

Groundwater Application Review Summary Form

Application # G- 19350

GW Reviewer Darrick E. Boschmann Date Review Completed: 11/03/2023

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

11/03/2023

TO: Application G- 19350

FROM: GW: Darrick E. Boschmann
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☐ YES The source of appropriation is hydraulically connected to a State Scenic
☒ NO 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 11/03/2023
 FROM: Groundwater Section Darrick E. Boschmann
 Reviewer's Name
 SUBJECT: Application G- 19350 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: Dig It Construction Inc. County: Lake

A1. Applicant(s) seek(s) 3.75 cfs from 6 well(s) in the Goose & Summer Lake Basin,
 Goose Lake subbasin

A2. Proposed use: 247.2 acres primary irrigation; 52.6 acre supplemental irrigation
 Seasonality: Irrigation season

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	Well #1	Tuffaceous rocks and lavas	3.75	40.00S-18.00E-4-NE NE	1250 FEET SOUTH AND 100 FEET WEST FROM NE CORNER, SECTION 4
2	Proposed	Well #2	Tuffaceous rocks and lavas	3.75	40.00S-18.00E-5-NW NE	30 FEET SOUTH AND 560 FEET EAST FROM N1/4 CORNER, SECTION 5
3	Proposed	Well #3	Tuffaceous rocks and lavas	3.75	39.00S-18.00E-32-NW SE	1720 FEET NORTH AND 210 FEET EAST FROM S1/4 CORNER, SECTION 32
4	Proposed	Well #4	Tuffaceous rocks and lavas	3.75	39.00S-18.00E-33-SE SW	1200 FEET NORTH AND 1080 FEET WEST FROM THE S1/4 CORNER, SECTION 33
5	Proposed	Well #5	Tuffaceous rocks and lavas	3.75	39.00S-18.00E-33-SW NE	1520 FEET SOUTH AND 1070 FEET EAST FROM N1/4 CORNER, SECTION 33
6	Proposed	Well #6	Tuffaceous rocks and lavas	3.75	40.00S-18.00E-4-NE NW	110 FEET SOUTH AND 980 FEET WEST FROM N1/4 CORNER, SECTION 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	5140	NA	NA	NA	1200	0-18	+1-350	none	none	NA	NA	NA
2	5000	NA	NA	NA	1200	0-18	+1-350	none	none	NA	NA	NA
3	5070	NA	NA	NA	1200	0-18	+1-350	none	none	NA	NA	NA
4	5110	NA	NA	NA	1200	0-18	+1-350	none	none	NA	NA	NA
5	5320	NA	NA	NA	1200	0-18	+1-350	none	none	NA	NA	NA
6	5030	NA	NA	NA	1200	0-18	+1-350	none	none	NA	NA	NA

Use data from application for proposed wells.

A4. **Comments:**

The proposed wells are located near the southeast end of Drews Reservoir in the upland area of the Willow Creek Hills. The area underlying the proposed wells is mapped by Walker (1963) as Ttf (tuff of rhyolitic and dacitic composition, tuffaceous sedimentary rocks, and areally restricted rhyodacitic and andesitic flows). The easternmost proposed wells are located near the contact with a unit mapped by Walker (1963) as Tvb (basalt flows), and it is possible that the easternmost wells may penetrate this unit.

There are no existing wells drilled to the proposed depth of 1,200 feet in this area. Existing well logs in this area describe a wide variety of sedimentary and volcanic rock types that are consistent with the description of Ttf from Walker (1963). Well logs located near and within Walker's Tvb unit describe a variety of often fractured basaltic strata, cinders, and interbedded sedimentary deposits, which is consistent with the description of Tvb from Walker (1963).

A5. ☐ **Provisions of the** Goose & Summer Lakes 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: _____

OAR 690-513-0030 (Goose Lake Subbasin) does not apply.

A6. ☐ **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: _____
Comments: Currently no administrative area.

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; 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 _____ 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:** _____

There are no time-series groundwater level data available for the upland area in the vicinity of the proposed wells. The nearest current State Observation Well LAKE 2813 is located over 5 miles to the southeast of the proposed wells. The water level record for LAKE 2813 records approximately 38 feet of overall decline since 1965. Other State Observation Wells in the Goose Lake Subbasin (LAKE 1979; LAKE 2320; LAKE 2424) show no indication of a long-term year-to-year decline trend over the period of record. Given the distance between the proposed wells and observation wells with available groundwater level data, and the differences in geology and position within the groundwater flow system, it is not likely that any of these groundwater level records are representative of groundwater conditions at the location of the proposed wells.

There is very little groundwater development in the immediate vicinity of the proposed wells. The available water level record does not meet the Division 8 definition of excessively declining or declined excessively (for the storage portion of the source of water to wells).

The nearest authorized groundwater POD to the proposed wells is located over 2 miles away. At this distance any increase in seasonal interference is very unlikely to meet the standard for substantial or undue interference.

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	Tuffaceous rocks and lavas	☒	☐
2	Tuffaceous rocks and lavas	☒	☐
3	Tuffaceous rocks and lavas	☒	☐
4	Tuffaceous rocks and lavas	☒	☐
5	Tuffaceous rocks and lavas	☒	☐
6	Tuffaceous rocks and lavas	☒	☐

Basis for aquifer confinement evaluation: _____

There is little information available about the hydraulic properties of these upland deposits, however, given the layered heterogeneity of the deposits, a high degree of anisotropy is likely. Several well logs in this area report static water levels above the depth at which water was first found. Based on these considerations semi-confined to confined conditions are likely to occur at the proposed depth.

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	Willow Creek	5070	4901	5750	☒	☐	☐	☐	☒
2	1	Willow Creek	4930	4910	1300	☒	☐	☐	☐	☒
3	1	Willow Creek	5000	4950	1480	☒	☐	☐	☐	☒
4	1	Willow Creek	5040	4930	2420	☒	☐	☐	☐	☒
5	1	Willow Creek	5250	4960	4780	☒	☐	☐	☐	☒
6	1	Willow Creek	4960	4901	2240	☒	☐	☐	☐	☒
1	2	Drews Creek	5070	4850	2200	☒	☐	☐	☐	☒
2	2	Drews Creek	4930	4860	4050	☒	☐	☐	☐	☒
3	2	Drews Creek	5000	4860	5700	☒	☐	☐	☐	☒
4	2	Drews Creek	5040	4850	3560	☒	☐	☐	☐	☒
5	2	Drews Creek	5250	4850	6180	☒	☐	☐	☐	☒
6	2	Drews Creek	4960	4850	2280	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: _____

Very limited water level data is available to estimate groundwater level elevation in this area. Considerable topographic relief exists in the area of the proposed wells, which further limits the applicability of the limited data that does exist. Additionally, there are no wells drilled to the depth proposed here, and so it is not known if existing wells are representative of conditions at that depth. LAKE 53129 is located less than 0.5 miles from proposed Well #5. The well is drilled to a depth of 350.5 feet and reports a static water level of 71 feet. Other wells in this area also report static water levels generally less than 100 feet below land surface, with several reporting static water levels less than 10 feet below land surface. The groundwater level elevations cited above assume a static water level of 70 feet.

Numerous springs are present in the upland area of the Willow Creek Hills, which indicates groundwater is discharging to the surface in this area. Additionally, the following excerpts from Morgan (1988) provide the basis for the finding of hydraulic connection.

“Regionally, hydraulic gradients within the uplands are assumed to be toward the center of the basin; within subsystems, gradients would generally be toward the local discharge area, such as a lake, stream, or wet meadow. Drews Reservoir is probably the largest discharge area within the uplands, and some wells in the area show hydraulic gradients toward the reservoir.”

“Streams in the basin receive ground-water discharge in both the upland ground-water subsystems and in the discharge area of the valley floor. Upland reservoirs and lakes (Drews, Cottonwood, and others) are also subsystem discharge areas. Goose Lake lies at the lowest point in the basin and represents the focal point of discharge for the ground-water system.”

“Flow in perennial streams in the basin, such as Davis, Cottonwood, and Thomas Creeks, is sustained during summer and fall by ground-water discharge (baseflow). These streams receive ground-water seepage as they cross discharge areas of upland ground-water subsystems.”

Water Availability Basin the well(s) are located within: DREWS CR > GOOSE L - 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 (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?	Q _w > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Q _w > 1% ISWR?	80% Natural Flow (cfs)	Q _w > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
2	1	☒	☐	IS70487A	3.00	☒	1.65	☒	*	☒
3	1	☐	☐	IS70487A	3.00	☒	1.65	☒	*	☒
4	1	☐	☐	IS70487A	3.00	☒	1.65	☒	*	☒
5	1	☐	☐	IS70487A	3.00	☒	1.65	☒	*	☒
6	1	☐	☐	IS70487A	3.00	☒	1.65	☒	*	☒
1	2	☐	☐	IS70487A	3.00	☒	1.65	☒	*	☒
2	2	☐	☐	IS70487A	3.00	☒	1.65	☒	*	☒
4	2	☐	☐	IS70487A	3.00	☒	1.65	☒	*	☒
6	2	☐	☐	IS70487A	3.00	☒	1.65	☒	*	☒
		☐	☐			☐		☐		☐

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 #		Q _w > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Q _w > 1% ISWR?	80% Natural Flow (cfs)	Q _w > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: _____

C3a. PSI is assumed for all proposed wells to at least one surface water source within a mile. *Interference at 30 days not calculated due to triggering of PSI under other criteria.

C3b. Distributed rate not requested.

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: _____

No evaluation here. PSI already found for all proposed wells to at least one surface water source within a mile.

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:** _____

C1. 690-09-040 (1)

It is determined that all wells will produce water from a confined aquifer.

C2. 690-09-040 (2) (3)

It is determined that all wells are hydraulically connected with the Willow Creek and Drews Creek.

C3a./C3b. 690-09-040 (4)

PSI is assumed for all proposed wells to at least one surface water source within a mile. *Interference at 30 days not calculated due to triggering of PSI under other criteria.

C4a. 690-09-040 (5)

No evaluation here. PSI already found for all proposed wells to at least one surface water source within a mile.

References Used: _____

Walker, G.W., 1963. Reconnaissance geologic map of the eastern half of the Klamath Falls (AMS) quadrangle, Lake and Klamath Counties, Oregon. U.S. Geological Survey Mineral Investigations Field Studies Map MF-260. Scale: 1:250,000.

Morgan, D.S., 1988. Geohydrology and numerical model analysis of ground-water flow in the Goose Lake Basin, Oregon and California. U.S. Geological Survey Water-Resources Investigations Report 87-4058.

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 OF INSTREAM REQUIREMENTS

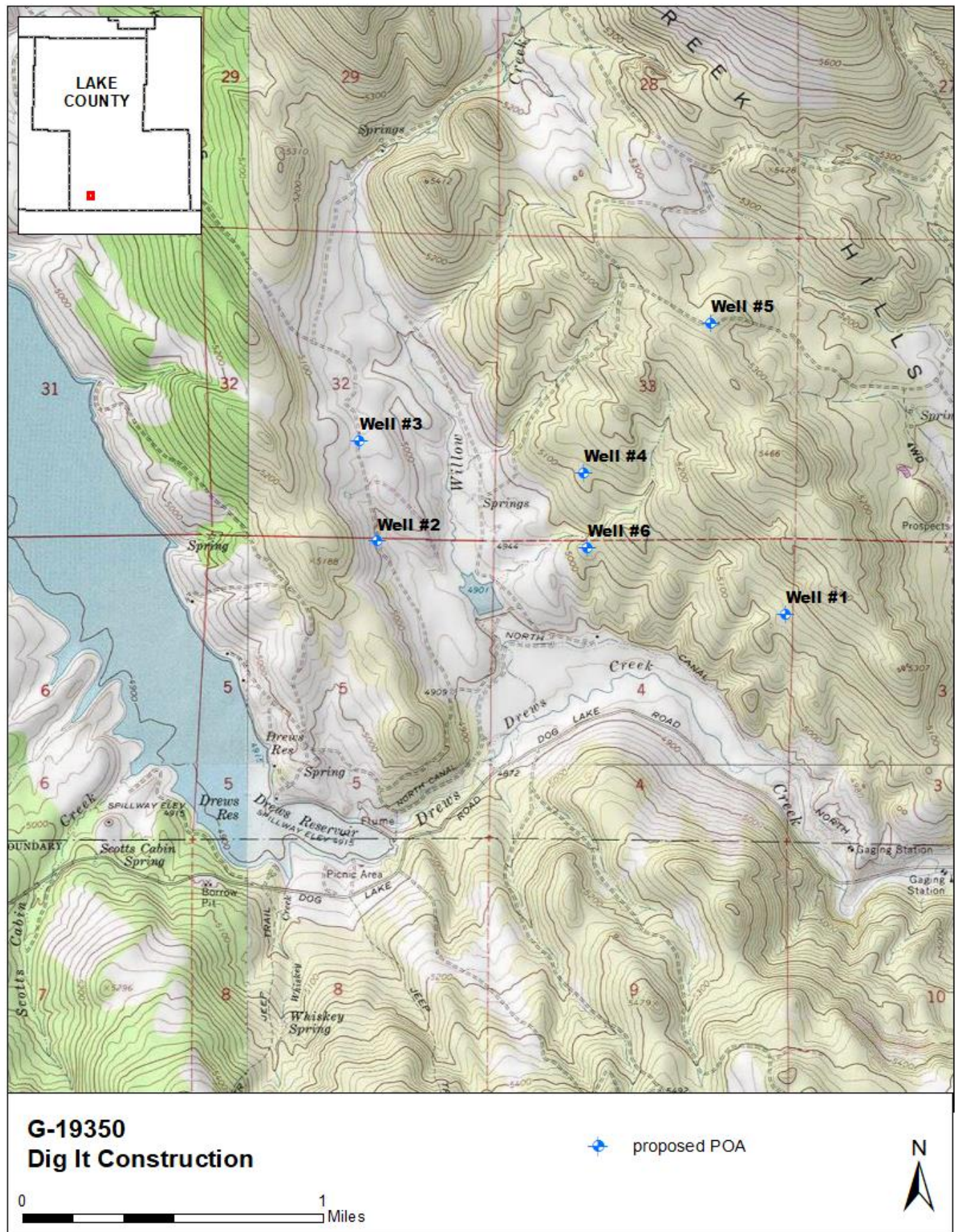
Watershed ID #: 70487		DREWS CR > GOOSE L - AT MOUTH										Basin: GOOSE & SUMMER LAKE	
Time: 9:03 AM												Date: 10/16/2023	
Application Number	Status	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly values are in cfs.													
IS70487A	PFO	20.0	41.0	94.0	160.0	114.0	35.3	6.4	4.8	10.3	3.0	3.00	12.0
MAXIMUM		20.0	41.0	94.0	160.0	114.0	35.3	6.4	4.8	10.3	3.0	3.0	12.0

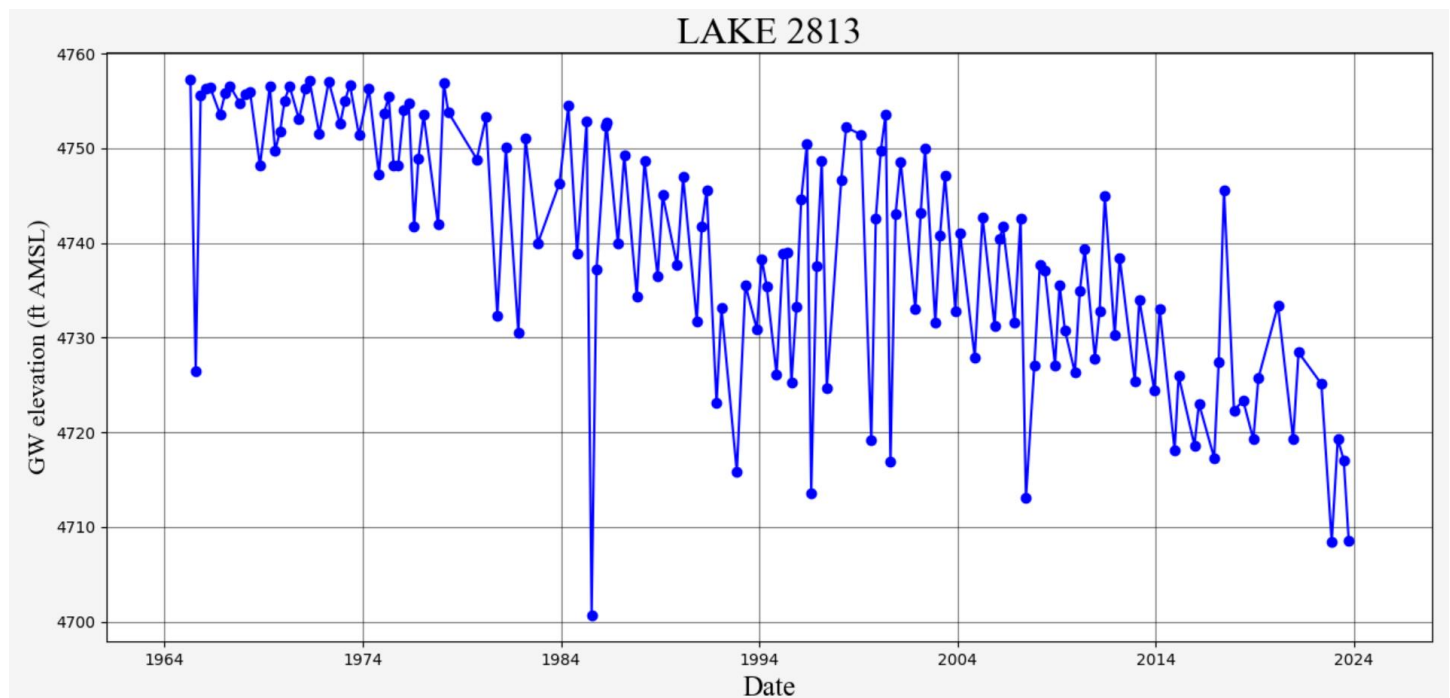
DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION

Watershed ID #: 70487		DREWS CR > GOOSE L - AT MOUTH			Exceedance Level: 80	
Time: 9:04 AM		Basin: GOOSE & SUMMER LAKE			Date: 10/16/2023	
Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available

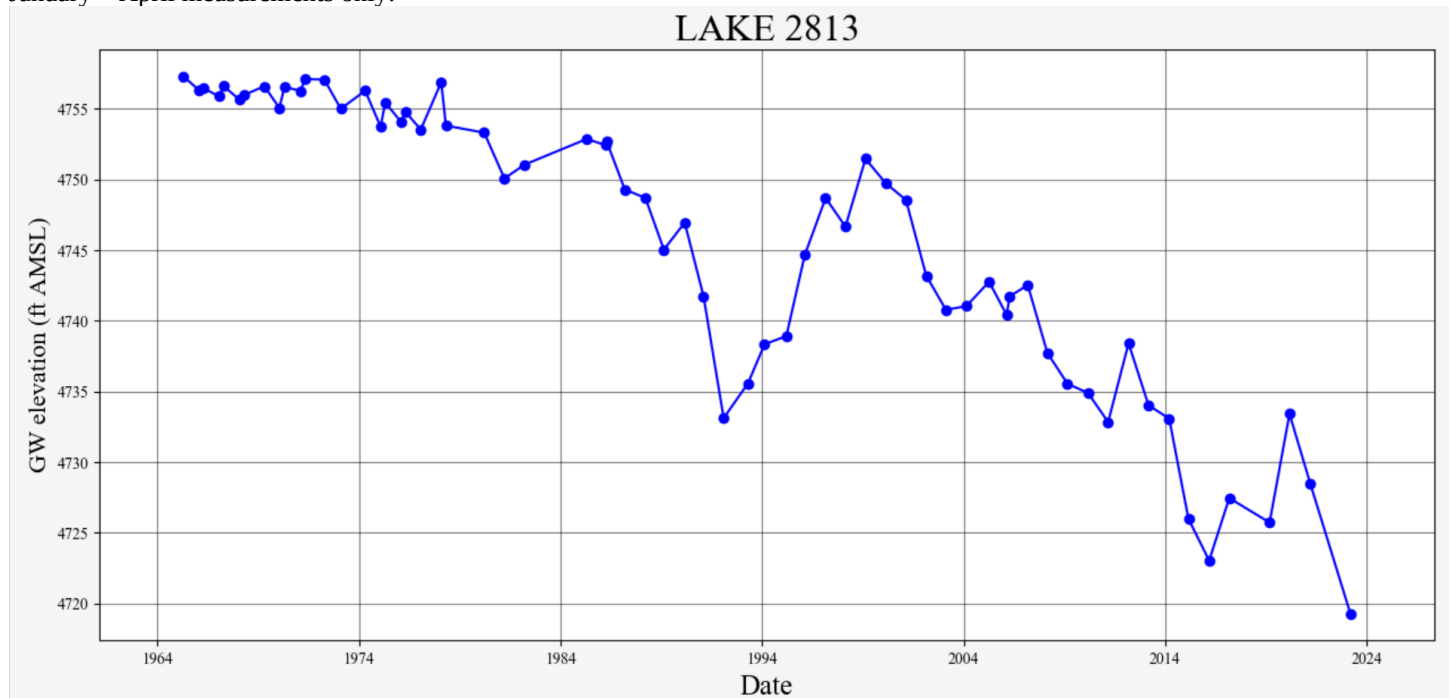
Monthly values are in cfs.						
Storage is the annual amount at 50% exceedance in ac-ft.						
.....						
JAN	3.00	79.10	-76.10	0.00	20.00	-96.10
FEB	27.40	109.00	-82.00	0.00	41.00	-123.00
MAR	102.00	148.00	-46.30	0.00	94.00	-140.00
APR	85.00	172.00	-87.10	0.00	160.00	-247.00
MAY	49.90	106.00	-55.90	0.00	114.00	-170.00
JUN	17.10	85.60	-68.50	0.00	35.30	-104.00
JUL	4.10	25.80	-21.70	0.00	6.42	-28.10
AUG	2.20	13.90	-11.70	0.00	4.80	-16.50
SEP	1.65	12.20	-10.50	0.00	10.30	-20.80
OCT	1.32	7.58	-6.26	0.00	3.00	-9.26
NOV	2.45	17.60	-15.10	0.00	3.00	-18.10
DEC	3.51	75.40	-71.90	0.00	12.00	-83.90
ANN	40,100	51,300	4,190	0	30,300	0

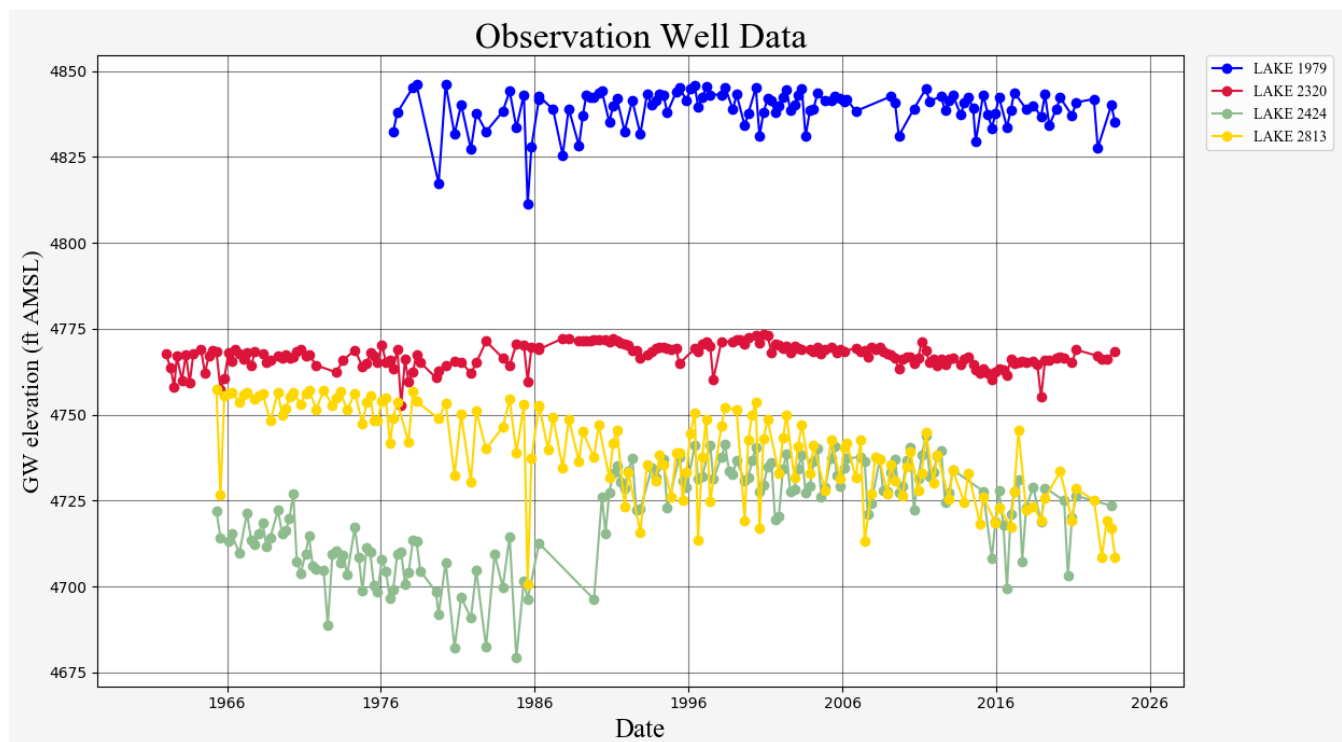
Well Location Map



Water-Level Measurements in Nearby Wells

January – April measurements only:





January – April measurements only:

