Groundwater Application Review Summary Form

Application # G- 18831

GW Reviewer Phil Marcy **Date Review Completed:** 6/18/2019

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.

PM 6/18/19

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 June 18 ,2019

TO: **Application G-** 18831

FROM: **GW:** Phil Marcy
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☐ YES
The source of appropriation is within or above a Scenic Waterway
☒ 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 _____ 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

MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager

From: Joel Jeffery, Well Construction Program Coordinator

Subject: Review of Water Right Application G-18831

Date: June 19, 2019

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

Applicant's Well #1 (LINN 62629): Based on a review of the Well Report, Applicant's Well #1 seems to protect the groundwater resource.

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

AMENDED 4/10/2019 + 5-13-19

LINN 62629

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765 & OAR 690-205-0210)

WELL I.D. LABEL# L 132107
START CARD # 1041893
ORIGINAL LOG #

(1) LAND OWNER

Owner Well I.D. NW
First Name _____ Last Name _____
Company Jack Hempicine LLC
Address 7744 NW Mint Ave
City Albany State Or Zip 97321

(2) TYPE OF WORK

[X] New Well [ ] Deepening [ ] Conversion
[ ] Alteration (complete 2a & 10) [ ] Abandonment (complete 5a)

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(2a) PRE-ALTERATION

	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
Casing:									

	Material	From	To	Amt	sacks/lbs
Seal:					

(3) DRILL METHOD

[X] Rotary Air [ ] Rotary Mud [ ] Cable [ ] Auger [ ] Cable Mud
[ ] Reverse Rotary [ ] Other _____

(4) PROPOSED USE

[ ] Domestic [X] Irrigation [ ] Community
[ ] Industrial/ Commericial [ ] Livestock [ ] Dewatering
[ ] Thermal [ ] Injection [ ] Other _____

(5) BORE HOLE CONSTRUCTION

Special Standard [ ] (Attach copy)
Depth of Completed Well 74 ft.

BORE HOLE

Dia	From	To
10	0	57
8	57	74

SEAL

Material	From	To	Amt	sacks/lbs
Bentonite Chips	0	26	78	S
		Calculated	10.8	
Cement	26	39	7	S
		Calculated	4.8	

How was seal placed: Method [ ] A [ ] B [ ] C [ ] D [ ] E
[X] Other cement tremied
Backfill placed from 39 ft. to 57 ft. Material pea gravel
Filter pack from 33 ft. to 74 ft. Material silica Size 6/9
Explosives used: [ ] Yes Type _____ Amount _____

(5a) ABANDONMENT USING UNHYDRATED BENTONITE

Proposed Amount _____ Pounds Actual Amount _____ Pounds

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
◉	○	6	[X]	1	74	.250	◉	○	[X]	[ ]
○	◉	4	[ ]	1	53	sch 40	○	◉	[X]	[ ]
◉	○		[ ]				○	○	[ ]	[ ]
○	○		[ ]				○	○	[ ]	[ ]
○	○		[ ]				○	○	[ ]	[ ]

Shoe [X] Inside [ ] Outside [ ] Other Location of shoe(s) 74
Temp casing [X] Yes Dia 10 From + [X] 1 To 32

(7) PERFORATIONS/SCREENS

Perforations Method milled
Screens Type _____ Material _____

Perf/Screen	Casing/Liner	Screen Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/pipe size
Perf	Casing	6	52	69	.125	6	104	6"
Screen	Liner	4	53	74	.032			

(8) WELL TESTS: Minimum testing time is 1 hour

(◉) Pump ( ) Bailer ( ) Air ( ) Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
10.5		60	4

Temperature 52 °F Lab analysis [ ] Yes By _____
Water quality concerns? [ ] Yes (describe below) TDS amount 125 ppm

From	To	Description	Amount	Units

LINN- 62629

(9) LOCATION OF WELL (legal description)

County ~~LINN~~ BENT Twp 10 S N/S Range 4 W E/W WM
Sec 21 SE 1/4 of the SW 1/4 Tax Lot 1101
Tax Map Number _____ Lot _____
Lat ___ ° ___ ' ___ " or _____ DMS or DD
Long ___ ° ___ ' ___ " or _____ DMS or DD
(◉) Street address of well ( ) Nearest address

North of 7744 NW Mint ave. Albany, Or 97321

(10) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Pre-Alteration				
Completed Well	02-04-2019			14

Flowing Artesian? [ ] Dry Hole? [ ]

WATER BEARING ZONES Depth water was first found 39

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
	21	28	10			
02-04-2019	41	65	10.5			14

(11) WELL LOG

Ground Elevation _____

Material	From	To
Topsoil	0	1
clay, dark brown, sticky	1	5
clay, light brown, sticky	5	7
clay, orange, silty	7	21
clay, brown, sandy w/fine black/brown pea gravel	21	31
fine black/brown pea gravel w/occ. grey sandy clay	31	47
black, blue, brown pea gravel w/occ. grey sandy clay	47	65
grey clay	65	74

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Dickerson Well Drilling, Inc.
(503) 623-2664

Date Started 01-25-2019 Completed 02-04-2019

(unbonded) Water Well Constructor Certification

I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

License Number 1574 Date 02-24-2019
Signed Robert Sublett

(bonded) Water Well Constructor Certification

I accept responsibility for the construction, deepening, 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 water supply well construction standards. This report is true to the best of my knowledge and belief.

License Number 1571 Date 02-24-2019
Signed William A. Blair
Contact Info (optional) _____

ORIGINAL - WATER RESOURCES DEPARTMENT
THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK Form Version: 0.95

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 06/18/2019
FROM: Groundwater Section Phillip I. Marcy
Reviewer's Name
SUBJECT: Application G- 18831 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: **Jack Hempicine, LLC** County: **Benton**

A1. Applicant(s) seek(s) 0.0233 cfs from 1 well(s) in the Willamette Basin, subbasin

A2. Proposed use: Irrigation (8.9 acres); Nursery (1.5 acres)
Seasonality: March 1st-October 31st (Irrigation); Year-round (Nursery)

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	LINN 62629	1	Alluvium	0.0**233**	10S/4W-21 SE-SW	835'N, 340'E fr S ¼ cor S 21
2						
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	310	21	14	02/04/2019	74	0-39	0-52	1-53	52-69	10.5	Unk	Pump

Use data from application for proposed wells.

A4. **Comments:** The applicant proposes to produce groundwater from sands and gravels for seasonal irrigation of 8.9 acres and year-round nursery uses.

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: Wells are not within ¼ mile of the nearest surface water source, so pertinent basin rules do not apply.

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; 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:** The applicant's well is located in an area underlain by the Eocene Spencer Formation, that encompasses sandstones, siltstones, pebbly sandstones, conglomerates, and claystones, originating in a near-shore marine environment (McClaughry and others, 2010). Production in the applicant's well is reported to be primarily from sands and small gravels from 41-65' BLS. Exempt well BENT 1797 is roughly 800' to the WSW of the proposed POA location, but undue injury is not expected, due to the fairly low pumping rate proposed here. Analysis of pump test data from BENT 54621, a nearby well of similar depth, resulted in a transmissivity value of 210 ft^2/day. Based on this, and parameters derived from this and nearby logs, probable estimates for drawdown at the nearest mapped well are less than 5 feet after 365 days of pumping from the applicant's well at the full requested rate.

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	**Sands and gravels of the Spencer Fmn.**	☒	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: Ground water in the alluvium is confined by saturated, low-permeability silt and clay. Confinement likely increases with depth as other fine-grained silts and clays are encountered that are interbedded with the coarser alluvium.

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**	**Bowers Slough**	**296**	**210-220**	**3700**	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: No evidence of a hydrologic boundary exists that would preclude movement of groundwater between the water-bearing zones reported within the well and nearby surface waters.

Water Availability Basin the well(s) are located within: Soap Cr > Luckiamute 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 source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that surface water source, and 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**	☐	☐	**NA**	**NA**	☐	**2.43**	☐	**<<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: Pumping at the proposed rate and location is expected to result in stream depletion of much less than 25% of the pumping rate within 30 days of the onset of pumping. This is due to factors such as distance to perennial surface water, fairly low-transmissivity aquifer materials, and the presence of fine-grained sediments within a low-energy fluvial environment (Bowers Slough) that significantly slow the movement of water from the stream channel to surrounding geologic materials.

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:**

References Used: McClaughry, J.D., Wiley, T.J., Ferns, M.L., and Madin, I.P., 2010, Digital Geologic Map of the Southern Willamette Valley, Benton, Lane, Linn, Marion, and Polk Counties, Oregon: DOGAMI Open File Report o-10-03.

Woodward, Dennis J., Gannett, Marshall W., and Vaccaro, John J., 1998, Hydrogeologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington: U. S. Geological Survey Professional Paper 1424-B, 82p, 1 plate.

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.

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.**

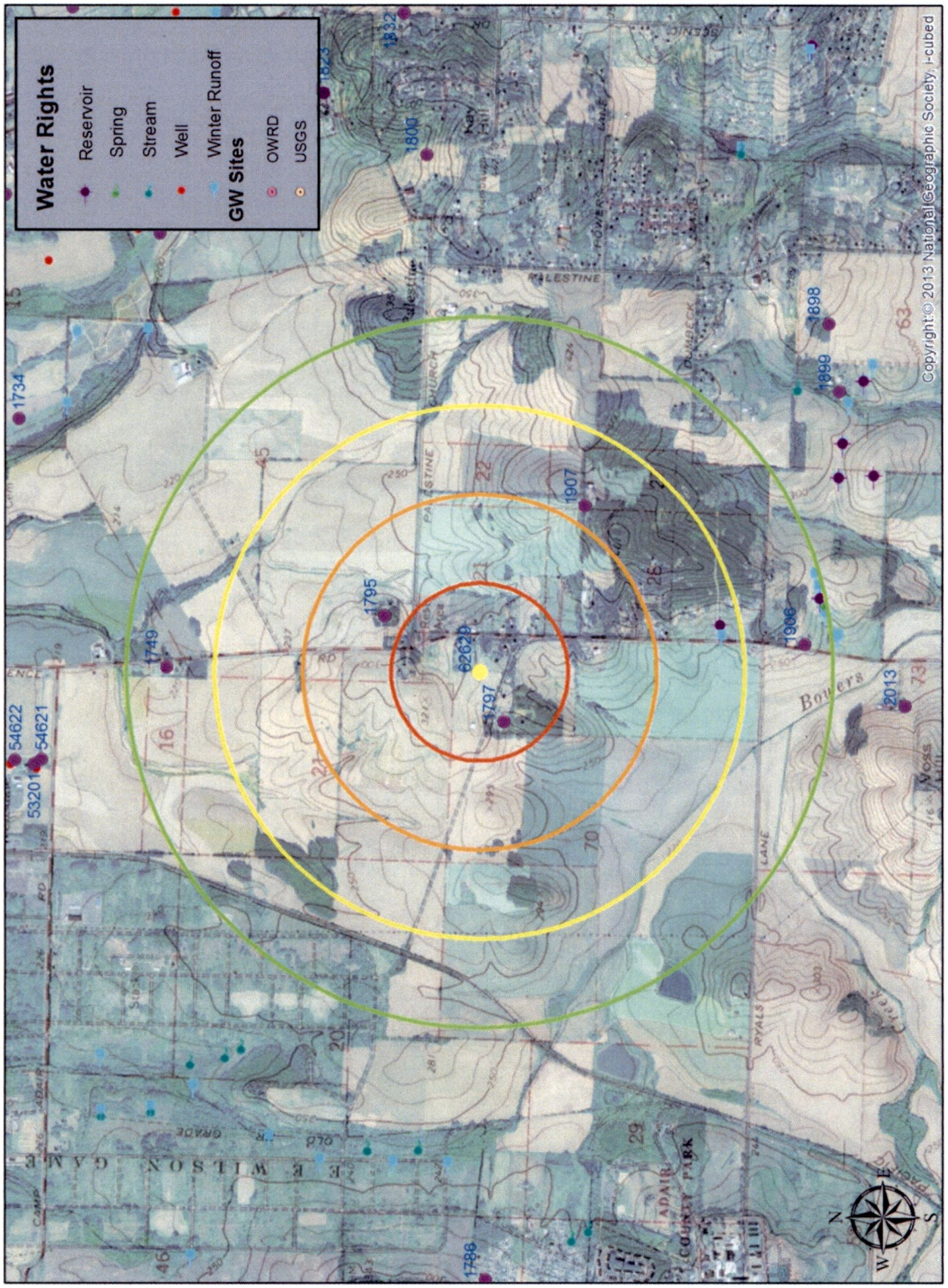
Water Availability Tables

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION

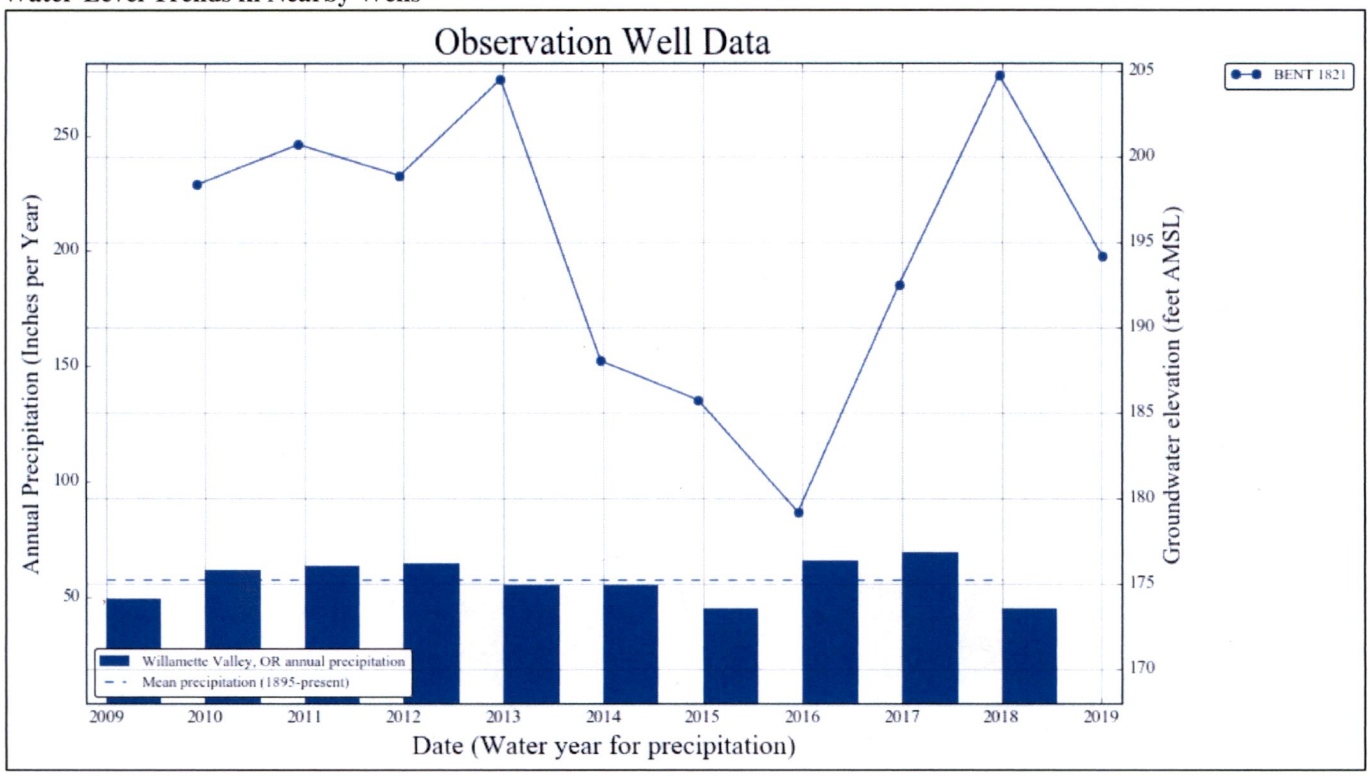
SOAP CR > LUCKIAMUTE R - AT MOUTH
watershed ID #: 30200302 Basin: WILLAMETTE Exceedance Level: 80
Time: 4:18 PM Date: 06/17/2019

Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available
Monthly values are in cfs. Storage is the annual amount at 50% exceedance in ac-ft.						
JAN	85.20	2.77	82.40	0.00	0.00	82.40
FEB	95.80	2.41	93.40	0.00	0.00	93.40
MAR	82.10	2.06	80.00	0.00	0.00	80.00
APR	42.80	1.24	41.60	0.00	0.00	41.60
MAY	24.40	1.65	22.70	0.00	0.00	22.70
JUN	12.40	2.76	9.64	0.00	0.00	9.64
JUL	5.87	4.61	1.26	0.00	0.00	1.26
AUG	3.32	2.32	1.00	0.00	0.00	1.00
SEP	2.43	1.20	1.23	0.00	0.00	1.23
OCT	2.91	0.15	2.76	0.00	0.00	2.76
NOV	8.53	0.48	8.05	0.00	0.00	8.05
DEC	60.20	2.53	57.70	0.00	0.00	57.70
ANN	52,200	1,460	50,700	0	0	50,700

Well Location Map



Water-Level Trends in Nearby Wells



BENT 1821 is located 9,000' ENE of the proposed POA well, is of similar depth, and displays reasonably stable water levels that appear to be correlated with annual climatic variability.