Groundwater Application Review Summary Form

Application # G- 18636

GW Reviewer Aaron Boucher **Date Review Completed:** 7/17/2018

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 July 17 ,20 18

TO: **Application** G- 18636

FROM: **GW:** Aurora Bouchier
(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

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 7/17/2018

FROM: Groundwater Section Aurora C Bouchier
Reviewer's Name

SUBJECT: Application G- 18636 Supersedes review of na
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: **WICC Investments, LLC/TFN Properties** County: **Wasco**

A1. Applicant(s) seek(s) 0.025 cfs from 1 well(s) in the Deschutes Basin, Lower Deschtues subbasin

A2. Proposed use Agricultural Nursery Seasonality: Year round

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	proposed	1	sandstone	0.025	5S/13E-2- NE-SE	913' S, 1336' W fr E1/4 cor S 20
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	~1925				Est 400	--	Est 25	--		Est 11.2		

Use data from application for proposed wells.

A4. **Comments:** The rate requested for year round nursery use (0.025 cfs) is within the range of estimated yields listed on well logs for wells in Township 5 S, Range 13 E.

A5. ☒ **Provisions of the** Deschutes 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 well is outside of the USGS Groundwater Study Area, therefore it is not subject to Division 690-505-0500 to -0620.

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) 7J, 7N, 7T;
   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 nearest State Observation Wells (WASC 3630) is located approximately 8.7 miles to the north and is completed into alluvial sands and gravels along the White River. The applicant's well will likely produce from water-bearing layers of lava and volcaniclastic sediments of the Deschutes Formation (or Deschutes Formation age equivalent, depending on reference). Locally, there are no wells with a history of groundwater level observations which are completed into the same formation. However, within Township 5S/Range 13E there are 14 wells which are likewise completed into the Deschutes Fm/age equivalent. An examination of the static water level measurements listed on the well logs indicates that the water levels have remained relatively stable with no apparent decline. The lack of observation data in the area speaks to the need for condition 7N, annual water level measurements.

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	**Deschutes Fm (or age equivalent similar sequence)**	☒	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: The well logs for most of the wells in township/ranges 5S/12E and 5S/13E list static water levels above the zone at which it was encountered, indicating that the aquifer is more confined than not at this location. It is likely a well at the proposed location will also indicate a confined aquifer.

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**	**Wapinita Creek**	**~1500-1600**	**~1700**	**5,500**	☐	☒	☐	☐	☒
1	**2**	**Deschutes River****	**~1500-1600**	**~900**	**17,500**	☐	☒	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: The groundwater level in nearby wells is below Wapinita Creek at the nearby reaches.

**The groundwater elevation in the nearby area (Juniper Flats) is above that of the Deschutes River. However, the groundwater appears to be emerging as distinct springs along the west bank of the Deschutes River canyon, with the nearest mapped or apparent (based on imagery) spring being located greater than 6-miles from the proposed locations near the town of Maupin.

Water Availability Basin the well(s) are located within: 70087: DESCHUTES R> COLUMBIA R- AB MOUTH AT GAGE 14103000

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?
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

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: This section does not apply.

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: The requested rate (0.025 cfs) is much, much less than 4,320 cfs (the 80% exceedance level of the natural stream flow for the Deschutes River during the month of August). In addition, the nature of the aquifer unit precludes the use of available analytical models to evaluate the timing of interference. Therefore this section was not evaluated.

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 groundwater recharge for Juniper Flats likely originates in the uplands area along the east flank of the Cascade Mountains. The groundwater flow direction across Juniper Flats is generally from west to east and towards the Deschutes River canyon between Maupin and Oak Springs, based on water level data from well logs. Numerous springs exist along the northeast rim of Juniper Flats between Maupin and Oak Springs, some of which appear to originate at or above the contact of the lavas and volcaniclastic sedimentary layers with the underlying Columbia River Basalt Group.

References Used:

Application file: G-18636.

Beebee, Robin A., O'Connor, Jim E., and Grant, Gordon E., 2002; Geology and Geomorphology of the Lower Deschutes River Canyon, Oregon; Oregon Department of Geology and Mineral Industries Special Paper 36, 2002.

Lite, Kenneth E. Jr., Gannett, Marshall W., 2002; Geologic Framework of the Regional Ground-Water Flow System in the Upper Deschutes Basin, Oregon; U.S. Geological Survey Water-Resources Investigations Report 02-4015.

OWRD well log and water level database.

Sherrod, D.R., and Scott, W.E., 1995. Preliminary Geologic Map of the Mount Hood 30- by 60-Minute Quadrangle, Cascade Range, North-Central Oregon: US Geological Survey Open-File Report 95-219.

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

DESCHUTES R > COLUMBIA R - AB MOUTH AT GAGE 14103000

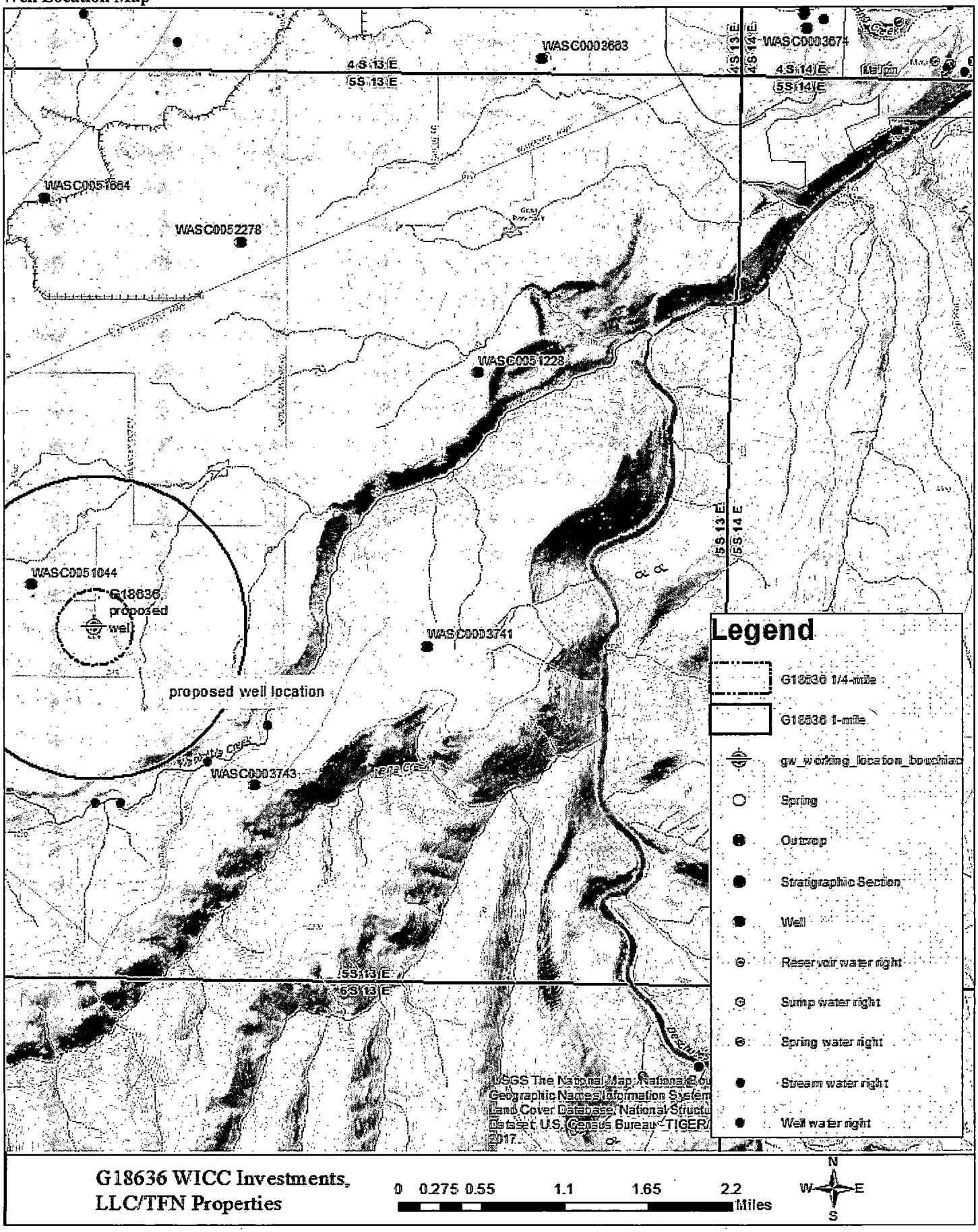
Watershed ID #: 70087 Basin: DESCHUTES Exceedance Level: 80

Time: 11:25 AM Date: 07/17/2018

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

Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available
JAN	4,970.00	664.00	4,310.00	450.00	4,500.00	-644.00
FEB	5,530.00	735.00	4,800.00	450.00	4,500.00	-155.00
MAR	6,140.00	1,080.00	5,060.00	450.00	4,500.00	109.00
APR	6,470.00	1,140.00	5,330.00	450.00	4,000.00	882.00
MAY	6,220.00	1,150.00	5,070.00	450.00	4,000.00	617.00
JUN	5,560.00	1,220.00	4,340.00	450.00	4,000.00	-106.00
JUL	4,610.00	958.00	3,650.00	450.00	4,000.00	-798.00
AUG	4,320.00	863.00	3,460.00	450.00	3,500.00	-493.00
SEP	4,410.00	747.00	3,660.00	450.00	3,800.00	-587.00
OCT	4,520.00	794.00	3,730.00	450.00	3,800.00	-524.00
NOV	4,610.00	846.00	3,760.00	450.00	3,800.00	-486.00
DEC	4,820.00	771.00	4,050.00	450.00	4,500.00	-901.00
ANN	4,390,000	662,000	3,720,000	326,000	2,950,000	496,000

Well Location Map



Version: 05/07/2018

Water-Level Trends in Nearby Wells