

Approved: 

MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager
From: Travis Kelly, Well Construction Program Coordinator
Subject: Review of Water Right Application LL-1832
Date: July 1, 2020

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

Applicant's Well #1 (SHER 50175): Based on a review of the Well Report, Applicant's Well #1 seems to protect the groundwater resource.

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

STATE OF OREGON
WATER SUPPLY WELL REPORT

(as required by ORS 537.765)

Instructions for completing this report are on the last page of this form

WELL ID # L **L70770**

(START CARD) # **168541**

(1) OWNER:

Well Number: _____

Name **The Barnett Est. (Don Hilderbrand)**

Address **P. O. Box 273**

City **Wasco** State **OR** Zip **97065**

(2) TYPE OF WORK:

☒ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:

☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger
☐ Other

(4) PROPOSED USE:

☐ Domestic ☐ Community ☐ Industrial ☒ Irrigation
☐ Thermal ☐ Injection ☐ Livestock ☐ Other

(5) BORE HOLE CONSTRUCTION:

Special Construction approval ☐ Yes ☒ No Depth of Completed Well **142** ft.
Explosives used ☐ Yes ☒ No Type _____ Amount _____

HOLE			SEAL			Amount	
Diameter	From	To	Material	From	To	sacks or pounds	
20"	0	20	Cement	0	20'	18 Sacks	
16"	20'	102'	Cement	0	102'	101 Sacks	
12"	102'	142'					

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
Casing:	16"	+1	20'	.250	☒	☐	☒	☐
	12"	+2'	102'	.250	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s) **102**

(7) PERFORATIONS/SCREENS:

☐ Perforations

Method

☐ Screens

Type

Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
						☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour

☐ Pump ☐ Bailor ☐ Air ☒ Flowing Artesian

Yield gal/min **180** Drawdown **0%** Drill stem at **1 hr.** Time

Temperature of Water **57** Depth Artesian Flow found **128**

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: **80 to 89**

(9) LOCATION OF WELL by legal description:

County **Sherman** Latitude **45.60119N** Longitude **120.7062W**

Township **1N** N or S. Range **17E** E or W. of WM.

Section **4** SW 1/4 NW 1/4

Tax lot **800** Lot _____ Block _____ Subdivision _____

Street Address of Well (or nearest address) **71025 N. Old Highway**

97, Wasco, Or

(10) STATIC WATER LEVEL:

ft. below land surface.

Date

Artesian pressure **24** lb. per square inch.

Date **10/06/2005**

(11) WATER BEARING ZONES:

Depth at which water was first found **80**

From	To	Estimated Flow Rate	SWL
80	89	80	22'
128	133	180	+55.4

(12) WELL LOG:

Ground elevation _____

Material	From	To	SWL
Soil	0	2	
Basalt Hard Gray	2	4	
Rock Fract. Brown	4	15	
Basalt Hard Gray	15	33	
Basalt Fract. Black	33	60	
Basalt Brown Med.	60	64	
Clay Yellow	64	80	
Rock Decomposed Brown W/B	80	89	22
Basalt Hard Gray	89	128	
Basalt Fract. Med. Gray W/B	128		
Flowing		133	
Basalt Hard Gray	133	138	
Basalt Fract. Hard Gray	138	142	

Bottom of well is plugged with a wood plug with bentonite on top of wood and topped with cement. Plug is from 134 to 142 ft.

RECEIVED

NOV 08 2005

**WATER RESOURCES DEPT
SALEM, OREGON**

Date started **06/30/2005**

Completed **10/10/2005**

(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 water supply well construction standards. Materials used and information reported above are true to my best knowledge and belief.

WWC Number _____

Signed _____

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 water supply well construction standards. This report is true to the best of my knowledge and belief.

WWC Number **790**

Signed _____

Date **10/28/2005**

Charles Austin

Groundwater Application Review Summary Form

Application # LL- 1832

GW Reviewer Aurora C Bouchier Date Review Completed: 6/17/2020

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

June 17, 2020

TO: Application LL- 1832

FROM: GW: Aurora C Bouchier
(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 _____ 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 June 17, 2020
 FROM: Groundwater Section Aurora C Bouchier
 SUBJECT: Application LL- 1832 Reviewer's Name
 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: Barnett Estate County: Sherwood

A1. Applicant(s) seek(s) * cfs from 1 well(s) in the Deschutes** Basin,
Spanish Hollow Creek subbasin

A2. Proposed use: F-1 (construction of wind farm) Seasonality: June 2020 – December 2023

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	SHER 50175	1	CRB	*	1N/17E-4 SW-NW	1830' S, 60' E fr NW cor S 4
2						

* 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	1215	128***	+55	10/6/2005	134***	0-102	+1-20, +2-102	-	-	180	-	flow

Use data from application for proposed wells.

A4. **Comments:** *The application states that the estimated daily water needs average approximately 100,000 gal/day, however a maximum daily rate of 259,200 gal/day may be possibly used during peak construction. The application explains that whatever water is utilized by this LL during the irrigation season will be subtracted from the water available under app G-16663/permit G-16196 (also Barnett Estate). Further, any water utilized by this LL during the non-irrigation season will be subtracted from the water available to the Barnett Estate under app G-16663/permit G-16196 during the following irrigation season. In effect, this results in no additional water production from SHER 50175 above what is already authorized.

**The proposed POA (SHER 50175) is within a drainage that is tributary to the Columbia River, not within the Deschutes of John Day SWW.

***A water-bearing zone from 80-89 feet was sealed and cased off. The well was drilled to a maximum depth of 142 feet, however the well was plugged with wood, bentonite and cement from 134-142 feet.

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: Not within the USGS Study Area Boundary.

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, 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:** The groundwater review for previous applications in the area point out the potential for water-level declines and an overdraft of the resource that potentially exists everywhere the Columbia River Basalt aquifers are developed, particularly east of the Cascades where recharge is limited.

It is likely that SHER 50175 and nearby SHER 50058 are producing from the same zone. A previous LL groundwater review (LL-1677, dated 12/13/2016) noted that the water-level in the zone these wells are producing from has declined by some 17.48 feet since 2009 in SHER 50175 to approximately 45 feet since 2014 in SHER 50058. However, since late 2016 it appears that the water level in this zone has recovered following a period of limited groundwater use (see Water Use and Water Level charts at end of review).

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	Columbia River Basalt Group	☒	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: Flowing artesian wells in this area indicate confined conditions

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	Spanish Hollow (intermittent)	~1270	1180	400	☐	☒	☐	☐	☒
1	2	Unnamed trib to Spanish Hollow at spring	~1270	1204	3800	☐	☒	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: The presence of mapped springs at elevations below the head in the well suggests that groundwater discharges locally to surface water, but not likely at the nearest reach of the creeks. It appears likely that hydraulic connection is at least one mile from the well based on aerial imagery, geology and the intermittent nature of Spanish Hollow.

Water Availability Basin the well(s) are located within: No WAB data in this area.

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

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: This section does not apply.

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: Application file: LL-1832, and nearby application files LL-1677, G-16571, G-16663, G-16885 and G-16972.

Wasco Quadrangle topographic map.

OWRD well log and water-level database.

Swanson, D. A., Anderson, J. L., Camp, V. E., Hooper, P. R., Taubeneck W. H., and Wright, T. L., 1981, Reconnaissance geologic map of the Columbia River Basalt Group, Northern Oregon and Western Idaho: Reston, Va., U.S. Geological Survey, Open File Report.

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: 1 Logid: SHER 50175

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

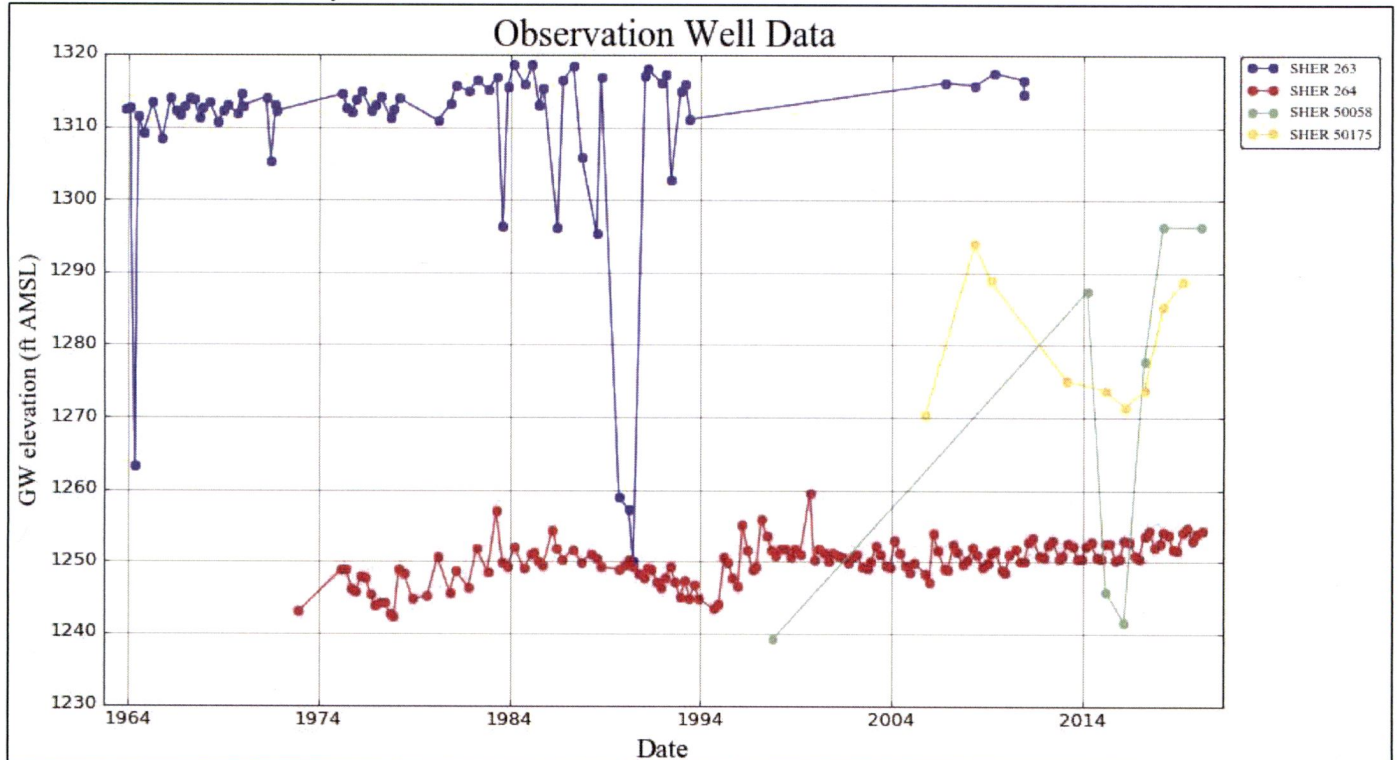
- a. ☐ review of the well log;
 b. ☐ field inspection by _____;
 c. ☐ report of CWRE _____;
 d. ☐ other: (specify) _____

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

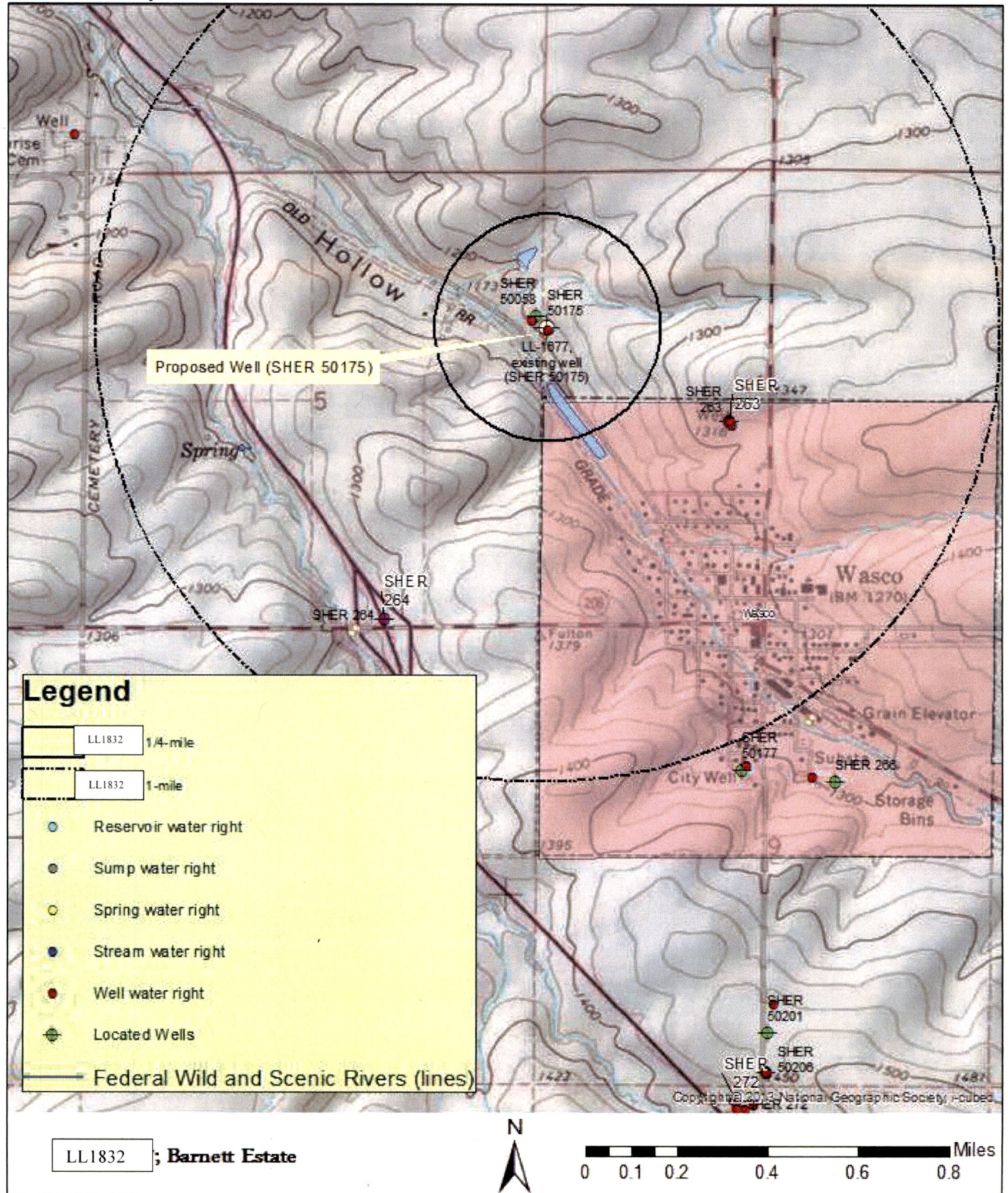
D4. ☐ Route to the Well Construction and Compliance Section for a review of existing well construction.

Water Availability Tables

NA

Water-Level Trends in Nearby Wells

Well Location Map



Water Use and Water Level

