

Groundwater Application Review Summary Form

Application # G- 19227

GW Reviewer Dennis Orlowski Date Review Completed: 6/23/2023

Summary of GW Availability and Injury Review:

☐ Groundwater for the proposed use is either over appropriated, will not likely be available in the amounts requested without injury to prior water rights, OR will not likely be available within the capacity of the groundwater resource per Section B of the attached review form.

Summary of Potential for Substantial Interference Review:

☒ There is the potential for substantial interference per Section C of the attached review form.

Summary of Well Construction Assessment:

☒ The well does not appear to meet current well construction standards per Section D of the attached review form. Route through Well Construction and Compliance Section.

Note: well construction deficiency pertains to proposed Well #1 (WASH 13286)

Note: proposed Well #2 (WASH 78965 – alteration log only) also needs an original well log to evaluate its construction compliance

This is only a summary. Documentation is attached and should be read thoroughly to understand the basis for determinations and for conditions that may be necessary for a permit (if one is issued).

WATER RESOURCES DEPARTMENT

MEMO

6/23/2023

TO: Application G- 19227

FROM: GW: Dennis Orlowski
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☐ YES The source of appropriation is hydraulically connected to a State Scenic
☒ NO Waterway or its tributaries

☐ YES
☒ NO Use the Scenic Waterway Condition (Condition 7J)

☐ Per ORS 390.835, the Groundwater Section is **able** to calculate ground water interference with surface water that contributes to a Scenic Waterway. The calculated interference is distributed below

☐ Per ORS 390.835, the Groundwater Section is **unable** to calculate ground water interference with surface water that contributes to a scenic waterway; **therefore, the Department is unable to find that there is a preponderance of evidence that the proposed use will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway**

DISTRIBUTION OF INTERFERENCE

Calculate the percentage of consumptive use by month and fill in the table below. If interference cannot be calculated, per criteria in 390.835, do not fill in the table but check the "unable" option above, thus informing Water Rights that the Department is unable to make a Preponderance of Evidence finding.

Exercise of this permit is calculated to reduce monthly flows in [Enter] Scenic Waterway by the following amounts expressed as a proportion of the consumptive use by which surface water flow is reduced.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 6/23/2023
 FROM: Groundwater Section Dennis Orlowski
 Reviewer's Name
 SUBJECT: Application G- 19227 Supersedes review of _____
 Date of Review(s)

PUBLIC INTEREST PRESUMPTION; GROUNDWATER

OAR 690-310-130 (1) *The Department shall presume that a proposed groundwater use will ensure the preservation of the public welfare, safety and health as described in ORS 537.525. Department staff review groundwater applications under OAR 690-310-140 to determine whether the presumption is established. OAR 690-310-140 allows the proposed use be modified or conditioned to meet the presumption criteria. This review is based upon available information and agency policies in place at the time of evaluation.*

A. GENERAL INFORMATION: Applicant's Name: Seiji Estate, LLC County: WASH

A1. Applicant(s) seek(s) 0.045 cfs from 3 well(s) in the Willamette Basin,
Tualatin subbasin

A2. Proposed use Irrigation (20 AF/yr on 20 acres) Seasonality: March 1 – October 31

A3. Well and aquifer data (attach and number logs for existing wells; mark proposed wells as such under logid):

Well	Logid	Applicant's Well #	Proposed Aquifer*	Proposed Rate(cfs)	Location (T/R-S QQ-Q)	Location, metes and bounds, e.g. 2250' N, 1200' E fr NW cor S 36
1	WASH 13286	1	CRB	0.022	2S/2W-35 SW-SW	220' N, 750' E FR SW COR S35
2	WASH 78965	2	CRB (assumed) ¹	0.016	2S/2W-35 SW-SW	300' N, 870' E Fr SW cor S35
3	WASH 77267	3	CRB	0.045	2S/2W-35 SW-SW	1270' N, 650' E FR SW cor S35

* Alluvium, CRB, Bedrock

Well	Well Elev ft msl	First Water ft bls	SWL ft bls	SWL Date	Well Depth (ft)	Seal Interval (ft)	Casing Intervals (ft)	Liner Intervals (ft)	Perforations Or Screens (ft)	Well Yield (gpm)	Draw Down (ft)	Test Type
1	792	75	75	July 2018	132	0-15	0-132	N/A	60-124	20	80	Bail
2	782	Unk.	63	July 2018	100 (assumed) ¹	Unknown	Unknown	Unknown	Unknown	Unk	Unk	Unk
3	734	139	67	11/14/2018	201	0-79	0-79	7-107, 127-147	107-127 147-187	20	N/A	Air

Use data from application for proposed wells.

A4. **Comments:** This application is for the primary irrigation of 20 acres located on the north slope of the Chehalem Mountains, near the eastern end of the range, using groundwater pumped from three existing wells: WASH 13286 ("Well 1"), WASH 78965 ("Well 2"), and WASH 77267 ("Well 3"). The requested maximum instantaneous pumping rate is 0.045 cfs, ~20 gpm.

Note 1: WASH 78965 documents a July 2020 alteration to extend casing above ground of an existing well for which the original log was unable to be located by the driller. WASH 78965 does indicate a borehole depth of 100 feet, which was assumed for this review; despite not being able to confirm the original log, for this review it was assumed that WASH 78965, like the other two wells, obtains groundwater from the Columbia River Basalt (CRB) aquifer system.

A5. ☒ **Provisions of the** Willamette Basin rules relative to the development, classification and/or management of groundwater hydraulically connected to surface water ☐ **are**, or ☒ **are not**, activated by this application. (Not all basin rules contain such provisions.)

Comments: Columbia River Basalt Group (CRBG) aquifers are generally confined, and while the upper layers of decayed basalt are reported as clay on many well logs and may be unconsolidated, water levels suggest that they are at least semi-confined. The pertinent rules (OAR 690-502-0240) apply to unconfined alluvium, so it appears they are not activated by this application.

- A6. ☒ Well(s) # 1, 2, and 3, tap(s) an aquifer limited by an administrative restriction.

Name of administrative area: **Chehalem Mountain Groundwater Limited Area**

Comments: According to OAR 690-502-0200, Groundwater in the basalt aquifers in the Chehalem Mountain Groundwater Limited Area is classified for exempt uses, irrigation, and rural residential fire protection systems only. Permits may be issued, for a period not to exceed five years, for fire protection and for drip or equally efficient irrigation. The amount of water used for irrigation shall be further limited to one acre-foot per acre per year. Permits may be extended for additional five-year periods if the Director of the Water Resources Department finds that the groundwater resource can probably support the extended use.

B. GROUNDWATER AVAILABILITY CONSIDERATIONS, OAR 690-310-130, 400-010, 410-0070

- B1. **Based upon available data**, I have determined that groundwater* for the proposed use:

- a. ☐ is over appropriated, ☒ is not over appropriated, or ☐ cannot be determined to be over appropriated during any period of the proposed use. * This finding is limited to the groundwater portion of the over-appropriation determination as prescribed in OAR 690-310-130;
- b. ☐ will not or ☐ will likely be available in the amounts requested without injury to prior water rights. * This finding is limited to the groundwater portion of the injury determination as prescribed in OAR 690-310-130;
- c. ☐ will not or ☐ will likely to be available within the capacity of the groundwater resource; or
- d. ☒ will, if properly conditioned, avoid injury to existing groundwater rights or to the groundwater resource:
 - i. ☒ The permit should contain condition #(s) 7I, large water use reporting;
 - ii. ☐ The permit should be conditioned as indicated in item 2 below.
 - iii. ☐ The permit should contain special condition(s) as indicated in item 3 below;

- B2. a. ☒ Condition to allow groundwater production from no deeper than approximately elevation 550 ft msl ft. below ~~land surface~~;
- b. ☐ Condition to allow groundwater production from no shallower than _____ ft. below land surface;
- c. ☒ Condition to allow groundwater production only from the a single aquifer in the CRBG groundwater reservoir ~~between approximately~~ _____ ft. and _____ ft. below ~~land surface~~;
- d. ☒ Well reconstruction is necessary to accomplish one or more of the above conditions. The problems that are likely to occur with this use and without reconstructing are cited below. Without reconstruction, I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Groundwater Section.

Describe injury –as related to water availability– that is likely to occur without well reconstruction (interference w/ senior water rights, not within the capacity of the resource, etc): Well #1 (WASH 13286): seal depth of 15 feet appears not to meet current well construction standards; the seal likely must be deeper, to extend at least 5 feet into dense, competent basalt (OAR 690-210-0150) that reportedly begins at approximately 69 feet below land surface.

Well #2 (WASH 78965 – alteration log only): needs an original well log to evaluate its construction compliance.

- B3. **Groundwater availability remarks:** The Chehalem Mountains are a monoclonal structure within the Tualatin Basin, composed primarily of CRB. Individual lava flows typically range between 40 to 100 feet thick, however the thickness is highly variable and may exceed 250 feet in some areas (Conlon *et al.*, 2005). The CRB lavas are characterized by thin, often permeable, interflow zones separated by thick, low permeability flow interiors. Because the CRB lavas were generally emplaced as sheet flows, the water-bearing zones generally occur in sub-horizontal, tabular interflow zones separated into discrete water-bearing zones by the low-permeability flow interiors. This structure generally results in tabular aquifers with unique water level heads. The top of the CRB is commonly weathered to a red clay, which ranges in thickness between several feet to more than 200 feet in the Tualatin Basin (Hart and Newcomb, 1965; Conlon *et al.*, 2005). Subject Well #1

(WASH 13286) appears to access this weathered surficial CRB aquifer, and it is assumed that Well #2 does as well (WASH 78965).

There are only two water level measurements available for one of the proposed wells (WASH 13286), the first of which is an unreliable original well log entry. Based on sparse data available from similar nearby wells there appear to be at least two distinct basalt aquifers in this vicinity (see hydrograph below). Shallower wells (completed with bottom elevations of approximately 500 feet or higher above mean sea level (msl)) have water elevations between approximately 700-800 feet msl (see WASH 13210 and WASH 13286 on the hydrograph). Deeper wells, i.e., those with bottom elevations below about 300 ft msl, have water elevations around approximately 480-500 feet msl (see WASH 3443, WASH 77889, and WASH 75862). The applicant's three proposed wells are all completed within and thus obtain groundwater from the shallower CRBG aquifer system.

In addition to vertically discrete aquifers within the local CRBG system, the aquifer in this area is also strongly compartmentalized by faults, and thus there can be significant water level variability in nearby wells with similar completion depths/elevations. The most relevant dataset appears to be from WASH 13210, which is of comparable depth and elevation to the three proposed wells. Historic water levels in WASH 13210 show significant seasonal to multi-year variability, but generally stable in the long term, with an actual subtle increasing trend over the past 5-6 years. Because data are lacking for the three proposed existing wells, WASH 13210 was used as a proxy dataset for this review; data from WASH 13210 suggests that the aquifer system can sustain the proposed use (i.e., it is not over-allocated and is within the capacity of the groundwater resource).

The nearest wells that might potentially be affected by this proposed use are domestic use wells WASH 13265 (~300 feet from proposed Well 2) and WASH 13719 (~800 feet from proposed Well 1). However, WASH 13265 is located on the applicant's tax lot and thus it is assumed that potentially interference with that well can be self-managed. WASH 13719 does not appear to fully penetrate the shallow CRBG aquifer in this area and thus is not a candidate for injury potential (the bottom of WASH 13719 is at approximately elevation 700 ft msl, whereas the bottoms of the three proposed wells range from about elevation 550 to 680 ft msl, the latter of which is likely near the bottom of the shallow aquifer system).

In addition to the permit conditions recommended in sections B1 and B2, the following special conditions are also recommended for inclusion if a permit is issued for this application:

Special Conditions:

1. Groundwater production in the permitted wells shall be limited to a single aquifer in the Columbia River Basalt Group.
 - a. To limit exposure to only a single CRBG aquifer, any new or deepened wells associated with this permit should be limited to a bottom completion elevation of approximately 550 feet msl.
 - b. The well shall be continuously cased and continuously sealed to within 100 feet of the bottom of the open borehole. A larger open interval may be approved by the Department if the permittee can demonstrate to the Departments' satisfaction, using packer tests or other suitable methods, that the hydraulic heads of water-bearing zones in the proposed open interval are equivalent or that the open interval is part of a continuous zone of interconnected porous materials.
 - c. Following well completion, the well shall be thoroughly developed to remove cuttings and drilling fluids. A video log of the well shall be collected to demonstrate to the satisfaction of the Department that the well is only open to a single aquifer.
2. The well shall be equipped with a dedicated ¾-inch diameter (minimum) water-level measurement tube, separate from other methods of measuring the water levels such as airlines or transducers. The annual water-level measurement required in the permit shall be measured through the measuring tube. When requested, access to the well shall be provided to Department staff in order to make water-level measurements.
3. All hydrologic, geologic, geochemical and video data collected shall be provided to OWRD in report and in electronic form specified by the Department.
4. **The permit should include relevant limitations of the Chehalem Mountain GWLA, including type of use, quantity of use, the 5-year time limit, and best management practices that maximize the efficiency of water use.**

C. GROUNDWATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040**C1. 690-09-040 (1):** Evaluation of aquifer confinement:

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
1	CRBG	☒	☐
2	CRBG	☒	☐
3	CRBG	☒	☐

Basis for aquifer confinement evaluation: Columbia River Basalt Group (CRBG) aquifers are generally confined, and while the upper layers of decayed basalt are reported as clay on many well logs and may be unconsolidated, water levels suggest that they are at least semi-confined. While an original well log for Well #2 could not be found, it was assumed to be constructed sufficiently similarly to Well #1 that it also accesses a CRBG aquifer.

C2. 690-09-040 (2) (3): Evaluation of distance to, and hydraulic connection with, surface water sources. All wells located a horizontal distance less than ¼ mile from a surface water source that produce water from an unconfined aquifer shall be assumed to be hydraulically connected to the surface water source. Include in this table any streams located beyond one mile that are evaluated for PSI.

Well	SW #	Surface Water Name	GW Elev ft msl	SW Elev ft msl	Distance (ft)	Hydraulically Connected?			Potential for Subst. Interfer. Assumed?	
						YES	NO	ASSUMED	YES	NO
1	1	Baker Creek	720	500-800	3300	☒	☐	☐	☐	☒
1	2	North unnamed Trib. To Chicken Creek	720	260-780	2950	☒	☐	☐	☐	☒
1	3	Central unnamed trib. To Chicken Creek	720	250-800	1150	☒	☐	☐	☐	☒
1	4	South unnamed trib. To Chicken Creek	720	350-820	1900	☒	☐	☐	☐	☒
2	1	Baker Creek	720	500-800	3380	☒	☐	☐	☐	☒
2	2	North unnamed Trib. To Chicken Creek	720	260-780	2740	☒	☐	☐	☐	☒
2	3	Central unnamed trib. To Chicken Creek	720	250-800	1080	☒	☐	☐	☐	☒
2	4	South unnamed trib. To Chicken Creek	720	350-820	2130	☒	☐	☐	☐	☒
3	1	Baker Creek	680	500-800	3020	☒	☐	☐	☐	☒
3	2	North unnamed Trib. To Chicken Creek	680	260-780	2300	☒	☐	☐	☐	☒
3	3	Central unnamed trib. To Chicken Creek	680	250-800	800	☒	☐	☐	☐	☒
3	4	South unnamed trib. To Chicken Creek	680	350-820	2540	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: Groundwater elevations were taken from the most recently-reported water depths, and surface water elevation ranges were measured over the streams within 1 mile of the wells. The well-to-stream distances were estimated to the nearest point of likely hydraulic connection, which is where the stream is incised to the elevation approximately equivalent to reported groundwater levels.

Water Availability Basin the well(s) are located within:

SW1: WID # 30201001: McFee Creek > Tualatin River – at mouth

SW2, SW3, SW4: WID # 30201006: Tualatin River > Willamette River – at gage.

- C3a. **690-09-040 (4):** Evaluation of stream impacts for each well that has been determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water (SW) source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that SW source, not lower SW sources to which the stream under evaluation is tributary. Compare the requested rate against the 1% of 80% *natural* flow for the pertinent Water Availability Basin (WAB). If Q is not distributed by well, use full rate for each well. Any checked ☒ box indicates the well is assumed to have the potential to cause PSI.

Well	SW #	Well < ¼ mile?	Q _w > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Q _w > 1% ISWR?	80% Natural Flow (cfs)	Q _w > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
1	1	☐	☐			☐	1.90	☒	See note 1	☒
1	2	☐	☐	IS73538B	94.50	☐	46.80	☐	"	☐
1	3	☒	☐	IS73538B	94.50	☐	46.80	☐	"	☒
1	4	☐	☐	IS73538B	94.50	☐	46.80	☐	"	☐
2	1	☐	☐			☐	1.90	☐	"	☐
2	2	☐	☐	IS73538B	94.50	☐	46.80	☐	"	☐
2	3	☒	☐	IS73538B	94.50	☐	46.80	☐	"	☒
2	4	☐	☐	IS73538B	94.50	☐	46.80	☐	"	☐
3	1	☐	☐			☐	1.90	☒	"	☒
3	2	☐	☐	IS73538B	94.50	☐	46.80	☐	"	☐
3	3	☒	☐	IS73538B	94.50	☐	46.80	☐	"	☒
3	4	☐	☐	IS73538B	94.50	☐	46.80	☐	"	☐

- C3b. **690-09-040 (4):** Evaluation of stream impacts by total appropriation for all wells determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water source. **Complete only if Q is distributed among wells.** Otherwise same evaluation and limitations apply as in C3a above.

	SW #		Q _w > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Q _w > 1% ISWR?	80% Natural Flow (cfs)	Q _w > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: Note 1: there is no appropriate model to estimate streamflow depletion from pumping in CRBG interflow zones that are incised by streams or discharge to point sources such as springs. Therefore, the percentage of interference at 30 days was not calculated.

Wells #1 and #3 have a requested rate greater than 1% of the 80% natural flow in the McFee Creek WAB (SW1), triggering PSI.

All three wells were found to be hydraulically connected with SW #3 within ¼ mile, triggering PSI.

- C4a. **690-09-040 (5):** Estimated impacts on **hydraulically connected surface water sources greater than one mile** as a percentage of the proposed pumping rate. Limit evaluation to the effects that will occur up to one year after pumping begins. This table encompasses the considerations required by 09-040 (5)(a), (b), (c) and (d), which are not included on this form. Use additional sheets if calculated flows from more than one WAB are required.

Non-Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													

		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
(A) = Total Interf.													
(B) = 80 % Nat. Q													
(C) = 1 % Nat. Q													
(D) = (A) > (C)		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
(E) = (A / B) x 100		%	%	%	%	%	%	%	%	%	%	%	%

(A) = total interference as CFS; (B) = WAB calculated natural flow at 80% exceed. as CFS; (C) = 1% of calculated natural flow at 80% exceed. as CFS; (D) = highlight the checkmark for each month where (A) is greater than (C); (E) = total interference divided by 80% flow as percentage.

Basis for impact evaluation: N/A

C4b. **690-09-040 (5) (b)** The potential to impair or detrimentally affect the public interest is to be determined by the Water Rights Section.

- C5. ☐ **If properly conditioned**, the surface water source(s) can be adequately protected from interference, and/or groundwater use under this permit can be regulated if it is found to substantially interfere with surface water:
- ☐ The permit should contain condition #(s)_____;
 - ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions:** PSI was found for Well #1 due to its rate compared with the McFee Creek WAB (SW1) and proximity to SW #3. PSI was found for Well #2 based on its proximity to SW #3. PSI was found for Well #3 due to its rate compared with the McFee Creek WAB and its proximity to SW #3.

References Used:

Application Files: G-19227, G-653, G-16114, G-18273, G-18302, G-18805, and LL-1781.

Conlon, T.D., K.C. Wozniak, D. Woodcock, N.B. Herrera, B.J. Fisher, D.S. Morgan, K.K. Lee, and S.R. Hinkle, 2005. Ground-Water Hydrology of the Willamette Basin, Oregon. USGS Numbered Series, U. S. Geological Survey, Reston, VA.

Hart, D.H. and R.C. Newcomb, 1965. Geology and Ground Water of the Tualatin Valley, Oregon. USGS Numbered Series, U. S. Geological Survey, Washington D.C.

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: 1 and 2 Logid: WASH 13286 and WASH 78965

D2. **THE WELL does not appear to meet current well construction standards based upon:**

- a. ☒ review of the well log;
- b. ☐ field inspection by _____;
- c. ☐ report of CWRE _____;
- d. ☐ other: (specify) _____

D3. **THE WELL construction deficiency or other comment is described as follows:** For Well 1, the original seal depth in WASH 13286 of 15 feet may not meet current well construction standards.

For Well 2, no original well log was found. Therefore, it is not possible to establish whether the well meets current construction standards.

D4. ☒ **Route to the Well Construction and Compliance Section for a review of existing well construction.**

Water Availability Tables**SW1**

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION

Watershed ID #: 30201001 MCFEE CR > TUALATIN R - AT MOUTH Exceedance Level: 80
 Time: 5:34 PM Basin: WILLAMETTE Date: 01/21/2022

Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available
Monthly values are in cfs. Storage is the annual amount at 50% exceedance in ac-ft.						
JAN	36.60	0.88	35.70	0.00	0.00	35.70
FEB	42.00	0.88	41.10	0.00	0.00	41.10
MAR	34.20	0.75	33.50	0.00	0.00	33.50
APR	21.60	0.69	20.90	0.00	0.00	20.90
MAY	11.70	3.09	8.61	0.00	0.00	8.61
JUN	5.40	3.78	1.62	0.00	0.00	1.62
JUL	3.02	5.21	-2.19	0.00	0.00	-2.19
AUG	2.22	4.48	-2.26	0.00	0.00	-2.26
SEP	1.97	2.43	-0.46	0.00	0.00	-0.46
OCT	1.90	0.41	1.49	0.00	0.00	1.49
NOV	5.34	0.48	4.86	0.00	0.00	4.86
DEC	25.20	0.85	24.40	0.00	0.00	24.40
ANN	22,300	1,450	21,100	0	0	21,100

SW2, SW3, SW4

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION

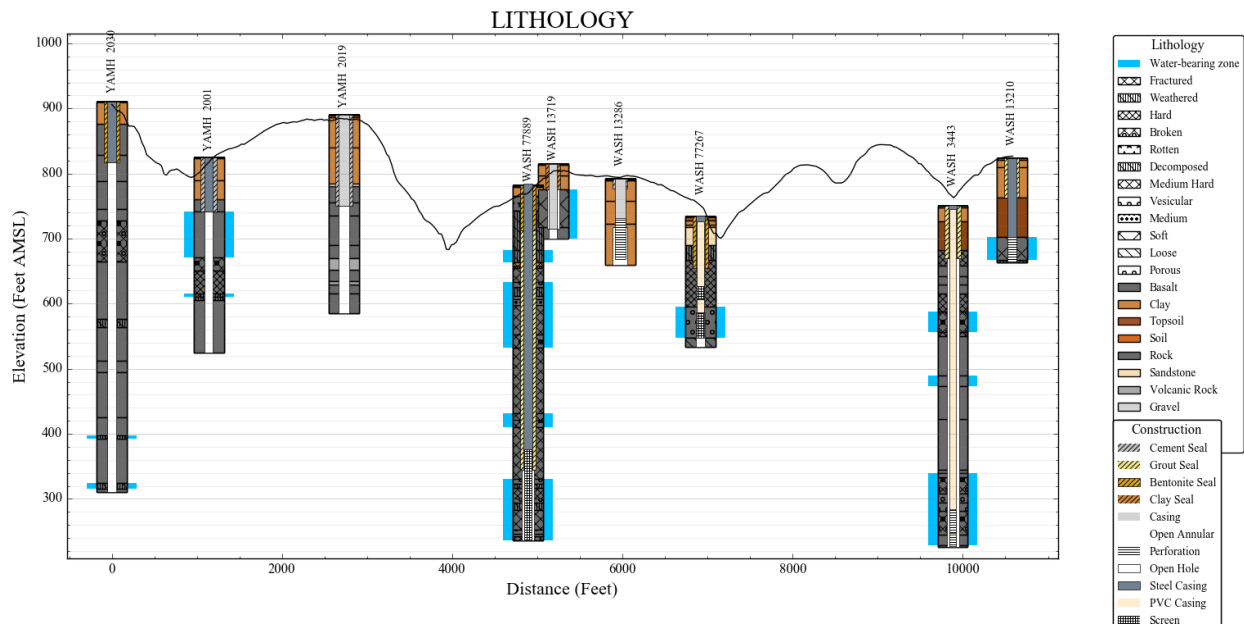
Watershed ID #: 30201006 TUALATIN R > WILLAMETTE R - AT GAGE 14207500 Exceedance Level: 80
 Time: 5:34 PM Basin: WILLAMETTE Date: 01/21/2022

Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available
Monthly values are in cfs. Storage is the annual amount at 50% exceedance in ac-ft.						
JAN	1,290.00	345.00	945.00	0.00	250.00	695.00
FEB	1,640.00	402.00	1,240.00	0.00	250.00	988.00
MAR	1,300.00	285.00	1,010.00	0.00	250.00	765.00
APR	833.00	224.00	609.00	0.00	250.00	359.00
MAY	407.00	137.00	270.00	0.00	250.00	19.70
JUN	191.00	157.00	34.20	0.00	130.00	-95.80
JUL	90.30	199.00	-109.00	0.00	100.00	-209.00
AUG	68.60	167.00	-98.50	0.00	100.00	-198.00
SEP	46.80	121.00	-74.10	0.00	94.50	-169.00
OCT	52.00	38.50	13.50	0.00	100.00	-86.50
NOV	183.00	172.00	10.80	0.00	250.00	-239.00
DEC	967.00	331.00	636.00	0.00	250.00	386.00
ANN	913,000	155,000	767,000	0	137,000	649,000

Application G-19227 (Seiji): 2S/2W-35



Lithologic Cross-Section



Water-Level Measurements in Nearby Wells

