



City of Bothell™

October 1, 2019

Jerome Cruz, Ecology Site Manager  
Department of Ecology,  
Northwest Regional Office Toxic Cleanup Program  
3190 160<sup>th</sup> Avenue SE  
Bellevue, Washington 98008-5452

**Re: Quarterly Progress Report for period ending September 2019**

Site Name: **BOTHELL SERVICE CENTER/ SIMON & SON**  
Site Address: 18107 Bothell Way NE, Bothell WA 98011  
Parcel Numbers: 237420-0065  
Facility/Site No.: 33215922  
Consent Decree No.: 18-2-02852-3 SEA (Effective date February 2, 2018)

Reporting Period: July 1 - September 30, 2019

**Summary:**

City of Bothell (PLP) continues to make progress on work being performed for the Bothell Service Center site (BSCSS), in accordance with the Consent Decree (CD) with the Department of Ecology.

Per the requirements of Section XI of the Consent Decree "Progress Reports", the attached quarterly progress report has been prepared for the three-month period preceding this submittal to satisfy the terms described in the Consent Decree.

During this period much of the work has been geared towards continued operation of the bio-remediation system, monitoring well sampling and performing localized soil excavation and soil-vapor extraction system. Additionally, there was considerable effort to amend the BSCSS consent decree to incorporate the Wexler Settlement Area.

The attached progress report provides an update on work accomplished during the period ending September 30, 2019. Please contact me if you have any questions.

Sincerely,

*Nduta Mbutia*

Nduta Mbutia  
Project Coordinator, City of Bothell

Public Works Department  
18415 101<sup>st</sup> Ave NE  
Bothell, WA 98011  
425.806.6800



City of Bothell™

Reporting Period:	July 1 - September 30
Date submitted (electronically):	October 1, 2019
Date mailed (certified w/return receipt):	October 2019
Prepared by:	Nduta Mbuthia, Project Coordinator City of Bothell, Public Works Department Phone: 425.806.6829 Email: <a href="mailto:nduta.mbuthia@bothellwa.gov">nduta.mbuthia@bothellwa.gov</a>

**CONTENTS**

**A. A list of on-site activities that have taken place during this quarter**

The following activities have occurred this quarter -

- Continued operation of the bio-remediation system
- Extended soil excavation in the former ERH area; see attached technical memorandum titled “Amendment No. 2: Vadose Soil Excavation in the former ERH Treatment Area & Location along 98<sup>th</sup> Ave NE, Bothell Service Center Simon & Son” dated September 4, 2019
- Groundwater sampling was completed in August
- Decommissioning of the SVE system was completed at the end of August
- *(Related work - coordination for the public comment period including updates to the BSCSS CAP documents as they pertain to the BSCSS CD amendment that will incorporate Wexler Settlement Area)*

**B. Detailed description of any deviations from required tasks not otherwise documented in project plans or amendment requests:**

This quarter there was a deviation from the CAP pertaining to the following:

- The addition of carbstrate in the ERH excavation. The excavation was backfilled in the first week of September
- A modification to remediation approach for a hotspot located in the paved roadways at 98<sup>th</sup> Ave NE (southwest of the ERH treatment area).

The above deviations were memorialized in the September 4, 2019 technical memorandum, and received Ecology’s concurrence

**C. Description of all deviations from the CAP (Exhibit C) and Schedule (Exhibit D) during the current quarter and any planned deviations in the upcoming quarter:**

See the September 4, 2019 technical memorandum attached

**D. For any deviations in schedule, a plan for recovering lost time and maintaining compliance with the schedule:**

The CD schedule (Exhibit D) was updated to show a more representative timeline for the operation and decommissioning of the SVE system. This updated schedule was included in the public comment package for the BSCSS CD amendment that will incorporate Wexler Settlement Area work. The public comment period started on late August and ended on September 24, 2019. A public meeting was held at Bothell City Hall on August 28, 2019.

**E. All raw data (including laboratory analyses) received by Defendants during the past quarter and an identification of the source of the sample:**

- For soil analytical data, see attached September 4, 2019 technical memorandum
- GW monitoring summer 2019 quarter sampling results - table attached

**F. A list of deliverables for the upcoming quarter if different from the schedule:**

Same as the updated schedule. Note that according to the updated schedule, the work on an environmental covenant (EC) for this site is slated to begin within 60 days of decommissioning the SVE system. Therefore, a draft EC is due to Ecology at the end of October 2019

**Attachments**

Site Photos, excavation area  
Pertinent email correspondence  
September 4, 2019 technical memorandum (electronic transmittal link)  
Updated Exhibit D from the CD (8-13-19)  
Documentation compliance list, updated  
Groundwater sampling tables and maps



# HOT SPOT EXCAVATION



Excavation; monitoring wells intact



Carbstrate application



Backfill complete



View facing NE; site left bare



**From:** [Nduta Mbuthia](#)  
**To:** [Cruz, Jerome \(ECY\)](#)  
**Cc:** [John Kane](#); [Jeff Jensen](#); [Tebeau, Kara J. \(ATG\)](#); [Cardona-Marek, Tamara \(ECY\)](#); [Petrovich, Brad \(ECY\)](#); [Warren, Bob \(ECY\)](#)  
**Subject:** RE: [EXTERNAL] carbstrate in BSCSS ERH area vadose zone excavations  
**Date:** Wednesday, September 4, 2019 10:31:12 AM

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Hi Jerome,

The memo documenting carbstrate addition to the excavation is available for your review – please click this link to download the document

[https://cityofbothell-my.sharepoint.com/:b:/g/personal/nduta\\_mbuthia\\_bothellwa\\_gov/EfYx8CgWpr1Ej43S0pLGwckBUiPPO7coq5xhEyUsk3uwXw?e=4njfGd](https://cityofbothell-my.sharepoint.com/:b:/g/personal/nduta_mbuthia_bothellwa_gov/EfYx8CgWpr1Ej43S0pLGwckBUiPPO7coq5xhEyUsk3uwXw?e=4njfGd)

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Thanks

Nduta

---

**From:** Cruz, Jerome (ECY) <JCRU461@ECY.WA.GOV>  
**Sent:** Tuesday, September 3, 2019 9:28 AM  
**To:** Nduta Mbuthia <Nduta.Mbuthia@bothellwa.gov>  
**Cc:** John Kane <jkane@kane-environmental.com>; Tebeau, Kara J. (ATG) <kara.tebeau@atg.wa.gov>; Cardona-Marek, Tamara (ECY) <TACA461@ECY.WA.GOV>; Petrovich, Brad (ECY) <bpet461@ECY.WA.GOV>; Warren, Bob (ECY) <rwar461@ECY.WA.GOV>  
**Subject:** Re: [EXTERNAL] carbstrate in BSCSS ERH area vadose zone excavations

Hi Nduta,

I am working remotely this week, but can be contacted at my cell (206-327-1593).

I do not know if the excavations have been filled in yet. I asked John for more information (see below), but in general, it should do no harm if the bioremediation agent (Carbstrate) is placed in the excavations before filling in. Since the recirculation and treatment system also reinjects Carbstrate, it's the same technology that is already being used at the site to remediate the solvent plume. Therefore, I believe it's within the scope of the CAP and additional public comment is not needed and that it is not a major deviation to the CAP.

I recommend that the City submit a memorandum documenting the proposal to place Carbstrate in the ERH treatment area excavations. John mentioned adding a horizontal pipe delivery system, but I lack additional information on this and since it involves extra construction, I am hesitant to make a decision on it.

Thanks,

Jerome

---

**From:** Nduta Mbuthia <[Nduta.Mbuthia@bothellwa.gov](mailto:Nduta.Mbuthia@bothellwa.gov)>  
**Sent:** Friday, August 23, 2019 11:44 AM  
**To:** Cruz, Jerome (ECY)  
**Subject:** RE: [EXTERNAL] carbstrate in BSCSS ERH area vadose zone excavations

Hi Jerome,

I agree – it is a deviation from the CAP, and needs a formal document to capture the requested change in advance of the work.

Thanks

Nduta

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**From:** Cruz, Jerome (ECY) <JCRU461@ECY.WA.GOV>  
**Sent:** Friday, August 23, 2019 11:22 AM  
**To:** Nduta Mbuthia <[Nduta.Mbuthia@bothellwa.gov](mailto:Nduta.Mbuthia@bothellwa.gov)>  
**Subject:** [EXTERNAL] carbstrate in BSCSS ERH area vadose zone excavations

**Stop! Look! Think before you click!** This message originated from outside the City of Bothell network. Use caution when clicking links or opening attachments.

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**From:** [Cruz, Jerome \(ECY\)](#)  
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**Subject:** Re: [EXTERNAL] carbstrate in BSCSS ERH area vadose zone excavations  
**Date:** Wednesday, September 4, 2019 11:54:08 AM

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Hi Nduta,

Ecology concurs with the memo and its contents. This includes the remaining remedial activities such as Carbstrate application in the excavation.

Will there be enough time for rainfall to infiltrate the area for the bioremediation agent to reach groundwater? Will it remain bare earth until it's sold?

Thanks,

Jerome

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Hi Nduta,

John called me a few days ago about adding Carbstrate in the open excavations and adding an infiltration gallery for additional applications as mentioned in the 8-19-2019 memorandum on the Vadose zone excavations at the BSCSS ERH area.

I had told him it was not part of the original CAP, so more information would be needed. Information should cover questions like how much it would cost, what is it actually remediating ( how much remnant plume and soil contamination is it addressing), duration, design, and expectations given that the ERH systems was have cleaned up much of this area. I need this to make an informed decision and was not about to make a snap decision on it.

I just quickly checked the consent decree and under VI. WORK TO BE PERFORMED it says the following: “B. Defendants agree not to perform any remedial actions outside the scope of this Decree unless the Parties agree to modify the CAP (Exhibit C) and Schedule (Exhibit D) to cover these actions. All work conducted by Defendants under this Decree shall be done in accordance with WAC 173-340 unless otherwise provided herein.”

What’s your take on this language?

Thanks,

Jerome



Jerome B. Cruz, Ph.D.  
Toxics Cleanup Program, Northwest Regional Office  
3190 - 160th SE Bellevue, WA 98008  
Tel: (425) 649-7094 Fax: (425) 649-7098  
[Jerome.Cruz@ecy.wa.gov](mailto:Jerome.Cruz@ecy.wa.gov)  
<http://www.ecy.wa.gov/programs/tcp/cleanup.html>

Please note: Email exchanges may be public records and subject to disclosure.

original version

C.8	Decommission ERH and SVE system	Within 4 to 6 weeks of ERH system final shutdown
C.9	Cleanup Action Report and As-Built Drawings and Report; Draft Institutional Control (IC) Plan; Draft Environmental Covenant(s); and an updated Title Report	Within 60 days of decommission of ERH and SVE systems (C.8)
<b>D. Post Construction Work</b>		
D.1	Final IC Plan and Final Environmental Covenant(s)	Within 30 days of receipt of Ecology comments on the Draft IC Plan and Draft Environmental Covenant(s).
D.2	Record Final Environmental Covenant(s) with King County Auditor	Within 5 days after Ecology's approval of the Final IC Plan or Ecology's signature as grantee of the Final Environmental Covenant(s), whichever occurs last.
D.3	Indoor Air Sampling of all occupied buildings on the site	May-July 2019, 2020,2021
D.4	Performance Groundwater Monitoring Quarterly Performance Monitoring Biannual Performance Monitoring	June 2018 to June 2020 June 2018 to June 2019 June 2019 to June 2020
D.5	Decommission Bioremediation/Groundwater Recirculation system and monitoring wells	2020 to 2022 (if operation of bioremediation system is extended)
D.6	Soil Vapor Sampling	2020
D.7	Groundwater Confirmation Monitoring Quarterly Compliance Monitoring	2020-2024 June 2020 to June 2022
D.8	As Built Drawings and Report of vapor intrusion mitigation measures (vapor barrier and passive venting systems), and other engineering and institutional controls (if any).	Within 30 days of the City's receipt from the developer
D.9	Five Year Compliance Monitoring and Periodic Review reports	To follow Groundwater compliance monitoring (D.7). Groundwater monitoring required once every five years for the duration of the institutional controls on groundwater (if present) under the environmental covenant.

- 1) Schedule is in calendar days. Deliverable due date may be modified with Ecology concurrence without amendment to the Consent Decree.
- 2) Project Plans include the following: Work Plan, Sampling and Analysis Plan, Quality Assurance Project Plan, and Health and Safety Plan, to be submitted for Ecology review and approval. All plans will include a schedule for

updated version

C.8	Decommission ERH; install and operate SVE system	Within 4 to 6 weeks of ERH system final shutdown. SVE system operation beginning March 2019.
C.9	Cleanup Action Report and As-Built Drawings and Report; Draft Environmental Covenant(s); and an updated Title Report	Within 60 days of decommission of SVE systems
<b>D. Post Construction Work</b>		
D.1	Final Environmental Covenant(s)	Within 30 days of receipt of Ecology comments on the Draft Environmental Covenant(s).
D.2	Record Final Environmental Covenant(s) with King County Auditor	Within 5 days after completion of the Final Environmental Covenant or Ecology's signature as grantee of the Final Environmental Covenant(s), whichever occurs last.
D.3	Performance Groundwater Monitoring Quarterly Performance Monitoring Biannual Performance Monitoring	Quarterly performance monitoring for one year starting Summer 2019; Biannual performance monitoring until PCE, and its breakdown products reach their applicable cleanup levels in the selected performance monitoring wells provided in CAP
D.4	Decommission Bioremediation/Groundwater Recirculation system	Upon attainment of cleanup levels in performance monitoring wells
D.5	Indoor Air Sampling (two rounds)	1st round - post-construction and pre-occupation of buildings 2nd round - upon completion of Groundwater Closure report per Section 7.0 of the BSCSS Final CAP
D.6	Groundwater Confirmation Monitoring Quarterly Compliance Monitoring	Quarterly for two years following completion of performance monitoring. As described in CAP, contingency of an additional year of quarterly sampling if cleanup levels not attained. After one additional year, if COC groundwater cleanup levels have not been reached, include a 5-year compliance sampling event for the duration of the environmental covenant.
D.7	As Built Drawings and Report of vapor intrusion mitigation measures (vapor barrier and passive venting systems), and other engineering and institutional controls (if any).	Within 30 days of the City's receipt from the developer
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**To:** [Nduta Mbuthia](#)  
**Cc:** [John Kane](#); [Petrovich, Brad \(ECY\)](#); [Tebeau, Kara J. \(ATG\)](#)  
**Subject:** RE: [EXTERNAL] RE: Kane Environmental - Soil Vapor Extraction well installation  
**Date:** Tuesday, July 9, 2019 8:50:07 AM  
**Attachments:** [image008.png](#)  
[image009.png](#)  
[image010.png](#)

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Hi Nduta,

Thanks for following up on this. I am OK with a delay to the deliverables (C8 and C9). C8 (running the remediation systems) would work better if run longer, but it should not matter now. However, it would be good to get official dates for when the system started and ended, just for the record.

Delays to C9 should be OK, if you can provide the estimated timetable to deliver.

I think the real focus now should be getting the draft RI/FS report, BSCSS and Wexler dCAPs ready for public comment. The clock is ticking and the review cycle and logistics of outreach here can be very tricky. Too many moving parts.

Thanks,

Jerome



Jerome B. Cruz, Ph.D.  
Toxics Cleanup Program, Northwest Regional Office  
3190 - 160th SE Bellevue, WA 98008  
Tel: (425) 649-7094 Fax: (425) 649-7098  
[Jerome.Cruz@ecy.wa.gov](mailto:Jerome.Cruz@ecy.wa.gov)  
<http://www.ecy.wa.gov/programs/tcp/cleanup.html>

---

**From:** Nduta Mbuthia [mailto:[Nduta.Mbuthia@bothellwa.gov](mailto:Nduta.Mbuthia@bothellwa.gov)]  
**Sent:** Tuesday, July 9, 2019 8:40 AM  
**To:** Cruz, Jerome (ECY) <[JCRU461@ECY.WA.GOV](mailto:JCRU461@ECY.WA.GOV)>  
**Cc:** John Kane <[jkane@kane-environmental.com](mailto:jkane@kane-environmental.com)>  
**Subject:** RE: [EXTERNAL] RE: Kane Environmental - Soil Vapor Extraction well installation

Hi Jerome,

Just checking for clarification on the CD deliverables schedule, specifically items C8 & C9... which state that the SVE system is to be decommissioned and a cleanup action report with as-built drawings is to follow within 60 days (along with an IC plan, ECs and updated title report).

John, please correct me if I'm wrong... but was the SVE shut down in February or is it still running? And if the former is the case Jerome, are you okay will the delay in getting these deliverables to you? Please let me know. Thanks

Nduta

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**Exhibit D**  
**Site Schedule of Work and Deliverables**

Deliverables		Due (Calendar Days)
<b>A. Administrative</b>		
A.1	Consent Decree entered by the King County Superior Court (Effective Date of the CD)	Within 5 days of the execution by the Parties
A.2	Notification of selected contractor name and qualifications	Within 5 days of the effective date of Consent Decree (A.1)
A.3	Progress Reports	Quarterly on the 10 <sup>th</sup> of the month beginning after the effective date of the Consent Decree (A.1)
A.4	Financial Assurances – submit cost estimate for Ecology review and approval	Within 60 days of the effective date of Consent Decree
A.5	Financial Assurances - provide proof of financial assurances	Within 60 days after Ecology approves cost estimate (A.4)
<b>B. Design</b>		
B.1	Draft Pre-Remedial Design (PRDI) Project Plans <sup>2</sup>	Within 5 days of the effective date of Consent Decree (A.1)
B.2	Draft PRDI Data Report and Draft Engineering Design Report (EDR) <sup>3</sup>	Within 5 days of Ecology approval of Final PRDI Project Plans (B.1)
B.3	Final PRDI Data Report and EDR Report	Within 5 days of receipt of Ecology's comments on the Draft PRDI Data and EDR Reports (B.2)
B.4	90 % Plans and Specs [per WAC 173-340-400(4)(b)]	Within 5 days of receipt of Ecology comments on Final EDR Report (B.3)
B.5	100 % Plans and Specs	Within 5 days of receipt of Ecology comments on 90 % plans and specifications (B.4)
<b>C. Field Construction</b>		
C.1	Complete Construction Procurement	Within 5 days of completion of the 100% plans and specifications (B.1)
C.2	ERH System installation	Within 2 months of the effective date of Consent Decree
	ERH Operation	Within 6 to 8 months of the effective date of Consent Decree
C.3	Start install and begin operation of bioremediation-groundwater recirculation/SVE systems	Within 2 months of the effective date of Consent Decree
C.4	Install compliance monitoring well network	Within 2 months of the effective date of Consent Decree
C.5	Complete Construction	Within 2 months of the effective date of Consent Decree
C.6	ERH soil performance sampling	Within 6 to 8 months of the effective date of Consent Decree
C.7	Contingent soil excavation in ERH treatment area	Within 6 to 9 months of the ERH system shutdown



C.8	Decommission ERH; install and operate SVE system	Within 4 to 6 weeks of ERH system final shutdown. SVE system operation beginning March 2019.
C.9	Cleanup Action Report and As-Built Drawings and Report; Draft Environmental Covenant(s); and an updated Title Report	Within 60 days of decommission of SVE systems
<b>D. Post Construction Work</b>		
D.1	Final Environmental Covenant(s)	Within 30 days of receipt of Ecology comments on the Draft Environmental Covenant(s).
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D.5	Indoor Air Sampling (two rounds)	1st round - post-construction and pre-occupation of buildings 2nd round - upon completion of Groundwater Closure report per Section 7.0 of the BSCSS Final CAP
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- 1) *Schedule is in calendar days. Deliverable due date may be modified with Ecology concurrence without amendment to the Consent Decree.*
- 2) *Project Plans include the following: Work Plan, Sampling and Analysis Plan, Quality Assurance Project Plan, and Health and Safety Plan, to be submitted for Ecology review and approval. All plans will include a schedule for implementation as applicable.*
- 3) *The Engineering Design Report includes: a Construction Quality Assurance Project Plan, a Compliance Monitoring and Contingency Response Plan, Proposed Best Management Practices, Water Quality Monitoring Plan, and Substantive Requirements of Procedurally Exempt Permits. Ecology will not approve the Final EDR until the required permits have been obtained.*

<b>FINANCIAL OBLIGATIONS (A. Administrative)</b>		
Provide a cost estimate to Ecology for the implementation of the CD requirements, including operation, maintenance, and compliance monitoring	<i>Feb 12, 2018 BSCSS grant submitted through Ecology EAGL with all cost estimates attached</i>	A4
Provide Ecology with proof of financial assurances in a form acceptable to Ecology	<i>Provided in CFP sheet</i>	A5
Adjust the cost estimated to reflect inflation and changes in cost estimates and provide updated financial assurances	Ongoing with EAGL, spending updated each quarter	-
Pay outstanding Ecology oversight costs of \$13,108.83	<i>Confirmed; All Ecology invoices have been processed</i>	-
Pay Ecology's future oversight costs	Within 30 days of receiving Ecology's invoice; On-going	-
<b>PRE-CLEANUP OBLIGATIONS (B. Design)</b>		
Notify Ecology of selected contractor name and qualifications	<i>Completed, March 13, 2018</i>	A2
Submit written monthly Progress Reports	<i>Submitted 4/10/18 (QPR1); 7/9/18 (QPR2); 10/1/18 (QPR3)</i>	A3
Submit draft Pre-Remedial Design Project Plans (PRDI) <sup>2</sup>	<i>Completed (included in draft EDR report)</i>	B1
Submit draft PRDI Data Report and draft Engineering Design Report (EDR) <sup>3</sup>	<i>Completed, Feb 8, 2018(v1); March 15, 2018(v2)</i>	B2
Submit final PRDI Data Report and EDR	<i>Completed, April 24, 2018(v1); July 2018 (v2, addressing ECY's 6/5/18 comments). Approved EDR - August 28, 2018</i>	B3
Submit 90% plans and specs (per WAC 173-340-400(4)(b))	<i>Completed, same time as above</i>	B4
Submit 100% plans and specs	<i>Completed, same time as above</i>	B5
<b>FIELD CONSTRUCTION (C)</b>		<b>EXH D ref</b>
Complete construction procurement	<i>Completed; Feb 13, 2018 through March 2018</i>	C1
ERH System Installation	<i>Completed; Feb 13 through May 14, 2018</i>	C2
ERH Operation	<i>Completed; November 20, 2018</i>	
Start install and begin operation of bioremediation-groundwater recirculation /SVE systems	Ongoing; Started well installation in May 2018. Bio system operational since August 2018. SVE installed in March 2019; operation ongoing. Additional wells were installed and sampled in the ERH area	C3
Install compliance well monitoring network	<i>Completed; July 2018</i>	C4
Complete construction	<i>Completed; May 2019</i>	C5
Conduct ERH soil performance sampling	<i>Completed; Nov/Dec 2018</i>	C6
Contingent soil excavation in ERH treatment area	Completed; June 2019 per 6/7/19 work plan. Supplemental Excavation done in Aug 2019 in compliance with the lower CULs per amended BSCSS CAP (Aug Public comment period)	C7
Decommission ERH system; install and operate SVE system	Within 4 to 6 weeks of ERH final system shutdown. <i>ERH system was shut down on Nov 20, 2018. The ERH wells were then repurposed and tied in to the bio-remediation system</i>	C8
Submit Cleanup Action Report and As-Built Drawings and Report; draft Environmental Covenant (s); and an updated Title Report	Within 60 days of decommissioning SVE system. SVE system operation started March 2019 and was decommissioned end of August	C9



<b>POST-CONSTRUCTION (D)</b>		
Submit final Environmental Covenant(s)	Within 30 days of Ecology's comments on draft Environmental Covenant	D1
Record the restrictive covenant with the office of the King County Auditor	Within 5 days after the later of Ecology's approval of the Final Environmental Covenant or Ecology's signature as grantee of the Final Environmental Covenant(s), whichever occurs last	D2
Indoor Air Sampling	1st round - post-construction and pre-occupation of buildings. 2nd round - upon completion of Groundwater Closure report per Section 7.0 of the BSCSS Final CAP	D3
Performance Groundwater Monitoring Quarterly Performance Monitoring Biannual Performance Monitoring	Summer 2018 to Summer 2020  - Event#1 - Sep 2018; Event#2 - Dec 2018, Event#3 - Mar 2019; Event#4 - May 2019; Event#5 - July 2019	D4
Decommission Bioremediation/Groundwater Recirculation system and monitoring wells	Upon attainment of cleanup levels in performance monitoring wells	D5
Groundwater Confirmation Monitoring Quarterly Compliance Monitoring	Quarterly for two years following completion of performance monitoring	D7
As-Built Drawings and Report of vapor intrusion mitigation measures (vapor barrier and passive venting systems). And other engineering and institutional controls (if any)	Within 30 days of the City's receipt from the developer	D8
<b>PERIODIC REVIEWS</b>		
Meet with Ecology to discuss the status of the Site	Every 5 years after initiation of cleanup action (until 10 years after termination of the CD)	D9
Five Year Compliance Monitoring and Periodic Review reports	To follow Groundwater compliance monitoring (D.7). Groundwater monitoring required once every five years for the duration of the institutional controls on groundwater (if present) under the environmental covenant.	
Submit periodic review reports to Ecology documenting whether human health and the environment are being protected	At least 90 days prior to each periodic review meeting with Ecology (until 10 years after termination of the CD)	

1) Schedule is in calendar days. Deliverable due date may be modified with Ecology concurrence without amendment to the Consent Decree.

2) Project Plans include the following: Work Plan, Sampling and Analysis Plan, Quality Assurance Project Plan, and Health and Safety Plan, to be submitted for Ecology review and approval. All plans will include a schedule for implementation as applicable.

3) The Engineering Design Report includes: a Construction Quality Assurance Project Plan, a Compliance Monitoring and Contingency Response Plan, Proposed Best Management Practices, Water Quality Monitoring Plan, and Substantive Requirements of Procedural

**Table 1  
Bothell Service Center Simon Son  
Groundwater Analytical Results**

Well	Well Type and Water Bearing Zone	Screened Depth, (ft bgs)	Top of Casing (TOC) Elevation (feet)*	Date Sampled	Depth to Water (ft below TOC)	GW Elevation (feet)	Sampled By	PCE (µg/L)	TCE (µg/L)	(cis) 1,2-DCE (µg/L)	Vinyl Chloride (µg/L)	pH (units)	Conductivity (µS)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Dissolved Iron (ug/L)	Sulfate (mg/L)	Chloride (mg/L)	Ammonia as N (mg/L)	Methane (mg/L)	Ethane (mg/L)	Ethene (mg/L)	Total Organic Carbon (mg/L)				
MW-1	Shallow Decommissioned	5 to 20	46.952	3/16/01			ERM	113	38.3	28.1	<1.0																
				7/13/01			ERM	23.7	10.3	4.82	<1.0																
				10/26/01			ERM	8.71	2.84	1.29	<1.0																
				12/2/02			ERM	239	380	1,200	<1.0																
				10/1/02			Farallon	6.8	6.4	17				6.5	196.0	1.14	13.8										
				4/27/05			Farallon	2,600	80	53				6.7	201.0	3.02	97.6										
				8/15/05			Farallon	12,000	<50	<50																	
				8/14/06			Farallon	18,000	<200	<200				5.9	284.0	0.9	499										
				5/14/07			Farallon	12,000	<50	63				6.1	249.0	2.27	448										
				11/27/07			Farallon	11,000	<100	<100				6.6	233.0	4.87	135										
				8/26/08			Farallon	23,000	<200	<200				6.3	189.0	1.87	175			22			13.1	<1.2	<1.1	3.25	
				1/9/09			Farallon	450	10	6.6				6.3	88.0	10.5	120			8.8			<0.5	<0.5	<0.5	2.95	
				6/11/09			Farallon	17,000	<100	<100				6.1	242.0	2.32	80.1			18			8.6	<0.5	<0.5	2.2	
				9/14/09			Farallon	31,000	<200	<200				6.3	328.0	0.74	158			21			28	<2.5	<2.5	3.7	
				5/27/10			Farallon	23,000	<100	<100	<100			6.4	200.0	2.26	58.4										
				9/9/10			Farallon	24,000	<200	<200	<200			6.8	249.0	0.38	0.3			20			14	<1.0	<1.0	2.6	
				6/10/11			Farallon	1,900	42	52	<10			6	141.0	5.6	39.3			13			1.1	<0.5	<0.5	4.3	
				3/21/13			DOF	8,000	56	81	<0.2			6.7	203.0	5.5	68.4						4.5	<1.2	<1.1	11.8	
				4/4/14			DOF	270	16	49	<0.02			7.1	117.0	5.5	-14						<0.7	<1.2	<1.1	8.28	
				10/10/14			DOF	28,000	160	140	<2.0 U			6.3	348.0	0.3	18.6						36.8	<1.2 U	<1.1 U	3.15	
11/11/15			10.07	36.92		HWA	14,000	92	87	<50	6.06	341.0	3.89	80.4		19			0.76	<0.50	<0.50	2.9					
9/21/16			9.14	37.81		Kane	6,700	170	610	160	6.29	325.0															
10/25/16			7.72	39.23		Kane	160	6.6	16	<2.0	6.33	202.0															
MW-2	Shallow Decommissioned	5 to 20	48.897	3/16/01			ERM	13,800	834	106 ES	<1.0																
				7/13/01			ERM	419	16.4	<1.0	<1.0																
				10/26/01			ERM	532	<20.0	<20.0	<20.0																
				2/12/02			ERM	81.5	8.08	<1.0	<1.0																
				10/1/02			Farallon	18	0.65	<0.2			6.4	319.0	0.89	-30											
				4/27/05			Farallon	2,600	44	<10			5.8	319.0	0.42	149.2											
				8/15/05			Farallon	29,000	<200	<200																	
				8/14/06			Farallon	32,000	300	240			5.8	317.0	0.97	478.5											
				5/14/07			Farallon	6,100	40	38			6	264.0	0.7	479.8											
				11/27/07			Farallon	38,000	<200	<200			6.5	300.0	1.18	117.8											
				8/26/08			Farallon	500	200	2,300			6.4	286.0	2.26	-69.2			5.3				1330	<1.2	<1.1	25.9	
				1/8/09			Farallon	270	550	290			6.5	296.0	0.56	24.7			7.3				500	<50	<50	6.36	
				6/11/09			Farallon	1,100	1,400	1,700			6.3	294.0	0.73	60.9			8.5				4400	<500	<500	6.4	
				9/14/09			Farallon	1,700	2,200	7,800			6.3	323.0	0.68	147.5			12				3800	<500	<500	13	
				5/27/10			Farallon	240	<60	12,000	70		6.1	512.0	0.31	-15.9											
				9/9/10			Farallon	<200	<200	6,400	<200		6.5	420.0	0.21	-49.3			<5				9700	<500	<500	39	
				6/10/11			Farallon	150	1,100	11,000	3,200		6.2	809.0	0.34	-101.4			<10				5200	<380	680	71	
				3/20/13			DOF	540	690	14,000	830 ES		7.4	561.0	0.31	-111							15900	<1.2	1240	27	
				4/7/14			DOF	390	630	5,300	850		7.2	320.0	0.3	-352							14500	<1.2	388	8.26	
				10/10/14			DOF	320	93	8,900	1,900		6.2	382.0	0.2	-117							9760	<1.2 U	349	7.49	
11/11/15			10.17	38.74		HWA	2,400	4,100	15,000	1,200	5.78	463.0	0.00	-85.9		39			5900	<380	580	11					
9/23/16			9.89	39.01		Kane	8	6.6	8.1	6.6	6.59	241.0															
11/1/16			8.31	40.59		Kane	8.3	6.1	10	11	6.31	244.0															
MW-3	Shallow	5 to 20	47.957	3/16/01			ERM	<1.0	<1.0	<1.0	<1.0																
				10/26/01			ERM	<1.0	<1.0	<1.0	<1.0																
				2/12/02			ERM	<1.0	<1.0	<1.0	<1.0																
				10/1/02			Farallon	0.37	<0.2	<0.2			5.9	284.0	1.12	30.8											
				4/27/05			Farallon	<0.2	<0.2	<0.2			5.5	275.0	0.96	132											
				8/14/06			Farallon	<0.2	<0.2	<0.2			5.8	307.0	1.95	456											
				5/14/07			Farallon	<1.0	<0.2	<0.2			5.7	264.0	1.75	408											
				11/27/07			Farallon	<1.0	<0.2	<0.2			6.2	330.0	0.76	78										2.47	
				8/25/08			Farallon	<0.2	<0.2	<0.2			5.9	172.0	2.88	374			18				<1	<1.2	<1.1	2.58	
4/7/14			DOF	<0.2	<0.2	<0.2	<0.02		6.4	192.0	0.7	-71							2960	<1.2	<1.1	4.17					



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				2/12/02			ERM	21,800	1,110 ES	406 ES	<1.0												
				10/1/02			Farallon	27,000	1,100	470		6.6	201.0	0.92	95.2								
				4/27/05			Farallon	15,000	1,100	460		6.2	235.0	3.14	119								
				8/15/05			Farallon	30,000	1,500	930													
				8/14/06			Farallon	24,000	1,100	1,500		5.8	335.0	1.06	483								
				5/14/07			Farallon	17,000	860	1,300		6	296.0	2.18	471								
				11/27/07			Farallon	22,000	940	1,300		6.6	285.0	2.75	149								
				8/26/08			Farallon	25,000	1,200	1,200		6.1	256.0	2.34	273		23			8.2	<1.2	<1.1	3.12
				1/9/09			Farallon	12,000	610	440		6.5	190.0	4.94	115		15			2.9	<0.5	<0.5	2.54
				6/11/09			Farallon	20,000	780	710		6	270.0	1.96	98		20			8	<0.5	<0.5	2.1
				9/14/09			Farallon	23,000	1,200	870		6.3	315.0	0.74	158		23			8.8	<0.5	<0.5	3.1
				2/25/10			Farallon	17,000	730	450	<100	6.4	176.0	2.49	170								
				5/27/10			Farallon	13,000	480	320	<60	6.6	250.0	0.3	38.1								
				9/10/10			Farallon	860	430	8,300	<50	6.6	492.0	0.34	-67.2		<5			64	<6.0	<6.0	19
				6/10/11			Farallon	460	72	2,100	<20	6.5	561.0	0.44	-178		<5			490	<50	<50	33
				3/20/13			DOF	500	140	9,600	56 ES	7.3	444.0	0	-144					5790	<1.2	2	12.3
				4/4/14			DOF	950	220	240	19	6.8	243.0	0.4	-142					1620	<1.2	<1.1	1.93
				10/10/14			DOF	73	28	6,600	2,700	6.6	623.0	0.3	-139					6220	<1.2 U	1200	12.9
				11/11/15	10.23	36.98	HWA	26	<20	3,800	2,900	6.37	749.0	0.00	-110.1		<10			3400	<250	850	11
				9/23/16	9.31	37.83	Kane	240	69	10,000	2,400	6.81	559.0										
				10/27/16	7.87	39.27	Kane	<50	<50	9,500	1,900	6.60	410.0										
				7/17/18	8.92	38.22	Kane	27.4	14.3	4,480	851	6.91	365.0	0.00									
				9/18/18	9.51	37.63	Kane	738	238	2,620	472	6.39	383.0	0.07	-42.6	6,340	20.1	14.2	0.162	0.666	<0.062	0.0596	9.01
				12/21/18	8.79	38.35	Kane	2,670	1,000	2,560	25.5	5.96	378.0	0.23	-65.4	5,260	8.68	11.2	0.413	0.0808	<0.162	<0.151	14.3
				2/22/19	7.79	39.35	Kane	1,820	568	1040	14	6.16	295.1	0.15	-52	5,800	13	7.69	<0.10	0.706	<0.0162	<0.0151	13.2
				5/22/19	8.46	38.68	Kane	3,800	1,800	750	<20	6.14	407.0	0.04	-70.8	8,800	<5.0	14	0.16	1	0.0012	<0.0005	20
				7/25/19	9.06	38.08	Kane	3,600	1,100	490	7.4	6.16	401.0	0.04	-108.1	9,200	<5.0	14	0.18	0.73	<0.0005	0.019	22
MW-7	Shallow	10 to 25	45.527	7/13/01			ERM	10,100	35	30	<1.0												
				10/26/01			ERM	4,880	15	13.8	<1.0												
				2/12/02			ERM	3,800	10.5	9.28	<1.0												
				10/1/02			Farallon	9,600	<100	<100		6.7	214.0	0.71	-22.6								
				4/28/05			Farallon	1,100	<10	<10		6.2	315.0	0.84	126								
				8/15/05			Farallon	4,900	27	<20													
				8/14/06			Farallon	4,000	<40	<40		6.1	303.0	0.82	386								
				5/14/07			Farallon	320	2.7	<2.0		6.2	352.0	0.54	437								
				11/27/07			Farallon	1,200	<10	<10		6.9	336.0	0.38	76.6								
				8/26/08			Farallon	4,300	43	43		6.5	240.0	2.74	116		25			42.6	<1.2	<1.1	2.1
				1/8/09			Farallon	760	7.8	4.8		6.7	330.0	0.7	84.3		27			110	<5.0	<5.0	3.6
				6/11/09			Farallon	2,100	34	33		6.5	340.0	0.62	62.3		25			140	<10.0	<10.0	2.3
				9/14/09			Farallon	6,300	120	79		6.3	318.0	0.72	170		24			23	<2.5	<2.5	1.9
				5/27/10			Farallon	830	18	14	<10	6.6	289.0	0.63	-22.6								
				9/9/10			Farallon	5,400	110	55	<50	6.8	295.0	0.31	-21.4		24			190	<25.0	<25.0	1.7
				6/10/11			Farallon	810	24	16	<4.0	6.7	346.0	0.52	-43.5		16			240	<10.0	<10.0	2.4
				3/21/13			DOF	3,300	140	240	0.28	7	385.0	0.21	-3.6					741	<1.2	<1.1	6.29
				4/4/14			DOF	2,100	130	750	2.3	7.1	329.0	0.6	-47					989	<1.2	<1.1	2.57
				10/11/14			DOF	6,200	380	3,400	10	6.3	391.0	0.1	-27					6580	<1.2 U	<1.1 U	2.44
				11/11/15	10.12	35.45	HWA	950	42	240	<10	6.32	282.0	0.00	12.5		16			290	<25	<2.0	2.5
				9/21/16	8.92	36.61	Kane	3,800	160	1,300	<20	6.32	350.0										
				10/25/16	8.21	37.32	Kane	450	32	280	<4.0	6.88	323.0										
				10/26/16	7.3	38.23	Kane					6.62	316.0				22		<0.050				2.8
				9/18/18	9.12	36.41	Kane	1,370	78.1	673	5.85	6.69	369.0	0.12	17.3	2,620	37	5.48	<0.100	1.29	<0.0162	<0.0151	3.84
				11/30/18	8.9	36.63	Kane	2,670	305	1,440	<10	6.41	411.3	0.11	30.8	1,620	35	8.5	<0.100	0.197	<0.162	<0.151	4.18
				5/24/19	7.96	37.57	Kane	1,000	84	240	<10	6.68	409.5	0.16	-9.2	3,900	37	6.1	<0.050	0.049	<0.003	<0.003	2.3
MW-8	Deep	45 to 50	47.387	10/1/02			Farallon	51	0.98	0.88		7	487.0	0.73	-355								
				4/28/05			Farallon	6.4	<0.2	<0.2		6.3	186.0	0.97	104								
				8/15/06			Farallon	0.44	<0.2	<0.2		6.2	167.0	2.43	447								



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				5/14/07			Farallon	4.3	<0.2	<0.2		6.1	145.0	2.89	419												
				11/27/07			Farallon	2.2	<0.2	<0.2		6.7	164.0	0.54	80.7												
				5/22/08			Farallon	79	7.2	12		6.2	139.0	5.8	153												
				8/25/08			Farailon	93	4.8	4.4		6.3	118.0	2.1	391				12				<0.7	<1.2	<1.1	<1.5	
				3/20/13			DOF	33	1	2	<0.02	6.7	218.0	0.06	10.1								649	<1.2	<1.1	6.04	
				4/4/14			DOF	130	37	41	<0.02	6.8	181.0	1	-44									<0.7	<1.2	<1.1	1.98
				10/11/14			DOF	150	37	140	0.2	6.2	190.0	0.9	49.1									43.3	<1.2U	<1.1U	1.99
				11/11/15	10.82	36.63	HWA	180	50	160	<1.0	6.06	225.0	0.85	-26.8				13					19	<1.0	0.59	2.2
				9/22/16	9.71	37.68	Kane	50	6.2	25	<0.20	6.33	229.0														
				10/26/16	8.48	38.91	Kane	5.8	1.3	3.1	<0.20	6.43	246.0							12		<0.050					1.4
				7/17/18	9.7	37.69	Kane	8.75	1.59	4.21	<0.20	6.81	173.0	0.32													
				9/17/18	10.33	37.06	Kane	14.8	2.14	8.25	<0.20	6.56	187.0	0.16	70.9	<100	6.05	7.92	<0.100	0.0246	<0.0162	<0.0151				3.36	
				12/20/18	10.05	37.34	Kane	14.5	4.37	9.38	<0.20	6.13	197.6	0.28	30	<100	4.13	6.53	<0.100	<0.00863	<0.0162	<0.0151				1.66	
				2/22/19	8.75	38.64	Kane	4.98	2.9	7.33	<0.20	6.28	183.2	0.24	65	<100	4.95	7.14	<0.10	0.0173	<0.0162	<0.0151				1.82	
				5/22/19	8.99		Kane	3.1	1	1.3	<0.20	6.3	212.0	0.16	-8.4	300	5.8	7.8	<0.050	0.036	<0.0005	<0.0005				2	
7/22/19	9.65	37.74	Kane	1.9	0.48	0.53	<0.020	6.04	221.5	0.11	54.2	450	7.5	8.4	<0.050	0.14	<0.0005	<0.0005				2.1					
MW-9	Deep Decommissioned	45 to 50	49.857	10/1/02			Farallon	250	<2.0	<2.0		7.3	373.0	0.91	-197												
				4/27/05			Farallon	53,000	<100	<100		6.9	246.0	1.02	78.7												
				8/15/05			Farallon	140,000	<200	<200																	
				11/27/07			Farallon	13,000	<100	<100		7.5	117.0	7.5	148												
				5/22/08			Farallon	8,800	<50	<50		7.4	191.0	1.1	68.9												
				8/26/08			Farallon	6,000	3,400	<50		7.2	166.0	1.2	102				<5				982	<1.2	<1.1	1.65	
				1/9/09			Farailon	160,000	<1,000	<1,000		7.5	213.0	1.4	78.9				<5				530	<50	<50	1.79	
				6/11/09			Farallon	43,000	<300	<300		6.6	98.0	7.7	83.3				<5				84	<5	<0.5	<1.0	
				9/14/09			Farallon	21,000	<200	<200		6.7	139.0	3.01	167				<5				2.2	<0.5	<0.5	1.4	
				2/25/10			Farallon	16,000	<100	<100	<100	7.5	63.0	5.97	148												
				9/10/10			Farallon	6,500	36	<30	<30	7.7	147.0	2.91	-63.7				<5					4.3	<0.5	<0.5	<1.0
				6/10/11			Farallon	21,000	<200	<200	<200	7.6	218.0	0.39	63.2				<5					1400	<100	<100	1.3
				3/20/13			DOF	DNAPL	DNAPL	DNAPL	DNAPL																
				4/7/14			DOF	15,000	46	22	<0.02	7	194.0	0.4	-98									2200	<1.2	<1.1	1.89
				10/11/14			DOF	3,300	96	54	<2.0 U	6.5	168.0	0.1	-38									757	<1.2 U	<1.1 U	1.63
11/11/15	11.9	38.00	HWA	890	560	680	<10	5.90	139.0	0.00	45.6				<5.0					190	<15	6.1	<1.0				
9/22/16	11.2	38.66	Kane	53,000	<500	<500	<500	7.41	222.0																		
10/26/16	9.71	40.15	Kane	42,000	<300	<300	<300	7.54	254.0							3,300		0.44					<1.0				
MW-10	Shallow Decommissioned	5 to 25		4/27/05			Farallon	3	<0.2	<0.2																	
MW-10R	Shallow Decommissioned	15 to 25	49.392	9/19/16	9.98	39.41	Kane	1.6	<0.20	<0.20	<0.20	6.61	188.0														
				11/1/16	8.34	41.05	Kane	1.3	<0.20	<0.20	<0.20	6.78	212.0														
MW-11	Intermediate	25 to 33	47.207	11/28/07			Farallon	28	0.26	<0.2		6.6	176.0	1.26	165												
				5/22/08			Farallon	23	0.24	<0.2		6.2	174.0	0.84	132												
				8/25/08			Farallon	27	0.53	<0.2		6.3	142.0	1.46	238				18				29.8	<1.2	<1.1	1.71	
				3/20/13			DOF	5.6	0.2	0.26	<0.02	6.6	296.0	0.1	-50.6								5770	<1.2	<1.1	6.53	
				4/4/14			DOF	5.6	<0.2	<0.2	<0.02	6.8	298.0	0.2	-107								3500	<1.2	<1.1	2.61	
				10/11/14			DOF	4.8	0.18 J	0.13 J	<0.02 U	6.1	371.0	0.4	16.8									2150	<1.2 U	<1.1 U	2.72
				11/11/15	10.34	36.91	HWA	4.1	0.4	<0.20	<0.20	6.28	594.0	0.67	-82.8				18					840	<50	<7.0	4.5
				9/23/16	9.42	37.79	Kane	9.9	<0.20	0.42	<0.20	6.29	408.0														
				10/26/16	7.98	39.23	Kane	2.0	<0.20	<0.20	<0.20	6.38	376.0							24		<0.050					4.2
				7/17/18	9.02	38.19	Kane	11.2	2.12	3.73	<0.20	6.58	295.0	0.16													
				9/17/18	9.82	37.39	Kane	35.8	29.6	27.6	<0.20	6.24	357.0	0.06	-4.5	1,140	42.5	22.9	<0.100	0.158	<0.0162	<0.0151				9.07	
				12/20/18	8.56	38.65	Kane	41	11.5	4.92	<0.20	5.72	287.0	0.16	14.3	611	37.4	13.5	<0.100	0.109	<0.162	<0.151				8.99	
				2/21/19	7.9	39.31	Kane	16.9	14.6	9.58	<0.20	5.96	316.3	0.16	-70	1,240	10.3	14.4	<0.10	0.87	<0.0162	<0.0151				23.7	
5/22/19	8.48	38.73	Kane	75	69	14	<0.40	6.13	468.0	0.04	-18	810	13	13	<0.050	0.49	<0.0005	<0.0005				27					
7/25/19	9.12	38.09	Kane	39	41	7.7	0.34	6.2	407.0	0.04	-43.8	660	10	11	0.068	1.1	<0.0005	<0.0005				26					
MW-12	Intermediate	25 to 33	45.467	11/28/07			Farallon	2,300	30	39		6.9	326.0	1.48	165												
				5/22/08			Farallon	2,800	53	61		6.5	277.0	1.51	132										2.02		
				8/26/08			Farallon	1,600	<10	<10		6.3	227.0	2.12	4.6				19				<0.7	<1.2	<1.1	5.04	

**Table 1  
Bothell Service Center Simon Son  
Groundwater Analytical Results**

Well	Well Type and Water Bearing Zone	Screened Depth, (ft bgs)	Top of Casing (TOC) Elevation (feet)*	Date Sampled	Depth to Water (ft below TOC)	GW Elevation (feet)	Sampled By	PCE (µg/L)	TCE (µg/L)	(cis) 1,2-DCE (µg/L)	Vinyl Chloride (µg/L)	pH (units)	Conductivity (µS)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Dissolved Iron (ug/L)	Sulfate (mg/L)	Chloride (mg/L)	Ammonia as N (mg/L)	Methane (mg/L)	Ethane (mg/L)	Ethene (mg/L)	Total Organic Carbon (mg/L)			
				1/8/09			Farallon	3,200	88	44		6.5	309.0	0.77	70		22			16	<1.0	<1.0	3.11			
				6/11/09			Farallon	2,500	53	29		6.2	293.0	0.62	75.4		22				30	<3.0	<3.0	1.7		
				9/14/09			Farallon	700	5.1	<4		6.2	263.0	0.77	168		20					4.8	<0.5	<0.5	2.4	
				5/27/10			Farallon	2,800	240	80	<20	6.5	265.0	0.32	8.7											
				9/9/10			Farallon	1,500	22	<20	<20	6.8	226.0	0.32	9.5		15						490	<50	<50	1.1
				6/10/11			Farallon	5,800	270	180	<30	6.5	348.0	0.49	-14.6		19						1000	<100	<100	2.5
				3/20/13			DOF	4,800	210	920	1.6	6.8	392.0	0.05	-18.8								12900	<1.2	<1.1	7.97
				4/4/14			DOF	5,900	240	730	2.1	6.9	327.0	0.1	-52								12300	<1.2	<1.1	2.88
				10/10/14			DOF	4,100	390	150	<2.0 U	6.2	360.0	0.2	-25.6								12800	<1.2 U	<1.1 U	2.82
				11/11/15			9.61	35.93	HWA	2,900	180	1,100	<0.20	6.26	397.0	0.00	11		16				3000	<150	<18	2.2
				9/22/16			8.89	36.58	Kane	1,100	140	730	<10	6.37	410.0											
				10/26/16			7.26	38.21	Kane	1,300	230	1,600	<20	6.56	369.0					13	<0.050					2.1
				7/20/18			8.44	37.03	Kane	4,110	351	2,110	14.3	6.45	162.0	0.66										
				9/10/18			9.14	36.33	Kane	3,460	231	1,460	11.1	6.46	343.0	0.14	71.8	834	19.9	12.5	<0.100	4.12	<0.0162	<0.0151	5.72	
				11/30/18			8.59	36.88	Kane	2,340	194	669	<4.0	6.16	533.8	0.11	84.5	2,330	14	46.2	<0.100	0.727	<0.162	<0.151	3.9	
5/24/19			7.92	37.55	Kane	5,400	400	780	<30	6.25	383.9	0.30	-89.5	530	24	9.5	<0.050	3.7	<0.250	<0.250	2.5					
7/22/19			8.4	37.07	Kane	910	240	630	6.2	6.12	672.0	0.05	-341	3,400	18	42	<0.050	3.2	<0.0005	<0.0005	2.8					
MW-13	Deep Damaged	40 to 55	48.777	11/28/07			Farallon	<1.0	<0.2	<0.2		7.10	152.0	1.35	151											
MW-14	Intermediate Decommissioned	22 to 32	49.157	11/28/07			Farallon	<0.2	<0.2	<0.2		7.0	146.0	4.0	160											
				11/11/15	10.23	38.96	HWA	<0.20	<0.20	<0.20	<0.20	5.56	395.0	0.00	-99		<10				11000	<500	<55	13		
				9/21/16	9.53	39.63	Kane	0.91	<0.20	<0.20	<0.20	6.08	243.0													
11/1/16	8.29	40.87	Kane	<0.20	<0.20	<0.20	<0.20	5.96	307.0																	
MW-15	Intermediate Decommissioned	22 to 32		11/28/07			Farallon	<0.2	<0.2	<0.2		6.8	157.0	4.0	170											
MW-16	Deep Decommissioned	40 to 55		11/28/07			Farallon	10	<0.2	<0.2		7.9	124.0	6.9	130											
MW-17	Deep Damaged	40 to 50	48.947	11/28/07			Farallon	6.5	<0.2	<0.2		7.7	188.0	0.49	141											
MW-18	Intermediate Decommissioned	22 to 30	48.747	11/28/07			Farallon	270	<2.0	<2.0		7.2	266.0	0.83	158											
				5/22/08			Farallon	<0.25	<0.25	<0.25																
				4/4/14			DOF	2.4	1.2	14	3.3	6.1	493.0	0.3	-111						16700	<1.2	<1.1	48.5		
				10/11/14			DOF	0.49	<0.2 U	3.6	1.3	5.9	449.0	0.4	-6.6							13300	<1.2 U	<1.1 U	29.8	
				9/23/16	9.65	39.10	Kane	7.8	<0.20	1.3	0.26	6.02	238.0													
10/27/16	8.11	40.64	Kane	<0.20	<0.20	2.0	0.47	5.90	256.0																	
MW-19	Shallow Decommissioned	9 to 19	47.517	11/16/15	9.31	38.26	HWA	8,200	70	76	<50	6.34	638.0	3.75	49.2		31			74	<15	2.2	7.9			
				9/21/16	9.20	38.32	Kane	1,800	84	490	34	6.34	313.0													
				10/25/16	8.02	39.50	Kane	5,700	140	860	61	6.70	296.0													
MW-20	Intermediate	25 to 30	46.857	11/16/15	9.20	37.70	HWA	900	60	37	17	6.17	557.0	0.00	-73		22			1800	<125	9.4	2.7			
				9/21/16	9.02	37.84	Kane	190	45	120	9.0	6.66	340.0													
				10/26/16	7.73	39.13	Kane	140	44	120	17	6.44	348.0					43		0.21				4.3		
				12/20/18	7.5	39.36	Kane	32	879	552	2.23	5.72	263.9	0.05	-4.4	3,140	2.56	8.88	1.54	0.0446	<0.0162	<0.0151	95.4			
				3/14/19	7.55	39.31	Kane	<0.841	136	163	<2.0	6	219.3	0.2	68.3	1,460	0.348	7.8	1.07	0.0463	<0.0162	<0.0151	45.3			
				6/6/19	8.03	38.83	Kane	0.43	51	31	<0.40	6.45	218.1	0.08	4.4	950	<5.0	7.4	0.75	0.51	<0.05	<0.05	16			
7/25/19	8.64	38.22	Kane	0.82	36	27	0.052	6.36	210.2	0.13	-82	800	<5.0	6.4	0.89	0.67	<0.0005	<0.0005	8							
MW-21	Shallow	10 to 15	45.717	11/16/15	9.41	35.58	HWA	21,000	440	350	<100	7.38	1579.0	8.60	-18		96			310	<25	2.6	3.3			
				9/22/16	9.05	36.67	Kane	27,000	540	360	<200	6.56	355.0													
				10/31/16	6.97	38.75	Kane	8,400	210	190	<50	6.32	319.0													
				9/10/18	9.31	36.41	Kane	410	12	9	<0.20	6.22	280.0	2.40	93.5	<100	20	11.9	<0.100	0.0299	<0.0162	<0.0151	3.78			
				12/3/18	7.23	38.49	Kane	122	1.67	<1.00	<0.20	5.85	272.7	2.97	75.7	<100	12.9	4.61	<0.100	<0.00863	<0.0162	<0.0151	4.03			
5/24/19	7.69	38.03	Kane	82	1.40	0.5	<0.40	6.08	248.0	3.51	2.7	<56	12	3.7	<0.050	0.0026	<0.0005	<0.0005	<1.0							
MW-22	Deep	54 to 59	44.957	11/16/15	8.91	36.84	HWA	69	2.8	2.0	<0.40	7.30	296.0	0.00	-52.2		<5.0			1400	<250	<9.0	1.5			
				9/22/16	8.41	36.55	Kane	11	<0.20	1.5	<0.20	7.42	236.0													
				10/26/16	7.16	37.80	Kane	2.1	<0.20	2.2	<0.20	7.63	262.0				<5.0		0.24							
				7/16/18	8.27	36.69	Kane	<1.00	<0.50	1.6	<0.20	7.87	214.0	0.00												
9/19/18	8.85	36.11	Kane	<1.00	<0.50	1.22	<0.20	7.54	251.0	0.45	33.9	<100	0.932	6.65	0.392	0.654	<0.0162	<0.0151	2.37							









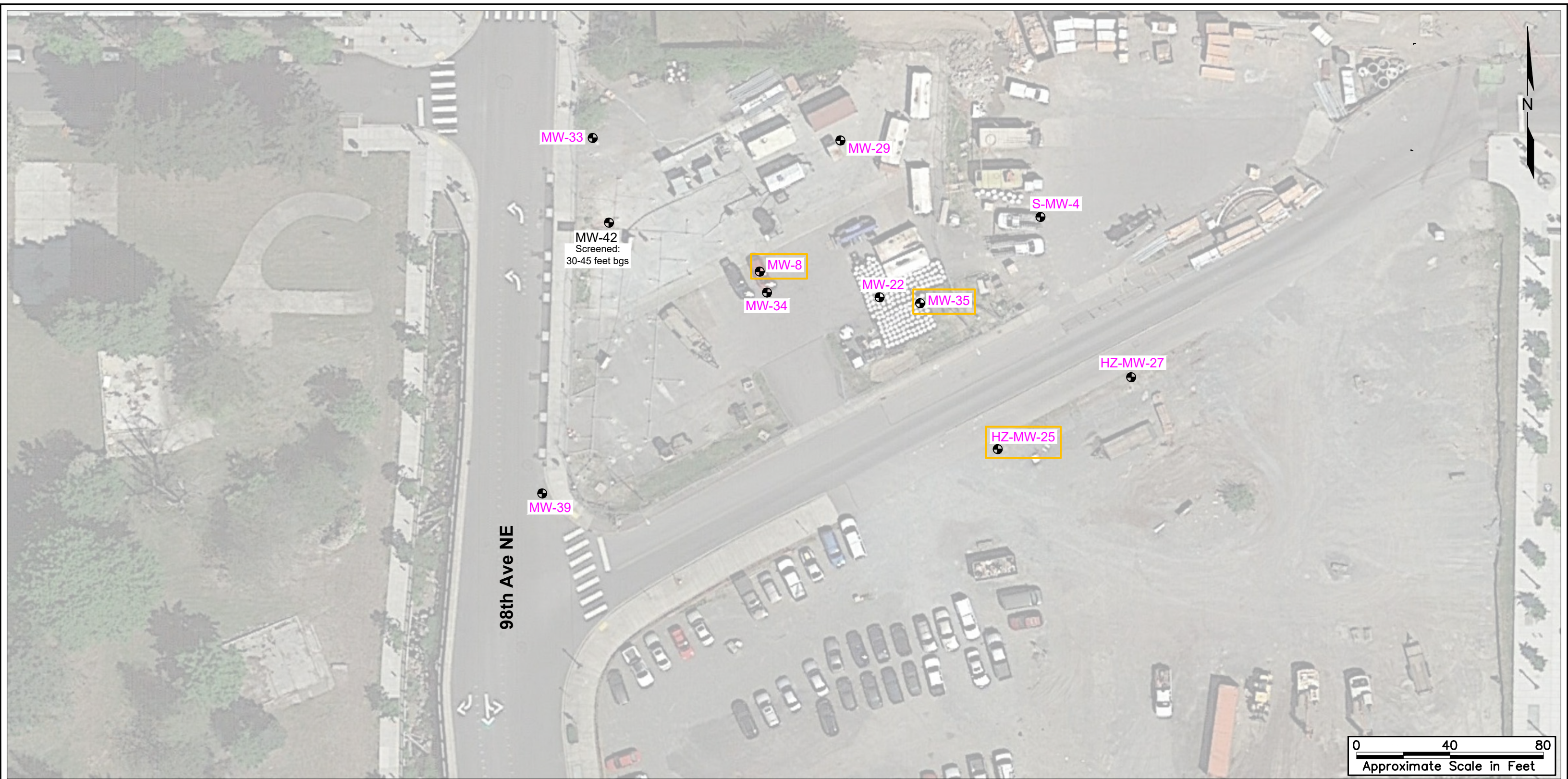




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Bothell Service Center Simon Son  
Groundwater Analytical Results**

Well	Well Type and Water Bearing Zone	Screened Depth, (ft bgs)	Top of Casing (TOC) Elevation (feet)*	Date Sampled	Depth to Water (ft below TOC)	GW Elevation (feet)	Sampled By	PCE (µg/L)	TCE (µg/L)	(cis) 1,2-DCE (µg/L)	Vinyl Chloride (µg/L)	pH (units)	Conductivity (µS)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Dissolved Iron (ug/L)	Sulfate (mg/L)	Chloride (mg/L)	Ammonia as N (mg/L)	Methane (mg/L)	Ethane (mg/L)	Ethene (mg/L)	Total Organic Carbon (mg/L)		
				12/7/18	5.77		Kane	4.63	12.7	32.6	<0.20	6.18	383.7	0.10	0.9	5,750	7.8	14.2	<0.100	<0.00863	<0.0162	<0.0151	3.96		
				5/31/19	5.88		Kane	0.83	3.3	24	0.26	6.46	550.0	0.16	-17.2	10,000	5.7	13	<0.050	1.1	<0.05	<0.05	<0.05	42	
				7/17/19	6.41		Kane	1.4	3.3	20	0.28	6.24	508.5	0.08	-158.7	11,000	5.2	13	<0.050	3.1	<0.0005	<0.0005	<0.0005	<0.0005	24
S-MW-1	Shallow	5.5 to 15.5	43.527	9/20/16	6.96	36.57	Kane	150	<1.0	<1.0	<1.0	6.48	303.0												
				10/24/16	4.64	38.89	Kane	17	<0.20	<0.20	<0.20	6.74	140.0												
				10/23/18	6.80	36.73	Kane	9.1	<0.50	<1.0	<0.20	6.59	161.0												
				6/6/19	6.00	37.53	Kane	8.9	<0.20	<0.20	<0.20	6.25	256.6	3.46	5	<56	50	4.6	<0.050	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	1.4
				7/24/19	6.61	36.92	Kane	6.5	<0.20	<0.20	<0.020	6.01	200.8	3.10	-74.5	<56	26	4.8	0.15	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<1.0
S-MW-2	Shallow	5 to 15	42.297	9/20/16	6.21	36.09	Kane	47	7	26	<0.40	6.41	339.0												
				10/24/16	3.95	38.35	Kane	35	20	69	5.1	6.83	349.0												
				9/21/18	6.03	36.27	Kane	10.3	4.74	3.66	<0.20	6.80	246.0	0.12	105.6	<100	19.3	4.29	<0.100	<0.00863	<0.0162	<0.0151	2.25		
				1/2/19	4.40	37.90	Kane	7.55	4.2	5.02	<0.20	6.45	278.4	0.11	34.7	<100	19	4.74	<0.100	<0.00863	<0.0162	<0.0151	1.02		
				6/6/19	5.14	37.16	Kane	5.8	3.8	3.2	<0.20	6.68	363.7	0.25	0.5	<56	35	6.6	<0.050	0.033	<0.0025	<0.0025	<0.0025	1.6	
7/24/19	5.34	36.96	Kane	6.2	3.8	4.1	0.11	6.18	338.0	0.14	-129.2	<56	21	7.4	<0.050	0.027	<0.0005	<0.0005	<0.0005	<0.0005	1.3				
S-MW-3	Intermediate	25 to 35	42.807	9/16/16	6.62	36.19	Kane	0.44	<0.20	<0.20	<0.20	5.79	116.0												
				10/31/16	4.93	37.88	Kane	1.7	<0.20	<0.20	<0.20	6.04	116.0												
				9/21/18	6.51	36.30	Kane	3.8	<0.50	<1.00	<0.20	5.95	95.0	0.24	80.3	<100	13.7	2.82	<0.100	0.0652	<0.0162	<0.0151	1.24		
				1/3/19	5.17	37.64	Kane	2.28	<0.50	<1.00	<0.20	5.57	103.2	0.14	49	<100	15	3.63	<0.100	0.0994	<0.0162	<0.0151	0.723		
				6/5/19	6.05	36.76	Kane	2.2	<0.20	<0.20	<0.20	5.88	113.8	0.19	-9.3	<56	13	3.6	<0.050	0.49	<0.025	<0.025	<0.025	<1.0	
7/24/19	6.75	36.06	Kane	2.8	<0.20	<0.20	<0.020	5.31	108.6	0.14	-177.5	<56	12	3.9	<0.050	0.47	<0.0005	<0.0005	<0.0005	<0.0005	<1.0				
S-MW-4	Deep	40 to 50	42.367	9/14/16	6.32	36.05	Kane	<0.20	<0.20	<0.20	<0.20	6.74	206.0												
				10/28/16	4.93	37.44	Kane	0.66	<0.20	<0.20	<0.20	6.44	191.0												
				7/19/18	6.23	36.14	Kane	1.25	<0.50	<1.00	<0.20	6.85	183.0	0.46											
				9/21/18	6.37	36.00	Kane	<1.00	<0.50	<1.00	<0.20	6.58	200.0	0.08	95.8	621	15	6.13	0.133	0.0092	<0.0162	<0.0151	2.37		
				1/2/19	5.90	36.47	Kane	<1.00	<0.50	<1.00	<0.20	6.15	202.9	0.09	56.9	449	14.5	6.18	<0.100	0.0132	<0.0162	<0.0151	1.52		
6/5/19	6.04	36.33	Kane	0.56	<0.20	<0.20	<0.20	6.17	153.2	0.15	-4.6	410	15	4.5	<0.050	0.084	<0.005	<0.005	<0.005	<0.005	<1.0				
S-MW-5	Shallow	15 to 25	41.357	10/28/16	4.56	36.80	Kane	340	<4.0	<4.0	<4.0	6.68	259.0												
				9/24/18	6.07	35.29	Kane	530	<5.0	<10	<2.0	6.38	164.0	2.17	48.5	<100	12.6	6.05	<0.100	<0.00863	<0.0162	<0.0151	1.36		
				12/27/18	3.90	37.46	Kane	1,690	6.03	16.7	<0.20	6.31	235.5	0.98	58.2	<100	21.6	6.56	<0.100	<0.00863	<0.0162	<0.0151	0.506		
				6/5/19	5.20	36.16	Kane	880	<10	<10	<10	6.57	205.1	1.81	7.3	<56	19	5.9	<0.050	<0.001	<0.0005	<0.0005	<0.0005	<1.0	
7/24/19	5.72	35.64	Kane	530	<4.0	<4.0	<0.40	6.22	169.8	1.93	-76.1	<56	15	7.5	<0.050	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<1.0				
S-MW-6	Shallow	4 to 14		1/3/17	5.51		Kane	<0.20	<0.20	<0.20	<0.20	6.23	155.0												
				1/11/19	5.54		Kane	<1.00	<0.50	<1.00	<0.20	6.11	129.0												
				6/7/19	7.57		Kane	<0.20	<0.20	<0.20	<0.20	6.1	182.8	4.90	8.7	<56	29	7.3	<0.050	0.0016	<0.0005	<0.0005	<0.0005	<1.0	
KSB-46	Intermediate	25 to 30		6/28/17	9.60		Kane	<0.20	<0.20	<0.20	<0.20	6.57	133.7	2.07											
								MTCA Method A Cleanup Level <sup>1</sup>		5.0	5.0		0.2												
								MTCA Method B Cleanup Level <sup>2</sup>				16				11,200									

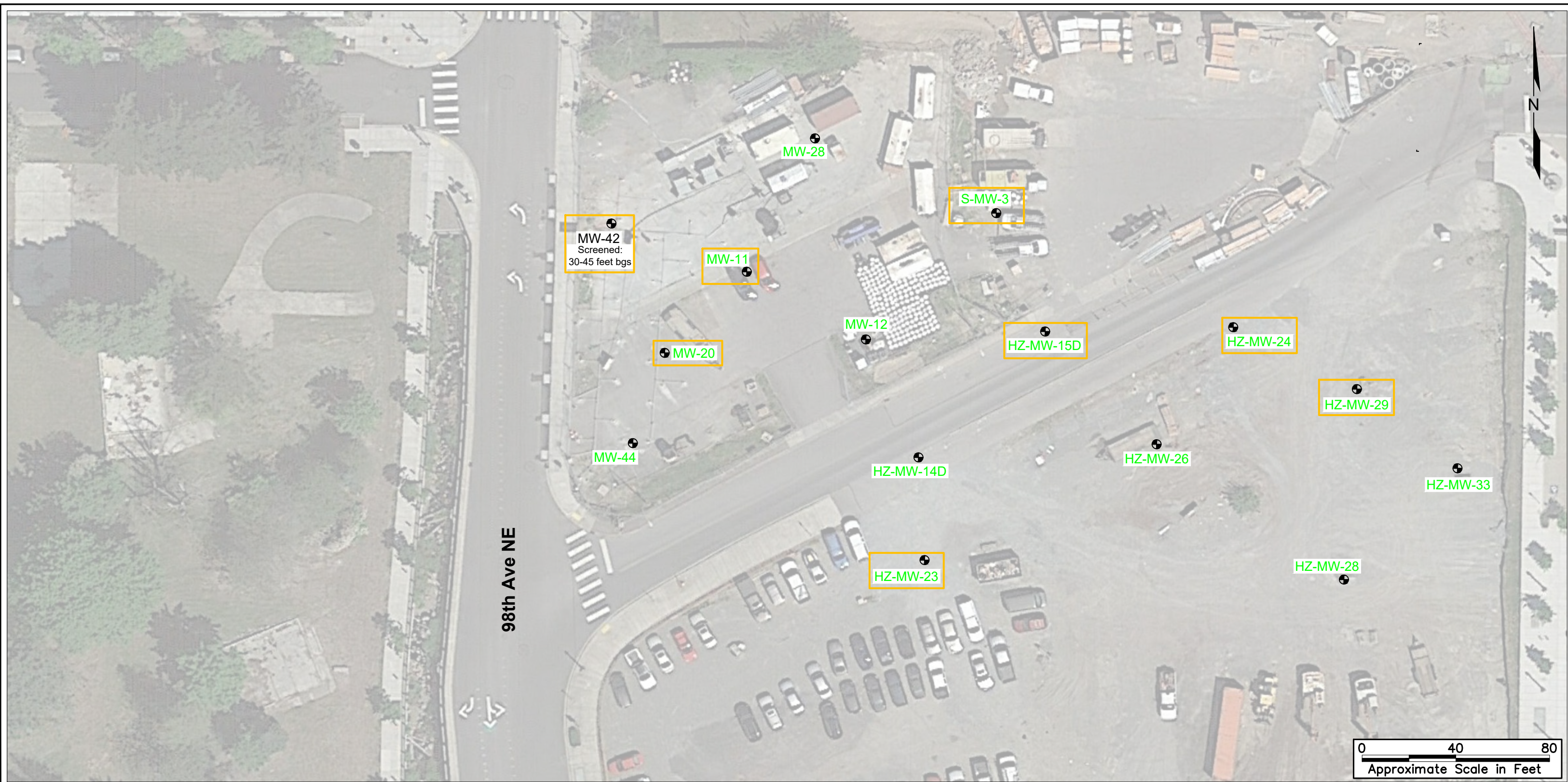






**LEGEND**

- Monitoring Well, Deep (35-55 ft)
- Well location to be included in groundwater compliance monitoring

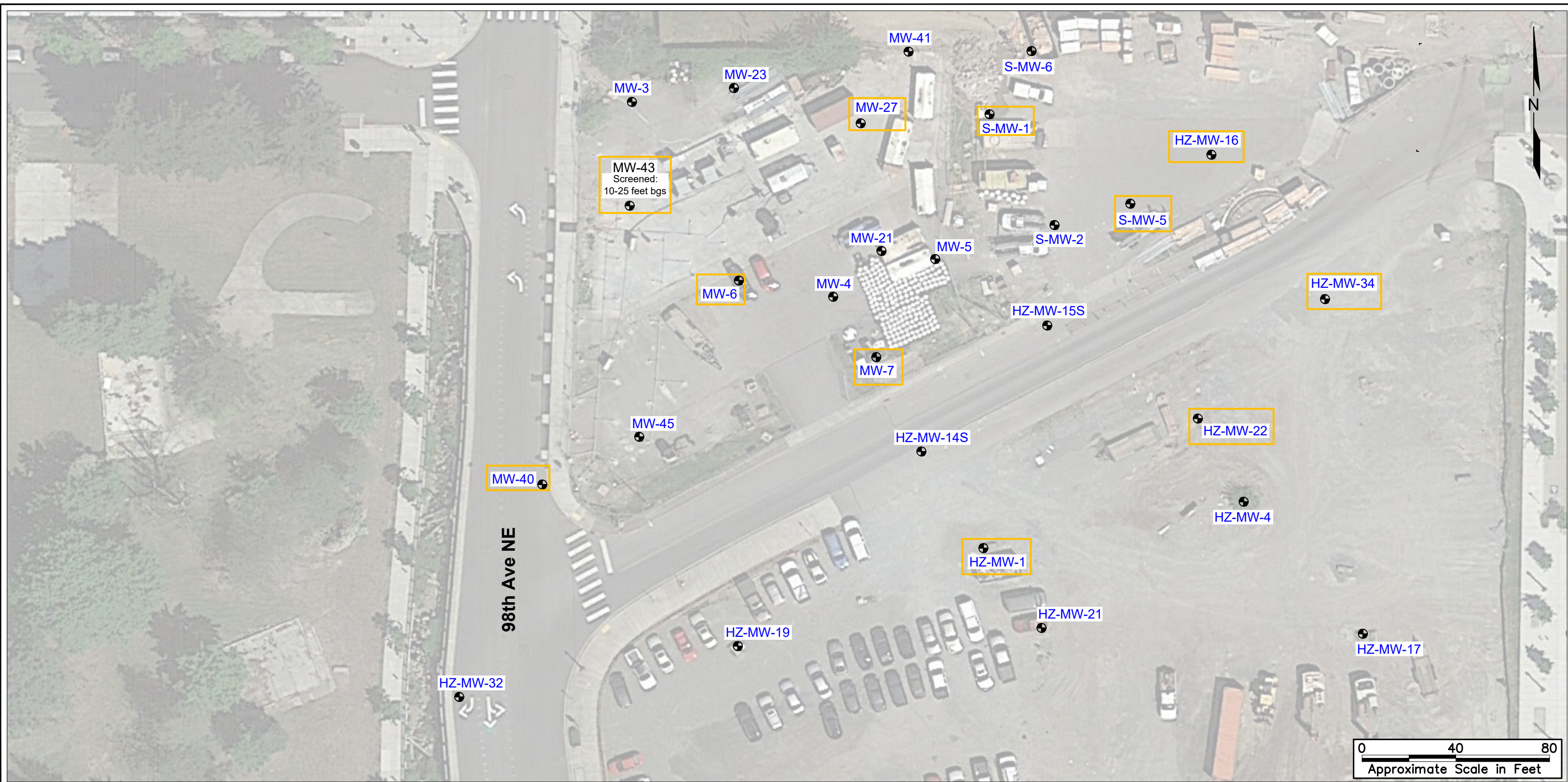






**LEGEND**

-  Monitoring Well, Intermediate (25-35 ft)
-  Well location to be included in groundwater compliance monitoring






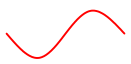
**LEGEND**

-  Monitoring Well, Shallow (5-25 ft)
-  Well location to be included in groundwater compliance monitoring





**LEGEND**

-  Monitoring Well, Shallow (5-25 ft)
-  Concentration of PCE greater than 5.0 ppb - 2019, dashed where uncertain

Concentrations of PCE are listed in ug/L, equivalent to parts per billion (ppb).  
 ND = Not detected above the laboratory reporting limit (*italicized* when above the MTCA Method A Cleanup Level)

2019 groundwater results represent the most recent sampling event for each well.  
 Samples were collected in July 2019 and August 2019.





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**Figure 1**  
 Groundwater PCE  
 Concentrations -  
 Shallow (5-25 feet bgs)





**LEGEND**


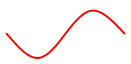
-  Monitoring Well, Shallow (5-25 ft)
-  Concentration of TCE greater than 5.0 ppb - 2019, dashed where uncertain

Concentrations of TCE are listed in ug/L, equivalent to parts per billion (ppb).  
 ND = Not detected above the laboratory reporting limit (*italicized* when above the MTCA Method A Cleanup Level)  
 2019 groundwater results represent the most recent sampling event for each well.  
 Samples were collected in July 2019 and August 2019.





**LEGEND**

-  Monitoring Well, Shallow (5-25 ft)
-  Concentration of (cis) 1,2-DCE greater than 16 ppb - 2019, dashed where uncertain

Concentrations of (cis) 1,2-DCE are listed in ug/L, equivalent to parts per billion (ppb).  
 ND = Not detected above the laboratory reporting limit (*italicized* when above the MTCA Method B Cleanup Level)

2019 groundwater results represent the most recent sampling event for each well.  
 Samples were collected in July 2019 and August 2019.




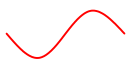
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**Figure 3**  
 Groundwater  
 (cis) 1,2-DCE  
 Concentrations -  
 Shallow (5-25 feet bgs)





**LEGEND**

-  Monitoring Well, Shallow (5-25 ft)
-  Concentration of vinyl chloride greater than 0.2 ppb - 2019, dashed where uncertain

Concentrations of vinyl chloride are listed in ug/L, equivalent to parts per billion (ppb).  
 ND = Not detected above the laboratory reporting limit (*italicized* when above the MTCA Method A Cleanup Level)

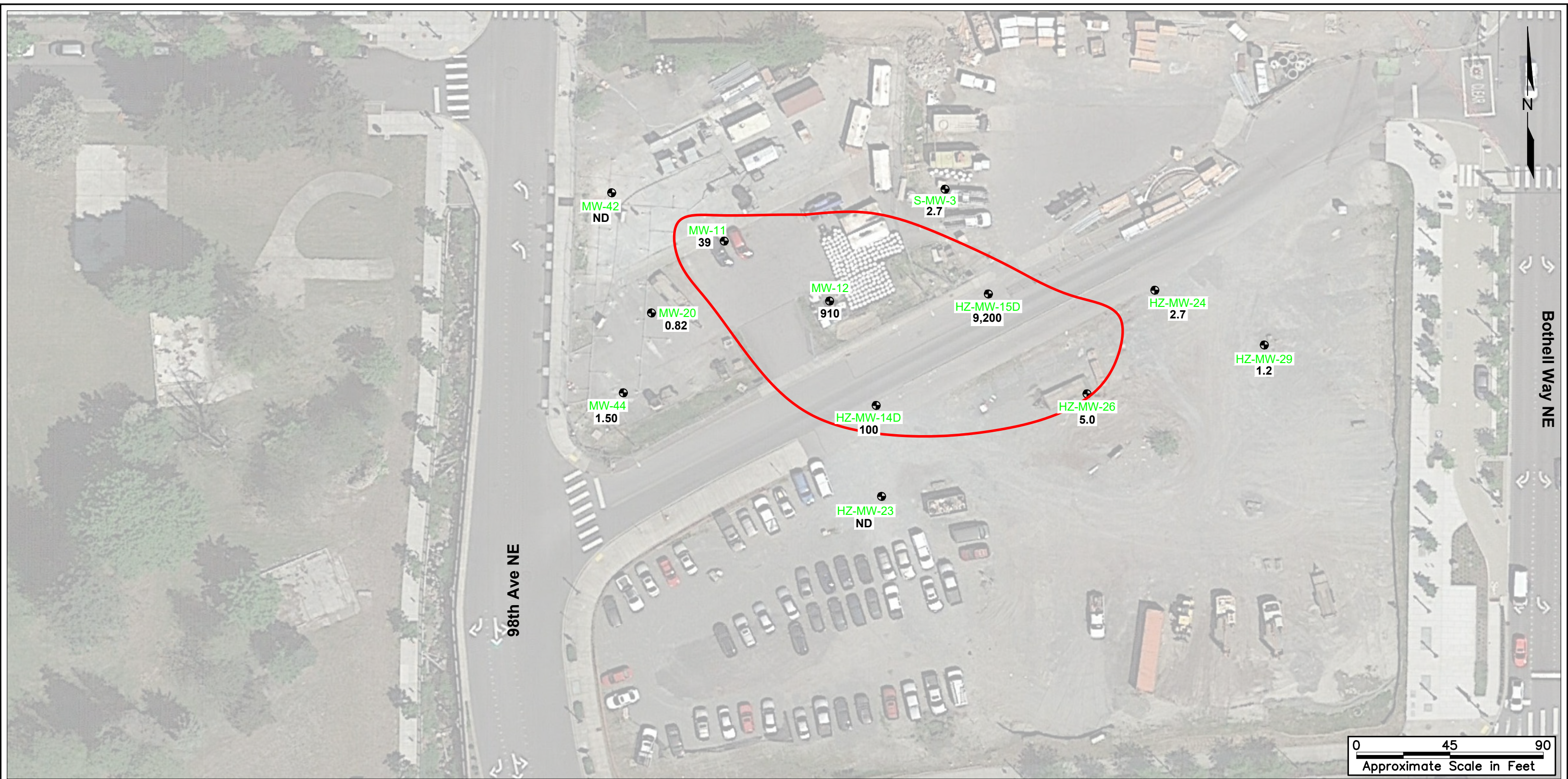
2019 groundwater results represent the most recent sampling event for each well.  
 Samples were collected in July 2019 and August 2019.




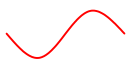
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**Figure 4**  
 Groundwater  
 Vinyl Chloride  
 Concentrations -  
 Shallow (5-25 feet bgs)





**LEGEND**

-  Monitoring Well, Intermediate (25-35 ft)
-  Concentration of PCE greater than 5.0 ppb - 2019

Concentrations of PCE are listed in ug/L, equivalent to parts per billion (ppb).  
 ND = Not detected above the laboratory reporting limit (*italicized* when above the MTCA Method A Cleanup Level)

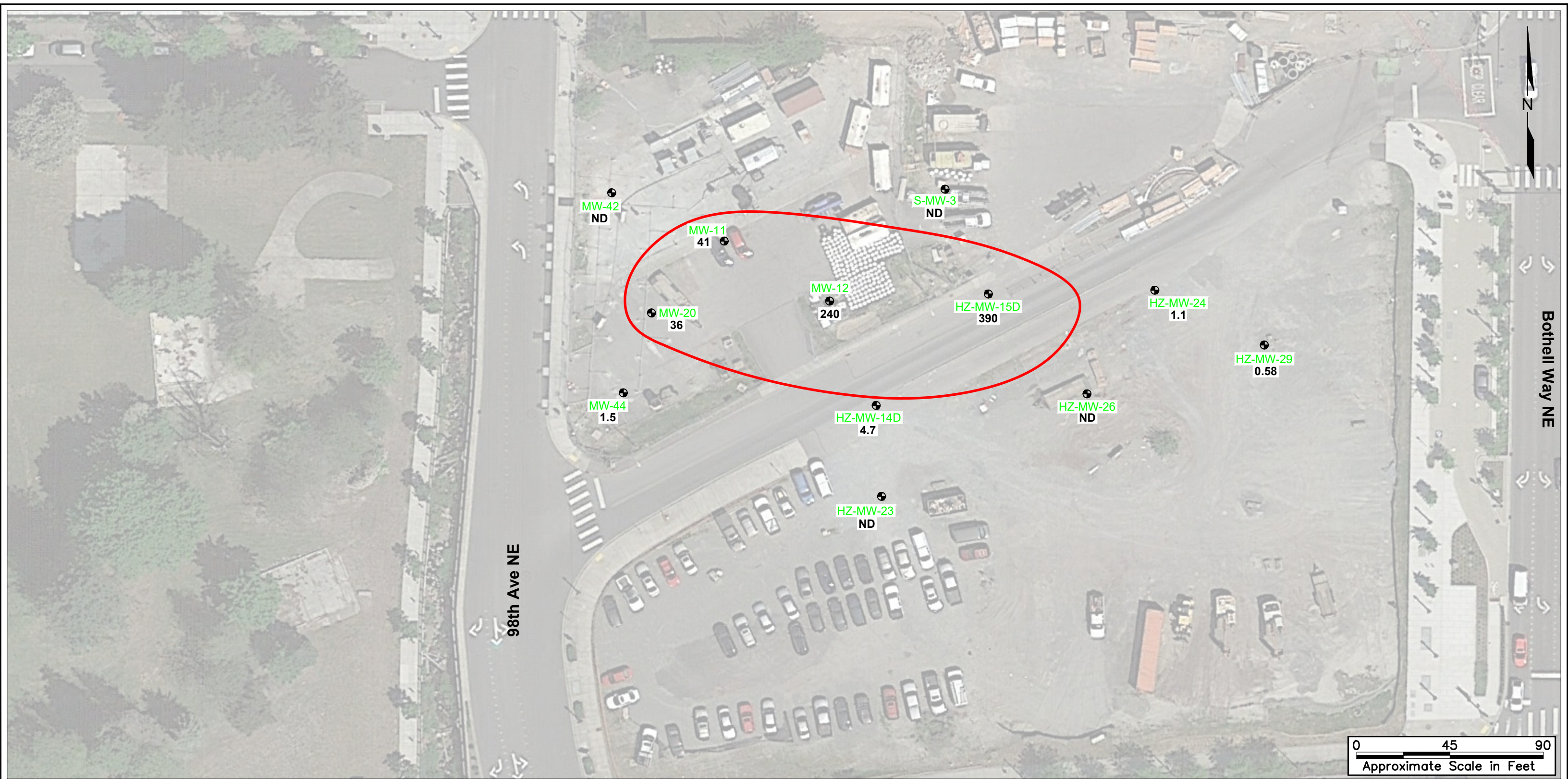
2019 groundwater results represent the most recent sampling event for each well.  
 Samples were collected in July 2019 and August 2019.




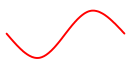
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**Figure 5**  
 Groundwater PCE  
 Concentrations -  
 Intermediate  
 (25-35 feet bgs)





**LEGEND**

-  Monitoring Well, Intermediate (25-35 ft)
-  Concentration of TCE greater than 5.0 ppb - 2019

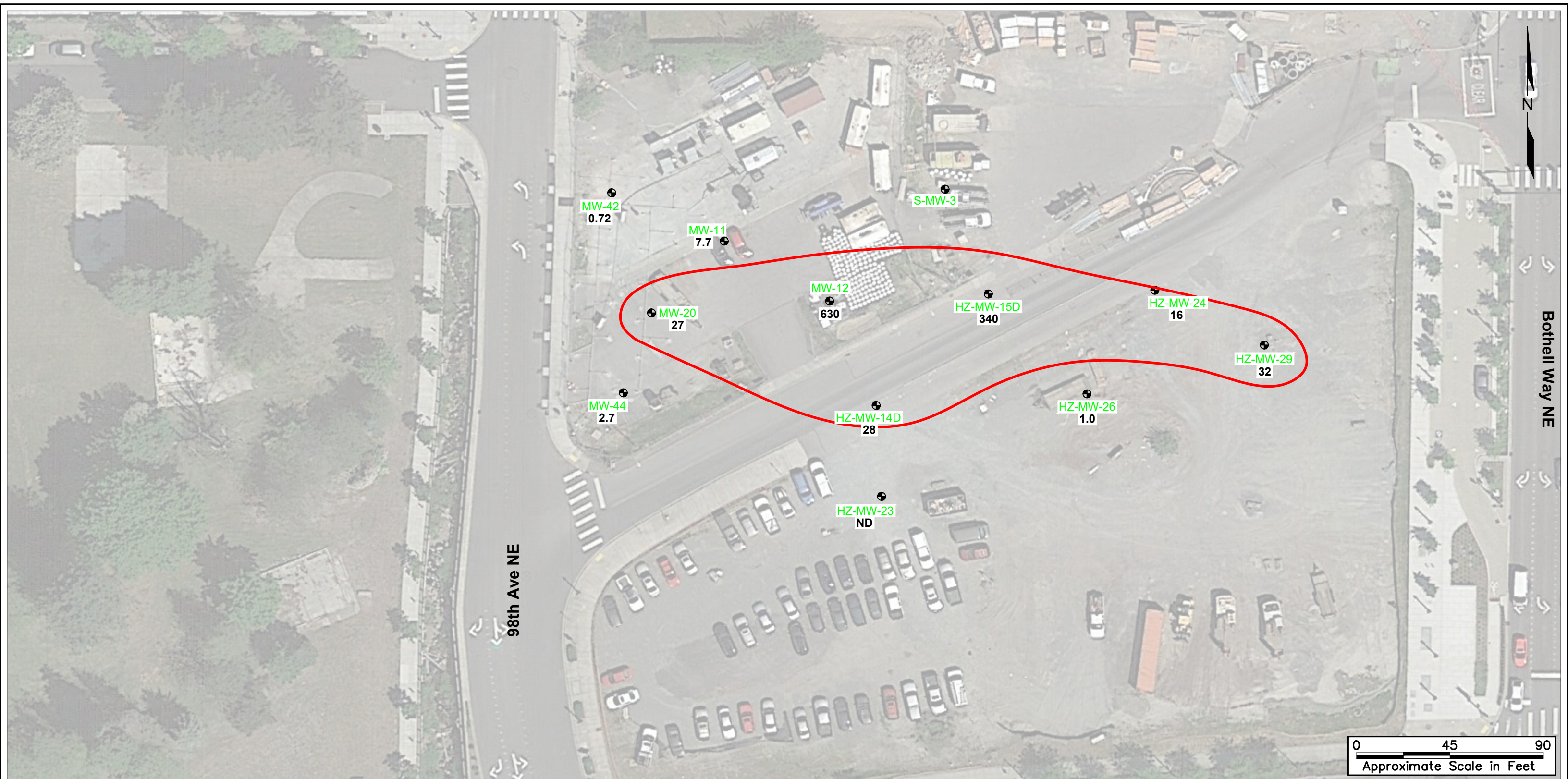
Concentrations of TCE are listed in ug/L, equivalent to parts per billion (ppb).  
 ND = Not detected above the laboratory reporting limit (*italicized* when above the MTCA Method A Cleanup Level)  
 2019 groundwater results represent the most recent sampling event for each well.  
 Samples were collected in July 2019 and August 2019.





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**Figure 6**  
 Groundwater TCE Concentrations - Intermediate (25-35 feet bgs)





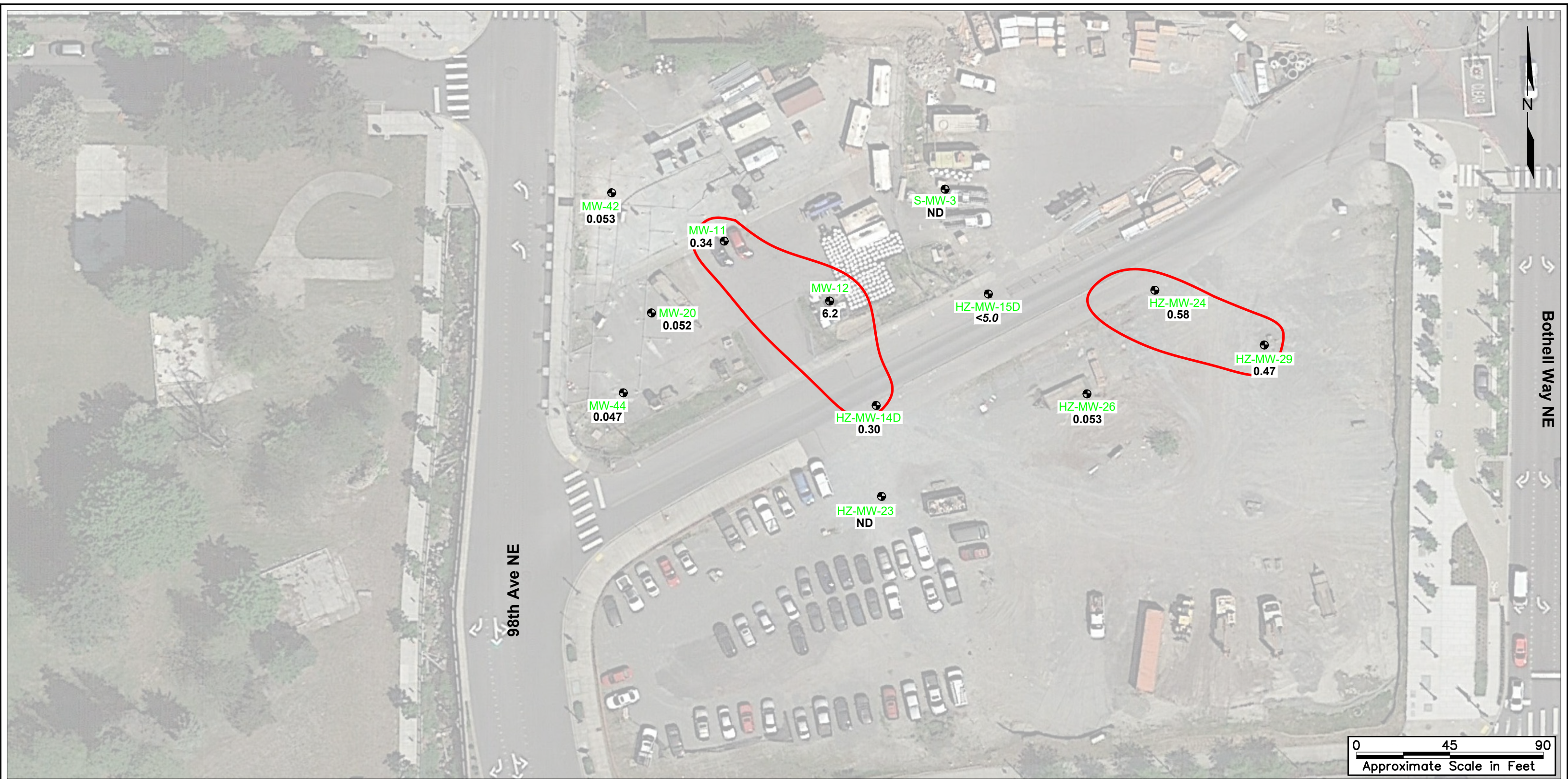
**LEGEND**

-  Monitoring Well, Intermediate (25-35 ft)
-  Concentration of (cis) 1,2-DCE greater than 16 ppb - 2019


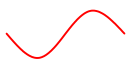
Concentrations of (cis) 1,2-DCE are listed in ug/L, equivalent to parts per billion (ppb).  
 ND = Not detected above the laboratory reporting limit (*italicized* when above the MTCA Method B Cleanup Level)

2019 groundwater results represent the most recent sampling event for each well.  
 Samples were collected in July 2019 and August 2019.





**LEGEND**

-  Monitoring Well, Intermediate (25-35 ft)
-  Concentration of vinyl chloride greater than 0.2 ppb - 2019

Concentrations of vinyl chloride are listed in ug/L, equivalent to parts per billion (ppb).  
 ND = Not detected above the laboratory reporting limit (*italicized* when above the MTCA Method A Cleanup Level)  
 2019 groundwater results represent the most recent sampling event for each well.  
 Samples were collected in July 2019 and August 2019.




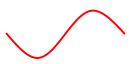
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**Figure 8**  
 Groundwater Vinyl Chloride Concentrations - Intermediate (25-35 feet bgs)





**LEGEND**

-  Monitoring Well, Deep (35-55 ft)
-  Concentration of PCE greater than 5.0 ppb - 2019

Concentrations of PCE are listed in ug/L, equivalent to parts per billion (ppb).  
 ND = Not detected above the laboratory reporting limit (*italicized* when above the MTCA Method A Cleanup Level)

2019 groundwater results represent the most recent sampling event for each well.  
 Samples were collected in July 2019 and August 2019.





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**Figure 9**  
 Groundwater PCE Concentrations - Deep (35-55 feet bgs)





**LEGEND**

-  Monitoring Well, Deep (35-55 ft)
-  Concentration of TCE greater than 5.0 ppb - 2019


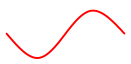
Concentrations of TCE are listed in ug/L, equivalent to parts per billion (ppb).  
 ND = Not detected above the laboratory reporting limit (*italicized* when above the MTCA Method A Cleanup Level)

2019 groundwater results represent the most recent sampling event for each well.  
 Samples were collected in July 2019 and August 2019.





**LEGEND**

-  Monitoring Well, Deep (35-55 ft)
-  Concentration of (cis) 1,2-DCE greater than 16 ppb - 2019

Concentrations of (cis) 1,2-DCE are listed in ug/L, equivalent to parts per billion (ppb).  
 ND = Not detected above the laboratory reporting limit (*italicized* when above the MTCA Method B Cleanup Level)

2019 groundwater results represent the most recent sampling event for each well.  
 Samples were collected in July 2019 and August 2019.





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**Figure 11**  
 Groundwater  
 (cis) 1,2-DCE  
 Concentrations - Deep  
 (35-55 feet bgs)





**LEGEND**

-  Monitoring Well, Deep (35-55 ft)
-  Concentration of vinyl chloride greater than 0.2 ppb - 2019

Concentrations of vinyl chloride are listed in ug/L, equivalent to parts per billion (ppb).  
 ND = Not detected above the laboratory reporting limit (*italicized* when above the MTCA Method A Cleanup Level)

2019 groundwater results represent the most recent sampling event for each well.  
 Samples were collected in July 2019 and August 2019.