

Approved: 

MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager
From: Travis Kelly, Well Construction Program Coordinator
Subject: Review of Water Right Application G-19139
Date: August 24, 2021

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

Applicant's Wells #1 through #7 (Proposed Wells): Wells #1 through #7 are proposed wells, therefore they cannot be reviewed for construction. Construction of these proposed wells shall be completed in a manner that protects ground water resources as required under Oregon Administrative Rules 690-200 through 690-240. During construction of these well, specific attention should be paid to ensure sealing requirements are met and that the wells do not commingle aquifers.

The construction of proposed Wells #1 through #7 may not satisfy hydraulic connection issues.

Applicant's Well #8 (DESC 756): Based on a review of the Well Report, Applicant's Well #8 seems to protect the groundwater resource.

The construction of Applicant's Well #8 may not satisfy hydraulic connection issues.

STATE OF OREGON
WATER WELL REPORT
 (as required by ORS 537.765)

DESC 756

JAN 25 1991

55/12E/1900

WATER RESOURCES DEPT (START CARD) # *24901*

(1) OWNER: Well Number: *SALEM*
 Name *Harry Kern*
 Address *1336 NE Eby*
 City _____ State _____ Zip _____

(9) LOCATION OF WELL by legal description:
 County *Desch* Latitude _____ Longitude _____
 Township *15* N or S, Range *12* E or W, WM.
 Section *29* NE $\frac{1}{4}$ NE $\frac{1}{4}$
 Tax Lot *7800* Lot _____ Block _____ Subdivision _____
 Street Address of Well (or nearest address) *Cline Butte*

(2) TYPE OF WORK:
 New Well Deepen Recondition Abandon

(3) DRILL METHOD
 Rotary Air Rotary Mud Cable
 Other _____

(4) PROPOSED USE:
 Domestic Community Industrial Irrigation
 Thermal Injection Other _____

(5) BORE HOLE CONSTRUCTION:
 Special Construction approval Yes No Depth of Completed Well *880* ft.
 Explosives used Type _____ Amount _____

HOLE			SEAL			Amount sacks or pounds
Diameter	From	To	Material	From	To	
<i>12</i>	<i>0</i>	<i>18 1/2</i>	<i>Cement</i>	<i>0</i>	<i>18 1/2</i>	<i>8 Sacks</i>
<i>8</i>	<i>18 1/2</i>	<i>880</i>				

How was seal placed: Method A B C D E
 Other _____
 Backfill placed from _____ ft. to _____ ft. Material _____
 Gravel placed from _____ ft. to _____ ft. Size of gravel _____

(6) CASING/LINER:

Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
<i>8</i>	<i>+1 1/2</i>	<i>18 1/2</i>	<i>250</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Liner: _____

Final location of sheets) _____

(7) PERFORATIONS/SCREENS:

Perforations Method _____
 Screens Type _____ Material _____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>

(8) WELL TESTS: Minimum testing time is 1 hour
 Pump Bailer Air Flowing Artesian
 Yield gal/min *10* Drawdown *0* Drill stem at *860* Time *1 hr.*

Temperature of water *53* Depth Artesian Flow Found _____
 Was a water analysis done? Yes By whom _____
 Did any strata contain water not suitable for intended use? Too little
 Salty Muddy Odor Colored Other _____
 Depth of strata: _____

(10) STATIC WATER LEVEL:
730 ft. below land surface. Date *1-15-91*
 Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:

Depth at which water was first found _____

From	To	Estimated Flow Rate	SWL
<i>830</i>	<i>880</i>		<i>730</i>

(12) WELL LOG: Ground elevation _____

Material	From	To	SWL
<i>Top Soil</i>	<i>0</i>	<i>3</i>	
<i>Brown S.S. Congl.</i>	<i>3</i>	<i>32</i>	
<i>dark S.S. Congl.</i>	<i>32</i>	<i>37</i>	
<i>Red S.S. Congl.</i>	<i>37</i>	<i>45</i>	
<i>Brown SS. Congl</i>	<i>45</i>	<i>78</i>	
<i>Dark Br. SS. Congl</i>	<i>78</i>	<i>117</i>	
<i>Brown, SS.</i>	<i>117</i>	<i>136</i>	
<i>Dark Br. SS.</i>	<i>136</i>	<i>154</i>	
<i>Brown SS</i>	<i>154</i>	<i>360</i>	
<i>Brown S.S. Congl. Hard</i>	<i>360</i>	<i>390</i>	
<i>Brown SS. Congl. Softer</i>	<i>390</i>	<i>406</i>	
<i>Brown S.S. Congl. Hard</i>	<i>406</i>	<i>421</i>	
<i>Brown S.S. Congl. soft</i>	<i>421</i>	<i>426</i>	
<i>Brown S.S. Hard</i>	<i>426</i>	<i>483</i>	
<i>Red S.S. Hard</i>	<i>483</i>	<i>546</i>	
<i>lava</i>	<i>546</i>	<i>582</i>	
<i>Brown S.S. Congl.</i>	<i>582</i>	<i>674</i>	
<i>lava</i>	<i>674</i>	<i>707</i>	
<i>Brown SS</i>	<i>707</i>	<i>780</i>	
<i>lava</i>	<i>780</i>	<i>828</i>	
<i>Red S.S. (W.B)</i>	<i>828</i>	<i>830</i>	
<i>frac. lava</i>	<i>830</i>	<i>880</i>	

Date started *1-9-91* Completed *1-15-91*

(unbonded) Water Well Constructor Certification:
 I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to my best knowledge and belief.
 Signed _____ WWC Number _____
 Date _____

(bonded) Water Well Constructor Certification:
 I accept responsibility for the construction, 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 well construction standards. This report is true to the best of my knowledge and belief.
 Signed *William D. Kern* WWC Number *1255*
 Date *1-16-91*

Groundwater Application Review Summary Form

Application # G 19139

GW Reviewer Mike Thoma

Date Review Completed: 08/12/2021

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 Deschutes Basin Rules.

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****08/12/2021****TO: Application G- 19139****FROM: GW: Mike Thoma**
(Reviewer's Name)**SUBJECT: Scenic Waterway Interference & General/Local Surface Water Evaluation for Deschutes Ground Water Study Area**

The source of appropriation is within or above the Deschutes Scenic Waterway

Use the Scenic Waterway condition (Condition 7J).

PREPONDERANCE OF EVIDENCE FINDING UNDER ORS 390.835:

Department has found that there is a preponderance of evidence that the proposed use of groundwater will measurably reduce the surface water flows necessary to maintain the free-flowing character of the Deschutes Scenic Waterway in quantities necessary for recreation, fish and wildlife.

LOCALIZED IMPACT FINDING

The proposed use of groundwater will have a localized impact to surface water in the Middle Deschutes River/Creek Subbasin.

If the localized impact box above is checked, then the water use under any right issued pursuant to this application is presumed to have a localized impact on surface water within the identified subbasin. Mitigation of the impact, originating from within the Local Zone of Impact identified by the Department, will be required before a permit may be issued for the proposed use.

If the localized impact box above is not checked, then the water use under any right issued pursuant to this application is presumed to have a general (regional) impact on surface water. Mitigation of the impact, originating anywhere within the Deschutes Basin above the Madras gage, will be required before a permit may be issued for the proposed use.

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 08/12/2021
 FROM: Groundwater Section Mike Thoma
 Reviewer's Name
 SUBJECT: Application G- 19139 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: Kameron DeLashmutt/Pinnacle Utilities, LLC
 County: Deschutes

A1. Applicant(s) seek(s) 9.28 cfs from 8 well(s) in the Deschutes Basin,
Upper Deschutes subbasin

A2. Proposed use Quasi-Municipal 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	PROP	1	Deschutes Fm	9.28	15S/12E-28SENE	2519'S, 578'W fr NE cor S 28
2	PROP	2	Deschutes Fm	9.28	15S/12E-28NWSE	2958'S, 2316'W fr NE cor S 28
3	PROP	3	Deschutes Fm	9.28	15S/12E-28SENW	1752'S, 3044'E fr NE cor, S 28
4	PROP	4	Deschutes Fm	9.28	15S/12E-29NWSE	1677'N, 1466'W fr SE cor S 29
5	PROP	5	Deschutes Fm	9.28	15S/12E-20NESE	205'S, 434'W fr E1/4 cor S 20
6	PROP	6	Deschutes Fm	9.28	15S/12E-20SWNE	244'N, 1667'W fr E1/4 cor, S 20
7	PROP	7	Deschutes Fm	9.28	15S/12E-17SENW	2446'S, 1180'W fr N1/4 cor, S 17
8	DESC 756	8	Deschutes Fm	9.28	15S/12E-29NENE	900'S, 850'W fr NE cor S 29

* 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	3211	-	-	-	800-900	-	-2-18	-	-	-	-	-
2	3231	-	-	-	800-900	-	-2-18	-	-	-	-	-
3	3274	-	-	-	900-1000	-	-2-18	-	-	-	-	-
4	3213	-	-	-	900-1000	-	-2-18	-	-	-	-	-
5	3626	-	-	-	800-900	-	-2-18	-	-	-	-	-
6	3457	-	-	-	800-900	-	-2-18	-	-	-	-	-
7	3119	-	-	-	800-900	-	-2-18	-	-	-	-	-
8	3339	830	730	1/15/1991	880-1000	0-18.5	-1.5-18.5	-	-	10	0	A

Use data from application for proposed wells.

A4. **Comments:** Applicant proposes to draw water from the Deschutes Formation, drawn from one existing 8" well and seven proposed 14" wells for general construction, road construction, and initial quasi-municipal uses. DESC 756 is open below the 18.5 ft of casing and draws water from "frac. Lava" at depths between 830 to 880 feet below land surface. Several of the POAs listed on this application are listed in application LL-1879 and T-13703. This application is requesting water as "backup to Permit G-17036," which is for six proposed wells in the same area.

A5. **Provisions of the** Deschutes (OAR 690-505) 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 POAs are within the Deschutes Ground Water Study Area

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;
This finding assumes that the existing permit, G-17036, will not be used in conjunction with this use, as is stated in the application.
- 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) _____;
 - 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 several wells in the area producing from the same groundwater source as the proposed POAs that have water level records that show a long-term declining trend. There are a few wells in the immediate vicinity of Cline Buttes that do not show the same long-term declines, but the majority of wells in the broader area show significant, monotonic declines (see hydrograph below). A joint study by the USGS and OWRD concluded that this widespread decline, which extends toward Powell Buttes to the east, is due to climate changes and canal lining (which have reduced recharge to the aquifer locally) as well as groundwater pumping (Gannett, et. al., 2013). The specific reason why wells closer to Cline Butte are not showing the same declines may be due to local heterogeneity (lateral and vertical) within the aquifer system, less groundwater pumping in the immediate area, or other factors, but those wells and trends do not represent the regional aquifer-system trend. Since existing groundwater appropriation has been found to be contributing to water level declines in the area, any new appropriation will continue or increase those declines and so the proposed new use is not within the Capacity of the Resource.

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

Analysis in Section C is omitted in leu of the Deschutes Mitigation Rules

References Used:

Gannett, M. W. and Lite, K. E., 2004, Simulation of Regional Ground-Water Flow in the Upper Deschutes Basin, Oregon, USGS Water Resources Investigation Report 2003-4195, 84 p., <https://pubs.er.usgs.gov/publication/wri034195>

Gannett, M. W. and Lite, K. E., 2013, Analysis of 1997-2008 Groundwater Level Changes in the Upper Deschutes Basin, Central Oregon, USGS Scientific Investigations Report 2013-5092, 34p., <https://pubs.er.usgs.gov/publication/sir20135092>

Gannett, M. W., Lite Jr, K. E., Morgan, D. S., and Collins, C. A., 2001, Ground-Water Hydrology of the Upper Deschutes Basin, Oregon, USGS Water-Resources Investigations Report 00-4162, 74 p., <https://pubs.usgs.gov/wri/wri004162/pdf/WRIR004162.pdf>

Gannett, M.W., Lite, K.E., Jr., Rislely, J.C., Pischel, E.M., and La Marche, J.L., 2017, Simulation of groundwater and surface-water flow in the upper Deschutes Basin, Oregon: U.S. Geological Survey Scientific Investigations Report 2017-5097, 68 p., <https://doi.org/10.3133/sir20175097>.

Lite, K. E. and Gannett, M. W., 2002, Geologic Framework of the Regional Ground-Water Flow System in the Upper Deschutes Basin, Oregon. USGS Water-Resources Investigation Report 02-4015, 44 p., <https://pubs.er.usgs.gov/publication/wri024015>

Sherrod, D. R., Taylor, E. M., Ferns, M. L., Scott, W. E., Conrey, R. M. and Smith, G. A., 2004, Geologic Map of the Bend 30-x-60-Minute Quadrangle, Central Oregon. U. S. Geological Survey Geologic Investigations Series Map I-2683. 49p., <https://pubs.usgs.gov/imap/i2683/>

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: _____ Logid: _____

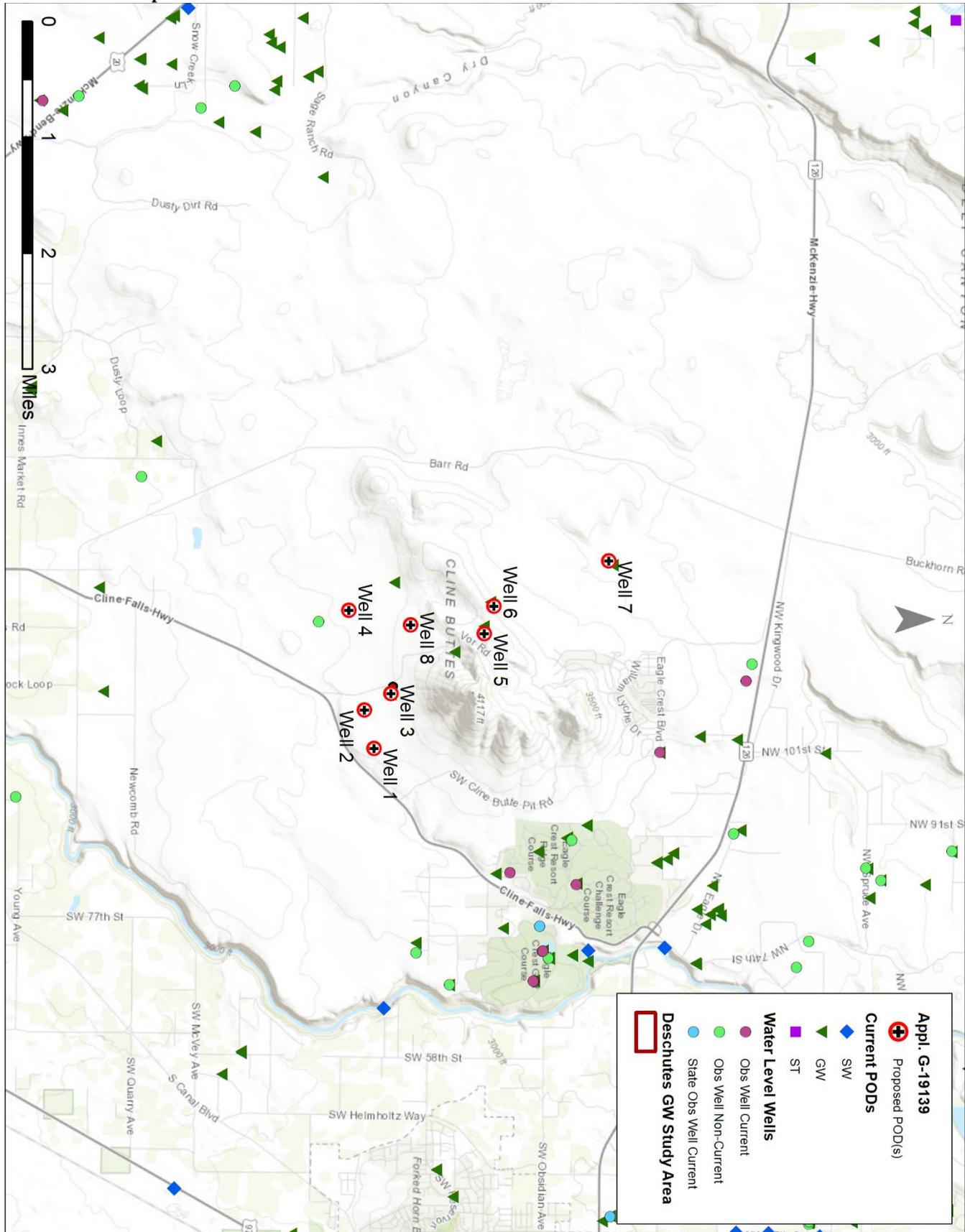
D2. THE WELL does not appear to meet current well construction standards based upon:

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

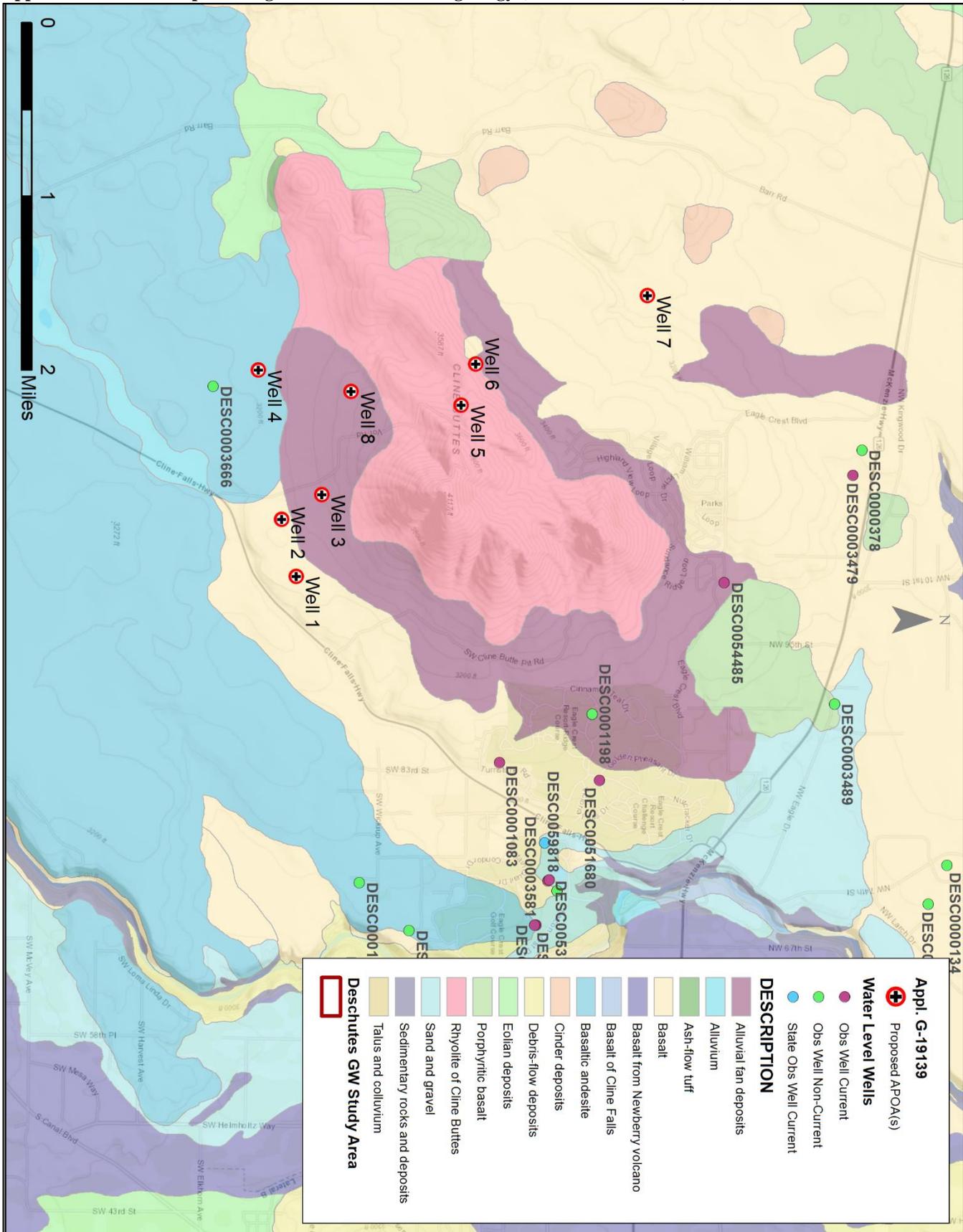
D3. THE WELL construction deficiency or other comment is described as follows: _____

D4. Route to the Well Construction and Compliance Section for a review of existing well construction.

Well Location Map



Application Review Map showing water-level wells and geology (from Sherrod et al., 2004)



Appl. G-19139

Proposed APOA(s)

Water Level Wells

- Obs Well Current
- Obs Well Non-Current
- State Obs Well Current

DESCRIPTION

- Alluvial fan deposits
- Alluvium
- Ash-flow tuff
- Basalt
- Basalt from Newberry volcano
- Basalt of Cline Falls
- Basaltic andesite
- Cinder deposits
- Debris-flow deposits
- Eolian deposits
- Porphyrific basalt
- Rhyolite of Cline Buttes
- Sand and gravel
- Sedimentary rocks and deposits
- Talus and colluvium

Deschutes GW Study Area

Water-Level Measurements in Nearby Wells; water levels below 2650 ft are from wells in the immediate vicinity of Cline Buttes

