Approved: 

MEMO

To:	Kristopher Byrd, Well Construction Section Manager
From:	Tommy Laird, Well Construction Program Coordinator
Subject:	Re-Review of Water Right Application G-19176
Date:	December 12, 2022

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

Applicant's Well #1 (BENT 2748): Based on the original review of the Well Report, Applicant's Well #1 did not appear to comply with current minimum well construction standards (See OAR 690 Division 210). The problem was that the Well Report indicates that the well head is flush with land surface. In order to meet minimum well construction standards, the well construction section (WCC) provided that the well head must be extended so that it is at least one-foot above land surface. Because of this deficiency, WCC previously found that the well would need to be reconstructed in order to meet minimum construction standards.

Since WCC's previous review, the applicant has had an Oregon licensed and bonded driller add casing to the well, bringing it one foot above land surface. Based on the alteration well report (BENT 56540) and the photo provided showing the casing extending at least one foot above land surface, WCC re-reviewed the construction of Applicants Well #1 and has determined that the construction of Applicant Well #1 seems to protect the groundwater resource.

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

BENT 56540

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

WELL I.D. LABEL# L 146133
START CARD # 218580
ORIGINAL LOG # Bent 2748

(1) LAND OWNER Owner Well I.D.
First Name Tom Last Name Denison
Company
Address 37043 Belden CREEK RD
City Corvallis State OR Zip 97330

(2) TYPE OF WORK ☐ New Well ☐ Deepening ☐ Conversion ☒ Alteration (complete 2a & 10) ☐ Abandonment(complete 5a)

(2a) PRE-ALTERATION

Casing:	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
	6	☒	8inch	5'	.250	☒	☐	☒	☐

Seal:	Material	From	To	Amt	sacks/lbs

(3) DRILL METHOD
☐ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger ☐ Cable Mud
☐ Reverse Rotary ☐ Other

(4) PROPOSED USE ☐ Domestic ☒ Irrigation ☐ Community
☐ Industrial/ Commericial ☐ Livestock ☐ Dewatering
☐ Thermal ☐ Injection ☐ Other

(5) BORE HOLE CONSTRUCTION Special Standard ☐ (Attach copy)
Depth of Completed Well 40 ft.

BORE HOLE Dia	From	To	SEAL Material	From	To	Amt	sacks/lbs
					Calculated		
					Calculated		

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☐ Other
Backfill placed from ft. to ft. Material
Filter pack from ft. to ft. Material Size
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	☒	8inch	5'	.250	☒	☐	☒	☐

Shoe ☐ Inside ☐ Outside ☐ Other Location of shoe(s)
Temp casing ☐ Yes Dia From To

(7) PERFORATIONS/SCREENS
Perforations Method
Screens Type Material

Perf/Screen	Casing/ Liner	Screen Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ pipe size

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

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

Temperature °F Lab analysis ☐ Yes By
Water quality concerns? ☐ Yes (describe below) TDS amount

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)
County Benton Twp 11 N(S) Range 4 E/(W) WM
Sec 19 SW 1/4 of the SW 1/4 Tax Lot 1201
Tax Map Number Lot
Lat ° ' " or DMS or DD
Long ° ' " or DMS or DD
◯ Street address of well ◉ Nearest address
NEXT TO 2015 NE SEALEY AVE Corvallis, OR 97330

(10) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Pre-Alteration	11-23-22		☐	8
Completed Well			☐	

Flowing Artesian? ☐ Dry Hole? ☐

WATER BEARING ZONES Depth water was first found

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)

(11) WELL LOG Ground Elevation

Material	From	To
4' 4inch WELL		
HEAD EXT		

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DEC 02 2022
OWRD

Date Started 11-23-2022 Completed 11-23-2022

(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 Date
Signed

(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 1753 Date 11-23-2022
Signed
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

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the

WATER RESOURCES DEPARTMENT,
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)

Bent 2748

State Well No. 11S/4W-19

State Permit No.

(1) OWNER: (Mark Johnson)

Name Goodtime Trying

Address 1810 N.E. Seavy Rd.
Corvallis, Oregon 97330

(2) TYPE OF WORK (check):

New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐

If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:

Rotary ☐ Driven ☐
Cable ☒ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):

Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

CASING INSTALLED:

Threaded ☐ Welded ☒

6 " Diam. from 0 ft. to 37 ft. Gage .250

" Diam. from ft. to ft. Gage

" Diam. from ft. to ft. Gage

PERFORATIONS:

Perforated? ☒ Yes ☐ No.

Type of perforator used Torch cut

Size of perforations 3/8 in. by 4 in.

50 perforations from 25 ft. to 35 ft.

perforations from ft. to ft.

perforations from ft. to ft.

(7) SCREENS:

Well screen installed? ☐ Yes ☒ No

Manufacturer's Name

Type Model No.

Diam. Slot size Set from ft. to ft.

Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:

Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom?

Yield: gal./min. with ft. drawdown after hrs.

" " " "

" " " "

Bailer test 40 gal./min. with 32 ft. drawdown after 4 hrs.

Artesian flow g.p.m.

Temperature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:

Well seal—Material used Cement

Well sealed from land surface to 18 ft.

Diameter of well bore to bottom of seal 10 in.

Diameter of well bore below seal 6 in.

Number of sacks of cement used in well seal 6 sacks

How was cement grout placed?
Pumped through tremie

Was a drive shoe used? ☒ Yes ☐ No Plugs Size: location ft.

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? depth of strata

Method of sealing strata off

Was well gravel packed? ☐ Yes ☒ No Size of gravel:

Gravel placed from ft. to ft.

(10) LOCATION OF WELL:

County Benton Driller's well number C/19/M

¼ ¼ Section 19 T. 11S R. 4W W.M.

Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.

Depth at which water was first found 23 ft.

Static level 8 ft. below land surface. Date 5/23/79

Artesian pressure lbs. per square inch. Date

(12) WELL LOG:

Diameter of well below casing 6

Depth drilled 40 ft. Depth of completed well 40 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 and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Topsoil	0	1	
Brown clay (sticky)	1	6	
Brown clay	6	8	
Sand&gravel	8	35	
Blue clay	35	40	

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SALEM, OREGON

Work started 5/23/79 19 Completed 5/24/79 19

Date well drilling machine moved off of well 5/24/79 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] Kurt Martin (Drilling Machine Operator) Date 5/29/79, 19

Drilling Machine Operator's License No. 1343

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 Corvallis Drilling Co. Inc. (Person, firm or corporation) (Type or print)

Address 3440 SW 3rd St. Corvallis, Oregon 97330

[Signed] (Water Well Contractor)

Contractor's License No. 721 Date 5/29/79, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45656-119

Groundwater Application Review Summary Form

Application # G- 19176

GW Reviewer Phillip I. Marcy Date Review Completed: 11/04/2021

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 **_11/04/2021_**

TO: **Application** G-**_19176_**

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 _[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 11/04/2021
FROM: Groundwater Section Phillip I. Marcy
Reviewer's Name
SUBJECT: Application G- **19176** 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: **Tom Denison** County: _____

A1. Applicant(s) seek(s) 0.0891 cfs from 1 well(s) in the Willamette Basin, _____ subbasin

A2. Proposed use Nursery (3.42 acres) Seasonality: Year-round (365 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	BENT 2748	1	Alluvium	0.0891	11S/4W-19 SW-SW	875'N, 1090'E fr SW cor S 19
2						
3						
4						

* Alluvium, CRB, Bedrock

Well	Well Elev ft msl	First Water ft bls	SWL ft bls	SWL Date	Well Depth (ft)	Seal Interval (ft)	Casing Intervals (ft)	Liner Intervals (ft)	Perforations Or Screens (ft)	Well Yield (gpm)	Draw Down (ft)	Test Type
1	204	23	8	05/23/1979	40	0-18	0-37	None	25-35	40	32	Unk

Use data from application for proposed wells.

A4. **Comments:** The applicant proposes to utilize an existing well completed into alluvium for year-round irrigation of 3.42 acres of nursery use.

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: The proposed POA well is not within ¼ mile of a surface water source, therefore the 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) **7N**;

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 aquifer properties in the unconfined Quaternary alluvium here, and the position of the proposed POA well within one mile of the Willamette River make it unlikely that the proposed pumping will induce sufficient drawdown to cause injury to senior water right holders. A Theis time drawdown analysis based on expected local aquifer conditions was performed to evaluate potential impacts to nearby senior groundwater rights. The most reasonable scenarios calculated an anticipated drawdown of less than 5 feet at the nearest mapped point of groundwater appropriation (GR-715; BENT 2669) at a distance of 650 feet after 365 days of continuous pumping at the maximum authorized 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	**Holocene Alluvium (Ha of McClaughry, 2010)**	☐	☒
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: There does not exist a fine-grained, laterally continuous unit overlying the water-bearing zone to act as a confining layer. Wells completed into alluvium nearby do not exhibit higher pressure at depth, which may illustrate confinement within the alluvial sequence.

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**	**Willamette River**	**196**	**192-195**	**3830**	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: The proposed POA well in completed into unconfined alluvium in efficient connection with surface water and the Willamette River. There are no significant barriers to groundwater movement identified in the area.

Water Availability Basin the well(s) are located within: Willamette R > Columbia R – AB Periwinkle CR at Gage 14174

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**	☐	☐	**MF184A**	**1750**	☐	**2540**	☐	**<<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: Anticipated impacts to the nearby Willamette River are anticipated to be less than 25% of the pumping rate at 30 days, due to high storativity within the aquifer system and the presence of fine-grained sediments lining the river channel in a low energy river such as the Willamette.

C4a. **690-09-040 (5):** Estimated impacts on **hydraulically connected surface water sources greater than one mile** as a percentage of the proposed pumping rate. Limit evaluation to the effects that will occur up to one year after pumping begins. This table encompasses the considerations required by 09-040 (5)(a), (b), (c) and (d), which are not included on this form. Use additional sheets if calculated flows from more than one WAB are required.

Non-Distributed Wells Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
Distributed Wells Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
(A) = Total Interf.													
(B) = 80 % Nat. Q													
(C) = 1 % Nat. Q													
(D) = (A) > (C)		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
(E) = (A / B) x 100		%	%	%	%	%	%	%	%	%	%	%	%

(A) = total interference as CFS; (B) = WAB calculated natural flow at 80% exceed. as CFS; (C) = 1% of calculated natural flow at 80% exceed. as CFS; (D) = highlight the checkmark for each month where (A) is greater than (C); (E) = total interference divided by 80% flow as percentage.

Basis for impact evaluation:

C4b. **690-09-040 (5) (b) The potential to impair or detrimentally affect the public interest is to be determined by the Water Rights Section.**

C5. ☐ **If properly conditioned**, the surface water source(s) can be adequately protected from interference, and/or groundwater use under this permit can be regulated if it is found to substantially interfere with surface water:

i. ☐ The permit should contain condition #(s)_____;

ii. ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions:**

References Used:

Jones, M.A., 1999, Geologic Framework of the Puget Sound aquifer system, Washington and British Columbia: U.S. Geological Survey Professional Paper 1424C.

McClaughry, J.D., Wiley, T.J., Ferns, M.L., and Madin, I.P., 2010, Digital Geologic Map of the Southern Willamet Valley, Benton, Lane, Linn, Marion, and Polk Counties, Oregon, Open-File Report O-10-03, Oregon Department of Geology and Mineral Industries,

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.**

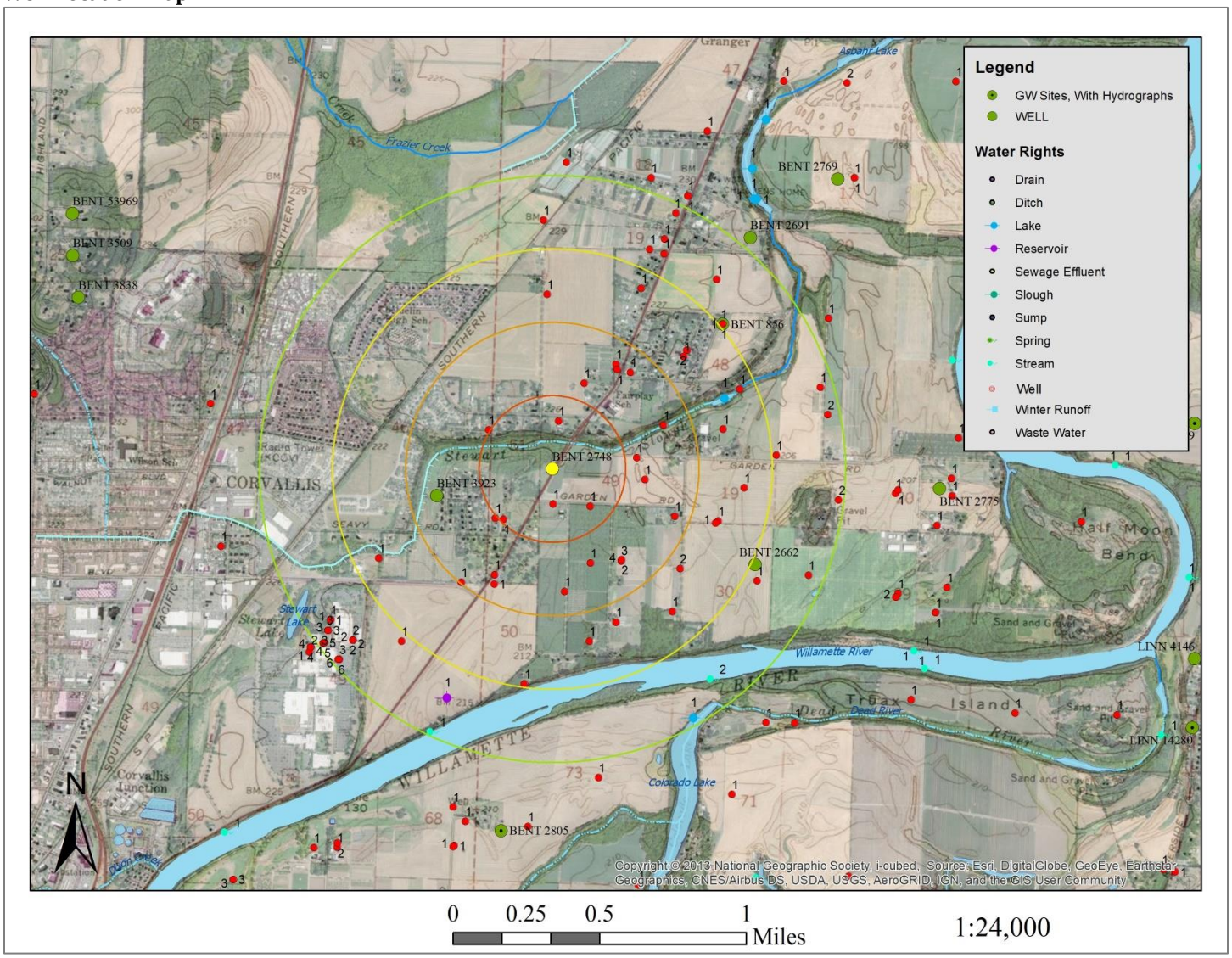
Water Availability Tables

Water Availability Calculation

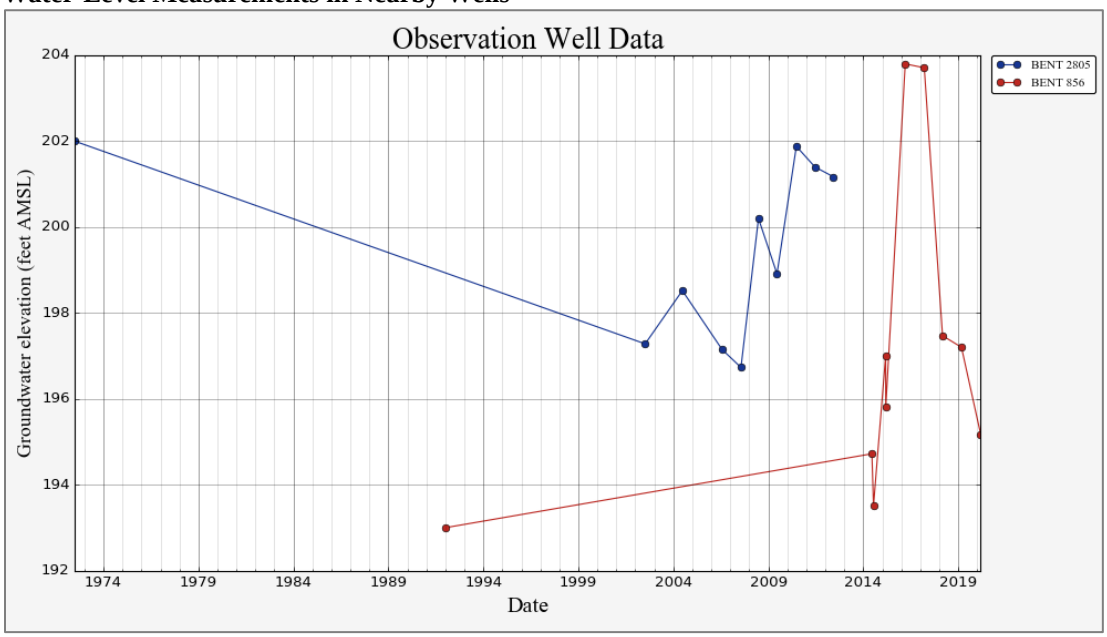
Monthly Streamflow in Cubic Feet per Second
Annual Volume at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	10,100.00	1,370.00	8,730.00	0.00	1,750.00	6,980.00
FEB	11,600.00	4,290.00	7,310.00	0.00	1,750.00	5,560.00
MAR	11,000.00	4,560.00	6,440.00	0.00	1,750.00	4,690.00
APR	9,760.00	4,260.00	5,500.00	0.00	1,750.00	3,750.00
MAY	8,430.00	2,560.00	5,870.00	0.00	1,750.00	4,120.00
JUN	5,360.00	857.00	4,500.00	0.00	1,750.00	2,750.00
JUL	3,270.00	667.00	2,600.00	0.00	1,750.00	853.00
AUG	2,560.00	605.00	1,950.00	0.00	1,750.00	205.00
SEP	2,540.00	518.00	2,020.00	0.00	1,750.00	272.00
OCT	2,860.00	270.00	2,590.00	0.00	1,750.00	840.00
NOV	4,170.00	355.00	3,820.00	0.00	1,750.00	2,070.00
DEC	8,150.00	380.00	7,770.00	0.00	1,750.00	6,020.00
ANN	7,460,000.00	1,240,000.00	6,230,000.00	0.00	1,270,000.00	4,960,000.00

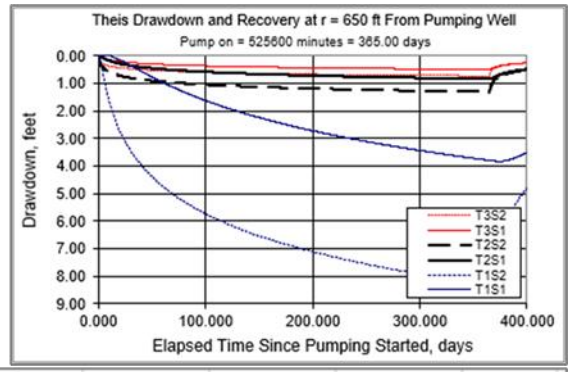
Well Location Map

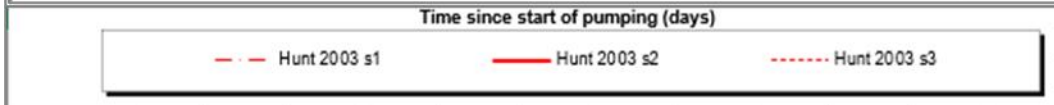


Water-Level Measurements in Nearby Wells



Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units
Total pumping time	t		365		d
Radial distance from pumped well:	r		650		ft
Pumping rate	Q		0.0891		cfs
Hydraulic conductivity	K	5	50	100	ft/day
Aquifer thickness	b		60		ft
Storativity	S_1		0.1		
	S_2		0.01		
Transmissivity Conversions	T_f2pd	300	3000	6000	ft2/day
	T_ft2pm	0.208333	2.083333	4.166667	ft2/min
	T_gpdpft	2244	22440	44880	gpd/ft





Output for Stream Depletion, Scenerio 2 (s2):	Time pump on (pumping duration) = 365 days											
Days	30	60	90	120	150	180	210	240	270	300	330	360
J SD	4.4%	15.3%	24.4%	31.3%	36.7%	41.0%	44.5%	47.5%	50.1%	52.3%	54.3%	56.0%
H SD 1999	3.5%	13.5%	22.1%	28.9%	34.3%	38.6%	42.2%	45.2%	47.9%	50.1%	52.1%	53.9%
H SD 2003	-0.03%	0.01%	0.55%	1.72%	3.35%	5.24%	7.26%	9.32%	11.35%	13.32%	15.22%	17.05%
Qw, cfs	0.089	0.089	0.089	0.089	0.089	0.089	0.089	0.089	0.089	0.089	0.089	0.089
H SD 99, cfs	0.003	0.012	0.020	0.026	0.031	0.034	0.038	0.040	0.043	0.045	0.046	0.048
H SD 03, cfs	0.000	0.000	0.000	0.002	0.003	0.005	0.006	0.008	0.010	0.012	0.014	0.015

Parameter	Scenario 1	Scenario 2	Scenario 3	Units
Qw	0.0891	0.0891	0.0891	cfs
T	300	3,000	6,000	ft*ft/day
T	2,244	22,440	44,880	gpd/ft
sbc	33.333333	33.333333	33.333333	ft/day
sdf	2444.816667	244.481667	122.240833	days
sbf	425.555556	42.555556	21.277778	
t'	0.000409	0.004090	0.008181	1/days
K'	##########	1629.877778	814.938889	
epsilon'	0.250000	0.250000	0.250000	
lamda'	425.555556	42.555556	21.277778	