

TABLES

Table 1
EMC TSA Remedy
Well Inventory and Construction Details

Well Name	Remedy Zone	PMX No.	Aquifer	Installed/ Completed Date	Decommission Date	Well Included in 2018 EMC Well Network (Yes/No)
A-1d (Supply Well)	Zone B	--	TSA	03/16/1976	08/01/2000	No
A-2d (Supply Well)	Zone B	--	TSA	08/26/1964	07/01/1988	No
A-3 (Supply Well)	Zone B	--	TSA	03/12/1957	06/01/1989	No
A-4 (Supply Well)	Zone B	--	TSA	10/11/1961	06/29/2004	No
A-5d (Supply Well)	Zone B	555	TSA	01/25/1971	--	No
A-6 (Supply Well)	Zone B	--	TSA	06/01/1989	07/15/2004	No
A-7 (Supply Well)	Zone B	--	TSA	05/14/1986	03/01/1990	No
BOP-13(dg)	Zone C	--	TSA	1/4/1987	--	Yes
BOP-13(ds)	Zone C	465	TSA	10/26/1993	--	Yes
BOP-14d	Zone C	--	TSA Cong	12/08/1986	03/12/1990	No
BOP-14s	Zone C	--	TSA SS	02/12/1987	03/12/1990	No
BOP-20(dg)	Zone B	515	TSA	3/11/1989	--	Yes
BOP-20(ds)	Zone B	516	TSA	16-Mar-89	--	Yes
BOP-21(dg)	Zone B	--	TSA	06-Mar-89	06/2000	No
BOP-21(ds)	Zone B	519	TSA	12-Mar-89	--	Yes
BOP-22(dg)	Zone B	--	TSA	05-Mar-89	10/21/2016	No
BOP-22(ds)	Zone B	--	TSA	13-Mar-89	01/05/2009	No
BOP-22R(ds)	Zone B	--	TSA	14-Oct-08	11/17/2019	Yes
BOP-23(dg)	Zone C	522	TSA	02-Feb-90	--	Yes
BOP-23(ds)	Zone C	--	TSA	10-Mar-10	03/10/2010	No
BOP-31(dg)	Zone C	528	TSA	16-Jan-91	--	Yes
BOP-31(ds)	Zone C	526	TSA	09-Jan-91	--	Yes
BOP-41(dg)	Zone B	542	TSA	04-Feb-92	11/01/2015	No
BOP-41(ds)	Zone B	543	TSA	27-Jan-92	11/01/2015	No
BOP-42(dg)	Zone B	544	TSA	05-Feb-92	--	Yes
BOP-42(ds)	Zone B	545	TSA	07-Feb-93	--	Yes
BOP-43(dg)	Zone A	546	TSA	17-Apr-92	09/06/2012	No
BOP-43(ds)	Zone A	547	TSA	22-Apr-92	09/05/2012	No
BOP-44(dg)	Zone A	592	TSA	01-Aug-07	pending	Yes
BOP-44(ds)	Zone A	591	TSA	01-Aug-07	pending	Yes
BOP-44(usg)	Zone A	--	SGA	01-Aug-07	pending	Yes
BOP-60(dg)	Zone B	455	TSA	18-Apr-94	--	Yes
BOP-60(ds)	Zone B	--	TSA	09-May-94	03/30/2010	No
BOP-60R(ds)	Zone B	--	TSA	03-Mar-10	11/17/2019	Yes
BOP-61(dg)	Zone B	457	TSA	24-Jun-94	--	Yes
BOP-61(ds)	Zone B	456	TSA	31-May-94	--	Yes
BOP-62(ds)	Zone B	458	TSA	15-Mar-94	--	Yes
BOP-63(ds)	Zone B	--	TSA	13-Jul-94	06/2000	No
BOP-64(ds)	Zone B	--	TSA	03/22/1994	06/2000	No
BOP-65(ds)	Zone B	461	TSA	07/05/1994	--	Yes
BOP-66(ds)	Zone B	462	TSA	05/17/1994	--	Yes
BOP-67(ds)	Zone B	--	TSA	02/02/1995	06/2000	No
BOP-68(usg)	--	--	SGA	05/08/1995	09/06/2012	No
BOP-69(usg)	--	--	CU2/SGA	07/01/1997	05/24/2012	No
BOP-70(ds-215)	Zone A	--	TSA	03/29/2007	10/30/2018	No
BOP-70(ds-245)	Zone A	--	TSA	03/29/2007	10/30/2018	No
BOP-70(ds-275)	Zone A	--	TSA	03/29/2007	10/30/2018	No
BOP-71(ds)	Zone A	--	TSA	03/01/2007	pending	No
C-3/PW7	--	136	SGA	11/24/1981	PW	No
Cascade Industrial Well (Supply Well)	Zone C	--	TSA	10/26/1964	01/01/1991	No
D-15(dg)	Zone A	590	TSA	02/04/1993	03/01/2010	No
D-15(ds)	Zone A	589	TSA	02/09/1993	03/01/2010	No
D-16(dg)	Zone A	594	TSA	08/10/1993	10/02/2018	No

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EMC TSA Remedy
Well Inventory and Construction Details

Well Name	Remedy Zone	PMX No.	Aquifer	Installed/ Completed Date	Decommission Date	Well Included in 2018 EMC Well Network (Yes/No)
D-16(ds)	Zone A	593	TSA	09/02/1993	10/01/2018	No
D-17(dg)	Zone C	467	TSA	11/17/1993	--	Yes
D-17(ds)	Zone C	466	TSA	11/12/1993	--	Yes
D-18(dg)	Zone A	--	TSA	04/13/1995	03/02/2010	No
D-18(ds)	Zone A	--	TSA SS	04/19/1995	10/10/2018	No
DEQ-1(dg)	Zone C	902	TSA	10/25/1990	07/11/2019	Yes
DEQ-1(ds)	Zone C	901	TSA	09/17/1990	03/02/2010	No
DEQ-3(d)	--	905	SGA	10/25/1990	10/18/2006	No
DEQ-3(i)	Zone A	904	TSA	10/31/1990	10/18/2006	No
DEQ-3(s)	Zone A	--	TSA	09/06/1990	05/1998	No
DEQ-3(usg)	--	--	SGA	11/27/1996	10/18/2006	No
DEQ-4(d)	--	907	SGA	09/24/1990	08/03/1999	No
DEQ-4(s)	Zone A	906	TSA	09/14/1990	08/03/1999	No
DEQ-5(dg)	Zone B	910	TSA	03/16/1993	07/10/2019	Yes
DEQ-5(ds)	Zone B	909	TSA	03/29/1993	07/10/2019	Yes
EMC-1(dg)	Zone A	912	TSA	02/12/1993	03/15/2000	No
EMC-1(ds)	Zone A	911	TSA	02/24/1993	03/15/2000	No
EMC-2(dg)	Zone A	914	TSA	05/28/1993	pending	Yes
EMC-2(ds)	Zone A	913	TSA	06/03/1993	03/02/2010	No
EMC-2(usg)	--	--	SGA	09/11/1997	04/27/2017	No
EW-1	Zone C	--	TSA	12/07/1996	--	Yes
EW-10 [PMX-189]	Zone A	189	TSA	08/25/1950	05/2005	No
EW-11	Zone C/D	--	TSA	01/23/1998	--	Yes
EW-12	Zone C	--	TSA	06/26/1997	--	Yes
EW-13	Zone B	--	TSA	11/25/1997	--	Yes
EW-14	Zone C	--	TSA	11/13/1997	--	Yes
EW-15	Zone D	--	TSA	07/16/1998	--	Yes
EW-16	Zone D	--	TSA Cong & CU2	10/21/1997	--	Yes
EW-17	Zone A	--	TSA	02/11/1998	10/23/2008	No
EW-18	Zone C/D	--	TSA	05/08/1998	11/20/2015	No
EW-19	Zone A	--	TSA	11/24/1997	10/23/2008	No
EW-2	Zone C	--	TSA	09/23/1996	--	Yes
EW-20(usg)	--	--	CU2 Equiv & Upper	05/27/1998	10/18/2006	No
EW-21 [PMX-417]	Zone D	417	TSA	02/02/1983	PW	No
EW-22	Zone B	--	TSA	06/12/2003	03/26/2010	No
EW-23	Zone B/C	--	Lower TSA	01/23/2007	--	Yes
EW-3	Zone B	--	TSA	10/28/1996	--	Yes
EW-6	Zone A	--	TSA	05/12/1997	10/18/2006	No
EW-7	Zone A	--	TSA	05/07/1997	10/23/2008	No
EW-8	Zone C	--	TSA	06/10/1997	--	Yes
EW-9	Zone A	--	TSA	05/20/1997	10/23/2008	No
MW-10(dg)	Zone C	816	TSA	05/14/1990	pending	Yes
MW-10(ds)	Zone C	821	TSA	12/26/1990	--	Yes
MW-14(dg)	Zone C	825	TSA	12/14/1990	03/2007	No
MW-14(ds)	Zone C	826	TSA	12/11/1990	03/2007	No
MW-14(usg)	--	--	SGA	10/27/1995	03/13/2007	No
MW-14R(dg)	Zone C	--	TSA	02/06/2007	03/01/2010	No
MW-14R(ds)	Zone C	--	TSA	02/07/2007	--	Yes
MW-16(dg) [EW-4]	Zone D	831	TSA	06/02/1992	11/12/2015	No
MW-17(ds)	Zone C	833	TSA	05/06/1992	--	Yes
MW-18(ds)	Zone C	834	TSA	06/19/1992	--	Yes
MW-19(ds)	Zone C	835	TSA	06/08/1992	--	Yes
MW-2	Zone C	802	TSA SS & Cong	09/11/1988	12/11/2000	No
MW-20(dg)	Zone C	851	TSA	01/19/1993	03/02/2010	No

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Well Name	Remedy Zone	PMX No.	Aquifer	Installed/ Completed Date	Decommission Date	Well Included in 2018 EMC Well Network (Yes/No)
MW-20(ds)	Zone C	850	TSA	01/22/1993	--	Yes
MW-22(dg)	Zone C	855	TSA	05/10/1993	--	Yes
MW-22(ds)	Zone C	854	TSA	05/14/1993	03/01/2010	No
MW-23(ds)	Zone C	836	TSA	06/26/1992	03/13/2007	No
MW-24(dg) [EW-5]	Zone C	847	TSA	10/07/1992	--	Yes
MW-25(dg)	Zone C	848	TSA	09/24/1992	--	Yes
MW-26(dg)	Zone D	--	TSA	03/04/1994	--	Yes
MW-26(ds)	Zone D	837	TSA	03/07/1994	11/22/2005	No
MW-29(dg)	Zone D	866	TSA	03/22/1995	03/15/2000	No
MW-29(ds)	Zone D	865	TSA	03/01/1995	03/01/2010	No
MW-3	Zone C	803	TSA SS & Cong	10/06/1988	pending	Yes
MW-36(dg)	Zone A/C	--	TSA	11/08/1996	--	Yes
MW-37(usg)	--	--	SGA	12/13/1996	03/2007	No
MW-38(usg)	--	--	SGA	09/30/1997	03/13/2007	No
MW-41(ds)	Zone A	--	TSA	08/28/1998	03/02/2010	No
MW-8(dg)	Zone C	811	TSA	04/02/1990	pending	Yes
PMX128	Zone A	128	TSA	09/10/1980	09/02/1987	No
PMX-133	--	133	BLA	NA	PW	No
PMX-135	--	135	SGA	08/01/1981	06/27/1990	No
PMX138	Zone A	138	TSA	01/01/1976	PW	No
PMX-140	--	140	SGA	07/22/1977	12/2000	No
PMX-141	Zone A	141	TSA	08/29/1977	PW	No
PMX-147	--	147	BLA	10/11/1982	PW	No
PMX-165 [E. Interlachen]	Zone A	165	TSA	08/01/1981	PW	No
PMX-166 [W. Interlachen]	--	166	SGA	07/27/1967	PW	No
PMX-167 [W. Interlachen]	Zone A	167	TSA	08/01/1981	PW	Yes
PMX168	--	168	TSA	NA	05/06/1992	No
PMX-170	--	170	BLA	10/07/1982	PW	No
PMX-174 [E. Interlachen]	--	174	SGA	10/17/1967	PW	No
PMX175	--	175	TSA	NA	PW	No
PMX176	--	176	SGA	05/30/1956	PW	No
PMX-192 [Pelfrey]	--	192	SGA	12/12/1959	PW	No
PMX-194 [Schmidt]	--	194	SGA	05/14/1962	06/01/1998	No
PMX-195 [Handy]	--	195	SGA	12/01/1968	07/1998	No
PMX-196 [Andrews]	Zone A	196	TSA	06/25/1982	PW	No
PMX-198 [Udd]	Zone A	198	TSA	03/19/1964	PW	No
PMX-202 [Rolling Hills]	--	202	SGA	09/27/1971	PW	No
PMX-207 [Shepard]	--	207	SGA	10/01/1951	10/10/1996	No
PMX-208(dg) [Sandy Mobile]	Zone C	208	TSA	07/09/1965	PW	No
PMX-208R [Sandy Mobile]	--	208R	SGA	07/30/1999	PW	No
PMX-225 [Cherry Blossom]	--	225	SGA	08/30/1967	05/29/1997	No
PMX-227 [Rockwood]	--	227	SGA	12/17/1980	01/01/2005	No
PMX235	--	235	SGA	NA	PW	No
PMX239	--	239	SGA	01/01/1976	PW	No
PMX-345 [Edwards]	Zone A	345	TSA Cong	12/15/1976	PW	No
PMX-409 [Sandy Mobile]	--	409	SGA	NA	07/31/1997	No
PMX-410R [Terrand]	--	410R	SGA	06/16/1997	PW	No
PMX-419 [Big Eddy]	Zone A	419	TSA	NA	PW	No
PMX-434 [Schmautz]	Zone A	434	TSA	03/23/1977	PW	No
PMX60	--	60	SGA	09/02/1987	PW	No
PMX66	--	66	SGA	NA	PW	No
PMX72	--	72	TSA	NA	PW	No
PMX78	--	78	SGA	NA	PW	No
PMX8	--	8	SGA	NA	PW	No

Table 1
EMC TSA Remedy
Well Inventory and Construction Details

Well Name	Remedy Zone	PMX No.	Aquifer	Installed/ Completed Date	Decommission Date	Well Included in 2018 EMC Well Network (Yes/No)
PW-11	--	12	SGA	NA	09/02/1987	No
PW-12	--	150	BLA	10/26/1982	PW	No
PW-13	--	162	BLA	09/13/1983	PW	No
PW-14	--	132	SGA	06/13/1983	PW	No
PW-17	--	148	BLA	11/18/1983	PW	No
PW-18	--	155	BLA	10/31/1983	PW	No
PW-19	--	158	BLA	05/09/1984	PW	No
PW-4	--	122	SGA	07/15/1980	PW	No
PW-8	--	142	SGA	09/28/1981	PW	No
PW-9	--	126	SGA	03/22/1982	PW	No
PWB-1(lts)	Zone A	392	TSA	08/08/1992	PW	Yes
PWB-1(usg)	--	393	SGA	08/07/1992	PW	No
PWB-1(uts)	Zone A	391	TSA	08/09/1992	PW	Yes
PWB-2(lts)	Zone A	--	TSA	09/21/1994	PW	Yes
PWB-2(usg)	--	--	SGA	09/30/1994	PW	No
PWB-4(d)	--	--	SGA	05/30/1997	PW	No
PWB-4(i)	--	--	TSA	06/16/1997	PW	No
PWB-4(s)	Zone A	--	TSA	06/06/1997	PW	No
RPW-1(dg)	Zone A	859	TSA	08/18/1993	09/14/2010	No
RPW-1(ds)	--	858	TSA	08/08/1993	07/01/2018	No
RPW-2	Zone A	860	TSA	04/04/1994	10/23/2008	No
TW-14	--	131	SGA	01/18/1978	PW	No
TW-19	--	157	BLA	04/29/1983	PW	No
VMW-A	Zone C	--	TSA	11/21/2016	--	Yes
VMW-B	Zone C	--	TSA	11/23/2016	--	Yes
VMW-C	Zone C	--	TSA	11/30/2016	--	Yes
VMW-D	Zone C	--	TSA	12/05/2016	--	Yes
VMW-E	Zone C	--	TSA	02/23/2019	--	Yes
VMW-F	Zone C	--	TSA	02/20/2019	--	Yes
VMW-G	Zone C	--	TSA	02/26/2019	--	Yes
VMW-H	Zone C	--	TSA	02/28/2019	--	Yes
VW-17d-75.0	Zone C	--	TSA SS	03/08/2012	10/01/2018	No
VW-17d-95.5	Zone C	--	TSA	03/23/2012	--	Yes

Notes:

-- Not applicable

NA = Data not available

BLA = Blue Lake Aquifer

CGL = conglomerate

CU 1 = Confining Unit 1

CU 2 = Confining Unit 2

PMX = Portland Monitoring Reference identification system developed by the East County Site project.

PW = Well owned by either private property owner and used as a domestic well or a well utilized by Portland Water Bureau (PWB) as part of the Columbia South Shore Wellfield.

SGA = Sand and Gravel Aquifer

SS = Sandstone

TSA = Troutdale Sandstone Aquifer

Table 2
Remedy Well Network Criteria
East Multnomah County TSA Remedy

This table summarizes TSA remedy criteria for extraction well pilot shutdown, well and system decommissioning, monitoring well network modifications, and changes in sampling frequency. These criteria were presented in Section 5 of the eighth TSA annual performance report¹ and are summarized below for ongoing reference.

1. PILOT SHUTDOWN CRITERIA

The following criteria are for TSA extraction well(s) currently in pilot shutdown mode:

- *If TCE concentrations in these pilot shutdown wells increase to levels equal to or above the MCL for two consecutive quarters, extraction at individual wells shall resume.*
- *If TCE remains below the MCL cleanup level for 2 years, DEQ will evaluate potential decommissioning of these wells.*

2. MONITORING WELL NETWORK MODIFICATION

Wells may be removed from the monitoring program if a well meets one or more of the following criteria:

- *TCE concentrations have been consistently below detection limits for 2 or more years.*
- *The well is located outside the limits of the plume and is no longer needed to monitor hydraulic plume control or restoration progress.*
- *The location of a well duplicates another well better suited to evaluate hydraulic control and restoration progress.*

3. SAMPLING FREQUENCY MODIFICATIONS

The following criteria serve to standardize current and future monitoring adjustments as restoration progresses over the coming years:

Criteria for Increasing Sampling Frequency:

- *The sampling frequency will be increased at a well if TCE concentrations increase to detected levels for two consecutive sampling events where they have been below detection limits for 2 or more years.*
- *The sampling frequency will be increased at a well if TCE concentrations increase above the MCL for two consecutive sampling events where they have been below the MCL for 2 or more years.*

Criteria for Reducing Sampling Frequency:

- *If TCE has been consistently below detection limits for the prior 2 years, the sampling frequency may be reduced.*
- *If TCE has been stable to declining for the prior 2 years, the sampling frequency may be reduced.*

4. CRITERIA FOR WELL DECOMMISSIONINGS

Extraction and monitoring well decommissionings will be proposed to DEQ if the following criteria are met:

- *Extraction well decommissioning may be proposed to DEQ if TCE concentrations remain consistently below the MCL in that well for 2 years following pilot shutdown; two consecutive TCE detections at or above the MCL may prompt resumed operation.*
- *Monitoring well decommissioning will be proposed to DEQ if TCE concentrations remain below the MCL for 2 consecutive years.*

¹Landau Associates, Prowell Environmental, Pegasus Geoscience, 2006. Troutdale Sandstone Aquifer Remedial Action Annual Performance Evaluation, 04/01/05 through 03/31/06. 30 June 2006.

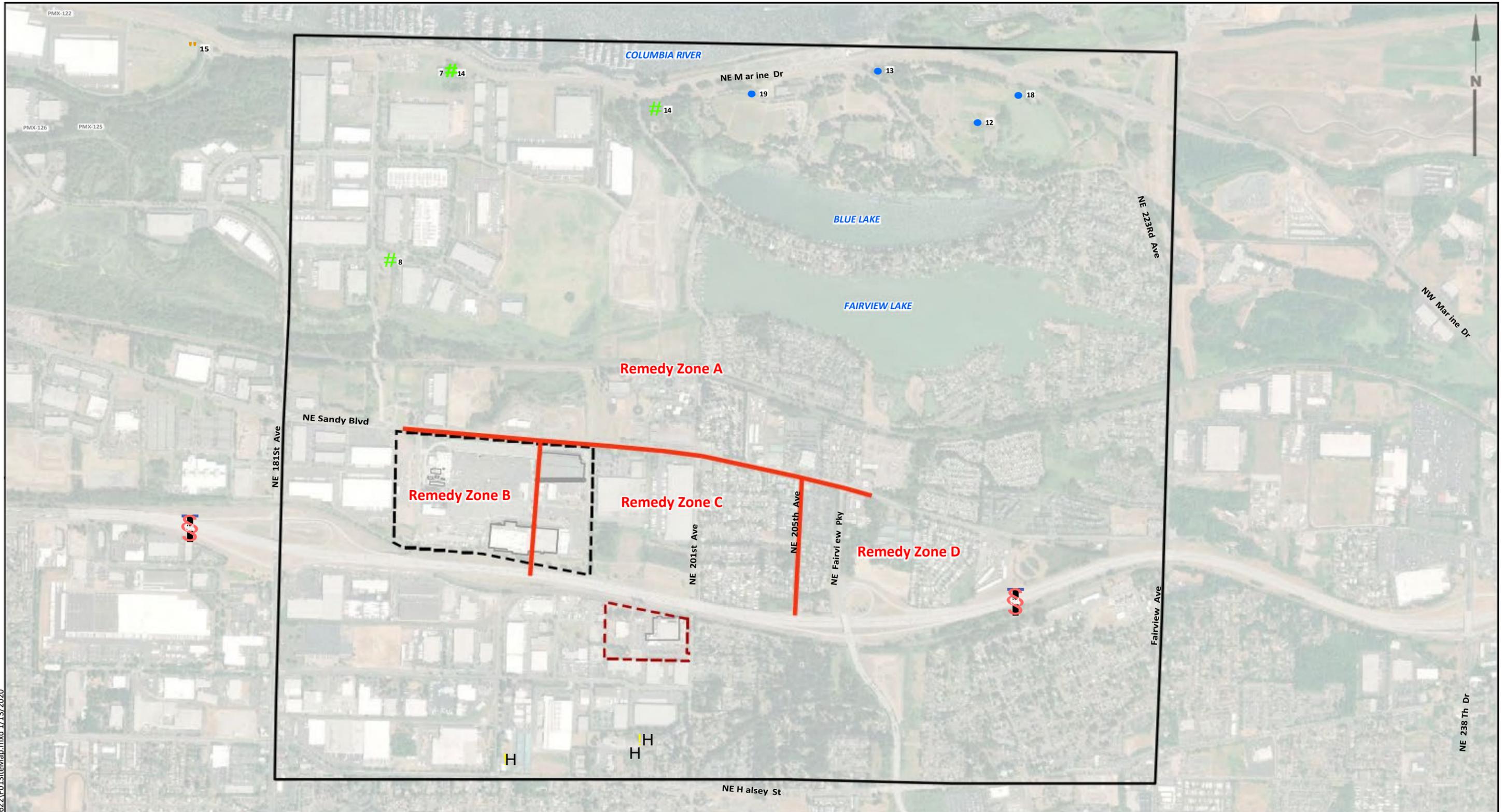
Table B-1
East Multnomah County-TSA and SGA Remedy Timeframe

Action	Date
<i>Corrective Measures Element</i>	
Entered into Order on Consent with DEQ for TSA Removal Action to control northerly plume migration (DEQ No. ECSR-NWR-93-07)	1993
Installed RPW-1 and RPW-2 and began extracting RPW-2 and treating effluent	1994
<i>Completed TSA RI/FS</i>	
Entered into Addendum to Order on Consent to complete TSA RI/FS	1994
Entered into Second Addendum to Order on Consent for NPDES discharge permit	1996
Performed and completed TSA RI/FS, including well installations, aquifer testing, model construction, evaluations, design planning, and reporting	1994 - 1996
DEQ issued TSA Remedy Record of Decision	1996
Enter into Order on Consent with DEQ for design and implementation of remedial measures (DEQ No. WMCSR-NWR-96-08)	1997
<i>Implemented TSA Remedy</i>	
Installed SGA monitoring wells to characterize water quality; decommissioned selected private SGA wells for migration pathway protection; provided replacement water supply to residences	1996-1997
Performed phased remedy implementation including: construction of monitoring and extraction wells (EW-1, EW-2, EW-3), convert monitoring wells MW-16 and MW-24 to extraction wells EW-4 and EW-5, install conveyance and treatment systems, and performance/protection evaluations	1996-1998
Began phased startup of remedy extraction/treatment systems, installation of extraction wells EW-6, EW-7, EW-8, EW-9, EW-10, EW-11, EW-12, EW-13, EW-14, EW-15, EW-16, EW-17, EW-18, EW-19, and EW-20	1996-1998
Entered into Order on Consent with DEQ for remedy implementation and effluent discharge	1997

Table B-1
East Multnomah County-TSA and SGA Remedy Timeframe

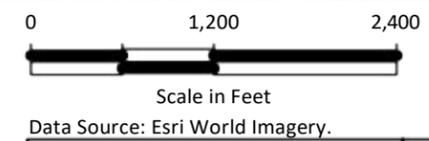
Action	Date
Began full scale remedy implementation of GWTS (West), Central, East, North, and Far North Systems	1998
Began operating EW-21 Treatment System for TSA Sandstone plume capture near MW-26(ds)	2000
Amended TSA RD/RA work plan and documented transfer of TSA remedy responsibilities from Boeing to Cascade	2001
Began operating EW-22 for TSA Sandstone plume capture near BOP-22(ds)	2003
Began operating EW-23 from Lower TSA	2007
<i>Began Remedy Modifications, Due to Restoration Progress</i>	
Decommission East Treatment System	2005
Decommission Far North System	2007
Decommission North Treatment System	2008
Adopt diffusion bag samplers methods for groundwater sampling, pilot shutdown of EW-7, EW-9, EW-19, and EW-20; and installation of TSA Sandstone well EW-23	2006
Decommission BOP-22(ds) and install replacement well BOP-22R(ds), install BOP-70(ds) and BOP-71(ds)	2008-2009
Shutdown EW-22	2008
Pilot Shutdown EW-3 and EW-13	2009
Cessation of TSA treatment at Groundwater Treatment System (GWTS - West)	2009
Install replacement well BOP-60R(ds) and decommission BOP-60(ds)	2010
Decommission EW-22	2010
Cascade Corporation receives NFA for TGA	2015
Begin SVE operation in TSA Mound Area	2015

FIGURES



Legend

- PWB BLA Production Well
- # PWB SGA Production Well
- ! PWB TSA Production Well
- !H Gresham/Rockwood Municipal Well
- Boeing Portland Property
- Cascade Corporation Property
- Original EMC Site Study Area



Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

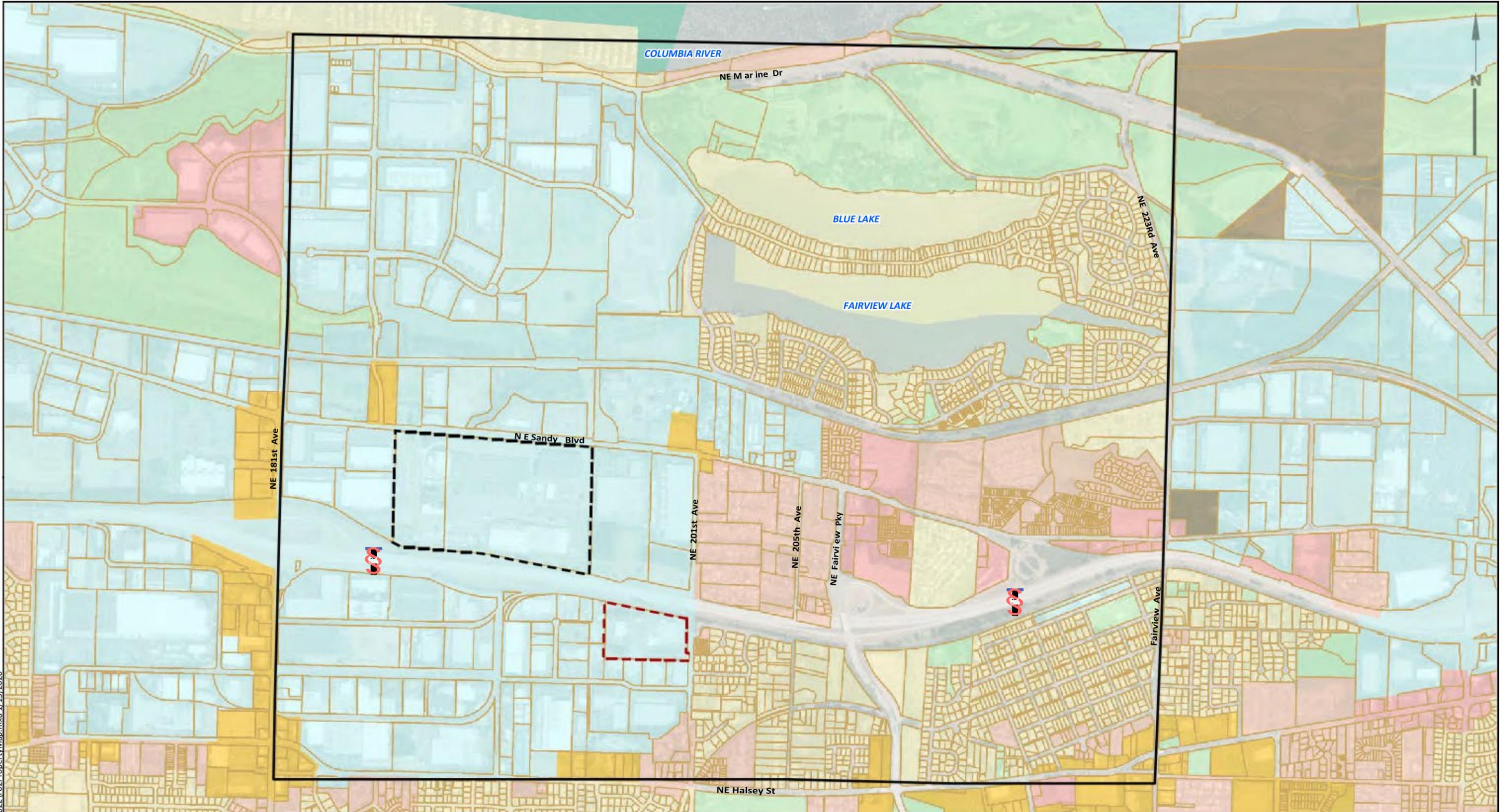
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East Multnomah Site
Gresham, Oregon

Site Map

Figure
1



Legend

- Boeing Portland Property
- Cascade Corporation Property
- Original EMC Site Study Area
- Taxlots

Generalized Zoning Classifications

- | | | |
|--------------------------|-----------------------|-----------------------|
| Commercial | Multi Family | Parks and Open Spaces |
| Future Urban Development | Mixed Use Residential | Rural |
| Industrial | Public Facilities | Single Family |

0 1,200 2,400



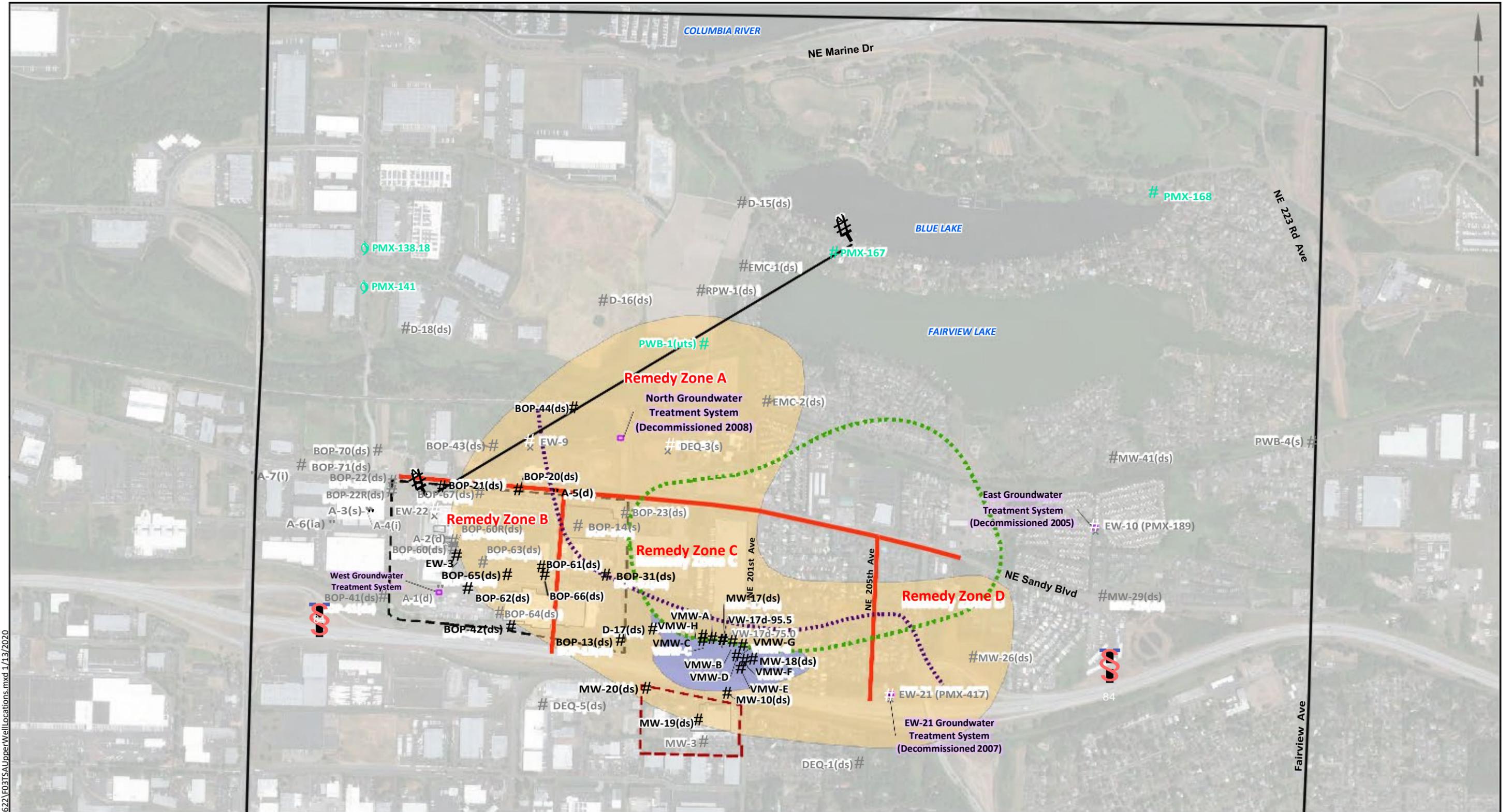
Scale in Feet

Data Sources: Oregon Metro RLIS; Esri World Imagery.

Note

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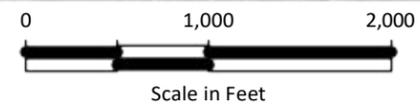
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Legend

- Supply Wells
- x TSA Extraction Wells
- # TSA Monitoring Wells
- # TSA Monitoring Wells - Private
- o Upper/Lower TSA Monitoring Wells - Private
- o ! x # Decommissioned Wells
- Aquifer Restoration Zones
- Treatment Systems
- Original EMC Site Study Area
- Boeing Portland Property
- Cascade Corporation Property
- TSA TCE Plume 1998
- TSA TCE Plume 2019
- Unsaturated Areas
- Approximate Location of Truncation

T I
Cross Section Location



Note

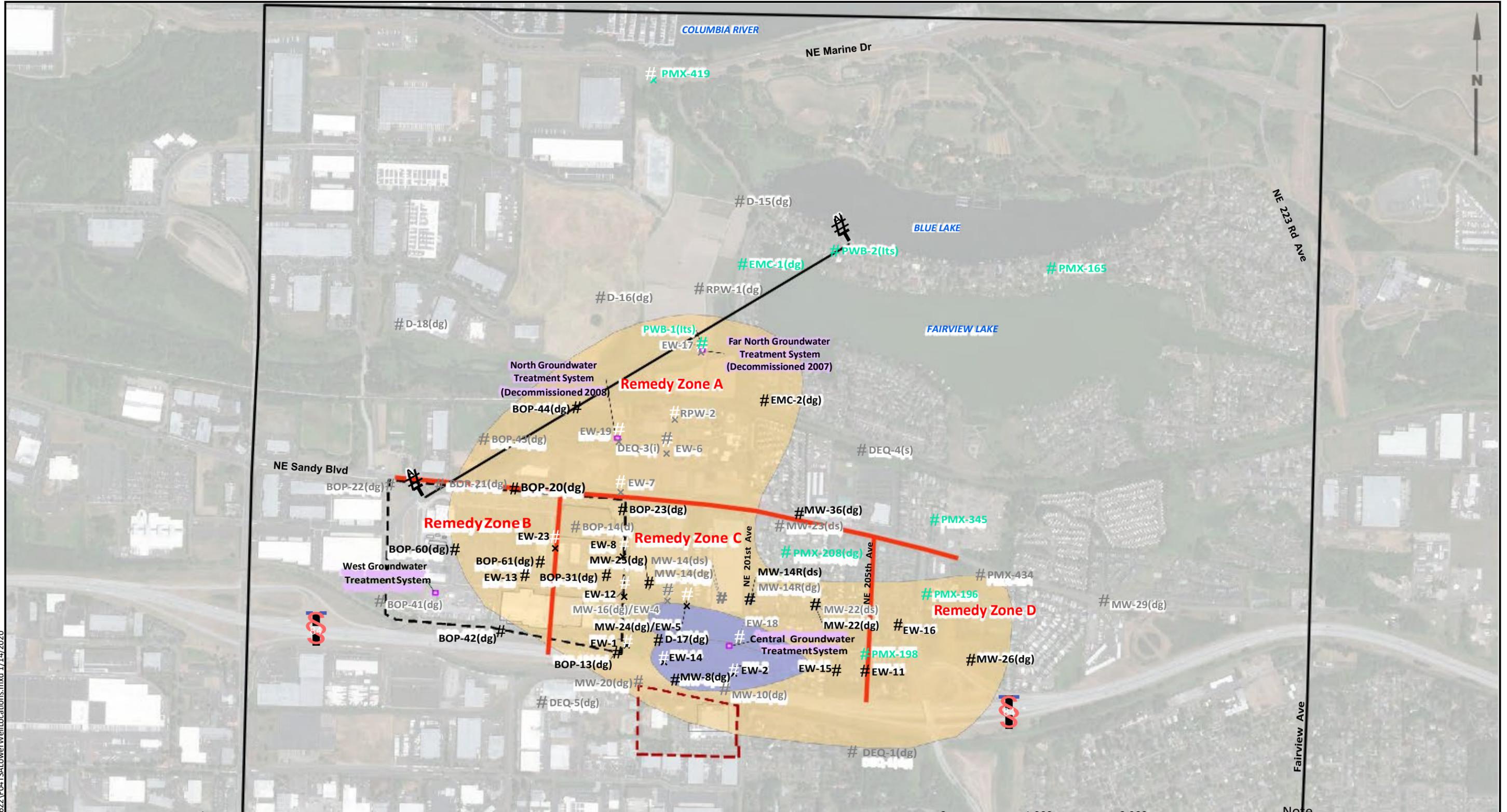
1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Source: Esri World Imagery.

East Multnomah Site
Gresham, Oregon

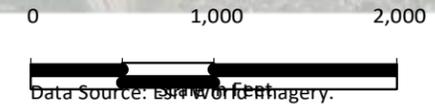
Upper TSA Well Locations

Figure
3



Legend

- # TSA Extraction Wells
- # with cross (x) TSA Monitoring Wells
- # with x (x) Decommissioned Wells
- # with x (x) TSA Monitoring Wells - Private
- # with x (x) Decommissioned Wells - Private
- Orange shaded area: Aquifer Restoration Zones
- Red shaded area: Treatment Systems
- Purple shaded area: Original EMC Site Study Area
- Black outline: Boeing Portland Property
- Red dashed outline: Cascade Corporation Property
- Light yellow shaded area: TSA TCE Plume 1998
- Light blue shaded area: TSA TCE Plume 2019
- # with vertical line: Cross Section Location



Note
1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

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East Multnomah Site
Gresham, Oregon

Lower TSA Well Locations

Figure
4

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Legend

- Blue Lake Aquifer Wells
- W SGA Extraction Wells
- X SGA Monitoring Wells
- X SGA Monitoring Wells - Private
- WX Decommissioned Wells
- Treatment Systems
- Original EMC Site Study Area
- Boeing Portland Property
- Cascade Corporation Property
- SGA Historical Plume (1997)

0 1,000 2,000



Scale in Feet
Data Source: Esri World Imagery.

Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.



East Multnomah Site
Gresham, Oregon

SGA and BLA Well Locations

Figure
5

TCE Concentration Notes

BOP-44(dg): TCE all ND at -RL ranging from 0.5 to 1.0 µg/L from 2006-2017

PWB-1(lts): TCE ranged from 1.1 to 1.8 µg/L between 2015 and 2018

Legend

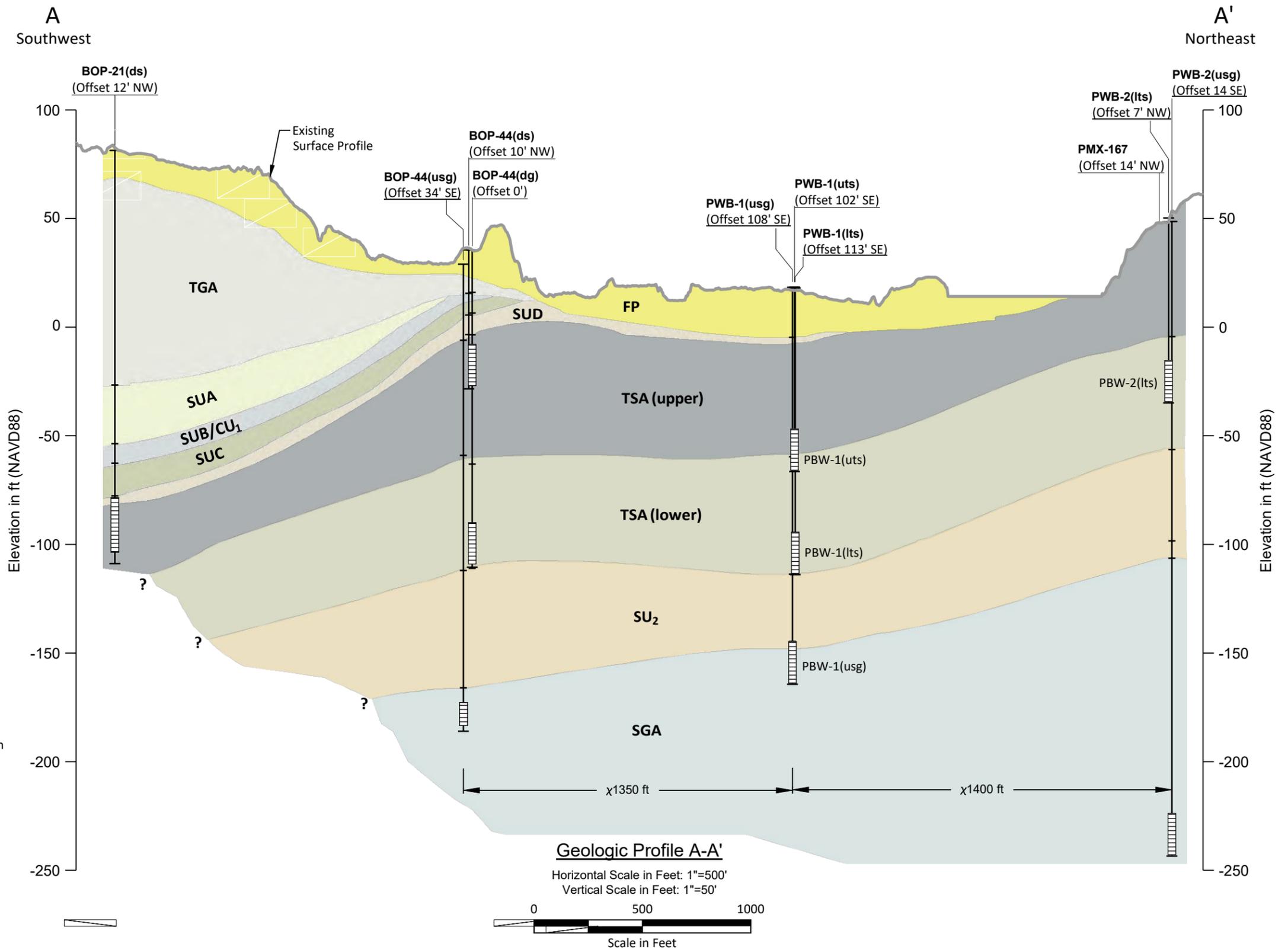
BOP-21(ds) — Project Exploration Designation
(Offset 12' W) Offset Distance in Feet and Direction

- Soil Type Contact
- Well Screen Interval
- Bottom of Exploration

- FP: Flood Plain Deposits: Silty, sandy GRAVEL
- TGA: Troutdale Gravel: Sandy, silty GRAVEL
- SUA: SU₁: Siltstone Unit 1 consisting of four distinct low permeable layers (SUA, SUB/CU₁, SUC, & SUD) with the second layer being a blueish/gray Clayey Siltstone
- SUB
- SUC
- SUD
- TSA (Upper): Upper portion of the Troutdale Sandstone Unit: Sandstone
- TSA (Lower): Lower portion of the Troutdale Sandstone Unit: Conglomerate
- SU₂: Siltstone Unit 2
- SGA: Sand and Gravel Aquifer

Notes

1. Soil descriptions are generalized, based on interpretation of field and laboratory data. Stratigraphic contacts are interpolated between borings and based on topographic features; actual conditions may vary.
2. See report text for descriptions of geologic units.
3. For Cross Section location, see the Site and Exploration Plan, Figure _.
4. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.



Geologic Profile A-A'

Horizontal Scale in Feet: 1"=500'
Vertical Scale in Feet: 1"=50'

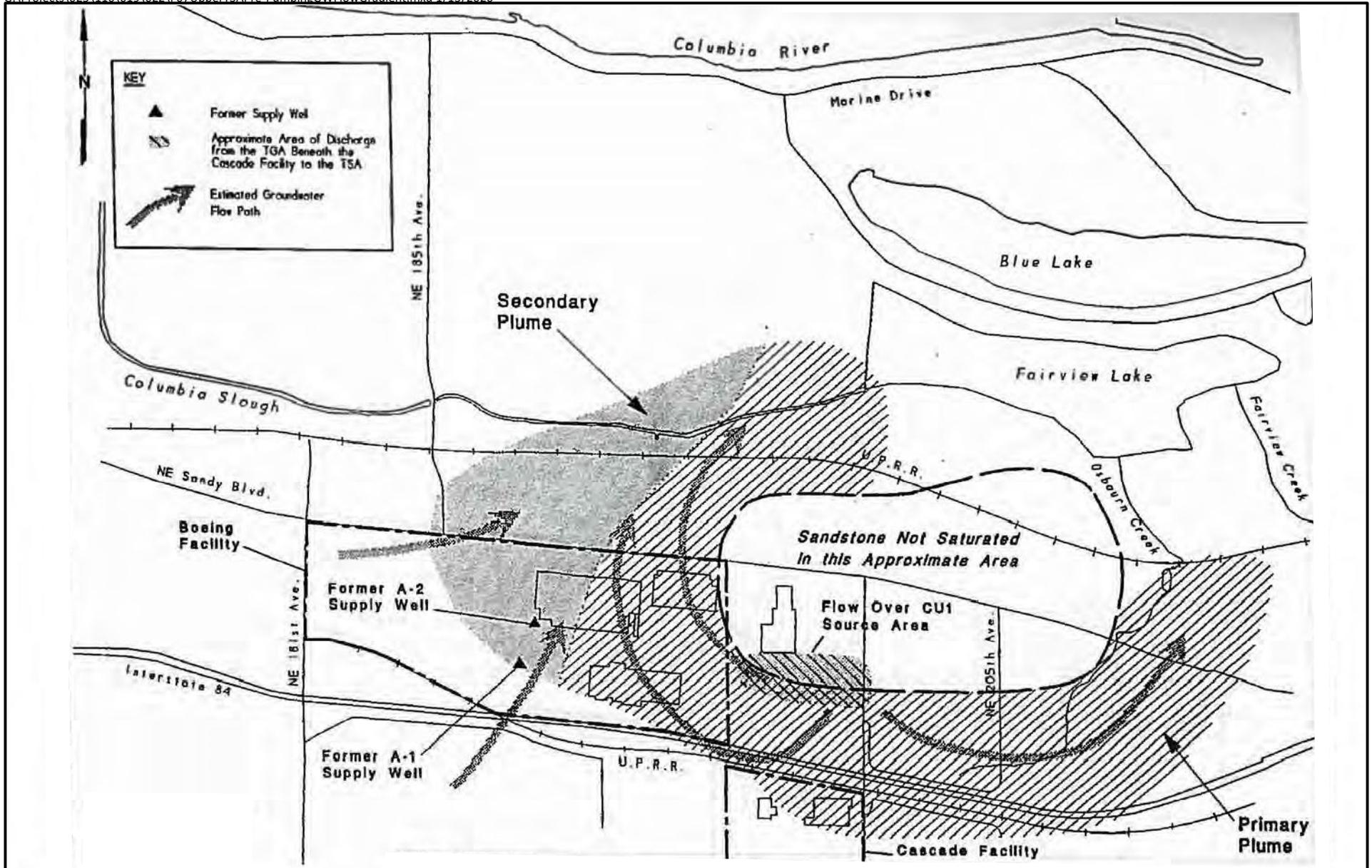


Source: DOGAMI Lidar, 2014

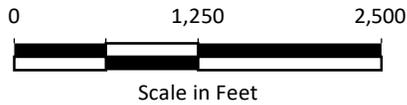
Landau Associates | G:\Projects\025\116\19\622\F06CrossSection.dwg | 1/13/2020 2:46



East Multnomah Site Gresham, Oregon	Geologic Cross Section A-A'	Figure 6
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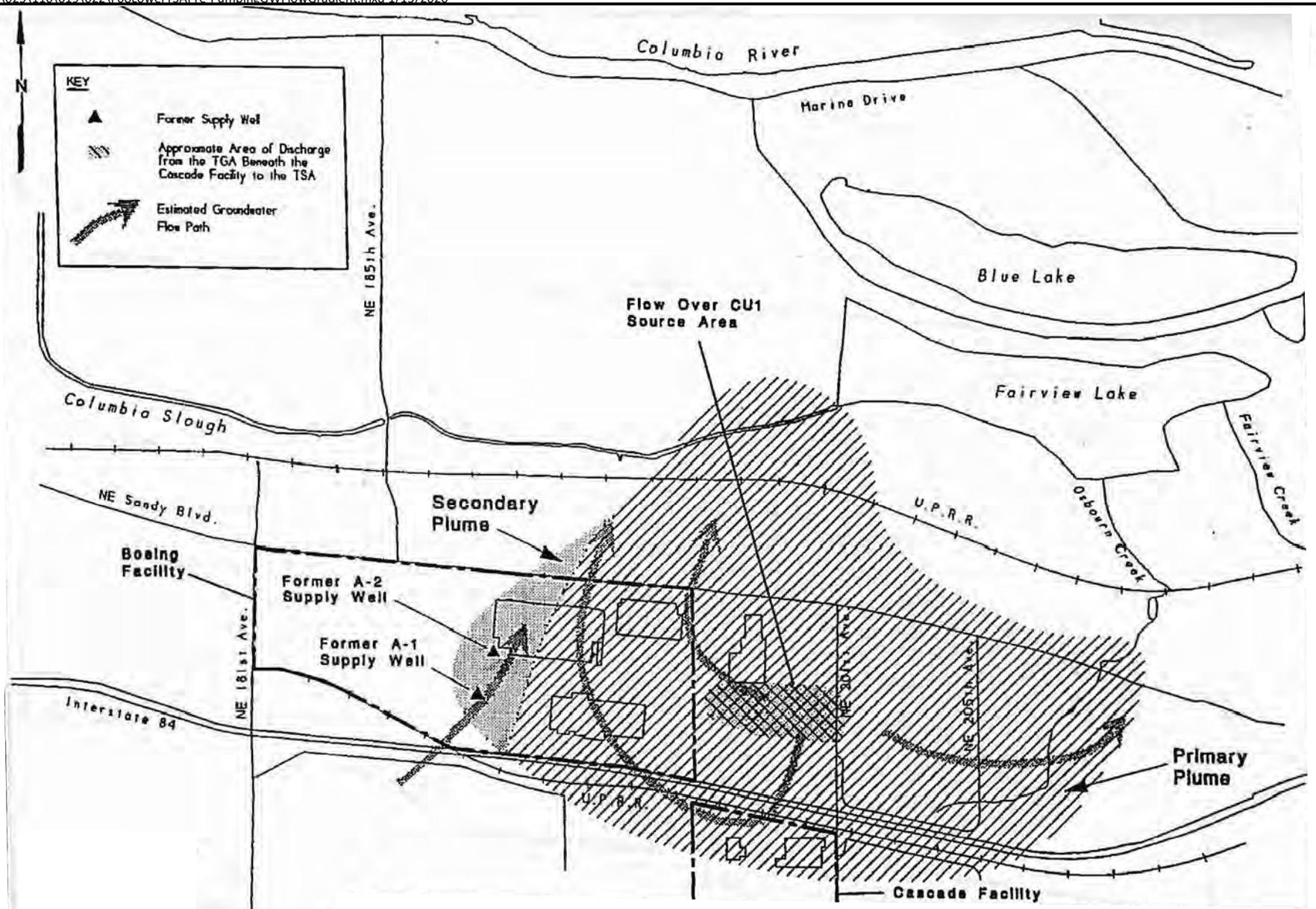
Data Source: Landau Associates, 1995.



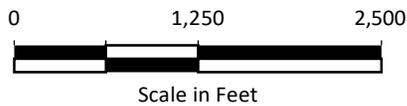
East Multnomah Site
Gresham, Oregon

Upper TSA Pre-Pumping
Groundwater Flow Gradient

Figure
7



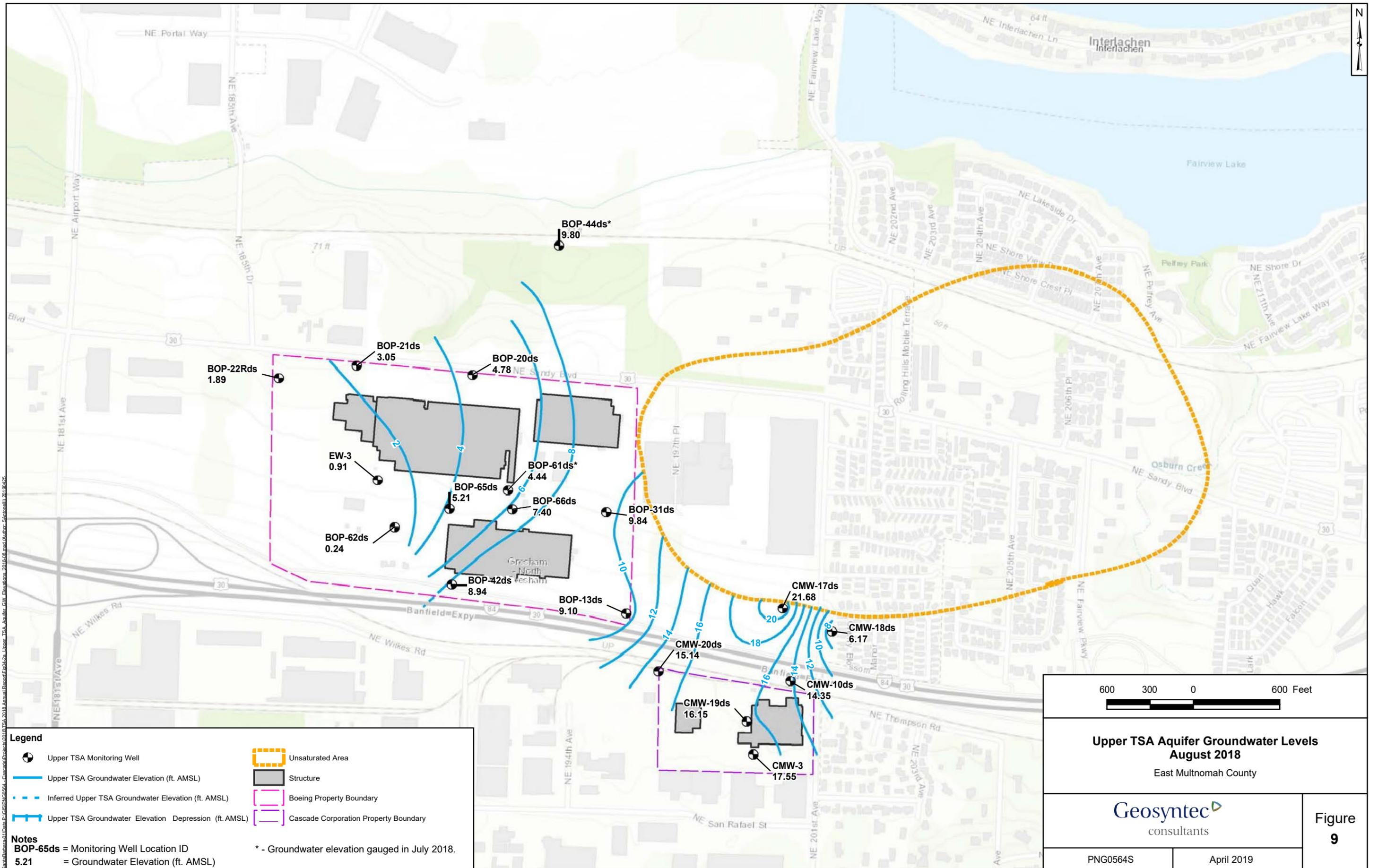
Data Source: Landau Associates, 1995.



East Multnomah Site
Gresham, Oregon

Lower TSA Pre-Pumping
Groundwater Flow Gradient

Figure
8



BOP-22Rds
1.89

BOP-21ds
3.05

BOP-20ds
4.78

BOP-44ds*
9.80

EW-3
0.91

BOP-61ds*
4.44

BOP-65ds
5.21

BOP-66ds
7.40

BOP-62ds
0.24

BOP-31ds
9.84

BOP-42ds
8.94

BOP-13ds
9.10

CMW-17ds
21.68

CMW-18ds
6.17

CMW-20ds
15.14

CMW-10ds
14.35

CMW-19ds
16.15

CMW-3
17.55

600 300 0 600 Feet

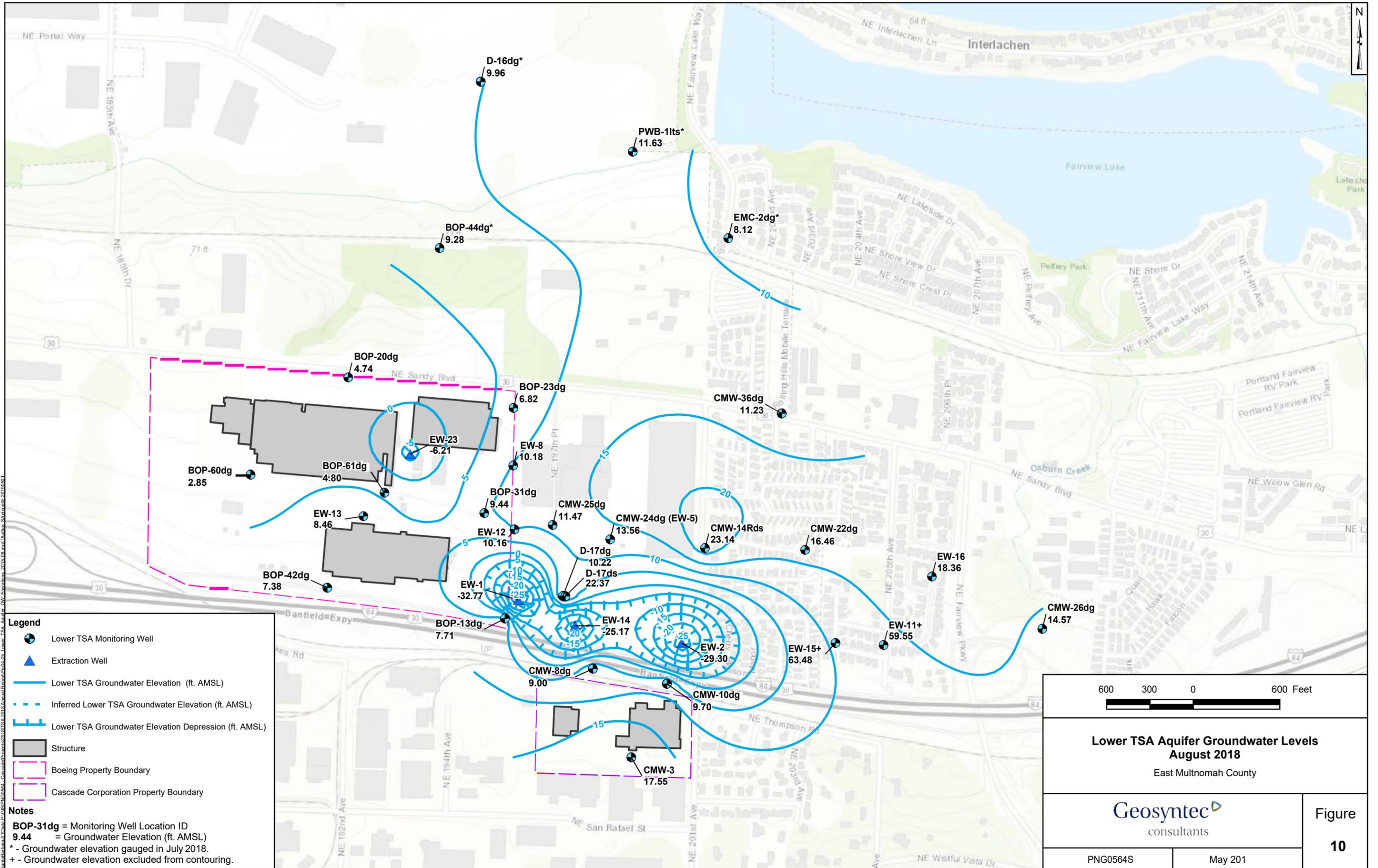
Upper TSA Aquifer Groundwater Levels August 2018
 East Multnomah County

Geosyntec
 consultants

Figure 9

PNG0564S

April 2019



600 300 0 600 Feet

**Lower TSA Aquifer Groundwater Levels
August 2018**
East Multnomah County

Geosyntec
consultants

Figure
10

PNG0564S May 201

Trichloroethene Profile

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