

Groundwater Application Review Summary Form

Application # G- 18967 re-review

GW Reviewer Travis Brown Date Review Completed: 4/17/2023

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.

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 17, 2023

TO: **Application G- 18967 re-review**

FROM: **GW: Travis Brown**
 (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

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 4/17/2023
 FROM: Groundwater Section Travis Brown
 Reviewer's Name
 SUBJECT: Application G- 18967 Supersedes review of 8/12/2020
 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: Heverly Brothers c/o Jeff Heverly County: CLACKAMAS

A1. Applicant(s) seek(s) 1.63^a cfs from 2 well(s) in the Willamette Basin,
Pudding-Molalla subbasin

A2. Proposed use Irrigation (130.1 acre; 325.25 af/year) 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 ID	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 53757	Well 1	Alluvium	3.93 ^a	5S/1E-12 NE-SE	420' S, 690' W fr E ¼ cor S 12
2	CLAC 74503	Well 2	Alluvium	3.93 ^a	5S/1E-12 NW-SE	App: 1025' S, 2520' W fr E ¼ cor S 12^b OWRD: 1230' S, 2600' W fr E ¼ cor S 12

* 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	320 ^c	347	139.50	3/5/2008	411	0-180	+1.5-347 (10")		347-374.5 390-395.25	650 ^d	124 ^d	Pump ^d (6 hr)
2	307 ^c	347	128.08	3/13/2019	422	0-50	+1.58-344 (16") +2.42-422.25 (10")		356.5-374 393-410.25	430 ^e	158 ^e	Pump ^e (4 hr)

Use data from application for proposed wells.

A4. **Comments:** The proposed POA/POU are ~0.5 miles west of Molalla, Oregon.

^a The proposed POA are already authorized POA under Permit G-17897*. The proposed rate listed above represents the authorized rate from Permit G-17897 (2.3 cfs) plus the rate requested in this Application G-18967. However, because the authorized season of use for Permit G-17897 only extends from May 1 – October 30 of each year, the combined rate subsequent to this application would be only 1.63 cfs from March 1 – April 30 of each year. The proposed POA were also the subject of temporary transfer **T-13439**; however, the rate requested in **T-13439** has not been added to the rate assessed in this application as the stated intent of that temporary transfer was to provide water until a permit could be issued under this new groundwater right application.

^b There is a discrepancy between the metes and bounds location of POA 2 (CLAC 74503) described in the application (and Permit G-17897) and the well location as verified by a field well inspection by Department staff (see Table A3, above). The Department-verified location will be used for assessing potential impacts resulting from the proposed use.

^c Ground surface elevation at well location estimated from LIDAR (Watershed Sciences, 2009).

^d Based on well report; ^e Based on pumping test report.

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 produce water from a confined aquifer; therefore, per OAR 690-502-0240, the relevant basin rules do not apply.

A6. **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.

Name of administrative area: N/A

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) 7n (annual measurement), 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 _____ 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 Troutdale Formation groundwater reservoir between approximately 150 ft. and 600 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 for the proposed use cannot be determined to be over-appropriated due to insufficient available data regarding rates of recharge and the current quantity of groundwater withdrawals from the aquifer system.

The proposed POA produce water from saturated sand within the Troutdale Formation, with water-bearing zones noted from depths of ~347 to 399 ft bls (elevation ~ -27 to -92 ft msl). Well completion statistics indicate falling head with depth in this area (see attached Well Completion Statistics).

Based on their reported yields, the proposed POA are not capable of individually or collectively supplying the maximum combined rate of appropriation (3.93 cfs) under both this **Application G-18967** (1.63 cfs) and **Permit G-17987*** (2.3 cfs); however, two (2) additional POA (not yet constructed) are authorized under **Permit G-18967*** and may be able to supply the remainder of the combined rate of appropriation under **Permit G-17897***.

The nearest neighboring well to the proposed POA is CLAC 66134, an authorized POA under **Certificate 92166*** and **Permits G-15254*** and **G-18008***. Interference with CLAC 66134 due to the proposed use was estimated using the Theis (1935) equation for drawdown in a confined aquifer. To provide a reasonable but still conservative analysis, it was assumed that both POA would pump continuously from March 1 through April 30 (61 days) at the necessary minimum rate (~0.67 cfs) to achieve the applicable duty under **Application G-18967** and subsequently at their maximum reported yield (~2.41 cfs) from May 1 through October 30 (183 days), to account for the potential overlapping use under **Permit G-17897***. **Results of the analysis indicate that by the end of the irrigation season (October 30), interference with CLAC 66134 could exceed ~84 ft of drawdown from the combined use of Application G-18967 and Permit G-17897 (see attached Interference Analysis). Standard condition 7n, recommended for any permit issued pursuant to this application, stipulates that use of water from the proposed POA must be curtailed if interference with a neighboring well exceeds 25 ft of drawdown. Analyzing the impact of just the use proposed under Application G-18967 indicated that at the maximum rate of use (1.63 cfs), interference with CLAC 66134 would likely exceed 25 ft of drawdown after ~4 days of continuous pumping. Therefore, groundwater for the proposed use is likely not available within the capacity of the resource.**

Water levels reported for POA 1 (CLAC 53757) and CLAC 66134 indicate a substantial declining trend, with observed declines averaging ~1.2 ft/yr over the last 2 decades for CLAC 53757 and ~0.9 ft/yr over the last decade for CLAC 66134 (see attached Hydrographs). Proposed POA 2 (CLAC 74503) also appears to have declined, although the short period of record precludes determining a trend at this time. Additional use of the proposed POA would likely exacerbate these declines. Although the measured water levels in the proposed POA wells do not meet the definitions of declined excessively or excessively declining (OAR 690-008-0001(4) and -0001(6), respectively), **based on the observed declines in water level, the groundwater resource is likely not available for the proposed use within the capacity of the resource.**

If a permit is issued pursuant to this application, the conditions listed in B1(d)(i) and B2(c) are strongly recommended to protect senior users and the groundwater resource. **The reference water level for the proposed POA under Condition 7n should be set at the same level as currently established for POA well CLAC 53757 (126.66 ft bls / 193.34 ft AMSL) under Permit G-17897.**

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	Troutdale Formation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Troutdale Formation	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: Reported static water levels are significantly above the applicable water-bearing zones, indicating confined conditions. Additionally, thick sequences of fine-grained sediments are noted overlying the target water-bearing zones. The available evidence indicates that the aquifer is confined in this area.

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	Kaiser Creek	~170-180	~201-261 ^a	~3,620	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	Bear Creek	~170-180	~249-310 ^a	~3,170	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	1	Kaiser Creek	~170-180	~189-247 ^a	~2,400	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	2	Bear Creek	~170-180	~249-281 ^a	~4,310	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: Groundwater elevations near the proposed POA are similar to the estimated surface water elevations for SW 1 (Kaiser Creek). Additionally, water table mapping in this area indicates that groundwater is discharging to SW 1 (Kaiser Creek) within 1 mile of the proposed POA (Woodward et al., 1998). The available evidence indicates that the proposed POA are hydraulically connected to SW 1 (Kaiser Creek).

Groundwater elevations near the proposed POA are at least 60 ft lower than the estimated surface water elevations for SW 2 (Bear Creek) within 1 mile of the proposed POA. Water table mapping does not indicate that groundwater is discharging to SW 2 (Bear Creek) within 1 mile of the proposed POA. The available evidence indicates that the proposed POA are not hydraulically connected to SW 2 (Bear Creek) within 1 mile of the proposed POA.

^a Surface water elevation within 1 mile of proposed POA, estimated from LIDAR (Watershed Sciences, 2009).

Water Availability Basin the well(s) are located within: WID #151 PUDDING R > MOLALLA R – AB MILL CR

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

				ID	(cfs)		(cfs)	Flow?		Assumed?
1	1	<input type="checkbox"/>	<input type="checkbox"/>	N/A	N/A	<input type="checkbox"/>	67.30	<input checked="" type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
2	1	<input type="checkbox"/>	<input type="checkbox"/>	N/A	N/A	<input type="checkbox"/>	67.30	<input checked="" type="checkbox"/>	<25%	<input checked="" type="checkbox"/>

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"/>

Comments: Both the requested additional rate (1.63 cfs) and the combined rate of appropriation (3.93 cfs) are greater than 1 percent (0.673 cfs) of the stream discharge which is equaled or exceeded 80 percent of time (67.3 cfs) for SW 1 (Kaiser Creek). Per OAR 690-009-0040(c), the Potential for Substantial Interference (PSI) is assumed.

Modeling in similar settings indicates that interference with SW 1 is highly unlikely to exceed 25 percent of the rate of appropriation within 30 days of continuous pumping. Depletion of local surface water will be buffered by the low vertical hydraulic conductivity and substantial thickness of fine-grained sediments between the relevant water-bearing zones and local streambeds. However, there will still be some depletion of surface water. Net impacts will be small at the onset of pumping but will increase with time until a new equilibrium between local recharge and discharge is reached, at which time surface water depletion is anticipated to be relatively constant throughout the year.

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													
(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:
- 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: **PSI is assumed per OAR 690-009-0040(c). Due to the overlapping water rights (Permit G-17897*, 2.3 cfs) on the proposed POA, the applicant cannot reduce the requested rate to avoid the assumption of PSI.**

References Used:

Application File: G-18967, T-12460, T-13439

Permits: G-15254*, G-17897*, G-18008*

Certificate: 92166*

Pumping Test Reports: CLAC 53757, CLAC 66134, CLAC 74503

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.

Domenico, P.A. and Mifflin, 1965, Water from low-permeability sediments and land subsidence: Water Resource Research, v. 1, no. 4, p. 563-576.

Freeze, R.A. and Cherry, J.A., 1979, Groundwater, Prentice Hall, Englewood Cliffs, New Jersey, 604 p.

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

Halford, K.J., and Kuniandy, E.L., 2002, Documentation of Spreadsheets for the Analysis of Aquifer-Test and Slug-Test Data, Open File Report 02-197, 51 p: U. S. Geological Survey, Reston, VA.

Hampton, E. R., 1972, Geology and Ground Water of the Molalla-Salem Slope Area, Northern Willamette Valley, Oregon, Water-Supply Paper 1997: U. S. Geological Survey, Reston, VA.

McFarland, W.D., and Morgan, D.S., 1996, Description of the Ground-Water Flow System in the Portland Basin, Oregon and Washington, Water Supply Paper 2470-A, 58 p: U. S. Geological Survey, Reston, VA.

O'Connor, J. E., Sarna-Wojcicki, A., Wozniak, K. C., Polette, D. J., Fleck, R. J., 2001, Origin, Extent, and Thickness of Quaternary Units in the Willamette Valley, Oregon, Professional Paper 1620: U. S. Geological Survey, Reston, VA.

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.

Theis, C.V., 1935, The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using groundwater storage, American Geophysical Union Transactions, vol. 16, p. 519-524.

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

United States Geological Survey, 2017a, Molalla quadrangle, Oregon [map], 1:24,000, 7.5 minute topographic series, U.S. Department of the Interior, Reston, VA.

United States Geological Survey, 2017b, Yoder quadrangle, Oregon [map], 1:24,000, 7.5 minute topographic series, U.S. Department of the Interior, Reston, VA.

Watershed Sciences, 2009, LIDAR remote sensing data collection, Department of Geology and Mineral Industries, Willamette Valley Phase I, Oregon: Portland, OR, December 21.

Woodward, D.G., Gannett, M.W., and Vaccaro, J.J., 1998, Hydrogeologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-B, 82 p.

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: _____ Logid: _____

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

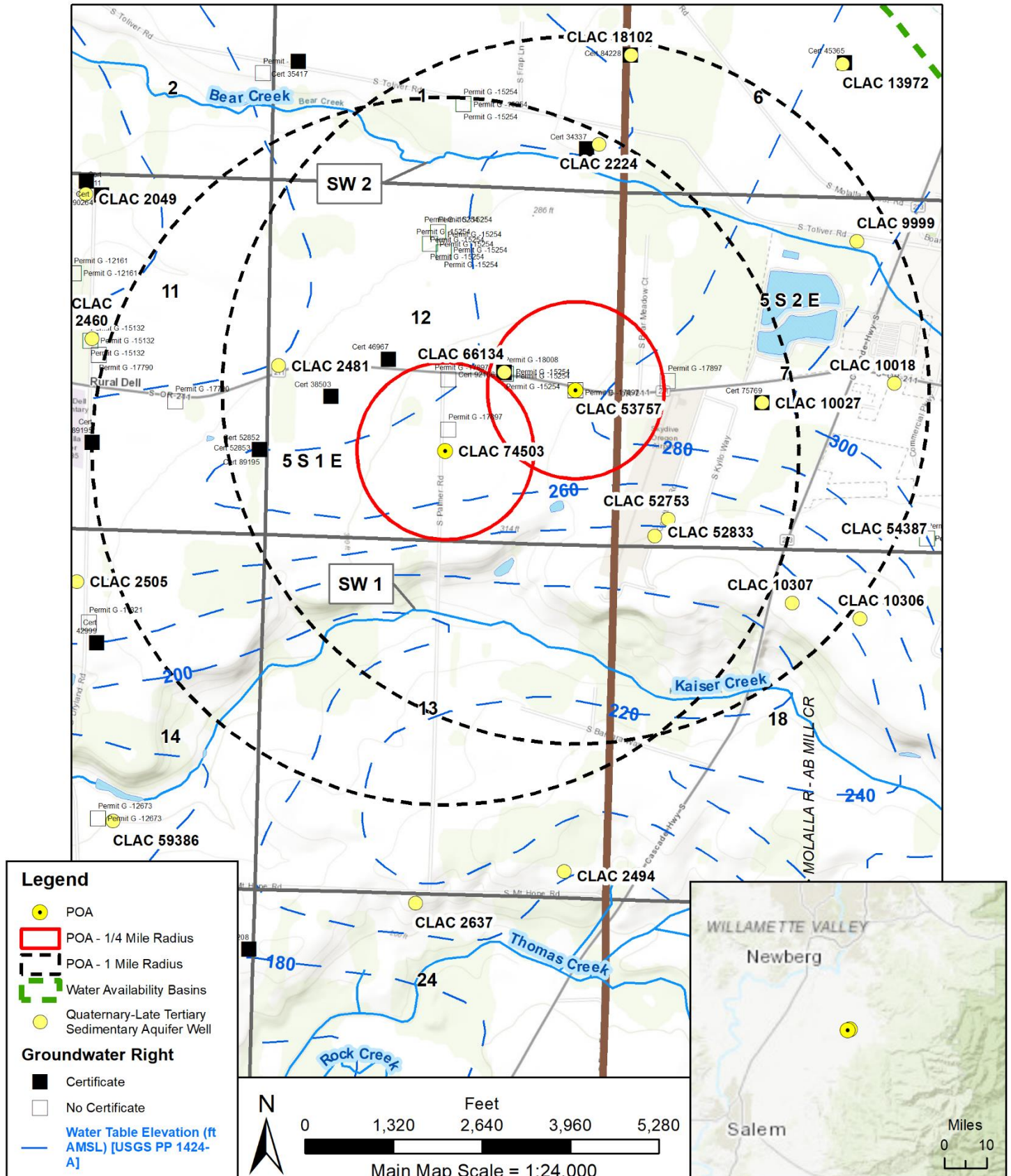
- a. review of the well log;
- b. field inspection by _____;
- c. report of CWRE _____;
- d. other: (specify) _____

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.**

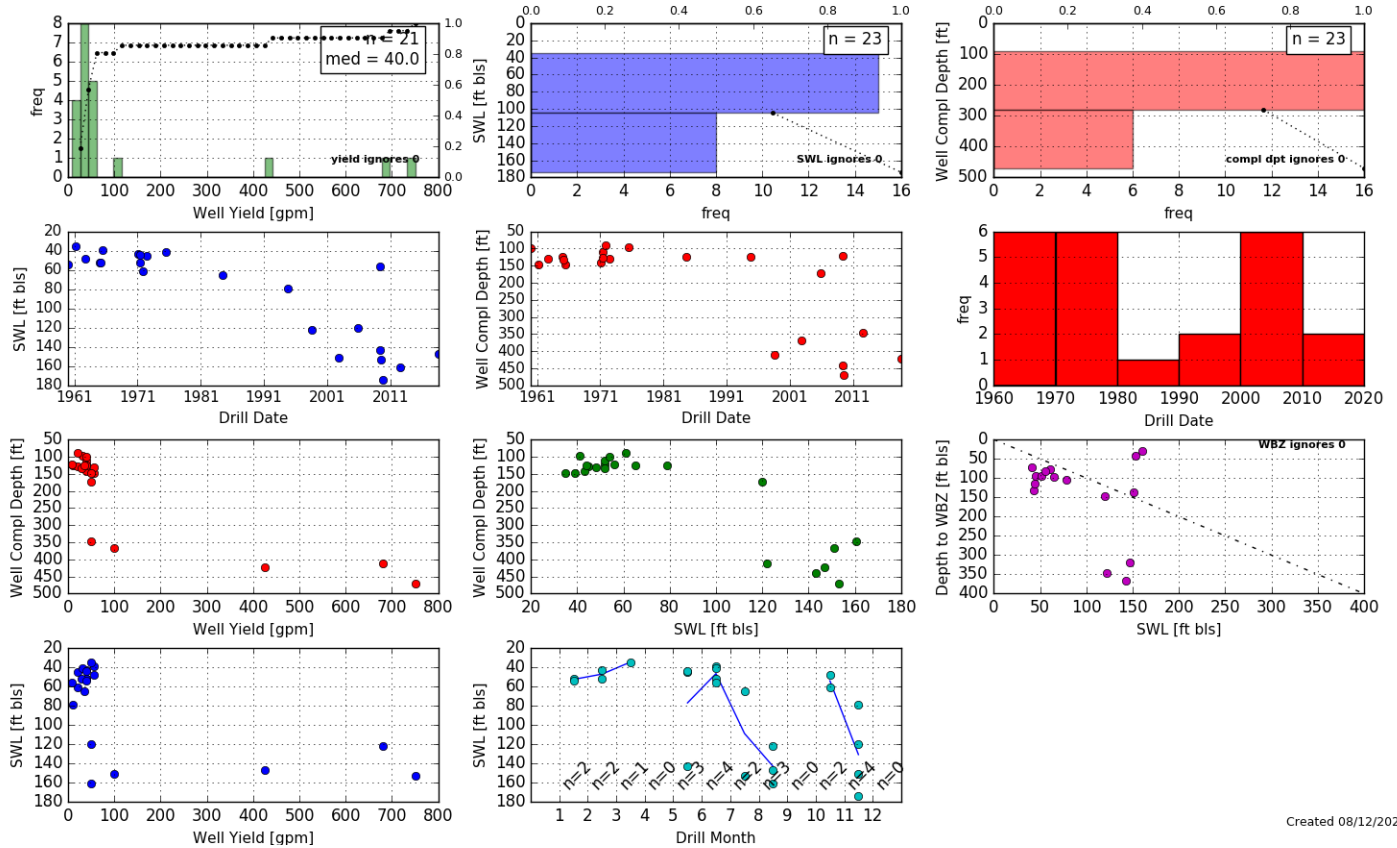
Well Location Map

G-18967 Heyerly Brothers



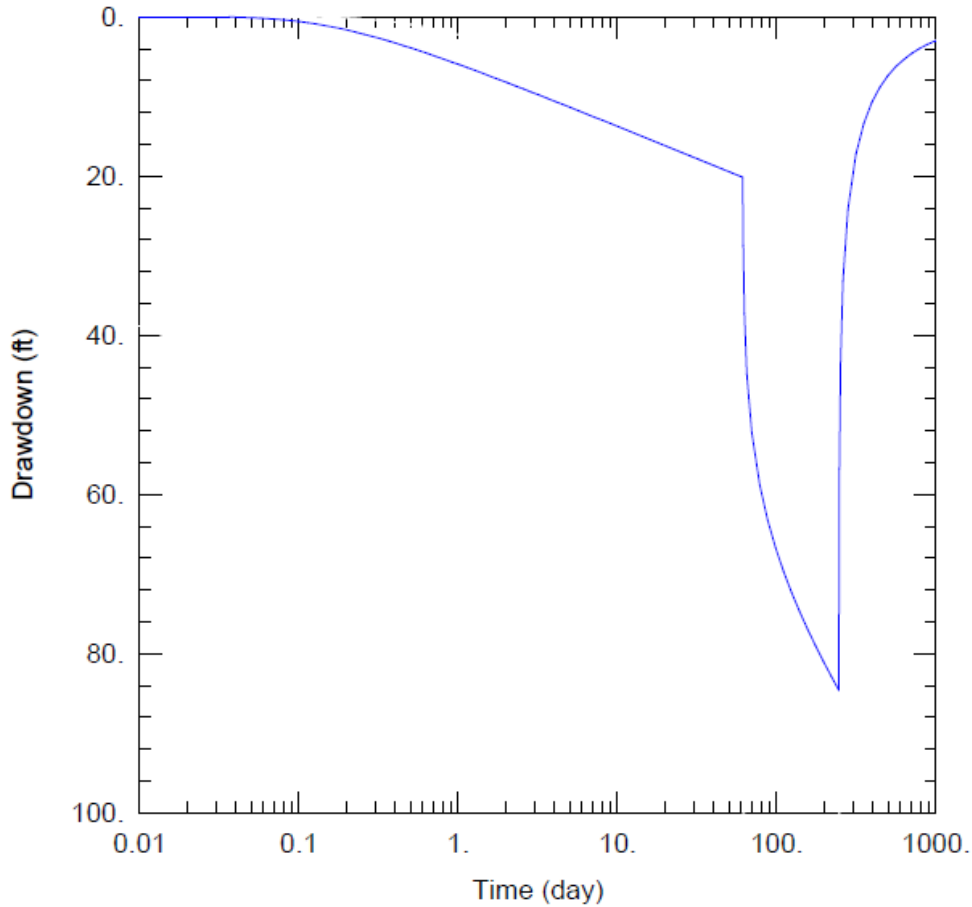
Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Water Well Completion Statistics – T5S/R1E-12



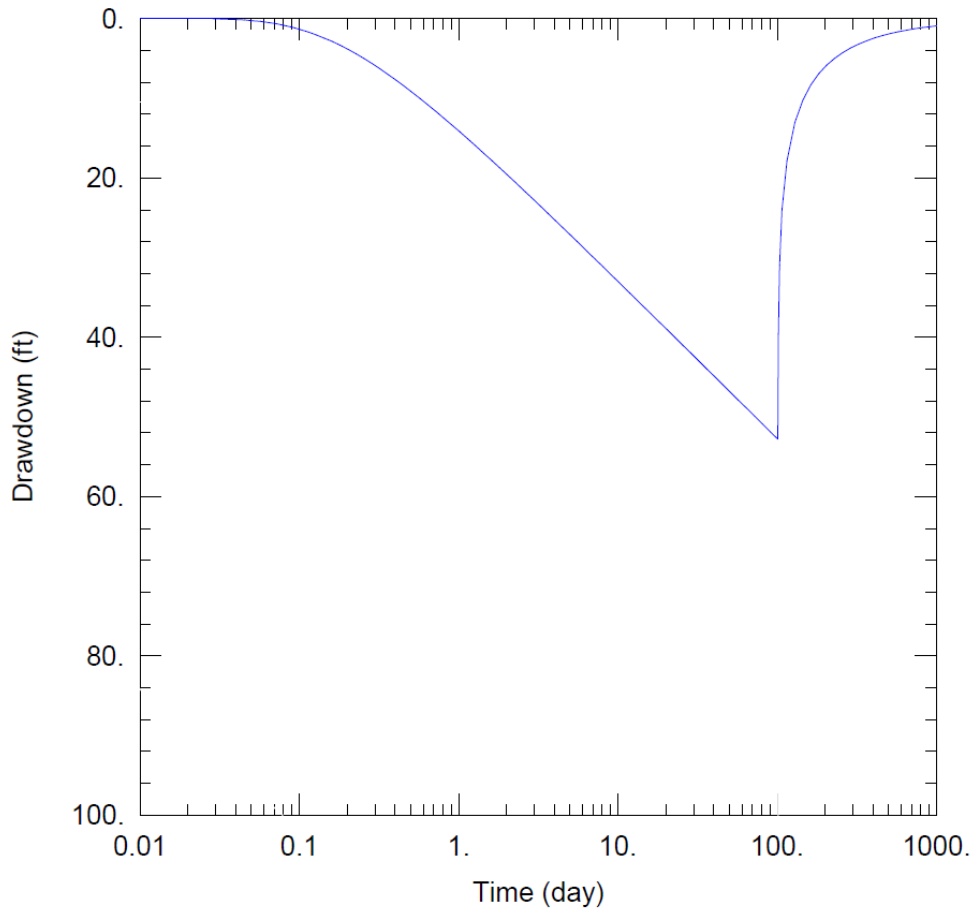
Created 08/12/2020

Interference Analysis – Combined Average Rate



<u>WELL TEST ANALYSIS</u>					
Data Set: S:\...\CombinedInterference_yieldQ.aqt			Time: 09:30:14		
Date: 08/12/20					
<u>PROJECT INFORMATION</u>					
Company: OWRD					
Client: HeyerlyBros					
Project: G18967					
Test Well: CLAC 53757 + CLAC 74503					
Test Date: 8/10/2020					
<u>WELL DATA</u>					
Pumping Wells			Observation Wells		
Well Name	X (ft)	Y (ft)	Well Name	X (ft)	Y (ft)
CLAC 53757	0	1100	□	0	1100
CLAC 74503	1370	-532	□	1370	-532
			□ CLAC 66134	0	0
<u>SOLUTION</u>					
Aquifer Model: <u>Confined</u>			Solution Method: <u>Theis</u>		
T = <u>1300</u> ft ² /day [Pumping test reports]			S = <u>0.0005</u> [McFarland and Morgan, 1996]		
Kz/Kr = <u>1</u>			b = <u>100</u> ft		

Interference Analysis – Application G-18967 Maximum Rate Requested (1.63 cfs)



WELL TEST ANALYSIS

Data Set: S:\...\AppG18967Interference_maxQ.aqt
 Date: 08/12/20

Time: 14:32:47

PROJECT INFORMATION

Company: OWRD
 Client: HeyerlyBros
 Project: G18967
 Test Well: CLAC 53757 + CLAC 74503
 Test Date: 8/10/2020

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
<u>CLAC 53757</u>	0	1100
<u>CLAC 74503</u>	1370	-532

Observation Wells

Well Name	X (ft)	Y (ft)
□	0	1100
□	1370	-532
□ <u>CLAC 66134</u>	0	0

SOLUTION

Aquifer Model: Confined

Solution Method: Theis

T = 1300. ft²/day [Pumping test reports]

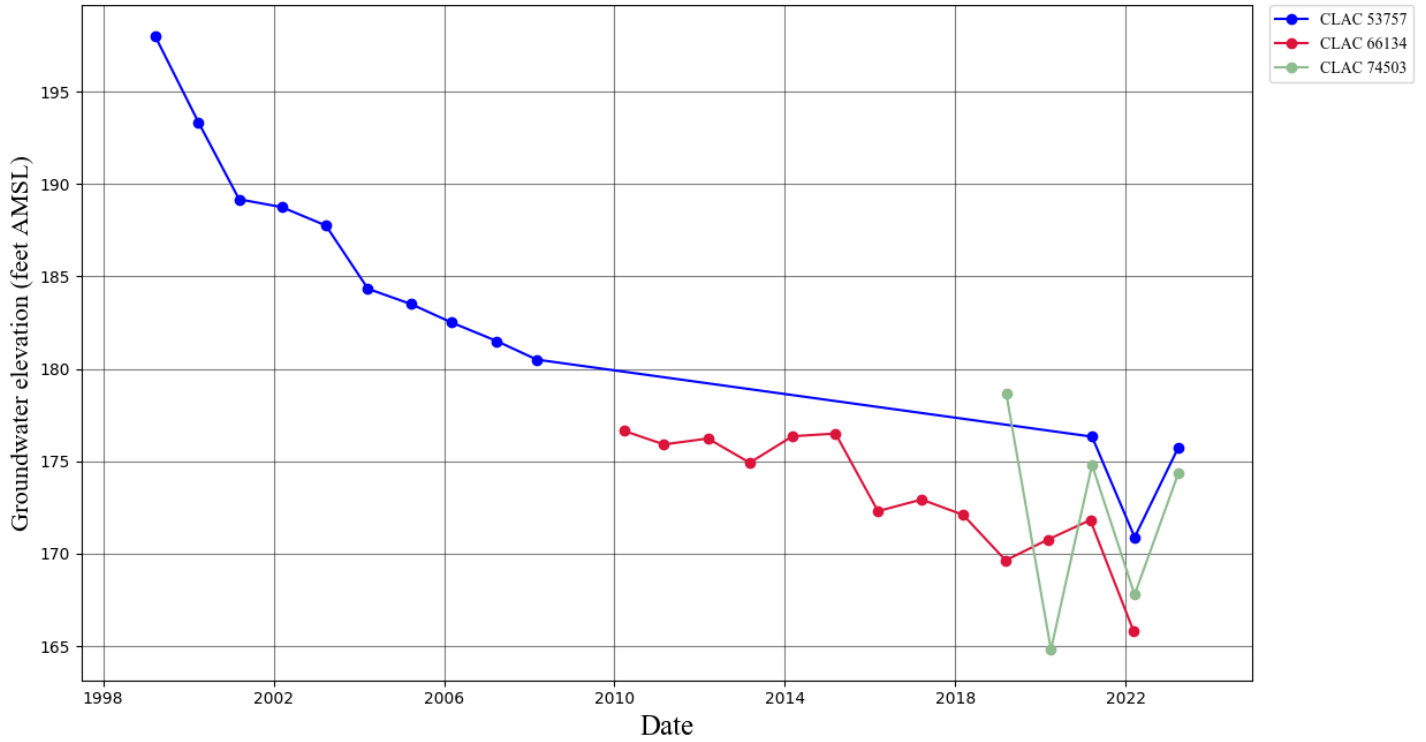
S = 0.0005 [McFarland and Morgan, 1996]

Kz/Kr = 1.

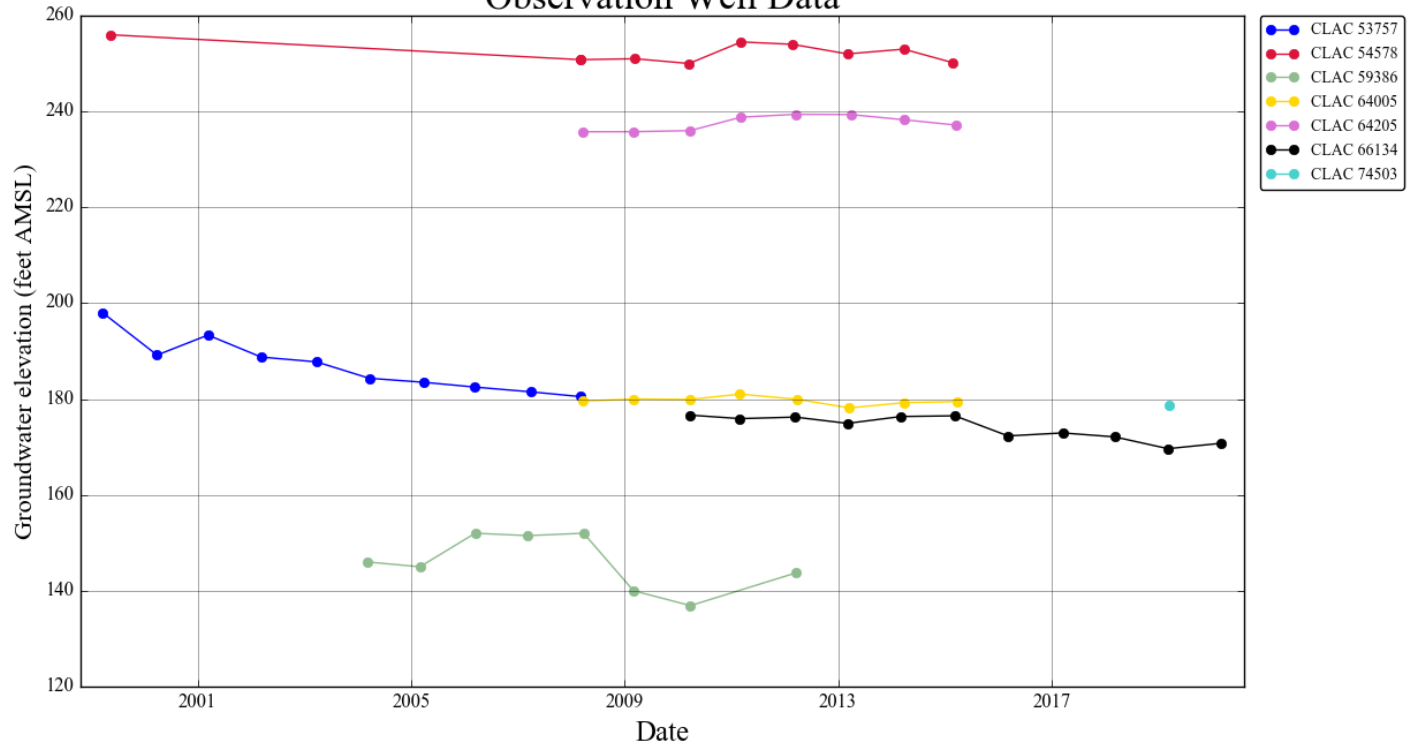
b = 100. ft

Hydrographs

Observation Well Data



Observation Well Data



Water Availability Analysis

Water Availability Analysis

Detailed Reports

PUDDING R > MOLALLA R - AB MILL CR
WILLAMETTE BASIN

Water Availability as of 8/12/2020

Watershed ID #: 151 [\(Map\)](#)

Exceedance Level: ▾

Date: 8/12/2020

Time: 12:02 PM

Water Availability Calculation	Consumptive Uses and Storage	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	1,040.00	125.00	915.00	0.00	36.00	879.00
FEB	1,180.00	114.00	1,070.00	0.00	36.00	1,030.00
MAR	1,010.00	76.10	934.00	0.00	36.00	898.00
APR	787.00	52.00	735.00	0.00	36.00	699.00
MAY	425.00	50.10	375.00	0.00	36.00	339.00
JUN	224.00	71.80	152.00	0.00	36.00	116.00
JUL	109.00	113.00	-3.92	0.00	36.00	-39.90
AUG	71.00	92.50	-21.50	0.00	36.00	-57.50
SEP	67.30	52.50	14.80	0.00	36.00	-21.20
OCT	91.60	11.20	80.40	0.00	36.00	44.40
NOV	363.00	48.60	314.00	0.00	36.00	278.00
DEC	957.00	118.00	839.00	0.00	36.00	803.00
ANN	706,000.00	55,800.00	650,000.00	0.00	26,100.00	626,000.00