Groundwater Application Review Summary Form

Application # G- 19474

GW Reviewer Gabriela Ferreira Date Review Completed: December 17, 2024

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.

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 **_December 17, 2024_**

TO: **Application** G-**_19474_**

FROM: **GW: _Gabriela Ferreira_**
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☐ **YES**
☒ **NO** The source of appropriation is hydraulically connected to a State Scenic 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 December 17, 2024
FROM: Groundwater Section Gabriela Ferreira
Reviewer's Name
SUBJECT: Application G- **19474** 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: **John Enyart** County: **Multnomah**

A1. Applicant(s) seek(s) 4.99 cfs from 2 well(s) in the Willamette Basin,

A2. Proposed use: Supplemental Irrigation (856.4 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)**:

POA 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	PROPOSED	1	Alluvium	4.99	2N / 1W 4 NW-SW	1700' N 65' E fr SW cor S 4
2	PROPOSED	2	Alluvium	4.99	2N / 1W 4 NW-SW	1550' N 700' E fr SW cor S 4

* Alluvium, CRB, Bedrock

POA Well	Well Depth (ft)	Seal Interval (ft)	Casing Intervals (ft)	Liner Intervals (ft)	Perforations Or Screens (ft)	Well Yield (gpm)	Drawdown (ft)	Test Type
1	100[a]	25	N/A	N/A	N/A	TBD	TBD	TBD
2	100[a]	25	N/A	N/A	N/A	TBD	TBD	TBD

POA Well	Land Surface Elevation at Well (ft amsl)	Depth of First Water (ft bls)	SWL (ft bls)	SWL Date	Reference Level (ft bls)	Reference Level Date
1	10[b]	TBD	TBD	TBD	TBD	TBD
2	18[b]	TBD	TBD	TBD	TBD	TBD

Use data from application for proposed wells.

A4. **Comments:** The proposed POA/POU is located on Sauvie Island, approximately 2 miles downstream from where the Willamette River converges with the Columbia River. Applicant proposes supplemental irrigation use on 856.4 acres. Applicant proposes installation of two new well for development at a maximum instantaneous rate of 4.99 cfs (~2240 gpm) with an annual maximum volume of 2141 acre-feet. The primary irrigation right for a portion of the POU is under Certificate 49880, through Sauvie Island Drainage District. A concurrent application for primary irrigation was submitted under S-89840 (Initial Review proposed to approve dated October 25, 2024).

[a] The proposed well construction does not include details of casing or proposed open interval depths. The total well depth is listed as "100' +/-" although no maximum depth is specified. **See Section B for conditions related to well construction.**

[b] Land surface elevation estimated to nearest 5-foot interval from LIDAR at the proposed well site (OLC, 2016).

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: The proposed POA is within ¼-mile from the nearest stream or surface water source (Multnomah Channel) and produces groundwater from an unconfined alluvial aquifer; therefore, the relevant Willamette Basin rules (OAR 690-502-0150) are activated.

A6. ☐ **Well(s) #** _____ , _____ , _____ , _____ , _____ , tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: _____
Comments: N/A

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) **Large Water Use Reporting Condition; 7RLN**;

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 _____ 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 **Alluvial** 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): _____

B3. **Groundwater availability remarks:** The proposed POA is located within the Unconsolidated Sedimentary Aquifer (USA), which is approximately 125 feet thick in the vicinity of the proposed POA and underlain by an undifferentiated fine-grained unit. The Columbia River Basalt Group is encountered approximately 700 feet below land surface (bls) (Swanson and others, 1993; Gannett and Caldwell, 1998; Conlon and others, 2005; Wells and others, 2020). Sauvie Island is an alluvial deposit immediately downstream of the confluence of the Willamette River and the Columbia River. The island is maintained by a flood levee.

Within two miles of the POA, there are approximately 20 water rights mostly for irrigation and nursery use with some pond maintenance and storage rights. Several other domestic wells are also nearby. Most wells near the proposed POA also produce from the USA. Reported maximum yields in nearby alluvial wells, mostly domestic, range from 20 to 400 gpm (well statistics attached). Well deepenings are not reported. The requested rate (~2240 gpm) is much higher than reported yields, although most wells are constructed for domestic use.

The nearest groundwater user was identified as MULT 1580, an irrigation well associated with Permit G-18860, located approximately 0.7 mile east of proposed POA 2. Despite not fully penetrating the alluvial aquifer system, potential impacts on the proposed well were modeled using the attached Theis drawdown analysis and assuming the full duty and rate of the proposed POA. Transmissivity values are based on published values (Freeze and Cherry 1979; Conlon and others, 2005), since nearby wells do not have the pumping capacity to produce a drawdown curve (e.g. MULT 1580, MULT 14712). It

appears unlikely that interference would produce drawdown at the proposed well in excess of the typical permit condition limits

Water level data from the alluvial aquifer is provided in the attached hydrograph for MULT 1580 and MULT 134712 (0.8 mile east), COLU 50066 (4 miles northwest), and COLU 3379 (7 miles north). The water levels for all four wells are generally stable with seasonal variation of ~5 to 10 feet and appear correlated to precipitation. Based on the observed water level behavior, effective hydraulic connection with nearby surface water sources, and large storage capacity and permeability of the USA, the groundwater reservoir is not over-appropriated.

In order to support future understanding and management of the groundwater resource in this area, the conditions listed in Item B1(d)(i) and Item B2(c) are recommended.

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	**Alluvial**	☐	☒
2	**Alluvial**	☐	☒

Basis for aquifer confinement evaluation: Water level elevations for nearby wells are generally near depth to the water-bearing zone as shown on the attached well statistics for alluvial wells in the vicinity of the proposed POA. Well logs for nearby wells (MULT 1580, MULT 134712) do not report extensive confining units; minor amounts of sandy or silty clay are present near surface but do not appear to significantly produce aquifer confinement.

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? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	**1**	**Mud Slough**	**0 – 10[a]**	**10 - 20**	**760**	☐	☐	☒	☒	☐
2	**1**	**Mud Slough**	**0 – 10[a]**	**10 - 20**	**150**	☐	☐	☒	☒	☐

Basis for aquifer hydraulic connection evaluation: [a] The range of groundwater elevations was estimated based on information provided in the application and from nearby groundwater level data.

[b] Estimated ranges of stream surface elevations are based on LIDAR data for respective perennial reaches within approximately 1 mile of the proposed POA (OLC, 2016)

Based on the lack of aquifer confinement of the USA and similar elevations between Well 1 and SW#1 hydraulic connection is likely. Furthermore, hydraulic connection was assumed for SW #1 according to rules because Well 1 and Well 2 are less than ¼ mile from the SW#1 and in an unconfined aquifer.

Water Availability Basin the well(s) are located within: None established

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?	Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
1	**1**	☒	☐			☐		☐		☒
2	**1**	☒	☐			☐		☐		☒

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

Comments: No WAB is established for the location of the proposed POAs, so potential for substantial interference was not evaluated using Division 9 criteria. The finding of "assumed potential for substantial interference" is based on the proposed POA producing from an unconfined aquifer within ¼ mile of SW#1.

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:

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:

i. ☐ The permit should contain condition #(s)_____;

ii. ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions:** _____

References Used: Application File: G-19474

OWRD water well reports and water level data: MULT 1580, MULT 134712, COLU 3379, COLU 50066

Conlon, T.D., Wozniak, K.C., Woodcock, D., Herrera, N.B., Fisher, B.J., Morgan, D.S., Lee, K.K., and Hinkle, S.R., 2005, Ground-water hydrology of the Willamette Basin, Oregon, Scientific Investigations Report 2005-5168: U. S. Geological Survey, Reston, VA.

Gannett, M.W. and Caldwell, R., 1998, Geologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-A, 32 p.

Oregon Lidar Consortium (OLC), 2016, OLC metro 2014 lidar project, Oregon Department of Geology & Mineral Industries, Portland, OR, November 30.

Swanson, R. D., McFarland, W. D., Gonthier, J. B., and Wilkinson, J. M., 1993, A description of hydrogeologic units in the Portland Basin, Oregon and Washington, Water-Resources Investigations Report 90-4196, 56 p.: U. S. Geological Survey, Reston, VA.

United States Geological Survey, 2014, National Hydrography Dataset (NHD), 1:24,000, U. S. Department of the Interior, Reston, VA.

Wells, R.E., Haugerud, R.A., Niem, A.R., Niem, W.A., Ma, L., Evarts, R.C., O'Connor, J.E., Madin, I.P., Sherrod, D.R., Beeson, M.H., Tolan, T.L., Wheeler, K.L., Hanson, W.B., and Sawlan, M.G., 2020, Geologic map of the greater Portland metropolitan area and surrounding region, Oregon and Washington: U.S. Geological Survey Scientific Investigations Map 3443, pamphlet 55 p., 2 sheets, scale 1:63,360, https://doi.org/10.3133/sim3443.

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #:** _____ **Logid:** _____

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:** _____

_____

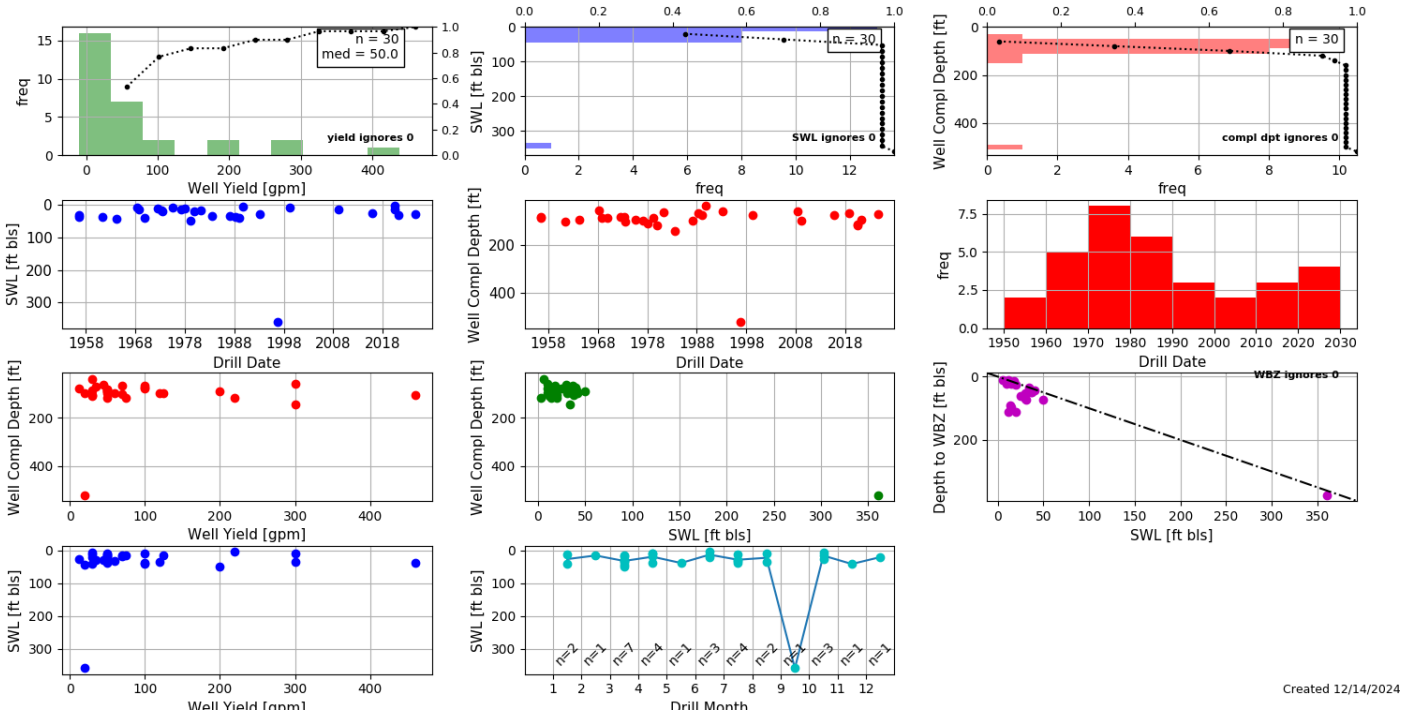
_____

_____

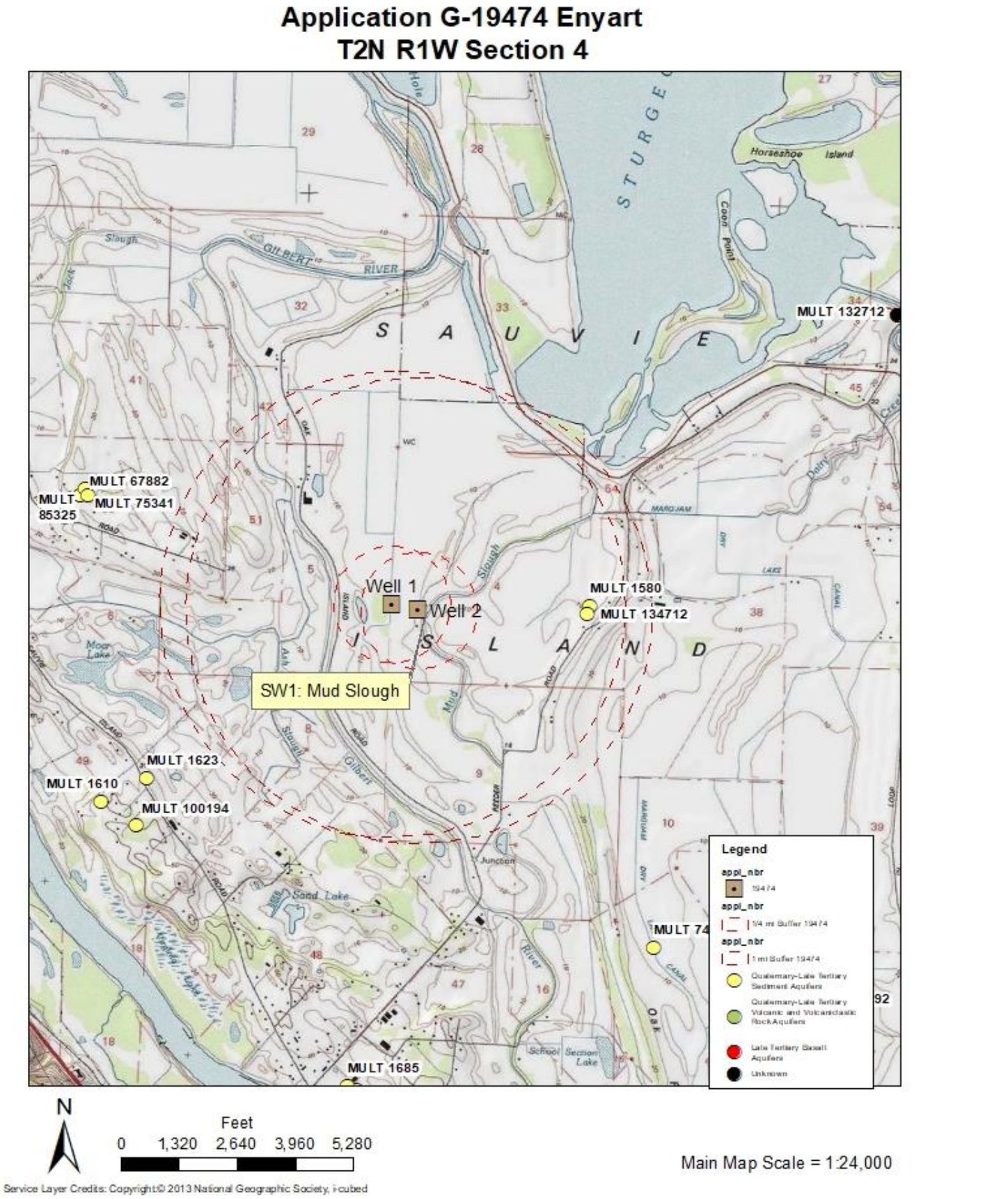
_____

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

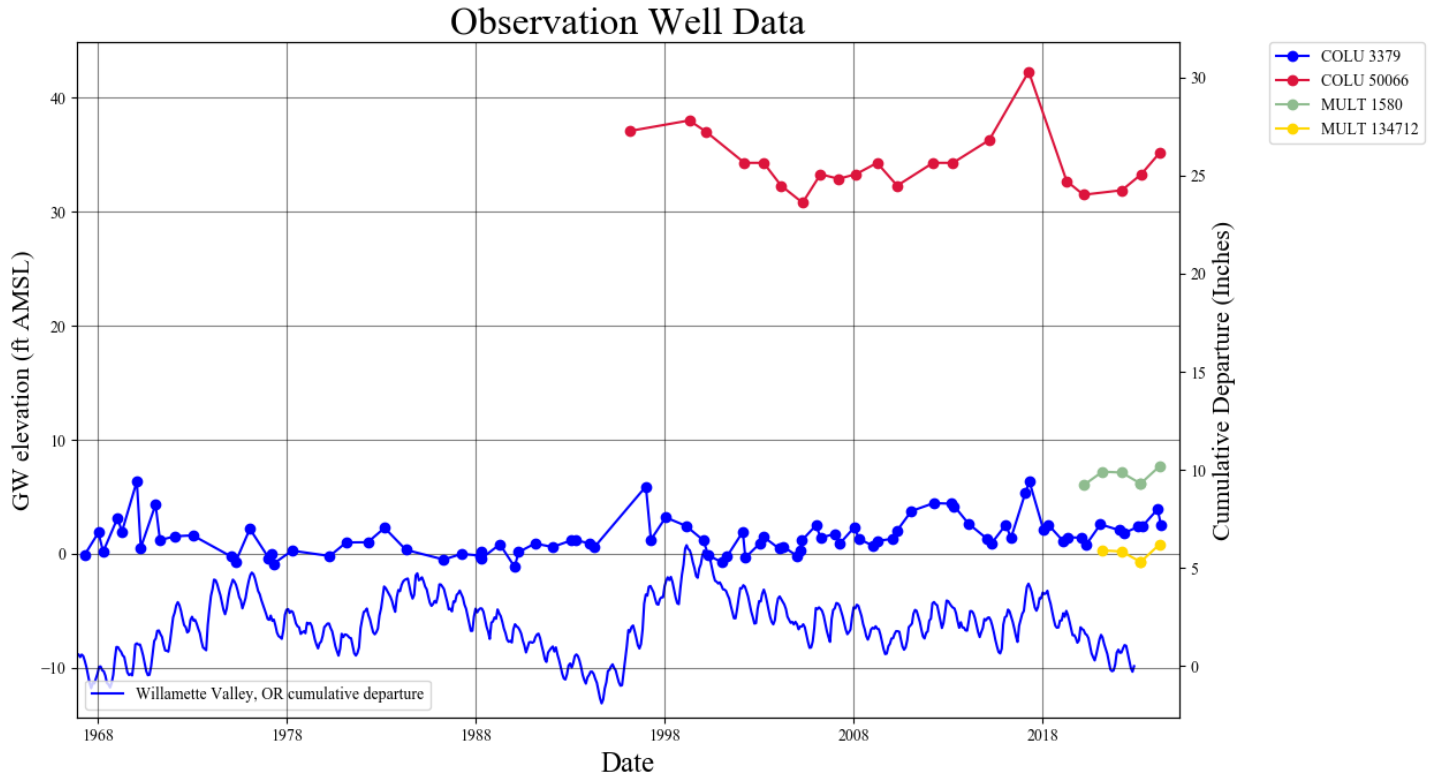
Well Statistics



Well Location Map



Water-Level Measurements in Nearby Wells



Theis Interference Analysis

Theis Time-Drawdown Worksheet v.5.00

Calculates Theis nonequilibrium drawdown and recovery at any arbitrary radial distance, r, from a pumping well for 3 different T values and radial distance, r, from a pumping well for 3 different T values and 2 different S values.

Written by Karl C. Wozniak September 1992. Last modified December 17, 2019

Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units	
Total pumping time	t		365		d	
Radial distance from pumped well:	r		3700		ft	Q conversions
Pumping rate	Q		4.99		cfs	2,239.51 gpm
Hydraulic conductivity	K	500	5000	10000	ft/day	4.99 cfs
Aquifer thickness	b		60		ft	299.40 cfm
Storativity	S_1		0.01			431,136.00 cfd
	S_2		0.1			9.90 af/d
Transmissivity Conversions	T_f2pd	30000	300000	600000	ft2/day	
	T_ft2pm	20.8333333	208.333333	416.666667	ft2/min	Recalculate
	T_gpdpft	224400	2244000	4488000	gpd/ft	

Use the Recalculate button if recalculation is set to manual