

Groundwater Application Review Summary Form

Application # G- 19014 - REREVIEW

GW Reviewer M. Thoma

Date Review Completed: 01/22/2021

Supersedes Review of: 11/12/2020

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

01/22/2021

TO: Application G- **19014 - REREVIEW**

FROM: GW: **M. Thoma**
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

YES The source of appropriation is hydraulically connected to a State Scenic Waterway or its tributaries

NO

YES Use the Scenic Waterway Condition (Condition 7J)

NO

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 01/22/2021
 FROM: Groundwater Section M. Thoma
Reviewer's Name
 SUBJECT: Application G- 19014 - RR Supersedes review of 11/12/2020
Date of Review(s)

COMMENTS ON REREVIEW:

Following the initial groundwater review the applicant's consultant submitted an updated map of surveyed locations of the wells along with surveyed distances from the wells to Amazon Creek. The updated distances put Well #1 at 1344 ft from Amazon Creek compared to the distance of 1300 ft calculated on the original review and based on topographic maps. The updated distance will not change the hydraulic connection finding nor significantly change the impact to Amazon Creek from pumping but does remove the automatic assumption of PSI for Well #1. The applicant has also requested a reduced rate of 0.321 cfs (original requested rate: 1.0 cfs) and has removed Well #3 from the application. See attached letter from William E. McGill.

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: Fredrick David Haase; Linda Reed Haase County: Lane

- A1. Applicant(s) seek(s) 0.321 cfs from 2 well(s) in the Willamette Basin,
Long Tom subbasin
- A2. Proposed use Irrigation, Fish Culture Seasonality: Mar-Oct (Irrigation); Year-Round (Fish Culture)
- 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	LANE 76593	1	Alluvium	1	17S-04W-19 NENE	85 ft S, 380 ft W of NE cor S 19
2	LANE 76667	2	Alluvium	1	17S-04W-19 NENE	285 ft S, 115 ft W of NE cor S 19
4						

* 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	375	24	8	5/08/19	38	0-18	+2-38	-		28		A
2	375	21	11	5/30/19	37	0-18	+1-37	-		30		A

Use data from application for proposed wells.

- A4. **Comments:** The consultant included updated metes and bounds correcting the direction error noted on the original review
- A5. **Provisions of the** Willamette (OAR 690-502) 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: Well #1 is not within 1/4 mile of Amazon Creek based on surveyed distances and Well #3 has been removed from the application so Willamette Basin Rules are not activated.
- A6. **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
 Name of administrative area: _____
 Comments: _____

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) 7C (7-yr SWL); Medium 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 _____ 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 _____ 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:** Groundwater levels in the area (reflected in data from well LANE0013051) show a stable long-term trend suggesting that groundwater for the proposed use would likely be within the Capacity of the Resource. However, a full calculation of water balance for the area has not been performed so Over-Appropriation, and thus Capacity of the Resource, cannot be definitively determined and so conditions listed in B1(d) 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	Alluvium (Middle Sedimentary Unit)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Alluvium (Middle Sedimentary Unit)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: Despite well reports showing static water levels being above the identified water-bearing zones, a composite review of well log data for the area shows that water levels are similar among most wells regardless of completed depth. This suggests that there are not specific aquifer zones within 100 ft depth and instead the shallow alluvial material makes up a single, continuous 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	Amazon Cr	365	360-670	1344	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	1	Amazon Cr	365	360-370	1514	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: GW elevations are similar to SW elevations and the wells are producing from a shallow alluvial aquifer. Distances are taken from recent survey conducted by Will McGill Surveying LLC on 01/08/21.

Water Availability Basin the well(s) are located within: LONG TOM R > WILLAMETTE R – AB MOUTH (ID# 114)

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	<input type="checkbox"/>	<input type="checkbox"/>	None		<input type="checkbox"/>	32.1	<input type="checkbox"/>	< 15%	<input type="checkbox"/>
2	1	<input type="checkbox"/>	<input type="checkbox"/>	None		<input type="checkbox"/>	32.1	<input type="checkbox"/>	< 15%	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Comments: Stream-depletion was estimated using the Hunt-1999 model and a range of aquifer parameters taken from the references below and representing a range of possible values. Based on the results of this modelling, estimated stream-depletion at 30 days is likely to be less than 15% for both proposed PODs

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?
	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Comments: _____

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:** The applicant’s proposed PODs have been found to be producing from an aquifer that is hydraulically-connected to surface water – specifically to Amazon Creek – at a distance of less than one mile. A recent survey of the well locations and Amazon Creek showed that both wells were beyond ¼ mile of Amazon Creek. Additionally, the new requested rate of 0.321 cfs is less than 1% of the 80%-exceedance flow for the encompassing WAB and estimated stream-depletion is less than 25% @ 30 days. Based on these findings the wells are assumed to NOT have the Potential for Substantial Interference per OAR 690-009.

References Used:

Gannett, M. W. and R. R. Caldwell. 1998. *Geologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington*. USGS Professional Paper 1424-A.

Herrera, N. B., Burns, E. R., and T. D. Conlon. 2014. *Simulation of Groundwater Flow and the Interaction of Groundwater and Surface Water in the Willamette Basin and Central Willamette Subbasin, Oregon*. USGS Scientific Investigations Report 2014-5136.

Hunt, B. 1999. *Unsteady Stream Depletion from Ground Water Pumping*. Journal of Hydrologic Engineering, Vol 8(1), pp 12-19

McClaghry, J. D., T. J. Wiley, M. L. Ferns, and I. P Madin. 2010. *Digital Geologic Map of the Southern Willamette Valley, Benton, Lane, Linn, Marion, and Polk Counties, Oregon*. Oregon Dept. of Geology and Mineral Industries. Open File Report O-10-13.

O’Conner, J. E., A. Sarna-Wojcicki, K. C. Wozniak, D. J. Polette, and R. J. Fleck. *Origin, Extent, and Thickness of Quaternary Geologic Units in the Willamette Valley, Oregon*. USGS Professional Paper 1620

OWRD Well Log Database – Accessed 11/12/2020

Woodward, D. G., M. W. Gannett, and J. J. Vaccaro. 1998. *Hydrogeologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington*. USGS Professional Paper 1424-B.

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.**

Water Availability Tables

Water Availability Analysis Detailed Reports

LONG TOM R > WILLAMETTE R - AB MOUTH
WILLAMETTE BASIN

Water Availability as of 11/13/2020

Watershed ID #: 114 ([Map](#))

Exceedance Level: 80%

Date: 11/13/2020

Time: 9:35 AM

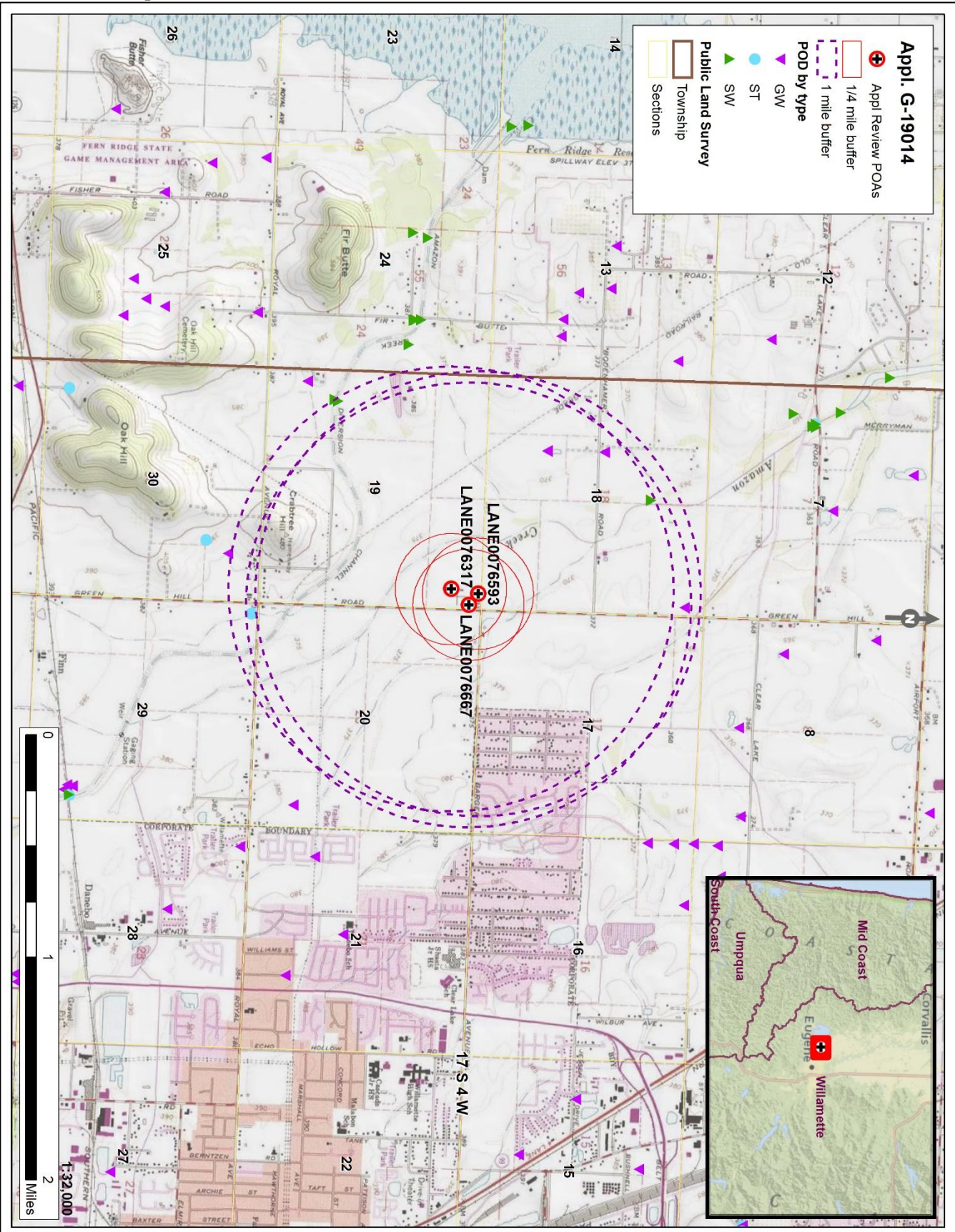
Water Availability Calculation	Consumptive Uses and Storages	Instream Flow Requirements	Reservations
Water Rights	Watershed Characteristics		

Water Availability Calculation

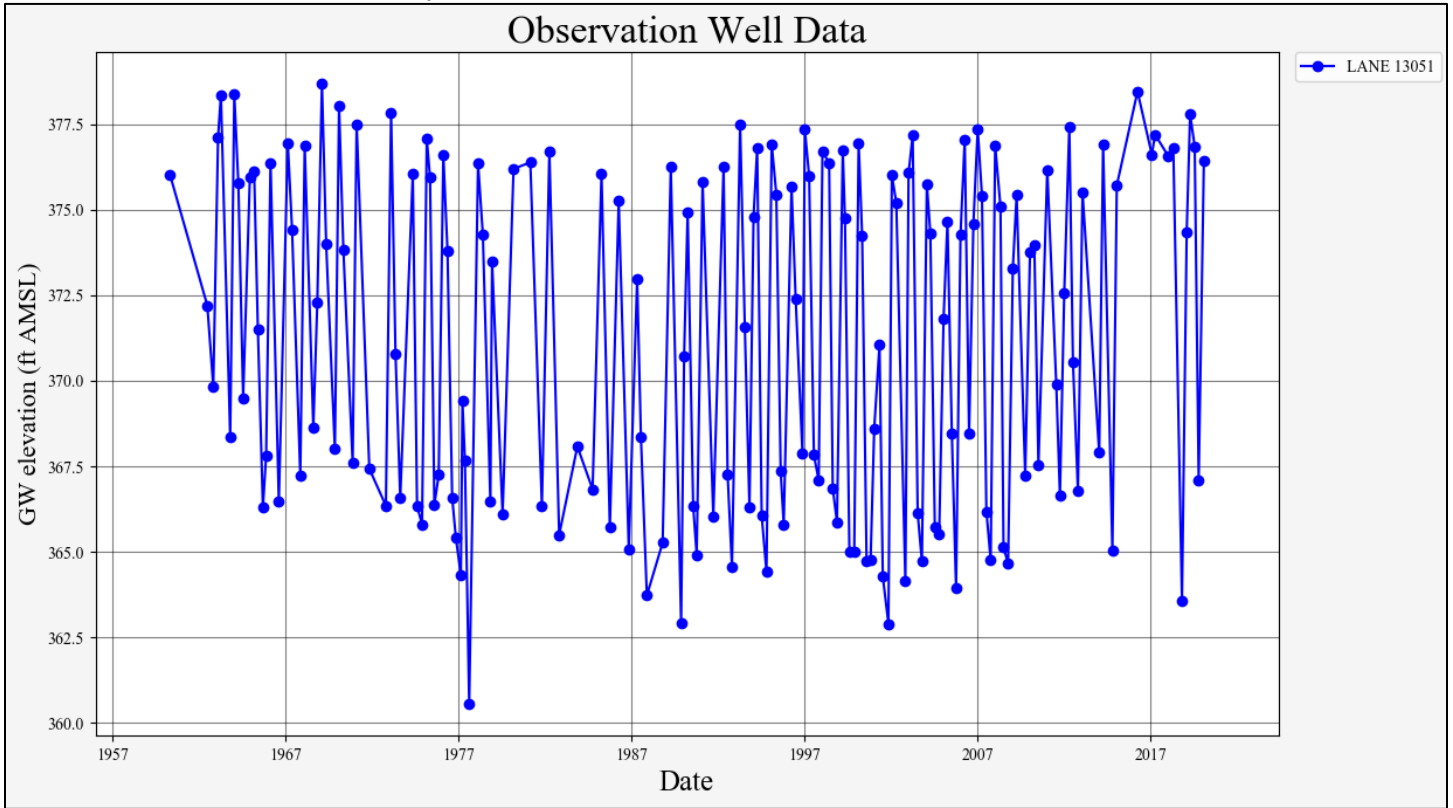
Monthly Streamflow in Cubic Feet per Second
Annual Volume at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	568.00	149.00	419.00	0.00	0.00	419.00
FEB	697.00	389.00	308.00	0.00	0.00	308.00
MAR	596.00	555.00	41.00	0.00	0.00	41.00
APR	373.00	250.00	123.00	0.00	0.00	123.00
MAY	215.00	63.80	151.00	0.00	0.00	151.00
JUN	105.00	29.50	75.50	0.00	0.00	75.50
JUL	50.60	47.80	2.83	0.00	0.00	2.83
AUG	35.40	38.80	-3.36	0.00	0.00	-3.36
SEP	32.10	21.40	10.70	0.00	0.00	10.70
OCT	35.30	5.69	29.60	0.00	0.00	29.60
NOV	82.50	5.45	77.00	0.00	0.00	77.00
DEC	364.00	106.00	258.00	0.00	0.00	258.00
ANN	362,000.00	99,300.00	262,000.00	0.00	0.00	262,000.00

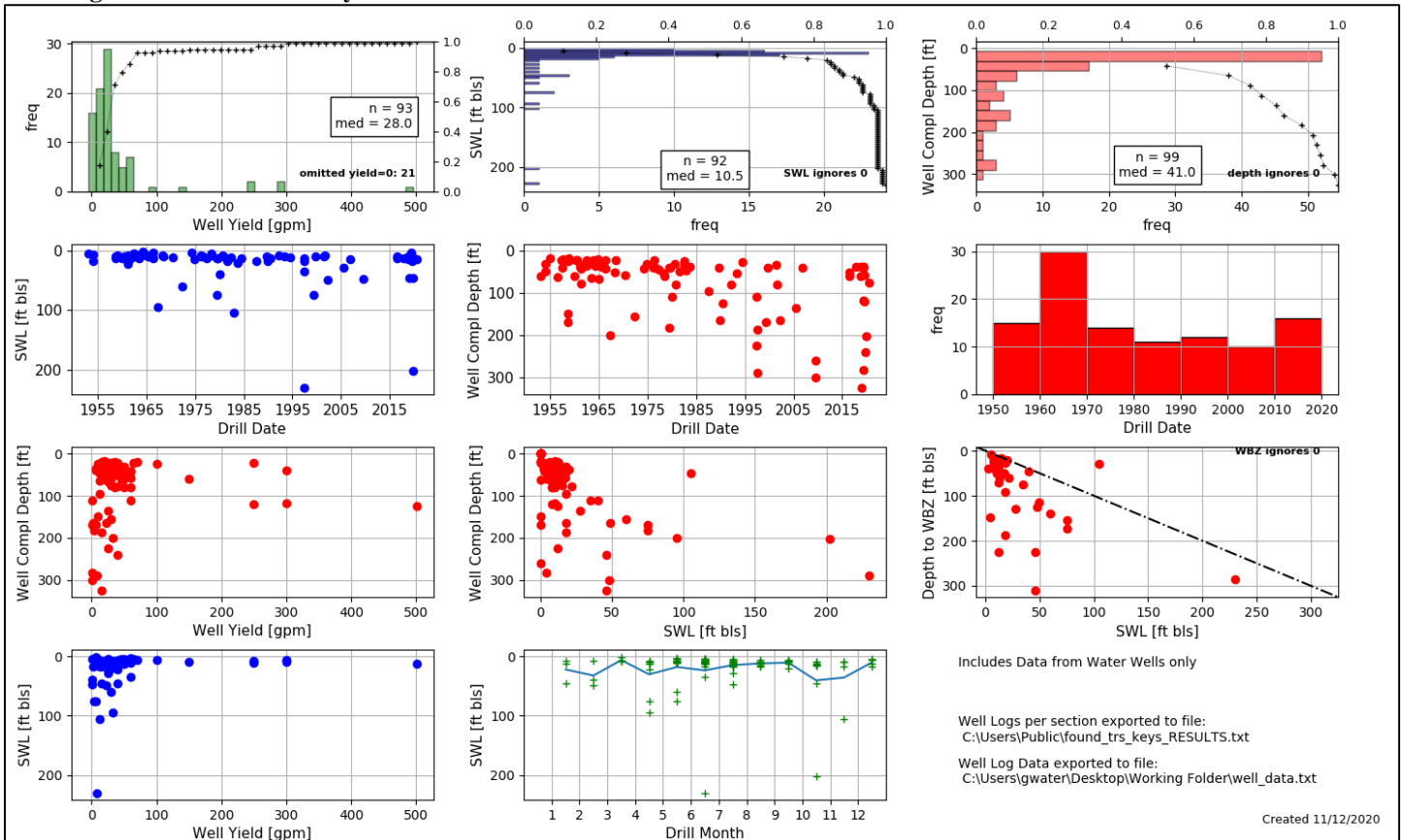
Well Location Map



Water-Level Measurements in Nearby Wells



Well Log Statistics from Nearby Wells



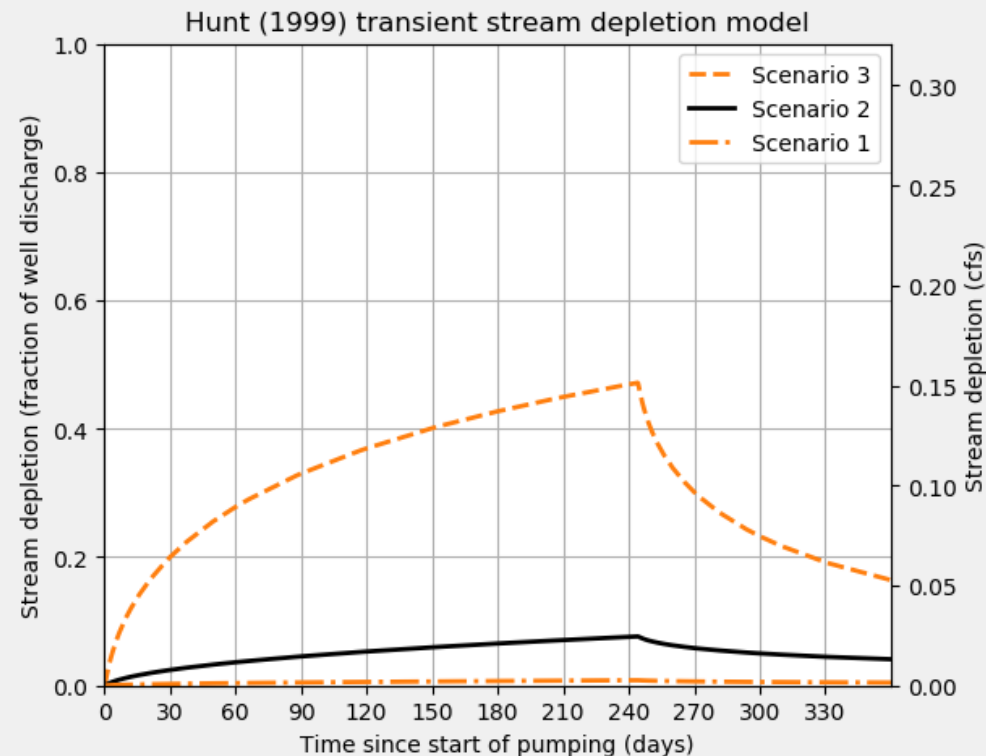
Stream-Depletion Model Results

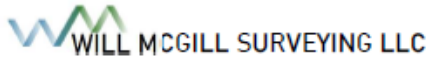
Application type:	G
Application number:	19014
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.321
Pumping duration (days):	244.0
Pumping start month number (3=March)	3.0

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	1344	1344	1344	ft
Aquifer transmissivity	T	5000	1000	500	ft ² /day
Aquifer storativity	S	5e-3	1e-3	5e-4	-
Aquitard vertical hydraulic conductivity	Kva	5e-4	1e-3	5e-3	ft/day
Not used		20	20	20	
Aquitard thickness below stream	babs	5	5	5	ft
Not used		0.2	0.20	0.2	
Stream width	ws	50	50	50	ft

Stream depletion for Scenario 2:

Days	10	330	360	30	60	90	120	150	180	210	240	270	300
Depletion (%)	1	4	4	2	4	5	5	6	7	7	8	6	5
Depletion (cfs)	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02





15333 Pletzer Rd. SE
Turner, OR 97392
503-510-3026
503-931-0210
willmcgill.surveying@gmail.com

Attn: Elisabeth Graham
Oregon Water Resources Department
725 Summer St. NE, Suite A
Salem, OR 97301

Subject: Application G-19014 Revisions

Based on the findings in the Groundwater Review completed by Mike Thoma on November 12, 2020, we are requesting some amendments to application G-19014 as agent for Fredrick David Haase and Linda Reed Haase.

The original requested rate was found to have potential for substantial interference. We have revised the necessary application pages to reflect the new requested rate of 0.321 cfs combined for all uses (1% of 80% natural flow per Mike Thoma's groundwater review). Livestock use has been removed from the application.

Well 1 was evaluated at 1300' from the nearest surface water, Amazon Creek, in the groundwater review. A site visit and survey were conducted by Will McGill Surveying LLC on January 8, 2021 to locate the actual location of Wells 1, 2, and 3 as well as the edge of the surface water at Amazon Creek. Well 1 was found to be 1344' and Well 2 was found to be 1514' at the closest points respectively on Amazon Creek. Well 3 is significantly inside 1/4-mile of the surface water and has been removed from the application. The survey was completed during a high-water event. Points outside Haase property were collected from the most recent aerial photo to complete the data and confirm the >1/4-mile distance to Wells 1 and 2. See the attached map.

Please also find the revised application pages attached and let us know if anything else is needed to proceed on G-19014.

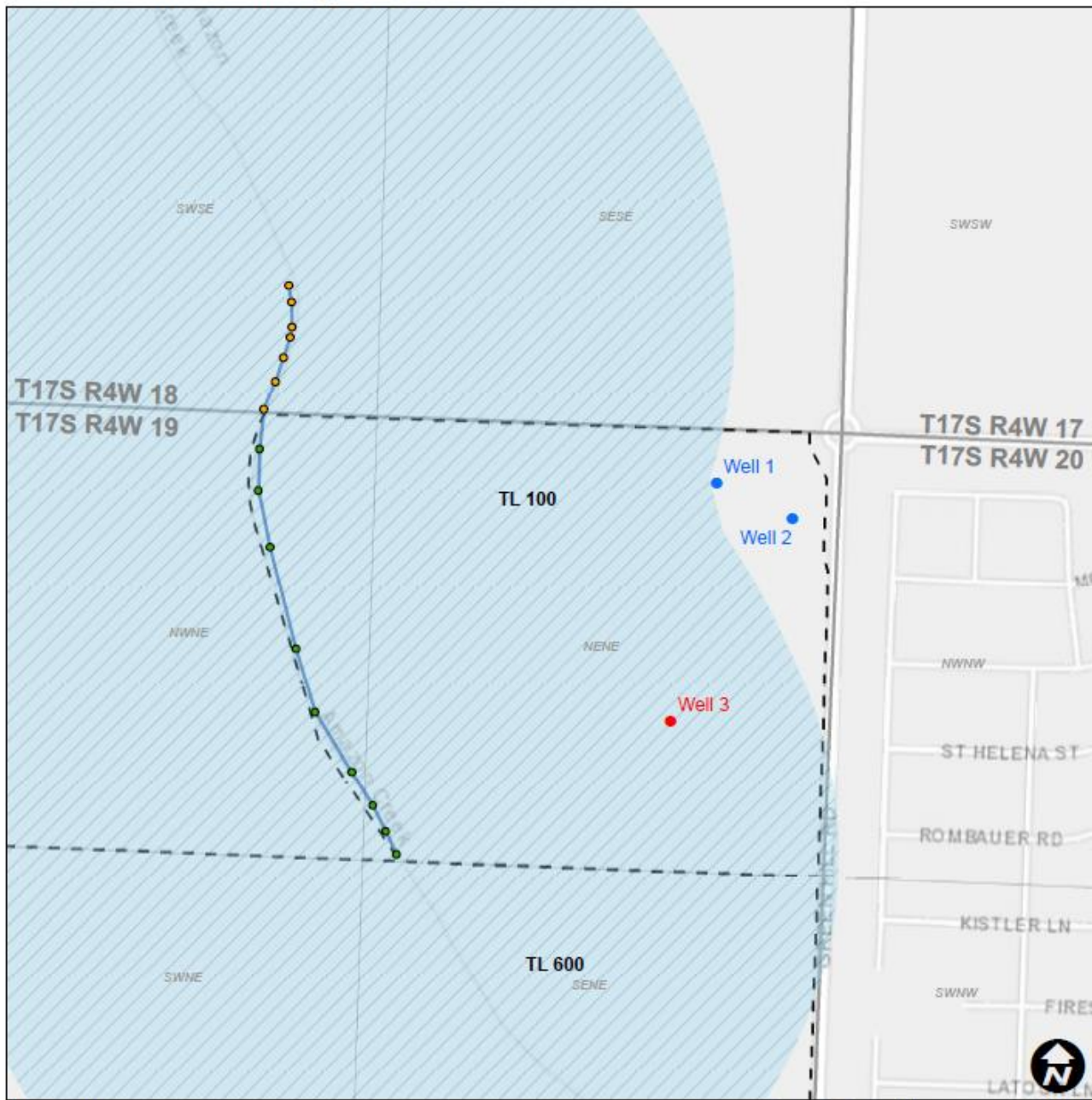
A handwritten signature in black ink that reads "William E. McGill".

William E. McGill, CWRE

Cc: Mike Thoma

Haase - Groundwater Application - G-19014

Site Visit & Survey 1/8/2021



Legend

- Pts - surveyed by GPS 1/8/2021 - high water
- Pts - surveyed by aerial photo 3/5/2020 - off Haase property
- 1320' Buffer - from edge of surface water
- Wells outside 1320' buffer - proceed with app.
- Wells inside 1320' buffer - remove from app.
- Tax Lot

 WILL MCGILL SURVEYING LLC