Approved:

MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager

From: Travis Kelly, Well Construction Program Coordinator

Subject: Review of Water Right Application G-18913

Date: May 8, 2020

The attached application was forwarded to the Well Construction and Compliance Section by the Ground Water Section. Phil Marcy reviewed the application. Please see Phil's Groundwater Review and the Well Reports.

Applicant's Well #1 (CLAC 18338): Based on a review of the Well Report, Applicant's Well #1 seems to protect the groundwater resource.

The construction of Applicant's Well #1 may not satisfy hydraulic connection issues.

Applicant's Well #2 is a proposed well and has not been constructed. Therefore, a review cannot be completed.

STATE OF OREGON
WATER WELL REPORT
(as required by ORS 537.765)

CLAC 18338

RECEIVED
CLAC 18338
JAN 22 1993
WATER RESOURCES DEPT.
SALEM, OREGON

4S/1E/25ca

(START CARD) # 47766

(1) OWNER:
Well Number
Name FRED JORGENS
Address 28668 S. ELISHA RD.
City CANBY State OR Zip 97013

(2) TYPE OF WORK:
XX New Well ☐ Deepen ☐ Recondition ☐ Abandon

(3) DRILL METHOD:
☐ Rotary Air ☐ Rotary Mud XX Cable
☐ Other

(4) PROPOSED USE:
XX Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes XX No Depth of Completed Well 164 ft.
Explosives used ☐ Yes XX No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds
10	0	25	BENTONITE	0	25	32 SKS
8	25	37	GRANULAR			
6	37	164				

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
XX Other POURED INDRY
Backfill placed from 37 ft. to 25 ft. Material BENTONITE
Gravel placed from ft. to ft. Size of gravel

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	6	+1	153	.250	XX	☐	XX	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:	5	149	154	.188	XX	☐	XX	☐
	5	159	164	.188	XX	☐	XX	☐

Final location of shoe(s) 153

(7) PERFORATIONS/SCREENS:
☐ Perforations Method
XX Screens Type V-WIRE Material S.S.

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
154	159	.018			6"	☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour
XX Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
			1 hr.
72	18		17 HRS

Temperature of Water 53 Depth Artesian Flow Found
Was a water analysis done? ☐ Yes By whom
Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other SANDY
Depth of strata: 129-133

(9) LOCATION OF WELL by legal description:
County CLACKAMAS Latitude Longitude
Township 4S N or S. Range 1E E or W. WM.
Section 25 NE ¼ SW ¼
Tax Lot 1202 Lot Block Subdivision
Street Address of Well (or nearest address) SAME

(10) STATIC WATER LEVEL:
41 ft. below land surface. Date 1-7-93
Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:
Depth at which water was first found 65

From	To	Estimated Flow Rate	SWL
98	102	20 gpm	41
129	133	40 gpm	41
139	141	30 gpm	41
153	159	100 gpm	41

(12) WELL LOG:
Ground elevation

Material	From	To	SWL
SOIL BROWN	0	1	
CLAY BRN	1	24	
GRAVEL BRN W/CLAY BINDER BRN	24	29	
GRAVEL BRN CONGLOM.	29	88	
CLAY GREY GRAVEL BRN	88	93	
GRAVEL BRN CONGLOM	93	98	
SAND BRN MED	98	102	
GRAVEL BRN CONGLOM	102	114	
CLAY GREY	114	124	
SAND BLK MED TO FINE	124	133	
CLAY GRAY SANDY	133	139	
SAND BLACK FINE	139	141	
CLAY GREY SANDY	141	153	
SAND & GRAVEL GREY MED	153	159	
CLAY GREY W/ GRAVEL BRN	159	164	

Westerberg Drilling, Inc.
36728 S. Kropf Rd.
Molalla, OR 97038
829-2526

Date started 12-19-92 Completed 1-7-93

(unbonded) Water Well Constructor Certification:
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to my best knowledge and belief.

Signed Daniel R. Strader WWC Number 1487
Date 1-9-93

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

Signed Steven N. Studebaker WWC Number 688
Date 1-9-93

ORIGINAL & FIRST COPY - WATER RESOURCES DEPARTMENT SECOND COPY - CONSTRUCTOR THIRD COPY - CUSTOMER 9809C 10/91

CLAC 18338

Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem Oregon 97301
(503) 986-0900
www.wrd.state.or.us

Application for Well ID Number

RECEIVED
JUL 30 2019
OWRD

Do not complete if the well already has a Well I.D Number.

I. OWNER INFORMATION

Current Owner Name *(please print)*: Zach and Anna Reuter
Mailing Address: 28668 S. Elisha Road
City: Canby State: OR Zip: 97013
Mailing Address *(to send Well I.D.)*: Same
City: _____ State: _____ Zip: _____

II. WELL INFORMATION *(Do not complete this section if the well report is attached.)*

Township: 4S (North/South) Range: 1E (East/West) Section: 25
Tax Lot: 1202 Clackamas 1/4 1/4
Street Address of Well: 28668 S. Elisha Rd City: Canby
Owner at time the well was constructed, (if known): _____
If the property had a different street address in the past: Unknown

III. GENERAL WELL INFORMATION *(Do not complete this section if the well report is attached)*

Use of Well (domestic, irrigation, commercial, industrial, monitoring): domestic
Date Well Constructed: _____ Total Well Depth: _____ Casing Diameter: _____
Other Information: _____

SUBMITTED BY *(please print)*: Aimee Davis, Firefly Real Estate
PHONE: 503-829-8328 FAX: _____

Send application to Oregon Water Resoureces Department; 725 Summer St NE, Suite A; Salem, Oregon 97301-1266; fax (503) 986-0902. Applications are processed and Well I.D. Numbers are mailed every Wednesday.

For Official Use Only by the Oregon Water Resources Department:

Received Date:	Well Log Number:	Well Identification #:
7-30-19	CLAC 18338	L-135113

Received Time Jul. 29. 2019 4:35PM No. 0652

Groundwater Application Review Summary Form

Application # G- _18913_

GW Reviewer _Phillip I. Marcy_ Date Review Completed: _04/28/2020_

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 **April 28**, 2020

TO: **Application** G-**18913**

FROM: **GW: Phillip I. Marcy**
(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 _____ 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 04/28/2020
FROM: Groundwater Section Phillip I. Marcy
Reviewer's Name
SUBJECT: Application G- 18913 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: **Zahary A. Reutov** County: **Clackamas**

A1. Applicant(s) seek(s) 0.48 cfs from 2 well(s) in the Willamette Basin, subbasin

A2. Proposed use Irrigation (38.66 acres) Seasonality: March 1st – October 31st (245 days)

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	CLAC 18338	1	Alluvium	0.48	4S/1E-25 NE-SW	1645' N, 2140' E fr SW cor, S 25
2	Proposed	2	Alluvium	0.48	4S/1E-25 NE-SW	1635' N, 2170' E fr SW cor, S 25
3						
4						
5						

* 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	271	65	41	01/07/1993	164	0-25	0-153	149-164	154-159	72	18	Pump
2	271	NA	NA	NA	160	Unknown	Unknown	Unknown	Unknown	NA	NA	NA

Use data from application for proposed wells.

A4. **Comments:** The applicant proposes to produce groundwater from two wells completed into alluvium. Details for proposed POA Well 2 concerning casing and seal depth are unknown, but based upon the proposed depth of 160', the reviewer assumes construction will be similar to that in existing well CLAC 18338 (POA 1).

A5. ☒ **Provisions of the** Willamette (690-502-0240) 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: Both proposed POA wells are within ¼ mile of perennial reach of Gribble Creek to the NW, but target production from a confined aquifer, therefore 690-502-0240 is not applicable.

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) **"Medium Water Use Reporting"; 7C**;

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:** Water levels in nearby alluvial wells is relatively stable (see attached hydrograph), with no discernable decline trend in the area. All wells displayed produce from sand and gravel lenses of the Willamette Aquifer (Gannett and Caldwell, 1998), and though open to varying depths, appear likely to be hydraulically connected and display elevation differences commiserate with gradients of local streams.

The closest authorized groundwater POA is just greater than 2,000 feet from proposed POA 1, with 6 total POAs previously authorized within ½ mile of both POA location proposed here. Wells between 100-200'in this area producing from alluvium typically have relatively low yields (below 50 gpm) and available pump test data suggest a range of transmissivity values between 50-150 ft^2/day. Assuming these tests are representative of this portion of the Willamette Aquifer, and a range of storativity values that include weakly confined to unconfined aquifers, expected drawdowns were calculated using a Theis time drawdown model. Based upon the full requested pumping rate from POA 1, model results plot a range of expected drawdowns at the nearest authorized groundwater POA between 18-75 feet after 245 days of pumping, with the majority of scenarios resulting in less than 35 feet of seasonal drawdown.

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	**Sand and gravel lenses of Willamette Aquifer**	☒	☐
2	**Sand and gravel lenses of Willamette Aquifer**	☒	☐

Basis for aquifer confinement evaluation: The static water level measured in POA well 1, as in the majority of similarly completed wells in the area, is measurably higher than the zone from which that water is produced. In addition, there exists a fairly widespread, continuous horizon of fine-grained material (likely silt) above water-bearing zones within the existing POA well, and presumably, the well yet to be constructed.

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**	**Gribble Creek**	**229**	**223-238***	**1160**	☒	☐	☐	☐	☒
2	**1**	**Gribble Creek**	**~229**	**223-238***	**1190**	☒	☐	☐	☐	☒
1	**2**	**Creamery Creek**	**229**	**223-233***	**3980**	☒	☐	☐	☐	☒
2	**2**	**Creamery Creek**	**~229**	**223-233***	**4000**	☒	☐	☐	☐	☒
1	**3**	**Dove Creek**	**229**	**216-226***	**2320**	☒	☐	☐	☐	☒
2	**3**	**Dove Creek**	**~229**	**216-226***	**2340**	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: *Represents surface water elevations within one mile of proposed POAs. Both proposed POA wells lie within ¼ mile of the nearest perennial reach of Gribble Creek, to which hydraulic connection has been found, therefore Potential for Substantial Interference (PSI) is triggered under Division 9 rules.

Streams in this area generally become perennial down gradient of the proposed POA locations, and at similar elevations of the water level elevation within POA well 1. This suggests that groundwater present within this well is part of the regional flow system, including the streams listed above. The presence of fine-grained lithologies above the water-bearing zone may slow vertical movement of groundwater, but does not eliminate this connection entirely.

Water Availability Basin the well(s) are located within: Molalla R > Willamette R – At Mouth

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**	☒	☐	**IS69796A**	**100**	☐	**134**	☐	**<<25%**	☒
1	**2**	☐	☐	**IS69796A**	**100**	☐	**134**	☐	**<<25%**	☐
1	**3**	☐	☐	**IS69796A**	**100**	☐	**134**	☐	**<<25%**	☐
2	**1**	☒	☐	**IS69796A**	**100**	☐	**134**	☐	**<<25%**	☒
2	**2**	☐	☐	**IS69796A**	**100**	☐	**134**	☐	**<<25%**	☐
2	**3**	☐	☐	**IS69796A**	**100**	☐	**134**	☐	**<<25%**	☐

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: The total appropriation proposed on this application does not reach the threshold to trigger PSI under 690-09-040. Interference after 30 days is anticipated to be much less than 25% of the pumping rate, primarily due to a thick succession of fine-grained material separating the water-bearing horizons accessed by the POA wells and nearby surface waters, thus delaying the response of groundwater pumping.

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													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
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: This section does not apply.

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 location of both proposed POAs lie within ¼ mile of a perennial reach of Gribble Creek, to which they a finding of hydraulic connection has also been found, thus triggering PSI. PSI may be avoided if it is possible to locate a POA well greater than ¼ mile to the east of where Gribble Creek becomes perennial.

References Used:

Gannett, Marshall W., and Caldwell, Rodney R., 1998, Geologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington: U. S. Geological Survey Professional Paper 1424-A, 32p, 8 plates.

Conlon and others, 2005, Ground-water hydrology of the Willamette Basin, Oregon: U.S Geological Survey Scientific Investigations Report 2005-5168.

Theis, C.V., 1941, The effect of a well on the flow of a nearby stream: Am. Geophys. Union Trans., v. 22, pt.3, p. 734-738.

OWRD well log database, OWRD water level database.

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

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION

MOLALLA R > WILLAMETTE R - AT MOUTH

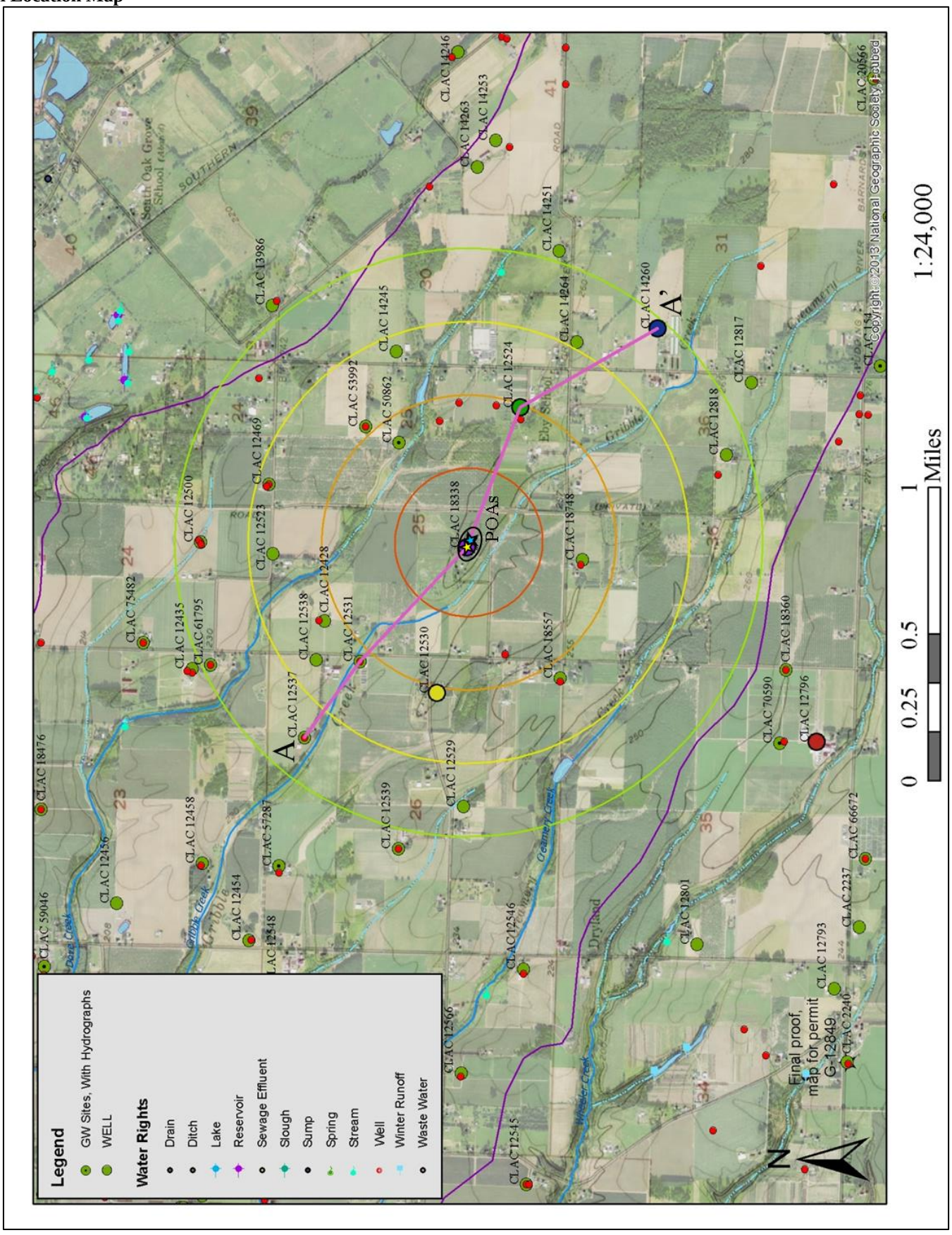
Watershed ID #: 69796 Basin: WILLAMETTE Exceedance Level: 80

Time: 4:30 PM Date: 04/27/2020

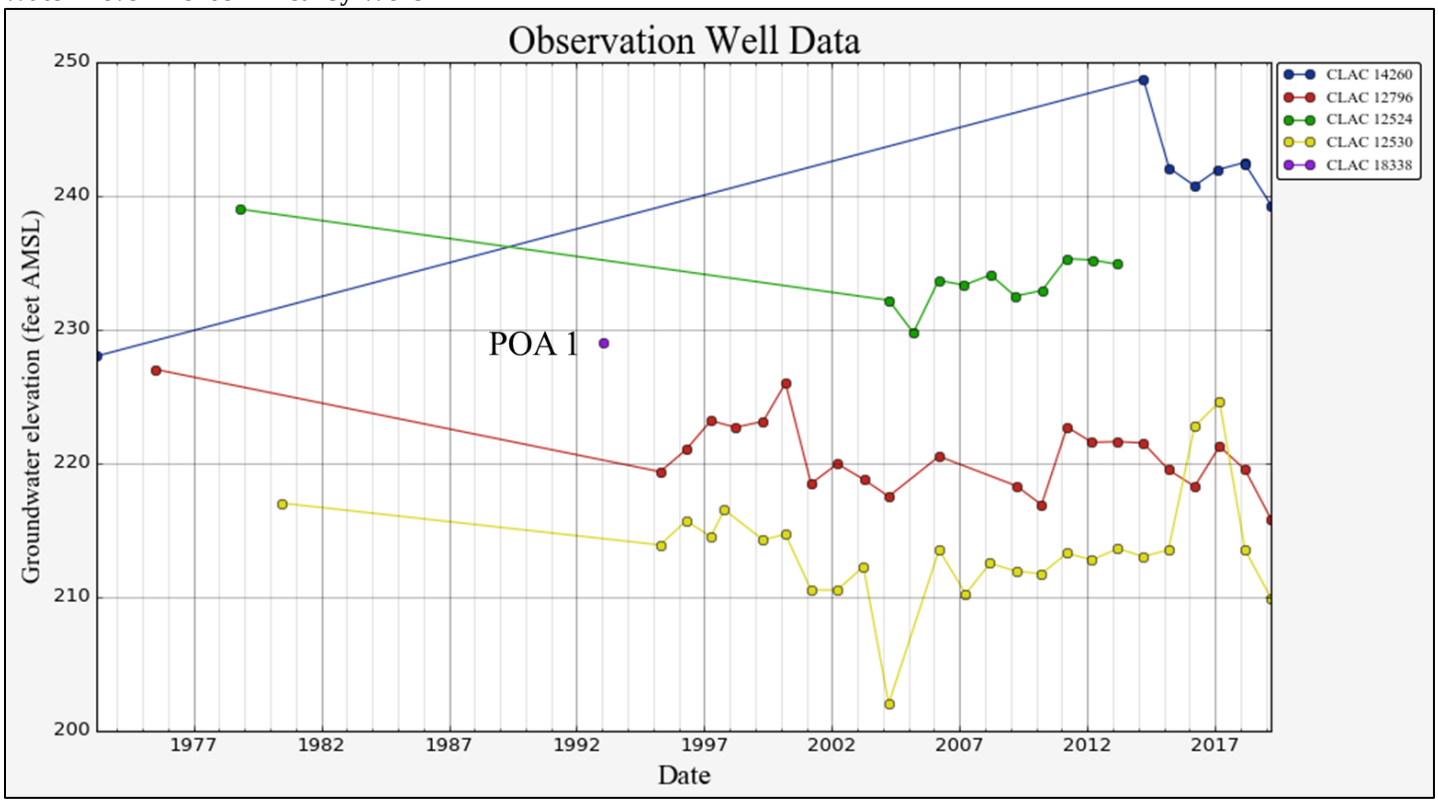
Monthly values are in cfs.
Storage is the annual amount at 50% exceedance in ac-ft.

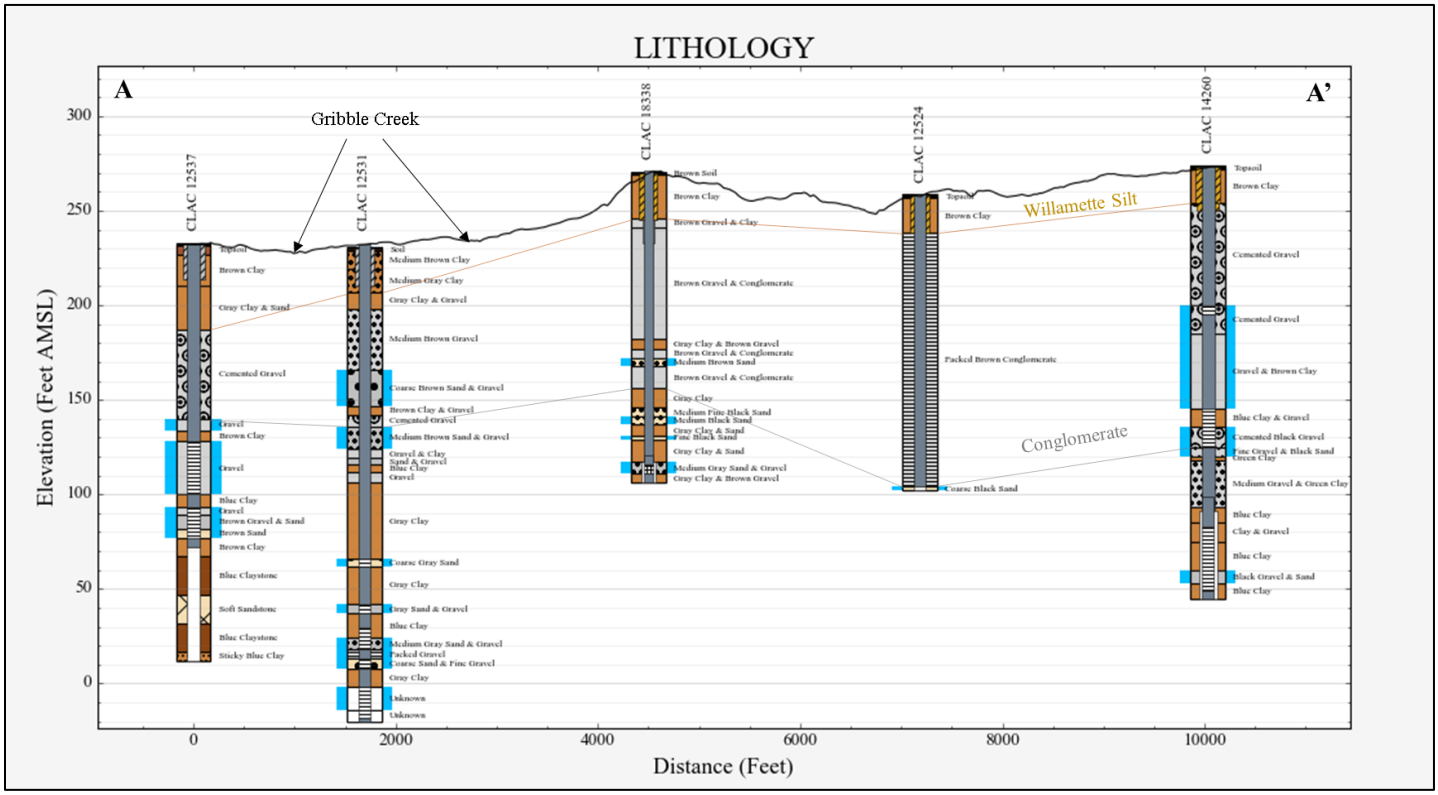
Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available
JAN	1,870.00	155.00	1,710.00	0.00	500.00	1,210.00
FEB	2,010.00	145.00	1,870.00	0.00	500.00	1,370.00
MAR	1,830.00	113.00	1,720.00	0.00	500.00	1,220.00
APR	1,530.00	86.60	1,440.00	0.00	500.00	943.00
MAY	927.00	97.30	830.00	0.00	500.00	330.00
JUN	431.00	119.00	312.00	0.00	500.00	-188.00
JUL	204.00	184.00	20.30	0.00	200.00	-180.00
AUG	139.00	154.00	-15.40	0.00	100.00	-115.00
SEP	134.00	82.10	51.90	0.00	150.00	-98.10
OCT	188.00	39.50	148.00	0.00	450.00	-302.00
NOV	637.00	80.00	557.00	0.00	500.00	57.00
DEC	1,700.00	150.00	1,550.00	0.00	500.00	1,050.00
ANN	1,320,000	84,900	1,240,000	0	295,000	966,000

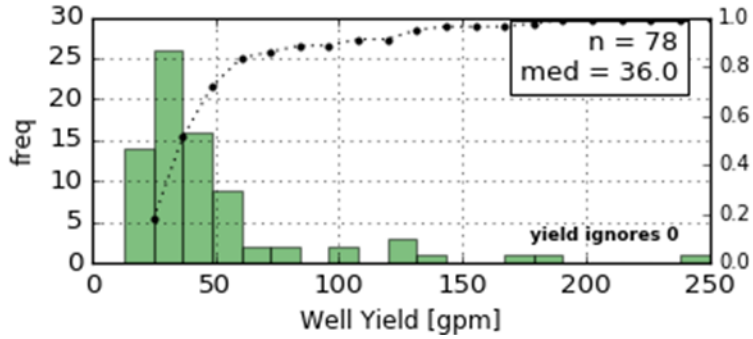
Well Location Map

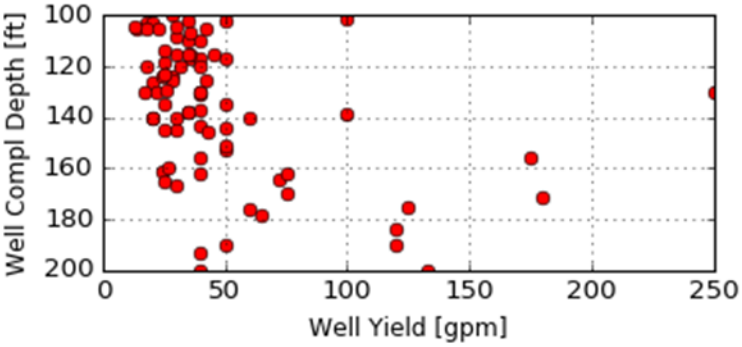


Water-Level Trends in Nearby Wells






n = 78
med = 36.0
yield ignores 0
freq
Well Yield [gpm]


Well Compl Depth [ft]
Well Yield [gpm]