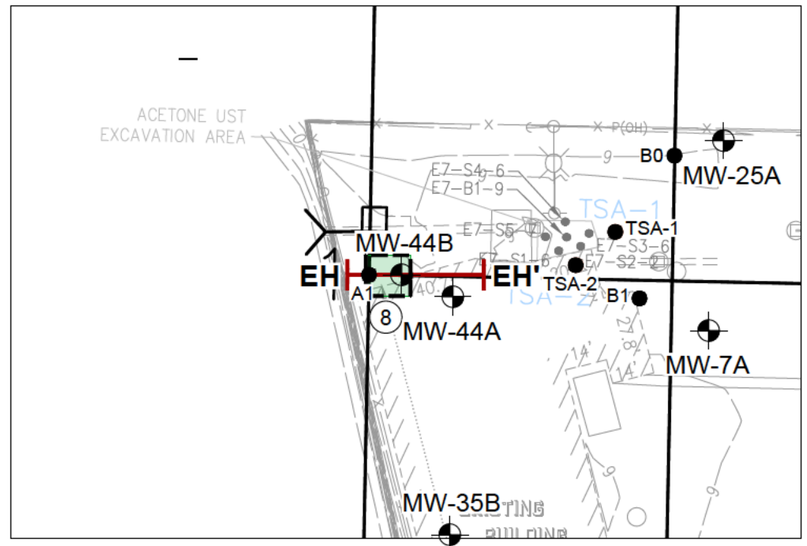
July 2021 103485-004

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2.7

Filename: C:\Users\jrs\CAD Group Dropbox\JDrive\211\125670\027\21-1-12567-027 Excavation Plan and Profiles.dwg Layout: Figure 2.7 Date: 07-27-2021 Login: JRS





PLAN - PROFILE LOCATIONS

0 50 00

Scale in Feet

PLAN LEGEND

H4 ● Soil Sample

Proposed Excavation

EB Excavation Profile Location

PROFILE LEGEND

E6 Designation of Boring

Proposed Excavation Limits

Data Result in mg/kg

No Data

Indicates Not Detected at or Above Value Shown

DATA TABLE	CLEANUP LEVEL (mg/kg)
Gasoline-Range HC	250

ABBREVIATION

mg/kg = Milligrams per Kilograms

HC = Hydrocarbons

Remedial Action Excavations
8801 East Marginal Way S.
Tukwila, Washington

EXCAVATION PROFILE EH

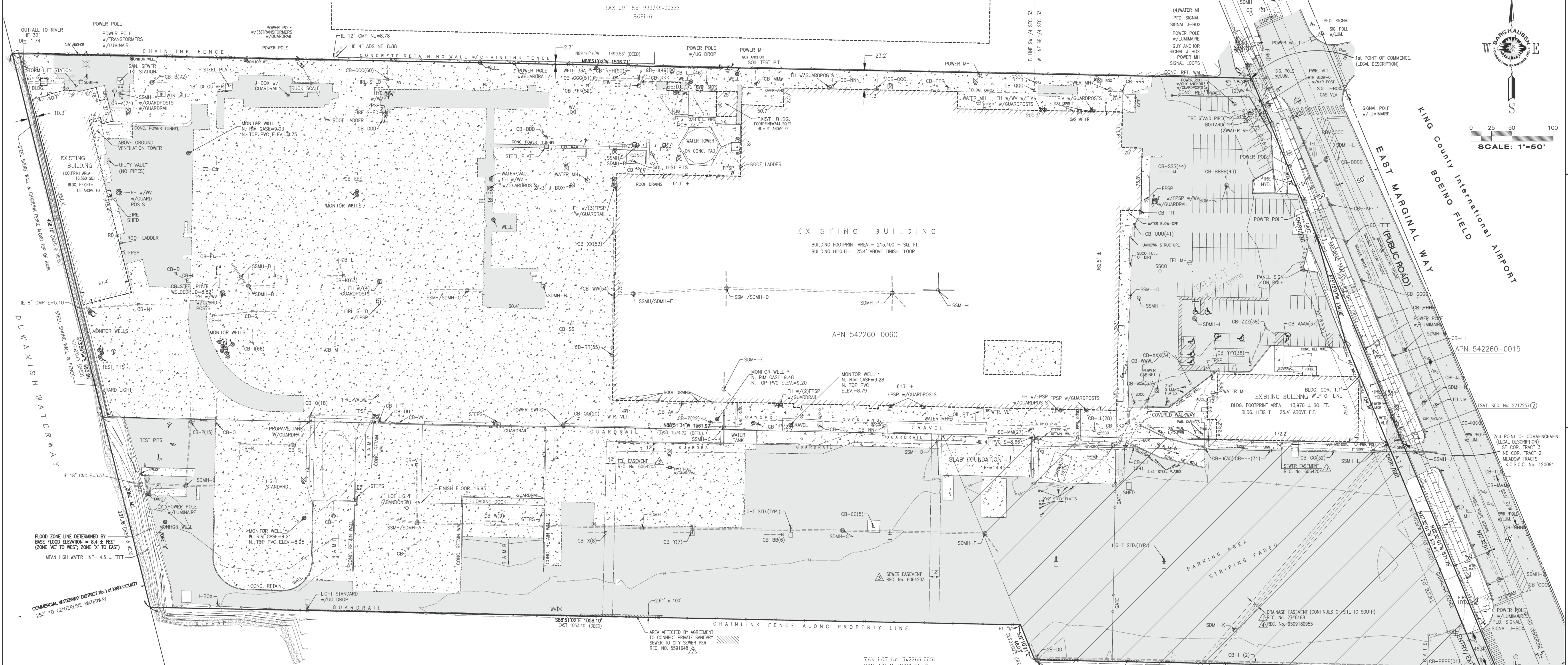
July 2021 103485-004

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2.8

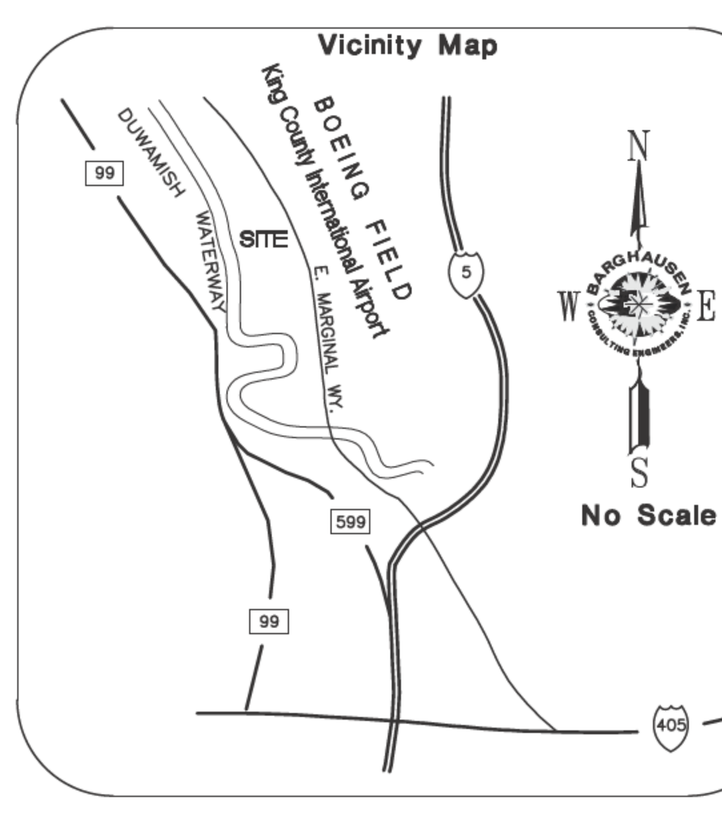
Filename: C:\Users\jrs\CAD Group Dropbox\JDrivel_SEA\103485\004\103485-004 Proposed Excavation Plan and Profiles.dwg Layout: Figure 2.8 Date: 02-16-2021 Login: JRS

ALTA/NSPS LAND TITLE SURVEY



LEGEND

Symbol	Description
	POWER VAULT
	LUMINAIRE (LUM.)
	YARD LIGHT
	POWER METER
	POWER POLE
	JUNCTION BOX (AS NOTED)
	UTILITY MANHOLE (AS NOTED)
	CATCH BASIN (CB)
	STORM MANHOLE (SDMH)
	SANITARY SEWER MANHOLE (SSMH)
	SANITARY SEWER CLEANOUT (SSCO)
	GAS METER
	GAS VALVE
	WATER VALVE (WV)
	FIRE HYDRANT (FH)
	WATER MANHOLE
	WATER METER
	SIGN
	MONITOR WELL
⑧	SPECIAL EXCEPTION NUMBER PER TITLE REPORT
	SURVEY MONUMENT (AS NOTED)
	BENCHMARK
	FOUND SURVEY MARKER AS NOTED
	SURVEY CONTROL STATION
	ASPHALT
	CONCRETE
	GRAVEL
--W------W--	WATER LINE
	SANITARY SEWER LINE
	STORM DRAINAGE LINE
—G——G—	GAS LINE
—T(UG)—	TELEPHONE UNDERGROUND
—P(UG)—	POWER UNDERGROUND
—P(OH)—	POWER OVERHEAD
—X—	CHAIN LINK FENCE



PROJECT INFORMATION

TAX ACCOUNT NUMBERS
542260-0060-03 & 542260-0015-09

SITE ADDRESS
8801 EAST MARGINAL WAY
SEATTLE, WA 98108

CALCULATED LAND AREA
1,070,502 ± SQ. FT. [or 24.575 ± ACRES]

CURRENT OWNER
CENTERPOINT 8801 MARGINAL LLC, A DELAWARE LIMITED LIABILITY COMPANY

LAND USE GOVERNING JURISDICTION
CITY OF TUKWILA, WASHINGTON

FLOOD INFORMATION
FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) INFORMATION: FIRM (FLOOD INSURANCE RATE MAP) MAP No. 53033C0645 F, COMMUNITY NO. 530091 IN THE CITY OF TUKWILA, KING COUNTY, WASHINGTON – PANEL 645 OF 1725, DATED MAY 16, 1995. MOST OF THE SUBJECT PROPERTY IS IN ZONE "X" – "AREAS DETERMINED TO BE OUTSIDE 500-YEAR FLOODPLAIN" A SMALL PORTION OF THE SUBJECT PROPERTY ALONG THE WEST BOUNDARY IS IN ZONE "AE" – SPECIAL FLOOD HAZARD AREAS INDUDATED BY 100-YEAR FLOOD BASE FLOOD EVEVATIONS DETERMINED – 8.4 FEET (NGVD '29) (SEE DRAWING).

DRAINAGE STRUCTURES

Structure	Rim	Pipes
CB-A(74)	RIM = 8.56 (TYPE 2)	24" CONC E = -1.50 24" CONC W = -1.38
CB-B(72)	RIM = 8.75 (TYPE 2)	6" DI E = 7.20
CB-C	RIM = 8.60	6" CONC N = 6.90
CB-D	RIM = 8.06	6" DI SE = 7.01
CB-E	RIM = 8.60	8" CONC E = 6.85
CB-F	RIM = 8.79	WELDED SHUT
CB-G	RIM = 8.51	6" CONC W = 6.44 6" CONC E = 6.44
CB-H	RIM = 8.41	6" CONC E = 7.61
CB-I(66)	RIM = 8.37	6" DI N = 6.42
CB-J	RIM = 8.68 (1'x1.5')	6" CONC S = 7.23
CB-K(63)	RIM = 8.66	6" CONC W = 6.96 6" PVC NW = 7.36
CB-L	RIM = 8.53(SOLID LID)	6" PVC SE = 7.65
CB-M	RIM = 8.23	6" DI N = 6.23
CB-N	RIM = 9.06	6" CONC E = 7.16 6" DI W = 7.16
CB-O	RIM = 8.73	6" CONC N = 6.06
CB-P(15)	RIM = 7.83	8" CMP N = 4.88 8" CONC S = 4.83 12" CONC E = 4.93
CB-Q(18)	RIM = 8.81	8" CONC E = 6.60 8" CONC SW = 6.71
CB-R	RIM = 8.28	8" CONC S = 5.28 8" CONC E = 5.28
CB-S	RIM = 8.20	8" CONC NE = 5.60 8" CONC W = 5.60
CB-T	RIM = 9.15 (TYPE 2)	8" PVC N = 6.35
CB-U	RIM = 12.37	8" CONC NE = 9.72
CB-V	RIM = 12.41	10" CONC S = 9.71
CB-W(9)	RIM = 9.15	8" CONC W = 6.85
CB-X(8)	RIM = 12.53	8" CONC W = 9.30
CB-Y(7)	RIM = 12.78	6" CONC W = 9.98
CB-Z(22)	RIM = 9.26	8" CONC E = 6.94
CB-AA	RIM = 9.11	8" CONC E = 7.86 8" CONC W = 7.86
CB-BB(6)	RIM = 13.01	6" CONC W = 10.46
CB-CC(5)	RIM = 13.38	8" CONC W = 10.39
CB-DD	RIM = 13.43	12" CONC E = 11.24 6" DI NW = 11.24
CB-EE(3)	RIM = 13.35	12" CONC E = 11.69 12" CONC W = 11.60
CB-FF(2)	RIM = 13.64	8" PVC E = 12.11 12" CONC W = 12.09
CB-GG(32)	RIM = 12.70	6" CONC W = 11.24
CB-HH(31)	RIM = 13.00	6" CONC W = 11.35

DRAINAGE STRUCTURES (CONT.)

Structure	Rim	Pipes
CB-II(30)	RIM = 12.80	6" CONC W = 11.15
CB-JJ(29)	RIM = 13.02	6" CONC W = 7.97 4" PVC S = 11.62
CB-KK	RIM = 9.27 2' DIA. ROUND	10" DI NE = 3.57 10" DI N = 3.22 10" CONC SE = 6.37
CB-LL(20)	RIM = 9.48	6" CONC W = 7.30
CB-MM(27)	RIM = 9.13	6" CONC W = 6.98
CB-NN	RIM = 8.91	6" PVC S = 6.94
CB-OO	RIM = 8.92	6" PVC S = 6.82
CB-PP(23)	RIM = 9.16	6" CONC S = 7.08
CB-QQ(20)	RIM = 9.04	6" CONC E = 7.74
CB-RR(55)	RIM = 9.20	8" CONC N = 6.85 8" CONC S = 6.85
CB-SS	RIM = 9.33	4" CONC E = 8.28
CB-TT	RIM = 8.68	4" PVC E = 7.78 6" CONC W = 7.28 3" PVC E = 7.48
CB-UU	RIM = 8.67	4" DI W = 7.82
CB-VV	RIM = 8.73	4" DI W = 8.03 3" PVC N = 8.03
CB-WW(54)	RIM = 8.95	8" CONC N = 6.20 8" CONC S = 6.20
CB-XX(53)	RIM = 9.33	8" CONC N = 7.08 8" CONC S = 7.03
CB-YY	RIM = 9.31	3" PVC S = 8.46
CB-ZZ	RIM = 9.11	6" DI NW = 6.86
CB-AAA	RIM = 9.17	WELDED SHUT
CB-BBB	RIM = 9.04	6" DI NW = 7.54
CB-CCC(60)	RIM = 9.03	6" DI E = 7.38 6" DI W = 7.65 3" PVC N = 7.38
CB-DDD	RIM = 9.01 (1'x1')	6" DI N = 8.01
CB-EEE	RIM = 8.76	WELDED SHUT
CB-FFF(52)	RIM = 9.13	6" CONC NE = 7.73
CB-GGG(51)	RIM = 9.39	6" CONC SW = 7.64 6" CONC E = 7.34
CB-HHH(50)	RIM = 9.13	6" CONC E = 7.13 6" CONC W = 7.18
CB-III(49)	RIM = 9.23	6" CONC W = 7.18 6" CONC S = 7.23
CB-JJJ	RIM = 9.23	6" CONC N = 6.24 6" CONC E = 5.03 6" DI S = 2.63 6" CONC NE = 5.23
CB-KKK	RIM = 9.16	6" CONC E = 7.51
CB-LLL(46)	RIM = 9.18	8" DI N = 7.48
CB-MMM	RIM = 9.18	8" DI N = 7.93

DRAINAGE STRUCTURES (CONT.)

Structure	Rim	Pipes
CB-NNN	RIM = 9.10	6" CONC N = 7.92
CB-OOO	RIM = 9.05	6" CONC N = 7.50
CB-PPP	RIM = 9.29	6" CONC N = 7.73
CB-QQQ	RIM = 9.34	6" CONC N = 7.82
CB-RRR	RIM = 9.29	4" CONC W = 7.79 6" CONC SE = 7.39
CB-SSS(44)	RIM = 8.50	8" CONC W = 6.90
CB-TTT	RIM = 9.41	4" CONC S = 8.46
CB-UUU(41)	RIM = 9.61	4" PVC W = 7.61 4" PVC W = 7.61 4" CONC NE = 7.56 6" PVC E = 7.42
CB-VVV(33)	RIM = 9.16	6" PVC NE = 6.44 6" PVC W = 5.94 6" PVC S = 6.74 6" CONC SW = 7.76
CB-WWW	RIM = 9.73	SD CLEANOUT
CB-XXX(34)	RIM = 9.46	8" CONC SW = 7.27
CB-YYY(36)	RIM = 8.23	6" CONC NE = 6.19
CB-ZZZ(38)	RIM = 8.30	4" CONC SE = 6.08 6" CONC SW = 6.70
CB-AAAA(37)	RIM = 8.47	6" CONC W = 6.42
CB-BBBB(43)	RIM = 8.74	6" PVC S = 6.84
CB-CCCC	RIM = 14.66	8" DI S = 10.76
CB-DDDD	RIM = 14.66	8" DI N = 10.74 8" DI S = 10.28 8" DI E = 10.28
CB-EEEE	RIM = 14.65	8" DI N = 11.65 8" DI S = 11.86 8" DI W = 12.05
CB-FFFF	RIM = 14.67	8" DI N = 11.70
CB-GGGG	RIM = 14.73	8" DI S = 11.23
CB-HHHH	RIM = 14.62	8" DI N = 11.06 8" DI S = 11.06
CB-IIII	RIM = 14.64	8" DI N = 10.94 8" DI S = 10.94 8" DI E = 10.94
CB-JJJJ	RIM = 14.66	8" DI N = 11.36 8" DI S = 11.36
CB-KKKK	RIM = 14.66	8" DI N = 11.29
CB-LLLL	RIM = 14.67	8" ADS S = 11.69
CB-MMMM	RIM = 14.58	8" ADS N = 11.40 8" ADS S = 11.38
CB-NNNN	RIM = 14.57	8" ADS N = 11.25 8" ADS S = 11.22
CB-OOOO	RIM = 14.57	8" ADS N = 10.97 8" ADS E = 10.82
CB-PPPP(01)	RIM = 13.23	8" PVC W = 11.75

STORM MANHOLES

Structure	Rim	Pipes
SDMH-A	RIM = 9.10 (4' SQUARE) FULL OF DEBRIS	
SDMH-B	RIM = 8.79 w/SEALED SS LINE NW & E	12" CONC S = 2.54 8" CONC N = 2.69 24" CMP NW = 2.14 24" CMP E = 2.14
SDMH-C	RIM = 9.26	12" CONC N = 4.21 18" CONC E = 3.79 18" CONC W = 3.79
SDMH-D	RIM =12.81(CHANNELED)	18" CONC E = 5.81 18" CONC W = 5.71
SDMH-E	RIM = 9.60	8" CONC N = 6.30 4" CONC SE = 8.50
SDMH-F	RIM = 14.83	10" CONC SE = 9.23 18" CONC W = 8.23
SDMH-G	RIM = 13.49	18" CONC W = 7.41 18" CONC E = 7.54
SDMH-H	RIM = 9.18 NO PIPES	BOTTOM = 6.18
SDMH-I	RIM = 9.13	8" DI N = 6.13
SDMH-J	RIM = 8.97	6" PVC N = 6.57 4" DI SE = 7.37 8" DI S = 6.12
SDMH-K	RIM = 14.08	36" CONC NE = 2.83 36" CONC SW = 2.83
SDMH-L	RIM = 15.11	24" ADS S = 8.56 24" ADS N = 8.51 8" DI W = 9.51
SDMH-M	RIM = 15.08	24" ADS N = 8.18 24" ADS S = 8.18
SDMH-N	RIM = 15.08	24" ADS N = 7.93 36" CONC NE = 3.08 36" CONC SW = 2.98
SDMH-O	RIM = 14.98	12" ADS E = 10.13 8" ADS W = 7.31 18" ADS S = 5.18 24" ADS N = 4.68
SDMH-P	RIM = 9.44	24" CMP E = 1.74 24" CMP W = 1.79 8" DI S = 2.64 8" DI N = 2.56 6" DI SE = 7.24

TRENCH DRAIN

Structure	Rim	
TD-A	RIM = 9.17	SOUTH END = 8.47 NORTH END = 8.47
TD-B	RIM = 9.08	GRATE = 7.68
TD-C	RIM = 9.31	FULL OF DEBRIS

NOTE: CB(XX) = KENWORTH NUMBERED TAG (XX)

SANITARY SEWER MANHOLES

Structure	Rim	Pipes
SSMH-A	RIM = 8.69	15" CONC SE = 1.54 6" DI N = 1.74 8" CLAY W = 3.61
SSMH-B	RIM = 8.68	15" DI SE = 3.13 15" DI NW = 3.09
SSMH-C	RIM = 9.46	12" CONC N = 2.56 12" CONC E = 2.53 8" CONC W = 6.66 8" CONC S = 4.91
SSMH-D	RIM = 14.02	8" CONC E = 9.47 8" CONC W = 9.52 8" CONC S = 9.52
SSMH-E	RIM = 13.08	8" CONC E = 6.93 8" CONC W = 6.98
SSMH-F	RIM = 13.52	10" PVC E = 8.97 10" PVC W = 8.97
SSMH-G	RIM = 9.38	8" CONC N = 6.08 10" ABS W = 5.88
SSMH-H	RIM = 9.43	24" CMP W = 2.98 10" DI NE = 3.03 8" CONC S = 3.03 10" CONC E = 3.48
SSMH-I	RIM = 9.52	12" CONC E = 5.06 12" CONC W = 5.05 6" CONC N = 5.52 3" CONC SE = 5.52
SSMH-J	RIM = 14.14	8" CONC W = 6.61 12" CONC E = 6.38

SANITARY SEWER / STORM MANHOLES

Structure	Rim	Pipes
SSMH/SDMH-A	RIM = 12.77	18" CONC E = 5.17 18" CONC W = 5.17 10" CONC N = 5.77
SSMH/SDMH-B	RIM = 9.11	12" CONC NE = 2.37 15" DI? N = 2.27 10" CONC? W = 2.37 12" DI S = 2.31 3" ADS S = 6.51
SSMH/SDMH-C	RIM = 9.1±	24" CMP E = 0.4± 24" CMP W = 0.4±
SSMH/SDMH-D	RIM = 9.4±	24" CMP E = 1.25± 24" CMP W = 1.40± 8" DI S = 1.60± 4" CONC S = 6.75± 8" CONC N = 1.80±
SSMH/SDMH-E	RIM = 9.4±	24" CMP E = 1.4± 24" CMP W = 1.4±

SURVEYOR'S CERTIFICATION

TO: CENTERPOINT 8801 MARGINAL LLC, A DELAWARE LIMITED LIABILITY COMPANY AND CHICAGO TITLE INSURANCE COMPANY, ITS SUCCESSORS AND ASSIGNS:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS AND INCLUDES ITEMS 1, 2, 3, 4, 5, 6(a), 6(b), 7(a), 7(b)(1), 7(c), 8, 9, 13, 14, 16, 17, 19 AND 20 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON NOVEMBER 7, 2018

DATE OF PLAT OR MAP: NOVEMBER 28, 2018

[signature] DATE

OWEN B. HILLE, P.L.S.
WASHINGTON REGISTRATION NO. 40016
OHILLE@BARGHAUSEN.COM

OWEN B. HILLE · STATE OF WASHINGTON · 40016 · REGISTERED · PROFESSIONAL LAND SURVEYOR

LEGAL DESCRIPTIONS:

(PER CHICAGO TITLE INSURANCE COMPANY COMMITMENT NO. CCHI1802403NT, DATED OCTOBER 8, 2018)

PARCEL 1:

A PORTION OF THE FRANCIS MCNATT DONATION CLAIM NO. 38 IN SECTION 33, TOWNSHIP 24 NORTH, RANGE 4 EAST, WILLAMETTE MERIDIAN, IN KING COUNTY, WASHINGTON, BEING THAT PORTION OF TRACT NO. 3 AS SHOWN ON THE PARTITION MAP FILED IN CAUSE NO. 120091, OF THE SUPERIOR COURT OF KING COUNTY, WASHINGTON, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING ON THE WESTERLY LINE OF EAST MARGINAL WAY SOUTH, WHICH POINT LIES 167.68 FEET SOUTH OF AN INTERSECTION WITH THE NORTH LINE OF SAID DONATION LAND CLAIM NO. 38;
THENCE NORTH 89°16'16" WEST 1499.53 FEET TO THE EASTERLY MARGIN OF COMMERCIAL WATERWAY NO. 1 (DUWAMISH WATERWAY);
THENCE SOUTH 15°00'00" EAST 456.1 FEET ALONG SAID EASTERLY MARGIN TO A POINT; THENCE EAST 1574.72 FEET TO THE WESTERLY LINE OF EAST MARGINAL WAY SOUTH;
THENCE NORTHERLY ALONG THE SAID WESTERLY LINE 481 FEET, MORE OR LESS, TO THE POINT OF BEGINNING;

EXCEPT THAT PORTION THEREOF CONVEYED TO GREAT NORTHERN RAILWAY COMPANY, ET AL, BY DEED RECORDED UNDER AUDITOR'S FILE NUMBER 4685969;

ALSO A PORTION OF THE FRANCIS MCNATT DONATION CLAIM NO. 38 IN SECTION 33, TOWNSHIP 24 NORTH, RANGE 4 EAST, WILLAMETTE MERIDIAN, IN KING COUNTY, WASHINGTON, BEING THAT PORTION OF TRACT NO. 2 AS SHOWN ON THE PARTITION MAP FILED IN CAUSE NO. 120091, OF THE SUPERIOR COURT OF KING COUNTY, WASHINGTON, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING ON THE WESTERLY LINE OF THE EAST MARGINAL WAY SOUTH, WHICH POINT BEARS NORTH 89°15'54" WEST 2470.01 FEET ALONG THE DONATION CLAIM LINE AND SOUTH 23°40'59" EAST 648.77 FEET ALONG THE WESTERLY LINE OF EAST MARGINAL WAY SOUTH FROM THE INTERSECTION OF THE LINE BETWEEN DONATION CLAIMS OF FRANCIS MCNATT AND HENRY VAN ASSELT WITH THE EAST LINE OF SECTION 33, TOWNSHIP 24 NORTH, RANGE 4 EAST, WILLAMETTE MERIDIAN, IN KING COUNTY, WASHINGTON;
RUNNING THENCE WEST 1574.72 FEET TO THE EASTERLY LINE OF COMMERCIAL WATERWAY NO. 1; THENCE SOUTH 15°00'00" EAST ALONG SAID EASTERLY LINE 237.76 FEET;
THENCE EAST 1053.10 FEET TO A POINT DESIGNATED AS POINT "A" FOR SUBSEQUENT REFERENCE; THENCE SOUTH 23°02'00" EAST 46.03 FEET;
THENCE EAST 561.38 FEET TO THE WESTERLY LINE OF EAST MARGINAL WAY SOUTH;
THENCE NORTH 23°40'59" WEST ALONG SAID WESTERLY LINE 297.03 FEET TO THE POINT OF BEGINNING;

EXCEPT THAT PORTION THEREOF CONVEYED TO GREAT NORTHERN RAILWAY COMPANY, ET AL, BY DEED RECORDED UNDER AUDITOR'S FILE NUMBER 4784818;

PARCEL 2:

THAT PORTION OF A TRACT OF LAND BEING A PORTION OF THE MEADOWS TRACTS, ACCORDING TO THE PARTITION MAP OF PART OF THE FRANCIS MCNATT DONATION CLAIM NO. 38 FILED IN KING COUNTY SUPERIOR COURT CAUSE NUMBER 120091, LOCATED IN THE SOUTHEAST QUARTER OF SECTION 33, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M., DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE WESTERLY MARGIN OF EAST MARGINAL WAY SOUTH THAT IS 373.77 FEET DISTANT SOUTHEASTERLY, AS MEASURED ALONG SAID WESTERLY MARGIN, FROM THE NORTH LINE OF SAID FRANCIS MCNATT DONATION LAND CLAIM;
THENCE SOUTH 15°14'52" EAST 134.09 FEET TO A POINT 17.00 FEET SOUTHWESTERLY, MEASURED AT RIGHT ANGLES, FROM SAID WESTERLY MARGIN;
THENCE SOUTH 22°31'52" EAST 432.18 FEET TO THE NORTH LINE OF LOT 1, CITY OF TUKWILA BSIP NO. L11-019, KING COUNTY RECORDING NO. 20110504001579, ALSO BEING THE NORTH LINE OF QUIT CLAIM DEED RECORDED UNDER RECORDING NO. 20091214000963 AND 20100202000718;
THENCE SOUTH 88°50'53" EAST 18.56 FEET TO SAID WESTERLY MARGIN;
THENCE ALONG SAID WESTERLY MARGIN NORTH 22°31'52" WEST 572.65 FEET TO THE POINT OF BEGINNING.

SURVEYOR'S NOTES:

1. ALL MEASUREMENTS ARE IN U.S. SURVEY FEET
2. NO EVIDENCE OF RECENT CONSTRUCTION OR EARTHMOVING.
4. THERE ARE NO KNOWN OR PROPOSED CHANGES ALONG ADJACENT RIGHT-OF-WAY
5. PARKING – THERE ARE 147 TOTAL PARKING SPACES, 139 OF WHICH ARE STANDARD AND 8 ARE HANDICAP PARKING SPACES.
6. ZONING – (MIC/H)
MANUFACTURING INDUSTRIAL CENTER / HEAVY INDUSTRIAL ZONING DESIGNATION AREA.
(NO ZONING REPORT WAS PROVIDED.)

PROCEDURE / NARRATIVE

A FIELD TRAVERSE USING A "SOKKIA 3100" TOTAL STATION, SPECTRA FOCUS 30 AND "TDS RANGER" DATA COLLECTOR SUPPLEMENTED WITH FIELD NOTES WAS PERFORMED, ESTABLISHING THE ANGULAR, DISTANCE, AND VERTICAL RELATIONSHIPS BETWEEN THE MONUMENTS, PROPERTY LINES, AND TOPOGRAPHIC FEATURES AS SHOWN HEREON. THE RESULTING DATA MEETS OR EXCEEDS THE STANDARDS FOR LAND BOUNDARY SURVEYS AS SET FORTH IN WAC 332-130-090.

DATES OF SURVEYS

FIELD SURVEYS BY BARGHAUSEN CONSULTING ENGINEERS, INC. CONDUCTED DURING NOVEMBER 2018.

SPECIAL EXCEPTIONS:

(PER CHICAGO TITLE INSURANCE COMPANY COMMITMENT NO. CCHI1802403NT, DATED OCTOBER 8, 2018)

1. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:

GRANTED TO: KING COUNTY, WASHINGTON, A MUNICIPAL CORPORATION
PURPOSE: CONSTRUCTION, OPERATION AND MAINTENANCE OF A CLOSED TILE DRAIN
RECORDING DATE: APRIL 2, 1932
RECORDING NO.: 2716188
AFFECTS: PORTION OF SAID PREMISES AND OTHER PROPERTY LYING WITHIN A STRIP OF LAND 10 FEET IN WIDTH
(SHOWN)

2. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:

GRANTED TO: KING COUNTY, A MUNICIPAL CORPORATION
PURPOSE: CONSTRUCTION, OPERATION AND MAINTENANCE OF A CLOSED TILE DRAIN
RECORDING DATE: APRIL 11, 1932
RECORDING NO.: 2717257
AFFECTS: A PORTION OF SAID PREMISES
(SHOWN)

3. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:

GRANTED TO: MONSANTO COMPANY, A DELAWARE CORPORATION
PURPOSE: ONE OR MORE SEWER LINES AND ALL APPURTENANCES THERETO
RECORDING DATE: AUGUST 3, 1966
RECORDING NO.: 6064203
AFFECTS: PORTIONS OF SAID PREMISES
(SHOWN)

4. UNRECORDED EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS DISCLOSED BY MODIFICATION THEREOF:

GRANTED TO: KING COUNTY, WASHINGTON, A MUNICIPAL CORPORATION
PURPOSE: THE RIGHT TO CONSTRUCT, OPERATE AND MAINTAIN AN UNDERGROUND STORM DRAIN OUTFALL LINE
AFFECTS: A PORTION OF SAID PREMISES AND OTHER PROPERTY LYING WITHIN A STRIP OF LAND 10 FEET IN WIDTH AS DESCRIBED IN DOCUMENT

MODIFICATION RECORDING DATE: SEPTEMBER 18, 1995 AT RECORDING NO.: 9509180955
(SAME LOCATION AS ITEM 3. ADDED STIPULATION OF NO BUILDINGS OVER EASEMENT AND 2 CONNECTION FOR GRANTOR)

5. UNRECORDED SPUR TRACK AGREEMENTS WITH RAILWAY COMPANIES AND THE TERMS AND CONDITIONS THEREOF, AS DISCLOSED BY RECITAL IN DEED:

RECORDING DATE: NOVEMBER 2, 1927
RECORDING NO.: 2420511
(AFFECTS NORTHERLY PORTION OF SITE. NO PLOTTABLE EASEMENTS)

ITEMS 6-9 ARE AGREEMENTS WHICH ARE NOT SURVEY RELATED

10. MEMORANDUM OF ENVIRONMENTAL REMEDIATION AND INDEMNITY AGREEMENT AND ACCESS EASEMENT FOR REMEDIAL ACTION (INCLUDING THE TERMS AND CONDITIONS OF THE AGREEMENT/EASEMENT DISCLOSED THEREIN)

BETWEEN: MERRILL CREEK HOLDINGS LLC, A WASHINGTON LIMITED LIABILITY COMPANY
AND: PACCAR INC., A DELAWARE CORPORATION
RECORDING DATE: OCTOBER 4, 2004
RECORDING NO.: 20041004001718
AFFECTS: PARCEL 1
(AFFECTS SITE FOR TEMPORARY ACCESS FOR WORK RELATED TO DOCUMENT. IN AFFECT UNTIL ECOLOGY DEPARTMENT SIGNS OF ON REMEDIAL ACTION PER AGREEMENT. NOT VERIFIED BY THIS SURVEY.)

11. ANY PROHIBITION OR LIMITATION OF USE, OCCUPANCY OR IMPROVEMENT OF THE LAND RESULTING FROM THE RIGHTS OF THE PUBLIC OR RIPARIAN OWNERS TO USE ANY PORTION WHICH IS NOW OR WAS FORMERLY COVERED BY WATER.

12. PARAMOUNT RIGHTS AND EASEMENTS IN FAVOR OF THE UNITED STATES FOR COMMERCE, NAVIGATION, FISHERIES AND THE PRODUCTIONA OF POWER.

13. ANY RIGHTS, INTERESTS OR CLAIMS WHICH MAY EXIST OR ARISE BY REASON OF THE FOLLOWING MATTERS DISCLOSED BY UNRECORDED ALTA SURVEY BY BOCK & CLARK'S NATIONAL SURVEYORS NETWORK, DATED SEPTEMBER 10, 2014, LAST REVISED SEPTEMBER 19, 2014, UNDER PROJECT NO. 201402464:

A. CONCRETE RETAINING WALLS AND FENCES AT NORTHERLY BOUNDARY ARE AT VARIANCE WITH THE BOUNDARY OF RECORD;
B. POWER POLES ALONG OR NEAR NORTHERLY LINE;
C. STEEL SHORE WALL AND FENCES LIE EASTERLY OF WEST BOUNDARY;
D. FENCES AT SOUTHERLY BOUNDARY IS AT VARIANCE WITH THE BOUNDARY OF RECORD;
E. POSSIBLE SHARED ENTRY DRIVE IN SOUTHEASTERLY PORTION OF SUBJECT PREMISES WITHOUT BENEFIT OF EASEMENT;
F. FENCES AND CONCRETE RETAINING WALL NOT CONFORMING TO EASTERLY BOUNDARY;
G. EXISTING BUILDING IN EASTERLY PORTION OF SUBJECT PREMISES LIES 1.1' INTO 20' BUILDING SETBACK AREA;
H. UNDERGROUND TELEPHONE LINE EASEMENT RUNS BENEATH CONCRETE SLAB. T IS PARTIALLY BENEATH CONCRETE SLAB.

BASIS OF BEARING: NAD83/91 (PER WSDOT)

WSDOT DESIGNATION GP17099-239 (MONUMENT ID 3294), A FOUND WSDOT BRASS DISK ON NORTHEAST SIDE OF SR99, JUST SOUTH OF IDAHO STREET WAS HELD FOR PUBLISHED NAD83/2007 POSITION AND A LINE WAS CALCULATED TO A FOUND WSDOT BRASS DISK AT THE NORTHWEST CORNER OF OVERPASS OF I-5 ON BOEING ACCESS ROAD, WSDOT DESIGNATION HC17-1 (MONUMENT ID 130). BEARING BETWEEN THESE MONUMENTS WAS HELD AS S33°25'23"E

VERTICAL DATUM- NGVD 1929

(NAVD88= NGVD29+3.53')

NOTES

1. UNDERGROUND UTILITIES AND FEATURES DEPICTED HEREON ARE BASED ON FIELD OBSERVATION, MARKINGS, DEVELOPMENT PLANS, AND/OR AVAILABLE RECORD DOCUMENTS ONLY. THE TRUE LOCATION, NATURE AND/OR EXISTENCE OF BELOW GROUND FEATURES, DETECTED OR UNDETECTED, SHOULD BE VERIFIED.
2. NO DETERMINATION WAS MADE BY BARGHAUSEN CONSULTING ENGINEERS WITH REGARD TO SOILS CONDITION AND SUBSURFACE MATERIALS.
3. THE EXISTING DUWAMISH RIVER CHANNEL IS AN IMPROVED, ARTIFICALLY CONSTRUCTED, NAVIGABLE WATERWAY, SUBJECT TO TIDAL INFLUENCE. THE RIVER CHANNEL IS LOCATED WITHIN A STRIP-OF-LAND
4. THE WESTERLY BOUNDARY OF THE SUBJECT PROPERTY WAS DETERMINED BASED ON CITY OF SEATTLE ENGINEER'S DEPARTMENT PLATS DATED JANUARY 1934. THE SUBJECT PARCEL DOES NOT NECESSARILY INCLUDE ANY LITTORAL OR RIPARIAN RIGHTS TO THE WATERWAY OR THE SHORELINE.

No.	Date	By	Ckd.	Appr.	Revision

Title: ALTA/NSPS LAND TITLE SURVEY
PTN OF THE SE1/4 AND THE SW1/4 OF SEC. 33, TWP. 24 N., RGE 4 EAST, W. M.
CITY OF TUKWILA KING COUNTY
STATE OF WASHINGTON

For: CENTERPOINT PROPERTIES
8801 EAST MARGINAL WAY
TUKWILA, WA 98108

Scale: 1"=50' Horizontal; Vertical
Designed ___ Drawn STM Checked OBH Approved OBH Date 11/28/18

BARGHAUSEN CONSULTING ENGINEERS, INC.
18215 72ND AVENUE SOUTH
KENT, WA 98032
(425)251-6222
(425)251-8782 FAX
CIVIL ENGINEERING, LAND PLANNING, SURVEYING, ENVIRONMENTAL SERVICES

Job Number 20538
Sheet 1 of 1

File: P:\20000s\20538\survey\20538TA01.dwg Date/Time: Nov 28, 2018 – 6:18pm Scale: 1"=50' ohille Xrefs: 20538_aerial.dwg