Groundwater Application Review Summary Form

Application # G- 18543

GW Reviewer Phil Marcy **Date Review Completed:** 4/17/2018

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, 2018

TO: **Application** G- 18543

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-18543

Date: September 12, 2018

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

Applicant's Well #1 (CLAC 06360): Based on a review of the Well Report, Applicant's Well #1 appears to protect the groundwater resource.

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

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the STATE ENGINEER, SALEM, OREGON 97310 within 30 days from the date of well completion.

WATER WELL REPORT
STATE OF OREGON
(Please type or print) (Do not write above this line)

RECEIVED AUG 16 1968 STATE ENGINEER SALEM, OREGON

CLAC C6360

State Well No. 2/4-29

State Permit No.

(1) OWNER:
Name James Idlewine
Address Rt. 1 Box 228 - D Eagle Creek, Oregon

(2) TYPE OF WORK (check):
New Well [X] Deepening [ ] Reconditioning [ ] Abandon [ ]
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary [ ] Driven [ ]
Cable [X] Jetted [ ]
Dug [ ] Bored [ ]

(4) PROPOSED USE (check):
Domestic [X] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

(5) CASING INSTALLED:
Threaded [ ] Welded [X]
6 " Diam. from 0 ft. to 118 ft. Gage .250
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

PERFORATIONS:
Perforated? [ ] Yes [X] No.
Type of perforator used
Size of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS:
Well screen installed? [ ] Yes [X] No
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WATER LEVEL: Completed well.
Static level 100 ft. below land surface Date 7/9/68
Artesian pressure lbs. per square inch Date

(9) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? [ ] Yes [X] No If yes, by whom?
gal./min. with ft. drawdown after hrs.
" " " "
" " " "
Bailer test 10 gal./min. with 0 ft. drawdown after 1½ hrs.
Artesian flow g.p.m. Date
Temperature of water 52 Was a chemical analysis made? [ ] Yes [X] No

(10) CONSTRUCTION:
Well seal—Material used Cement and bentonite
Depth of seal 24 ft.
Diameter of well bore to bottom of seal 10 in.
Were any loose strata cemented off? [ ] Yes [X] No Depth
Was a drive shoe used? [X] Yes [ ] No
Did any strata contain unusable water? [ ] Yes [X] No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? [ ] Yes [X] No Size of gravel:
Gravel placed from ft. to ft.

(11) LOCATION OF WELL:
County Clackamas Driller's well number
¼ ¼ Section 29 T. 2S R. 4E W.M.
Bearing and distance from section or subdivision corner

(12) WELL LOG:
Diameter of well below casing 6"
Depth drilled 120 ft. Depth of completed well 118 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level as drilling proceeds. Note drilling rates.

MATERIAL	From	To	SWL
Sandy loam top soil	0	11	
Large boulders sandy	11	39	
Decomposed rock sand	39	56	
Cemented gravel	56	118	
Medium gravel sand	118	120	

Work started 6/27/68 19 Completed 7/9/68 19
Date well drilling machine moved off of well 7/9/68 19

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.

[Signed] [illegible] Date 7/11/68 19
(Drilling Machine Operator)

Drilling Machine Operator's License No. 608

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Ross A. Jannsen Well Drilling
(Person, firm or corporation) (Type or print)

Address Rt. 1 Box 271 Estacada, Oregon 97023

[Signed] Ross A Jannsen
(Water Well Contractor)

Contractor's License No. 433 Date 8/8/68, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 04/17/2018

FROM: Groundwater Section Phillip I. Marcy
Reviewer's Name

SUBJECT: Application G- 18543 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: James & Katherine Adams County: Clackamas

A1. Applicant(s) seek(s) 0.022 cfs from 1 well(s) in the Willamette Basin, _____ subbasin

A2. Proposed use Nursery (2 acres) Seasonality: Year-round (365 days; 5AF/year)

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 6360**	**1**	**Alluvium**	**0.022**	**2S/4E-29 SW-NE**	**430'N, 223'E fr center S 29**
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	**705**	**?**	**100**	**07/09/1968**	**120**	**0-24**	**0-118**	**NA**	**NA**	**10**	**0**	**Bailer**

Use data from application for proposed wells.

A4. **Comments:** The proposed POA appears to develop groundwater from the Troutdale Formation Conglomerate (Madin, 2004), part of the Troutdale Gravel Aquifer of Swanson and others (1993).

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: _____

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 – Seven Year Minimum Measurement Condition**;
   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:** Based upon data from nearby observation wells, water levels in the aquifer utilized by the proposed POA well appear to be stable (see attached hydrograph). CLAC 6388 is located less than ½ mile SE of the proposed POA location, completed to a similar depth, and produces from Troutdale Formation Gravels (see attached cross section).

Injury to nearby users is unlikely, given the proposed rate of 0.022 cfs, and little development in the area. However, development should be approached with caution. Therefore, condition 7C is recommended to track possible impacts from this proposed use.

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 Gravels**	☐	☒
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: The groundwater elevation within the POA well is very similar to the depth of water-bearing horizons within the well. The POA location is atop a ridge, where the water-bearing lithologies have been incised by drainages to the NE and SW. The reviewer's assumption is that at these interfaces, groundwater is easily discharged, the hydraulic gradient is subsequently lowered, and any confinement that would be provided by overlying horizons is rendered inconsequential.

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**	**Deep Creek**	**605**	**490**	**2670**	☒	☐	☐	☐	☒
1	**2**	**Goose Creek**	**605**	**367**	**4000**	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: As stated above, confinement is negligible due to incision, and subsequent exposure of water-bearing zones at land surface. Here, discharged groundwater feeds seeps, springs, and likely shallow interflow that inevitably enters nearby surface waters.

Water Availability Basin the well(s) are located within: CLACKAMAS R > WILLAMETTE R - AT MOUTH (#80)

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**	☐	☐			☐	**822**	☐	**<<25%**	☐
1	**2**	☐	☐			☐	**3.43**	☐	**<<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: To my knowledge, there does not exist an adequate model to assess impacts to nearby surface water given the relationship of the productive aquifer and the surface water in question. Due to distance between the proposed well location and areas of exposure of the proposed aquifer horizon (> ½ mile), interference due to pumping at the proposed POA location is expected to be much less than 25% of the pumping rate at 30 days.

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													

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
(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 proposed use is expected to have minimal impact to nearby surface water sources.

References Used: Application file G-18543, nearby well logs, OWRD water level database.

Madin, I.P., 2004, Geologic Mapping & Database for Portland area fault studies: Final report, Clackamas, Multnomah & Washington Counties, OR, Open File Report O-04-02, Oregon Department of Geology and Mineral Industries, Portland, OR., map scale 1:24,000

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

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

CLACKAMAS R > WILLAMETTE R - AT MOUTH

Watershed ID #: 80 Basin: WILLAMETTE Exceedance Level: 80
Time: 3:51 PM Date: 04/17/2018

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	2,670.00	326.00	2,340.00	0.00	1,000.00	1,340.00
FEB	2,900.00	361.00	2,540.00	0.00	1,000.00	1,540.00
MAR	2,800.00	330.00	2,470.00	0.00	1,000.00	1,470.00
APR	3,010.00	399.00	2,610.00	0.00	1,000.00	1,610.00
MAY	2,740.00	397.00	2,340.00	0.00	1,000.00	1,340.00
JUN	1,620.00	309.00	1,310.00	0.00	1,000.00	311.00
JUL	980.00	309.00	671.00	0.00	1,000.00	-329.00
AUG	822.00	294.00	528.00	0.00	890.00	-362.00
SEP	833.00	282.00	551.00	0.00	890.00	-339.00
OCT	882.00	276.00	606.00	0.00	1,000.00	-394.00
NOV	1,630.00	323.00	1,310.00	0.00	1,000.00	307.00
DEC	2,650.00	328.00	2,320.00	0.00	1,000.00	1,320.00
ANN	2,110,000	237,000	1,870,000	0	711,000	1,200,000

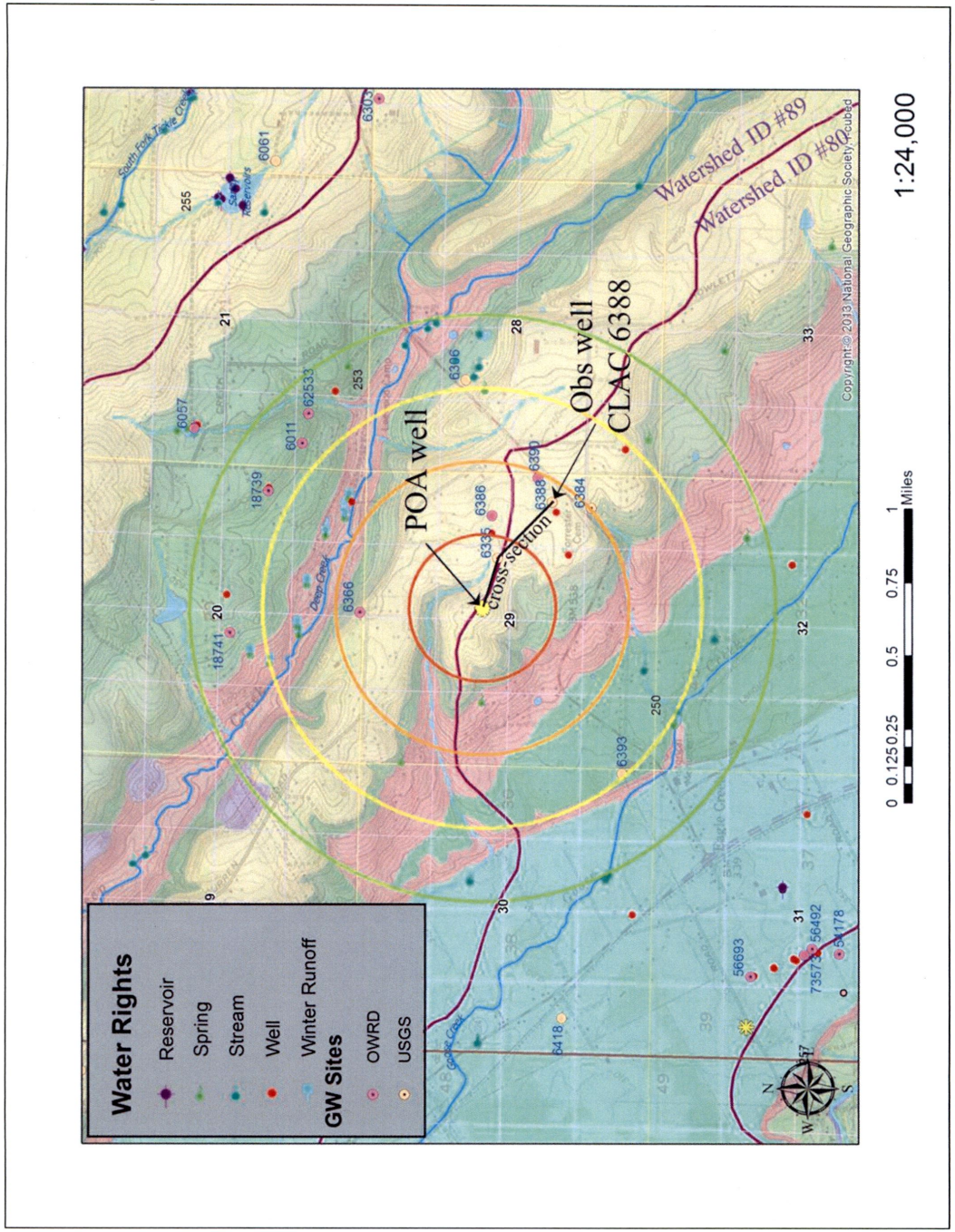
DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION

DEEP CR > CLACKAMAS R - AT MOUTH

Watershed ID #: 89 Basin: WILLAMETTE Exceedance Level: 80
Time: 3:52 PM Date: 04/17/2018

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	96.40	3.22	93.20	0.00	35.00	58.20
FEB	99.10	2.82	96.30	0.00	35.00	61.30
MAR	97.10	1.32	95.80	0.00	35.00	60.80
APR	89.80	1.47	88.30	0.00	35.00	53.30
MAY	68.40	3.56	64.80	0.00	35.00	29.80
JUN	32.20	4.43	27.80	0.00	20.00	7.77
JUL	13.40	7.98	5.42	0.00	20.00	-14.60
AUG	5.11	6.44	-1.33	0.00	10.00	-11.30
SEP	3.43	2.47	0.96	0.00	10.00	-9.04
OCT	4.30	0.68	3.62	0.00	10.00	-6.38
NOV	16.50	0.98	15.50	0.00	35.00	-19.50
DEC	76.70	3.45	73.30	0.00	35.00	38.30
ANN	76,900	2,350	74,500	0	19,000	57,300

Well Location Map



Water-Level Trends in Nearby Wells