WATER RESOURCES DEPARTMENT

MEMO 5-30-2014 ~~,200~~

TO: Application G- 17863

FROM: GW: Jen Woody / Mike Thoma
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

X YES
The source of appropriation is within or above a Scenic Waterway
_____NO

X YES
Use the Scenic Waterway condition (Condition 7J)
_____NO

_____Per ORS 390.835, the Ground Water Section is **able** to calculate ground water interference with surface water that contributes to a Scenic Waterway. The calculated interference is distributed below.

X Per ORS 390.835, the Ground Water 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 **5/29/2014**

FROM: Groundwater Section Jen Woody/ Mike Thoma
Reviewer's Name

SUBJECT: Application G- 17863 Supersedes review of **N/A**
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 ground water 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: BGE Properties LLC County: Jackson

A1. Applicant(s) seek(s) 0.33 cfs from 1 well(s) in the Rogue Basin, Bear Creek subbasin Quad Map: Medford West

A2. Proposed use Irrigation Seasonality: April – October

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	BGE 1	Bedrock	150	37S/02W S 33 SE1/4 SW1/4	616' N, 1641' E from SW corner of S 33
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	1659*	N/A	N/A	N/A	240*	20*	20*					

Use data from application for proposed wells.

A4. **Comments:** *Well is proposed, elevation based on location. Based on nearby well logs, location given puts well in ~ 20 – 50' of fine alluvium overlying bedrock of either marine meta-sediments of the Hornbrook Frm or volcaniclastic rocks of Applegate Gp. The closest well (JACK 54251) lists 16' of alluvium over > 500' of basalt but wells < 0.5 mi west list sandstone on the well logs. Both bedrock groups are low yield, fractured rock aquifers. Proposed seal may not be deep enough to seal off the alluvial aquifer.

A5. ☐ **Provisions of the** Bear Creek (690-515-0020) Basin rules relative to the development, classification and/or management of ground water hydraulically connected to surface water ☐ **are**, *or* ☒ **are not**, activated by this application. (Not all basin rules contain such provisions.)
Comments: Basin rules only apply to development or storage of surface water

A6. ☐ **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: _____
Comments: ___

B. GROUND WATER AVAILABILITY CONSIDERATIONS, OAR 690-310-130, 400-010, 410-0070

B1. **Based upon available data**, I have determined that ground water* 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 ground water 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 ground water 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 ground water resource; or

d. ☒ **will, if properly conditioned**, avoid injury to existing ground water rights or to the ground water resource:
   i. ☒ The permit should contain condition #(s) **7B, 7P, 7D**;
   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 ground water production from no deeper than _____ ft. below land surface;

b. ☐ **Condition** to allow ground water production from no shallower than _____ ft. below land surface;

c. ☒ **Condition** to allow ground water production only from the **Bedrock** ground water reservoir ~~between approximately 20 ft. and 500 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 Ground Water 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. **Ground water availability remarks:** Water levels for bedrock wells are 20 – 50 ft bls and water bearing zones are 50 – 200' bls. Groundwater level data from nearby wells are limited to 2-3 measurements with sometimes large gaps between measurements (see figure). No obvious water level trends appear in the data. Well logs in the area that are completed within the bedrock aquifer have yields that range from 0.5 to 40 with a median value of 12 gpm. The applicant proposes to use 150 gpm, which is approximately ten times the reported median yield. For this reason, it is unlikely that one well will be able to provide water at the applicant's desired rate of 150 gpm. As the application is written, it is likely that the groundwater resource cannot sustain the use.

There are few existing groundwater rights in the area (listed below) but the greatest possible substantial impact will be to residential wells located southeast of the proposed well (see map). At the proposed rate the low-yield aquifer could lead to substantial drawdown in nearby wells, but at the likely yield of the well (much lower than proposed), hydraulic interference should be minimal.

Cert. 15239 and 15238 are SW rights for diversion from nearby abandoned mine tunnels. Although these are surface water rights they are likely acting as GW wells (withdrawing GW as is seeps into mine tunnels) depending on the depth of the mines they could access the same bedrock groundwater resource as the proposed use. There is no construction information available to determine that injury from the proposed use is likely.
Cert GR 2241 is a shallow (55') well accessing the alluvial aquifer and will not likely be impacted by the proposed well if the proposed well is properly cased and sealed into the bedrock aquifer.

C. GROUND WATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040

C1. **690-09-040 (1):** Evaluation of aquifer confinement:

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
1	**Volcaniclastic rocks of Applegate Group**	☒	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: Water level elevations from wells near the proposed well are higher than elevations of water bearing zones. Bedrock aquifers are overlain by fine alluvial sediment.

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	**Pond at Sanitary Landfill**	**1639***	**1895**	**2607**	☐	☒	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: *GW elevation estimated from nearby wells. The only surface water source < 1 mi is the landfill pond, but satellite photos (google earth) do not show any water since 1994. The pond is also located in a separate alluvium-filled valley separated by a bedrock ridge from the well location, therefore hydraulic connection is not likely. If the proposed well is completed into the bedrock it is not likely to interfere with the pond.

Water Availability Basin the well(s) are located within: Watershed ID #: 71200 Griffen Cr > Bear Cr

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 <u>by total appropriation</u> 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: There are no perennial streams within 1 mi of the proposed well location to which the WAB criteria 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: Impacts at greater than 1 mile cannot be accurately modeled in this situation

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 ground water 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: Robinson, J. H., 1971, Availability and quality of ground water in the Medford Area, Jackson County, Oregon, Hydrologic Investigations Atlas HA-392

Nilson, T. H., 1993, Stratigraphy of the Cretaceous Hornbrook Formation, Southern Oregon and Northern California, USGS Professional Paper 1521

OWRD Well Log Database, accessed 05/28/2014

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #:** _____ **Logid:** _____

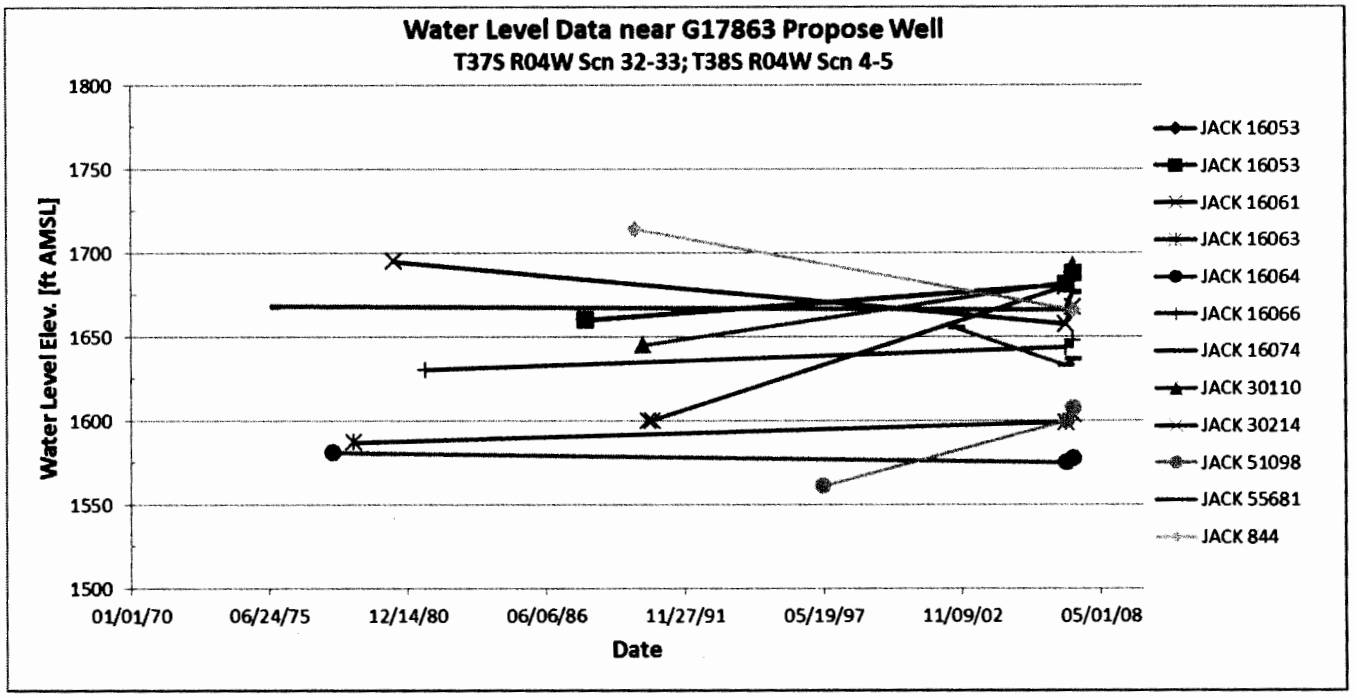
D2. **THE WELL does not appear to meet current well construction standards based upon:**

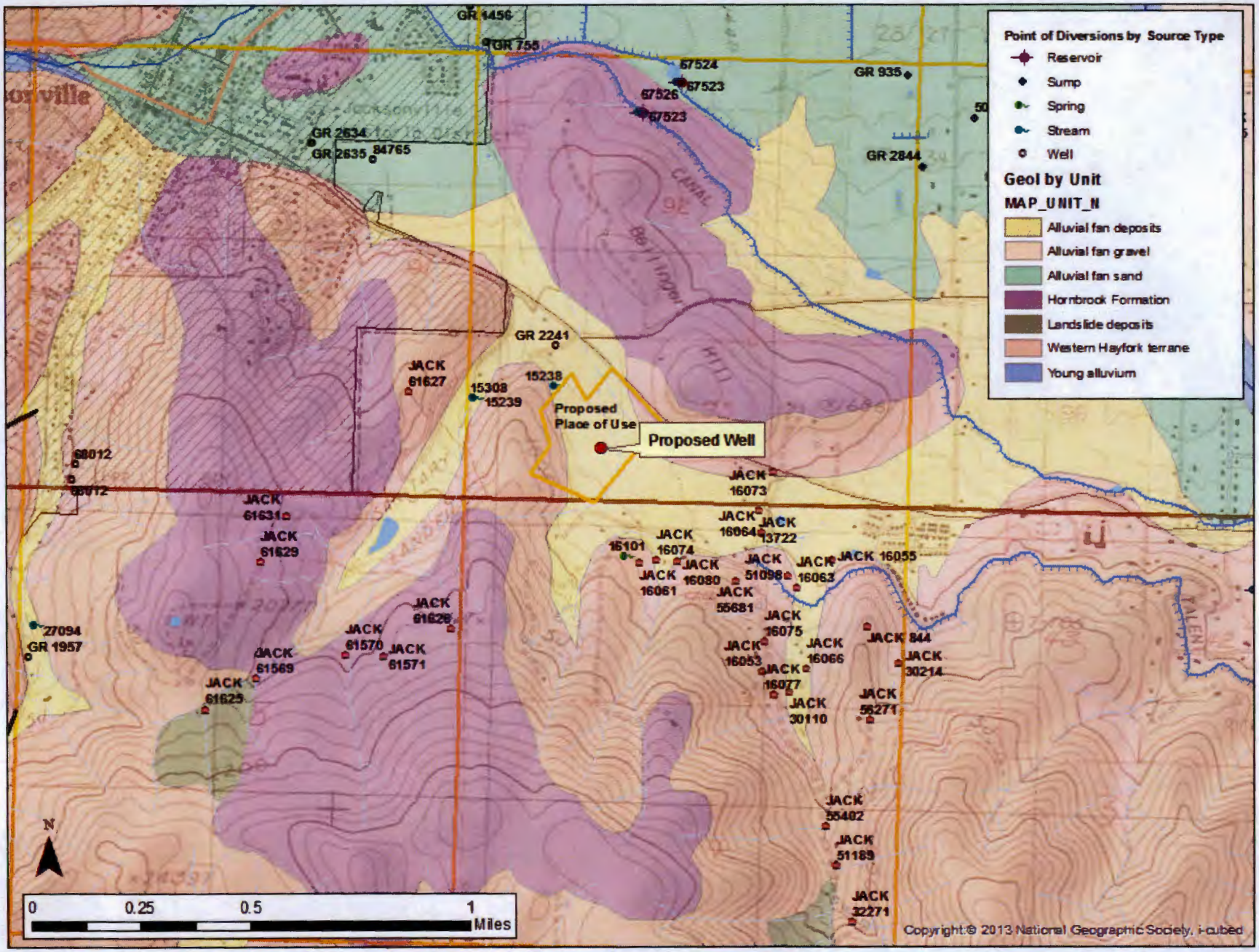
a. ☐ review of the well log;
b. ☐ field inspection by _____;
c. ☐ report of CWRE _____;
d. ☐ other: (specify) _____

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




Point of Diversions by Source Type
Reservoir
Sump
Spring
Stream
Well
Geol by Unit
MAP_UNIT_N
Alluvial fan deposits
Alluvial fan gravel
Alluvial fan sand
Hornbrook Formation
Landslide deposits
Western Hayfork terrane
Young alluvium
Proposed Place of Use
Proposed Well
GR 1456
GR 755
GR 935
GR 2844
GR 2634
GR 2635
84765
67524
67523
67526
67523
GR 2241
15238
15308
15239
JACK 61627
JACK 61631
JACK 61629
JACK 61628
JACK 61570
JACK 61571
JACK 61569
JACK 61625
JACK 16073
JACK 16064
JACK 13722
JACK 16074
15101
JACK 16080
JACK 16061
JACK 55681
JACK 51098
JACK 16063
JACK 16055
JACK 16075
JACK 16053
JACK 16066
JACK 16077
JACK 30110
JACK 844
JACK 30214
JACK 56271
JACK 55402
JACK 51189
JACK 32271
27094
GR 1957
N
0 0.25 0.5 1 Miles
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