

September 27, 2019

City of Portland – Bureau of Environmental Services  
Pollution Prevention Services Group  
PPS Building and Land Use Plan Review  
1900 SW 4<sup>th</sup> Avenue, Suite 5000  
Portland, OR 97201

Attention: Glen Laube

**Updated Site-Specific Dewatering Plan**

Holden of Pearl  
Northeast of NW 13<sup>th</sup> Avenue and NW Quimby Street  
Portland, Oregon  
DEQ ECSI No. 6352  
GeoDesign Project: AllianceRC-7-02-05

## **INTRODUCTION**

GeoDesign is pleased to submit this Site-Specific Dewatering Plan for the Holden of Pearl site (Block 23) located northeast of the intersection of NW 13<sup>th</sup> Avenue and NW Quimby Street in Portland, Oregon (project site). This dewatering plan is intended to address management of stormwater in contact with contaminated soil, contaminated groundwater management (if necessary), discharge, and compliance sampling during construction dewatering activities. The water management protocols described in this plan are intended to supplement the water management protocols contained in the 1200C permit in order to prevent contaminated water from being discharged to waters of the state. The project site is shown relative to surrounding physical features on Figure 1. Acronyms and abbreviations used herein are defined at the end of this document.

## **PROJECT UNDERSTANDING**

The proposed development includes a new senior living building that will consist of a 16-story tower over a 3-story podium around a central courtyard. The proposed development includes one level of below-grade parking. In order to accommodate the subgrade parking level, the proposed development includes a mass excavation over the entire footprint of the project site to a depth of approximately 13 feet BGS (approximately 17 feet City of Portland [City] datum). While continuous construction dewatering is not anticipated, dewatering may be needed during excavation of deep footing elements or during periods of heavy rainfall.

## BACKGROUND

### **GENERAL**

The project site encompasses 1.32 acres of vacant land located within the former Hoyt Street Railyard property (DEQ ECSI Site No. 1080). In anticipation of future redevelopment, DEQ has extracted the project site (Block 23) from the Hoyt Street Railyard ECSI Site (ECSI No. 1080) and assigned the project site ECSI No. 6352.

### **PREVIOUS INVESTIGATIONS**

Multiple subsurface investigations have been conducted to evaluate soil and groundwater conditions at the project site. Information from the subsurface investigations pertaining to groundwater conditions is summarized below:

- Five test pits were excavated on the project site in 1998. Chemical analytical data is not available from this investigation, but free-phase petroleum was noted floating on the water table in the test pit conducted on the southeastern portion of the project site at approximately 12 feet BGS.
- According to the ROD (prepared in 2000), the southern portion of the project site is included in the “General Petroleum Area” of the former Hoyt Street Property. The information in the ROD did not indicate the presence of significant groundwater contamination beneath the project site. Total PAH concentrations detected in groundwater beneath the project site were reported to not exceed 18.6 µg/L.
- In 2010 GeoDesign conducted a limited subsurface investigation at the project site that included collecting two groundwater samples from the project site. VOCs were not detected above the laboratory method detection limits in the two groundwater samples collected for laboratory analysis.
- GeoDesign conducted a limited Phase II Environmental Site Assessment of the project site in 2018 that included the collection of two groundwater samples. Up to 15 PAHs were detected in the two groundwater samples at concentrations ranging from 0.0514 µg/L [indeno(1,2,3-cd)pyrene] to 3.81 µg/L (1-methylnaphthalene). Total arsenic, barium, cadmium, chromium, lead, and mercury were detected in the groundwater samples at concentrations ranging from 0.430 µg/L (mercury) to 1,610 µg/L (barium). Dissolved arsenic, barium, and/or chromium were detected in the groundwater samples at concentrations ranging from 2.26 µg/L (chromium) to 218 µg/L (barium).
- Groundwater has been encountered beneath the project site between 4 and 13 feet BGS.

The groundwater sample analytical results are compared to DEQ Tables 30, 31, and 40 water quality criteria values in Tables 1 through 3.

### **DEWATERING TREATMENT SYSTEM DESCRIPTION**

If dewatering of excavations becomes necessary, we anticipate treatment of the water will be required. The treatment train will likely consist of a series of 20,000-gallon storage tanks (e.g., Baker tanks), chitosan socks, sand filters, and bag filters to remove sediment and carbon adsorption filters to remove petroleum-related compounds. The design capacity of the treatment train will be dependent on groundwater elevations and weather conditions at the time of mass

excavation. Currently, we anticipate that discharge will be between 150 and 200 gpm). A description of a potential full-scale treatment system is described below. Stormwater not in contact with project site soil or mixed with groundwater will be managed in accordance with typical construction management practices and the project ESCP. A schematic drawing showing a potential full dewatering treatment system is shown on Figure 2. The planned location of the water treatment system is shown on Figure 3.

The dewatering equipment will consist of skid-mounted vessels equipped with instrumentation, valves, and access ports for system control, performance monitoring, and maintenance. The system will be equipped with sample ports prior to and after treatment for influent and effluent monitoring and testing. In addition, sample ports will be installed between each treatment component to allow sampling and to assess the performance of the treatment units. Equipment is piped using flexible hose and quick-connect fittings. In addition, the system is piped to allow for modifications to accommodate additional treatment or reduced treatment based on compliance sampling and monitoring. The treatment system will be equipped with a flow totalizer prior to discharge to quantify the volume of water treated and discharged.

Since the quantity of water that we anticipate will require storage and treatment is small, the system will be operated manually on an as-needed basis. The sump pumps (or well point pumps) and treatment system transfer pumps will be powered by gas-powered units unless a temporary electrical drop is installed at the project site. Continuous operation of the containment and treatment system is not anticipated at this time.

#### ***COMPLIANCE AND MONITORING PLAN***

Compliance sampling will be conducted prior to a discharge and on a weekly basis during continuous discharges. Effluent sampling will be conducted to evaluate the water for the project site's contaminants of concern (petroleum hydrocarbons, PAHs, and metals). Influent sampling may also be conducted, but data generated from influent samples will only be used for evaluating the performance of the treatment system.

#### **Turbidity**

The dewatering system effluent discharge will be visually monitored on a daily basis and measured on a weekly basis using a turbidity meter while dewatering is occurring during construction. Contingencies to address turbidity in discharged water may include adding additional settling tanks, additional liquid Chitosan injection, and sand filter backwashing or replacement. In addition, bag filters capable of removing sediments down to 10 microns can be added, if necessary. Sand filter backwash water will be contained and tested for either off-site disposal or discharged to the sanitary system under a batch discharge permit. Backwash water will not be discharged to the stormwater-only discharge location.

#### **Metals**

Effluent samples will be collected and submitted to an analytical laboratory and analyzed for a minimum of total arsenic, barium, cadmium, mercury, and selenium and dissolved arsenic, chromium, lead, , selenium, and silver (total metals whose water quality criteria is expressed as total values and dissolved metals whose water quality criteria is expressed as dissolved values). Sampling will be conducted on a weekly basis. Sample results will be compared to values shown

in DEQ Table 30: Aquatic Life Water Quality Criteria for Toxic Pollutants, Table 31: Aquatic Life Water Quality Guidance Values for Toxic Pollutants, and Table 40: Human Health Water Quality Criteria for Toxic Pollutants.

### **Petroleum Hydrocarbons and PAHs**

An effluent sample will be collected during the initial sampling event from the dewatering system and submitted to an analytical laboratory for petroleum hydrocarbon identification by Method NWTPH-HCID and PAHs by EPA Method 8270M-SIM. After the initial sampling event effluent discharge will be sampled and tested for petroleum hydrocarbons and PAHs when a change in groundwater conditions is observed, groundwater or surface water comes into contact with unanticipated contamination, or when the composition of the effluent otherwise changes. Sample results will be compared to water quality values shown in DEQ Tables 30, 31, and 40. Contingencies to address unacceptable levels of petroleum hydrocarbons and PAHs in the effluent stream include aerating the water in the settling tanks and additional carbon adsorption filters.

### ***DISCHARGE LOCATIONS***

The proposed stormwater discharge point is inlet AMY989 located near the northeast corner of the intersection of NW Quimby Street and NW 12<sup>th</sup> Avenue. The location of the proposed discharge point is shown on Figure 3.

### **Sanitary Sewer Discharge**

Discharge to the sanitary sewer is currently not anticipated. If discharge to the sanitary sewer becomes necessary, BES will be contacted to discuss the discharge and a Batch Discharge Authorization will be requested under the Batch Discharge application currently on file. Any sampling and testing requirements will be determined by BES as outlined in the Batch Discharge Authorization as well as the discharge location and any restrictions on discharge rates.

### ***MONITORING FREQUENCY AND REPORTING REQUIREMENTS***

Visual monitoring of the treatment system operation will be conducted on a daily basis during operation until the dewatering system is no longer needed. Monitoring and testing of the effluent water for compliance purposes will occur prior to discharging water to the City's stormwater system and on a weekly basis during continuous dewatering. Groundwater will be stored on site in tanks until effluent testing demonstrates that the treated water meets the applicable water quality standards. During continuous discharge effluent sampling will be conducted on a weekly basis through the duration of dewatering activities unless a reduced sampling frequency is approved by BES. The total flow quantified by the flow totalizer will be recorded on the daily contractor logs and at the time effluent water samples are collected. Compliance effluent samples will be analyzed on a 24-hour turnaround time for ongoing, continuous discharges and a standard (10-day) turnaround time for batch discharges.

The total flow measurements will be included in the effluent sampling summary reports. The effluent flow rates, volume of water generated, and any other information requested by the City will be reported under the City's submeter program for billing purposes.

### Exceedance Response Actions

Excessive turbidity or petroleum hydrocarbon, metals, and/or PAH detections that exceed the above-mentioned water quality limits will be reported to the contractor and BES within 24 hours of the detected exceedance by GeoDesign. The contractor is responsible for stopping discharge to the stormwater inlet and discharging into holding tanks. The system will be modified to address the exceedance, and discharge to the stormwater system will not resume until chemical analytical results demonstrate that the water meets the appropriate water quality criteria.

Activity	Responsible Party	Contact Information
System Operation and Maintenance	General Contractor	To be determined
Daily Turbidity Observation	General Contractor	To be determined
Effluent Sample Collection	GeoDesign, Inc.	Colby Hunt 503.726.3122
Regulatory Notification and Reporting	GeoDesign, Inc.	Colby Hunt 503.726.3122
Emergency Response	GeoDesign, Inc. General Contractor	Colby Hunt 503.726.3122 To be determined

Monitoring results and analytical data will be reported on a weekly basis (if water discharge occurs during that week) and submitted to:

BES: Stacy Hibbard  
Industrial Stormwater / Maintenance Inspection  
6543 North Burlington Avenue  
Portland, OR 97203  
Phone: 503-823-5547  
e-mail: [Stacy.Hibbard@portlandoregon.gov](mailto:Stacy.Hibbard@portlandoregon.gov)

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Please call if you have questions concerning the information provided in this dewatering plan.

Sincerely,

GeoDesign, Inc.



Kyle Haggart, G.I.T.  
Environmental Staff



Jason O'Donnell, R.G.  
Principal Geologist

cc: Susan Rainey, Locke Lord LLP (via email only)  
Evan Lawler, US Alliance Holden of Pearl, LLC (via email only)  
Ian Moore, US Alliance Holden of Pearl, LLC (via email only)  
Jeff Patton, US Alliance Holden of Pearl, LLC (via email only)  
Jeremiah Jolicoeur, US Alliance Holden of Pearl, LLC (via email only)  
Eric Peterson, US Alliance Holden of Pearl, LLC (via email only)

KTH:JSO:kt

Attachments

One copy submitted (via email only)

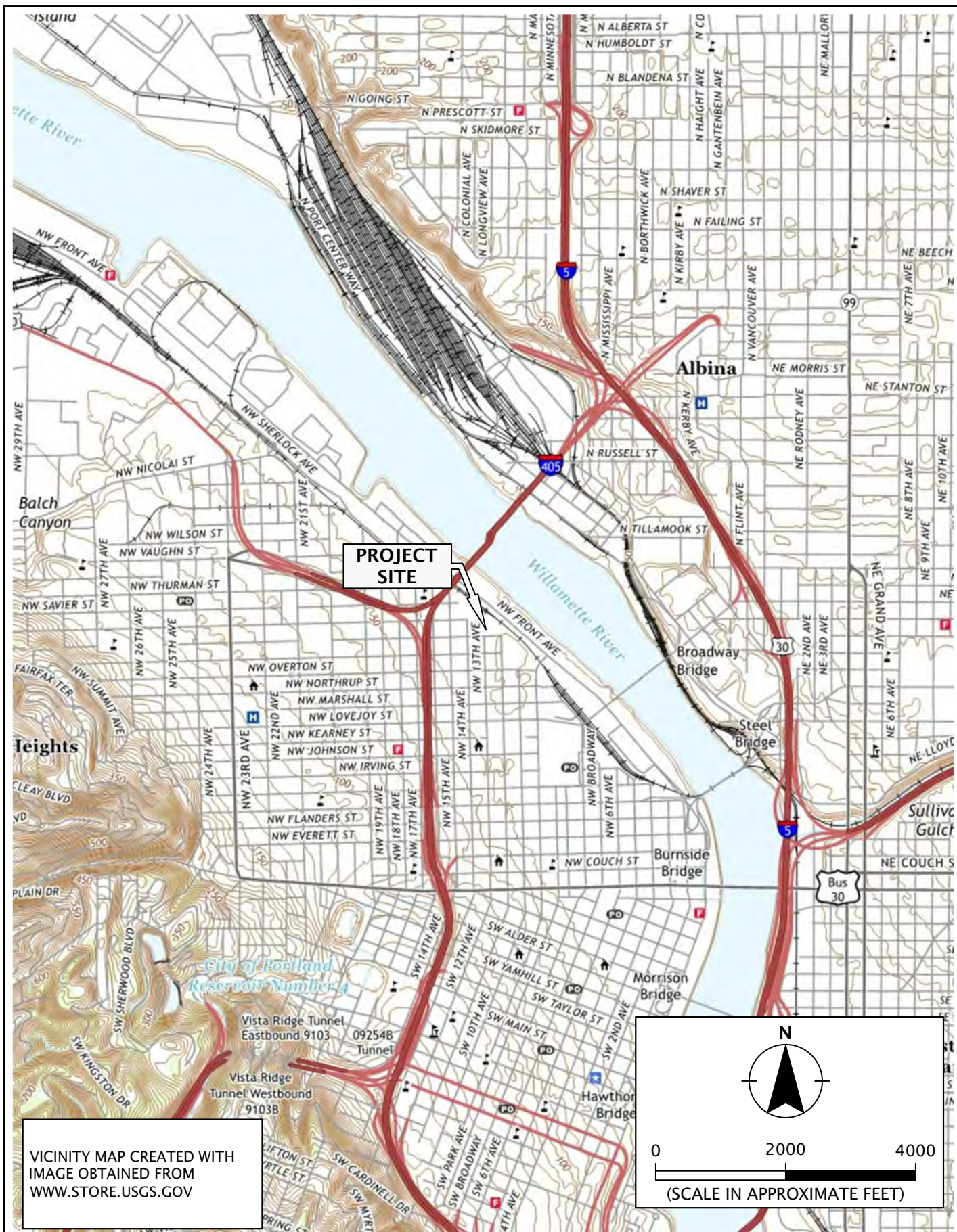
Document ID: AllianceRC-7-02-05-092719-envl-updated.docx

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## FIGURES



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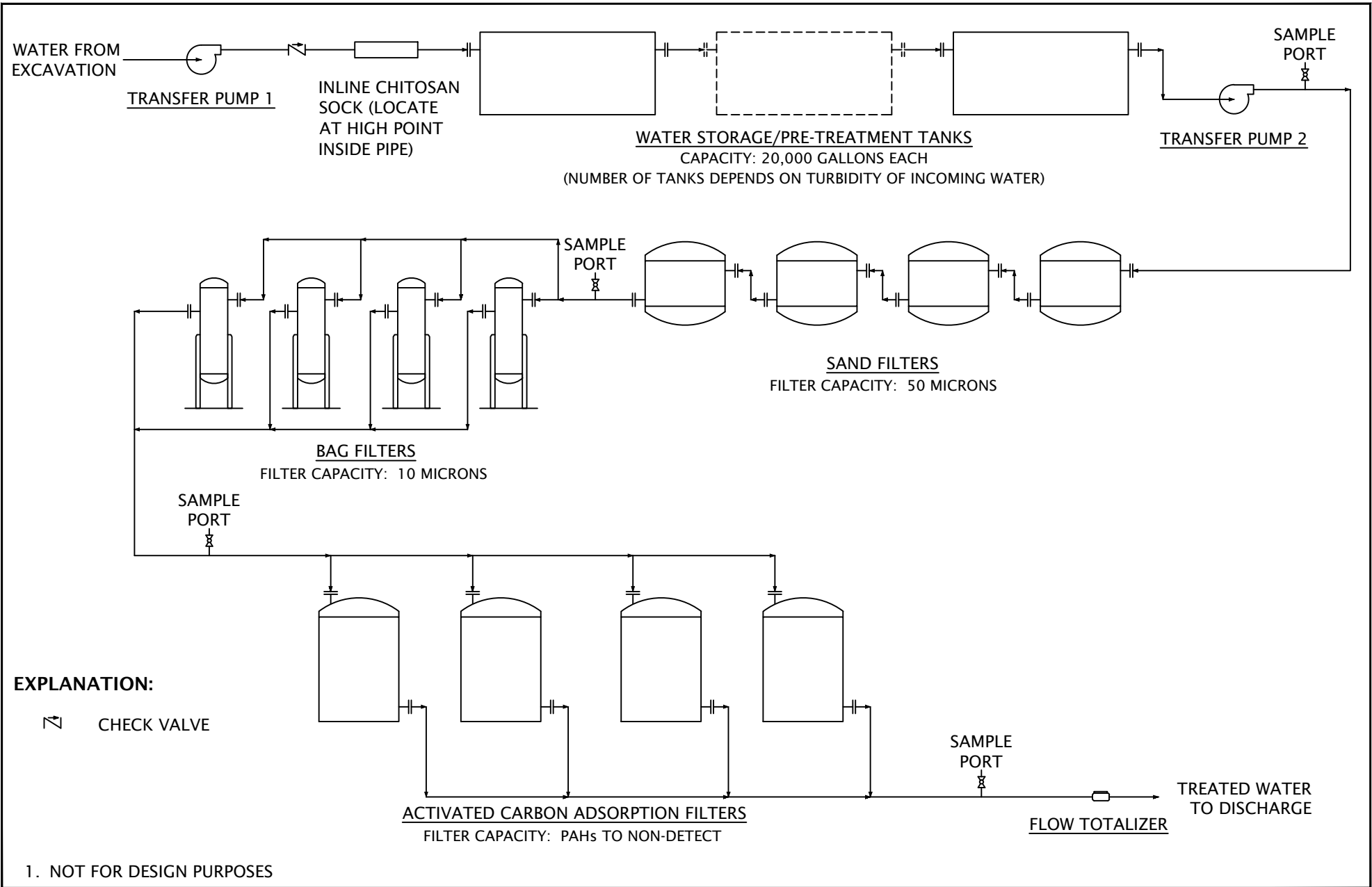
SEPTEMBER 2019

VICINITY MAP

HOLDEN OF PEARL  
PORTLAND, OR

FIGURE 1







## TABLES

TABLE 1 Summary of Groundwater Sample Chemical Analytical Results PAHs and VOCs Holden of Pearl Northeast of NW 13th Avenue and NW Quimby Street Portland, Oregon																						
Sample I.D.	Sample Date	Screen Interval (feet BGS)	PAHs by EPA Method 8270D-SIM (µg/L)																			VOCs by EPA Method 8260C (µg/L)
			Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene	
DP-1	09/25/18	10 to 15	0.101	0.0440 U	0.119	0.0563 M-05	0.0533	0.0687 M-05	0.0440 U	0.0567	0.0704 M-05	0.0440 U	0.0440 U	0.141	0.0538	0.0514	0.0879 U	0.0879 U	0.0897 U	0.0803	0.157	Not Detected
DP-3	09/25/18	10 to 20	0.800 U	0.579 U	0.421 U	0.579 M-05	0.630	0.566 M-05	0.193	0.305	0.694 M-05	0.0827	0.316 U	1.15	1.95	0.319	3.81	0.105 U	0.284 U	1.10	1.65	Not Detected
DP-6(6-10)	11/17/10	5 to 10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Detected
DP-9(5-9)	11/18/10	4 to 9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Detected
DEQ Table 30 Aquatic Life Water Quality Criteria for Toxic Pollutants																						
Freshwater Acute			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	Varies
DEQ Table 31 Aquatic Life Water Guidance Values for Toxic Pollutants																						
Freshwater Acute			1,700	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	3980	NE	NE	NE	NE	2300	NE	NE	Varies
DEQ Table 40 Human Health Water Quality Criteria for Toxic Pollutants																						
Water + Organism Only			95	NE	2,900	0.0013	0.0013	0.0013	0.0013	NE	0.0013	0.0013	NE	14	390	0.0013	NE	NE	NE	NE	290	Varies
Notes: M-05: Estimated results. Peak separation for structural isomers is insufficient for accurate quantification. U: Not detected. Reporting or detection limit shown. Bolding indicates analyte detection. Shading indicates analyte detection at a concentration greater than DEQ regulatory screening levels. --: not analyzed																						

TABLE 2 Summary of Groundwater Sample Chemical Analytical Results RCRA 8 Total Metals and Hardness Holden of Pearl Northeast of NW 13th Avenue and NW Quimby Street Portland, Oregon											
Sample I.D.	Sample Date	Screen Interval (feet BGS)	RCRA 8 Total Metals by EPA Method 6020 (ICP-MS) (µg/L)								Total Hardness by Method 2340B (mg CaCO <sub>3</sub> /L)
			Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	
DP-1	09/25/18	10 to 15	65.6	1,610	6.04	201	477	0.430	5.00 U	1.00 U	719
DP-3	09/25/18	10 to 20	81.4	190	1.60	34.4	33.1	0.0800 U	1.00 U	0.200 U	243
DEQ Table 30 Aquatic Life Water Quality Criteria											
Freshwater Acute <sup>1</sup>			NE	NE	0.82	NE	NE	2.4	NE	NE	NE
DEQ Table 31 Aquatic Life Water Guidance Values for Toxic Pollutants											
Freshwater Acute			NE	NE	NE	NE	NE	NE	NE	NE	NE
DEQ Table 40 Human Health Water Quality Criteria for Toxic Pollutants											
Water + Organism			2.1	1,000	NE	NE	NE	NE	120	NE	NE
Notes: 1. DEQ Table 30 Aquatic Life Water Quality Criteria analytes that are hardness-dependent have been calculated assuming a surface water hardness of 25 mg/L as CaCO3. U: Not detected. Reporting or detection limit shown. Bolding indicates analyte detection. Shading indicates analyte detection at a concentration greater than DEQ regulatory screening levels.											



**TABLE 3**  
**Summary of Groundwater Sample Chemical Analytical Results**  
**RCRA 8 Dissolved Metals**  
**Holden of Pearl**  
**Northeast of NW 13th Avenue and NW Quimby Street**  
**Portland, Oregon**

Sample I.D.	Sample Date	Screen Interval (feet BGS)	RCRA 8 Dissolved Metals by EPA Method 6020 (ICP-MS) (µg/L)							
			Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
DP-1	09/25/18	10 to 15	<b>16.7</b>	<b>218</b>	0.200 U	<b>2.26</b>	0.200 U	0.0800 U	2.00 U	0.200 U
DP-3	09/25/18	10 to 20	<b>43.3</b>	<b>86.9</b>	0.200 U	1.00 U	0.200 U	0.0800 U	2.00 U	0.200 U

**DEQ Table 30 Aquatic Life Water Quality Criteria**

Freshwater Acute <sup>1</sup>	340	NE	NE	180	14	NE	13 <sup>2</sup>	0.3
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**DEQ Table 31 Aquatic Life Water Guidance Values for Toxic Pollutants**

Freshwater Acute	NE	NE	NE	NE	NE	NE	NE	NE
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**DEQ Table 40 Human Health Water Quality Criteria for Toxic Pollutants**

Water + Organism	NE	NE	NE	NE	NE	NE	NE	NE
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Notes:

1. DEQ Table 30 Aquatic Life Water Quality Criteria analytes that are hardness-dependent have been calculated assuming a surface water hardness of 25 mg/L as CaCO<sub>3</sub>.
2. DEQ Table 30 Aquatic Life Water Quality Criteria value shown for selenium assumes 100 percent selenate fraction for conservative comparison purposes.

U: Not detected. Reporting or detection limit shown.

Bolding indicates analyte detection.

## **ACRONYMS AND ABBREVIATIONS**

## ACRONYMS AND ABBREVIATIONS

BES	Bureau of Environmental Services
BGS	below ground surface
CaCO <sub>3</sub>	calcium carbonate
CaCO <sub>3</sub> /L	calcium carbonate per liter
DEQ	Oregon Department of Environmental Quality
ECSI	Environmental Cleanup Site Information
EPA	U.S. Environmental Protection Agency
ESCP	Erosion and Sediment Control Plan
gpm	gallons per minute
ICP-MS	inductively coupled plasma mass spectrometry
I.D.	identification
NE	not established
PAH	polyaromatic hydrocarbon
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
µg/L	micrograms per liter
VOC	volatile organic compound