

Groundwater Application Review Summary Form

Application # G- 19263

GW Reviewer Joe Kemper Date Review Completed: 11/30/2023

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

11/30/2023

TO: Application G- 19263

FROM: GW: Joe Kemper
(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 Crooked 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 11/30/2023
 FROM: Groundwater Section Joe Kemper
 Reviewer's Name
 SUBJECT: Application G- 19263 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: City of Prineville County: Crook

A1. Applicant(s) seek(s) 4.46 cfs from 21 well(s) in the Deschutes Basin,
Lower Crooked subbasin

A2. Proposed use Municipal (3226 AF/yr) Seasonality: Year-Round

A3. Well and aquifer data (attach and number logs for existing wells; mark proposed wells as such under logid):

POA 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	CROO 54593	WELL 3	Alluvium	0.67	15.00S16.00E 8 NW/NW	422 FT S & 400 FT E FR NW COR, S8
2	CROO 54785	WELL 6	Alluvium	0.67	15.00S16.00E 8 NW/NW	540 FT S & 435 FT E FR NW COR, S8
3	CROO 54792	WELL 7	Alluvium	0.67	15.00S16.00E 8 NW/NW	590 FT S & 510 FT E FR NW COR, S8
4	CROO 54592	WELL 8	Alluvium	0.67	15.00S16.00E 8 NW/NW	585 FT S & 793 FT E FR NW COR, S8
5	CROO 54834	WELL 9	Alluvium	0.67	15.00S16.00E 8 NW/NW	660 FT S & 590 FT E FR NW COR, S8
6	CROO 54832	WELL 10	Alluvium	0.67	15.00S16.00E 8 NW/NW	725 FT S & 670 FT E FR NW COR, S8
7	CROO 54833	WELL 11	Alluvium	0.67	15.00S16.00E 8 NW/NW	825 FT S & 735 FT E FR NW COR, S8
8	CROO 54830	WELL 13	Alluvium	0.67	15.00S16.00E 8 NW/NW	920 FT S & 775 FT E FR NW COR, S8
9	CROO 54831	WELL 15	Alluvium	0.67	15.00S16.00E 8 NW/NW	1020 FT S & 790 FT E FR NW COR, S8
10	CROO 54829	WELL 16	Alluvium	0.67	15.00S16.00E 8 NW/NW	1130 FT S & 800 FT E FR NW COR, S8
11	CROO 54810	WELL 17	Alluvium	0.67	15.00S16.00E 8 NW/NW	1240 FT S & 815 FT E FR NW COR, S8
12	CROO 54789	WELL 18	Alluvium	0.67	15.00S16.00E 8 NW/NW	1325 FT S & 865 FT E FR NW COR, S8
13	CROO 54869	WELL 19	Alluvium	0.67	15.00S16.00E 8 SW/NW	1425 FT S & 890 FT E FR NW COR, S8
14	CROO 54750	WELL 22	Alluvium	0.67	15.00S16.00E 8 SW/NW	1535 FT S & 940 FT E FR NW COR, S8
15	CROO 54588	WELL 24	Alluvium	0.67	15.00S16.00E 8 NE/NW	510 FT S & 1330 FT E FR NW COR, S8
16	PROPOSED	WELL 25	Alluvium	0.67	15.00S16.00E 8 NE/NW	485 FT S & 1620 FT E FR NW COR, S8
17	CROO 53215	WELL 26	Alluvium	0.67	15.00S16.00E 8 NW/NW	105 FT S & 1080 FT E FR NW COR, S8
18	PROPOSED	WELL 27	Alluvium	0.67	15.00S16.00E 5 SE/SW	170 FT S & 1500 FT E FR NW COR, S8
19	PROPOSED	WELL H1	Alluvium	4.46	15.00S16.00E 8 SW/NW	1565 FT S & 930 FT E FR NW COR, S8
20	PROPOSED	WELL H2	Alluvium	4.46	15.00S16.00E 8 SW/NW	1575 FT S & 940 FT E FR NW COR, S8
21	PROPOSED	WELL H3	Alluvium	4.46	15.00S16.00E 8 SW/NW	1585 FT S & 950 FT E FR NW COR, S8

* Alluvium, CRB, Bedrock

POA Well	Well Depth (ft)	Seal Interval (ft)	Casing Intervals (ft)	Liner Intervals (ft)	Perforations Or Screens (ft)	Well Yield (gpm)	Drawdown (ft)	Test Type
1	87	0-54	2-52		52-87	103	54.00	Pump
2	95	0-58	2-60, 90-95		60-90	100	-	Air
3	107	0-72	2-75, 100-107		75-100	100	-	Air
4	140	0-50	2-60		60-140	20	25.00	Bailer
5	98	0-58	2-73, 93-98		73-93	50	-	Air
6	84	0-51	1-60, 80-84		60-80	50	-	Air
7	85	0-55	1-60, 80-85		60-80	50	-	Air
8	92	0-55	1-63, 88-93		63-88	100	-	Air
9	95	0-50	0-65, 90-95		65-90	100	-	Air
10	94	0-54	2-64, 89-94		64-89	100	-	Air
11	93	0-55	2-63, 88-93		63-88	100	-	Air
12	95	0-32	2-60, 90-95		60-90	100	-	Air
13	95	0-48	0-50, 90-95		50-90	50	0.00	Bailer
14	85	0-53	0-85		55-80	30	20.00	Bailer
15	140	0-70	0-140		80-140	30	10.00	Bailer
16	200	0-155	0-70		100-200	NA	NA	NA

17	197	0-155	0-165, 185-195		165-185	150	144.00	Pump
18	200	0-70	0-100		100-200	NA	NA	NA
19	40	0-18	0-30		18-40	NA	NA	NA
20	40	0-18	0-30		18-40	NA	NA	NA
21	40	0-18	0-30		18-40	NA	NA	NA

POA Well	Land Surface Elevation at Well (ft amsl)	Depth of First Water (ft bls)	SWL (ft bls)	SWL Date	Reference Level (ft bls)	Reference Level Date
1	2867	14	4.5	10/6/2017	4.87	3/28/2019
2	2866	11	6	7/3/2019	6.27	3/31/2021
3	2866	11	9	7/25/2019	4.92	3/31/2021
4	2869	13	4	11/8/2017	2.95	4/2/2019
5	2865	24	9	10/7/2019	1.35	3/31/2021
6	2866	22	9	10/7/2019	2.9	3/31/2021
7	2865	10	9	10/10/2019	2.71	3/31/2021
8	2866	15	10	9/11/2019	2.11	3/31/2021
9	2865	11	10	9/3/2019	0.68	3/31/2021
10	2864	13	5	7/16/2019	1.1	3/31/2021
11	2864	20	10	8/13/2019	0.5	3/31/2021
12	2866	10	6	7/29/2019	2.85	3/31/2021
13	2867	21	4	5/14/2019	4.33	3/31/2021
14	2868	20	3	2/28/2019	4.33	3/31/2021
15	2869	10	4.00	1/24/2018	3.72	3/31/2021
16	NA	NA	NA	NA	NA	NA
17	2868	20	20	7/6/2020	20	7/7/2020
18	NA	NA	NA	NA	NA	NA
19	NA	NA	NA	NA	NA	NA
20	NA	NA	NA	NA	NA	NA
21	NA	NA	NA	NA	NA	NA

Use data from application for proposed wells.

A4. **Comments:** _____

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: Impacts to surface water are addressed via the Deschutes Mitigation program.

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) 7RLS (March, 25, 25), 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 three distinct sediment facies underlying the Crooked River within the Prineville valley: 1) 25-100 feet of late Quaternary, fine-to-coarse grained alluvium ranging in depths of ~25-100 feet, 2) mid-late Quaternary fine-grained lacustrine deposits likely resulting from one or more lava dams downstream, and 3) mid-late Quaternary-aged 10–30-foot thick package of coarse-grained alluvium underlying the lacustrine deposits at depths of 200-250 feet. The applicant’s wells access groundwater hosted in the shallow younger alluvium immediately adjacent to the Crooked River. SWLs from wells in shallow alluvium are typically between 1-10 feet BLS and cluster near the elevation of the adjacent Crooked River (~2860 feet amsl). There is little seasonal and interannual variation in observed SWLs (see CROO 2130). Water levels in the deeper, confined alluvium show greater seasonal and interannual fluctuations (see CROO 2133 and CROO 50181). Available water level data in the shallower alluvial aquifer do not indicate consistent, year-on-year declines. It likely has an efficient hydraulic connection to the Crooked River, which acts as a consistent recharge source. Use from the applicant’s wells is expected to come almost fully from capture. Those impacts are addressed by the Deschutes Mitigation program. Well-to-well interference with other senior groundwater users is not likely to cause injury considering the distance to adjacent wells and the Crooked River serving as a recharge source.

Summary statistics for TRS 15S/16E sections 5 and 8 show that, of all wells shallower than 200 feet, only one had an estimated yield higher than 100 gpm; rather, median yield for these shallower wells is 25 gpm. The requested rate of 4.46 cfs for wells H1, H2, and H3 would normally be found not within the capacity of the resource because it is far above what aquifer can supply to normal water supply wells. However, the higher permitted rate may be possible because of the proposed horizontal, collector style construction.

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

C6. SW / GW Remarks and Conditions: Impacts to surface water are addressed via the Deschutes Mitigation program.

References Used:

Brody-Heine, B, and Kohlbecker, M. 2011, Development of a Steady State Numerical Groundwater Model within the Prineville Study Area. GSI Water Solutions Inc, 50 p.

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>

Groundwater Information System (GWIS). Oregon Water Resources Department. https://apps.wrd.state.or.us/apps/gw/gw_info/gw_info_report/gw_search.aspx Accessed 11/30/2023

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>

McClaghry, J. D., et al. Geologic Map of the North Half of the Lower Crooked River Basin, Crook, Deschutes, Jefferson, and Wheeler Counties, Oregon, scale 1:63,360, 64" x 60". DOGAMI Bulletin 108

Robinson, J. W., and Don Price. 1964. Ground Water in the Prineville Area, Crook County, Oregon. USGS Water Supply Paper, <https://doi.org/10.3133/wsp1619P>.

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: _____ Logid: _____

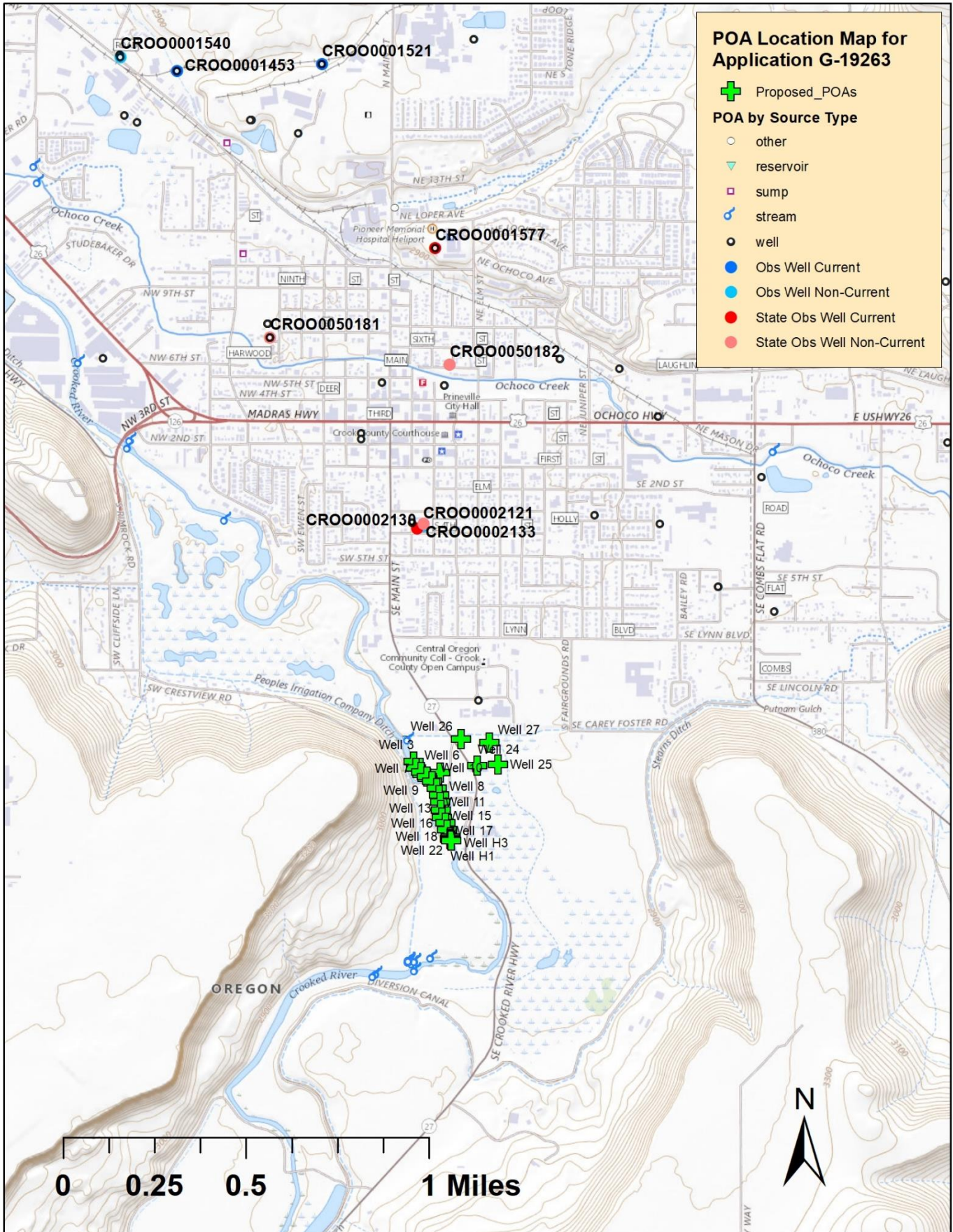
D2. **THE WELL does not appear to meet current well construction standards based upon:**

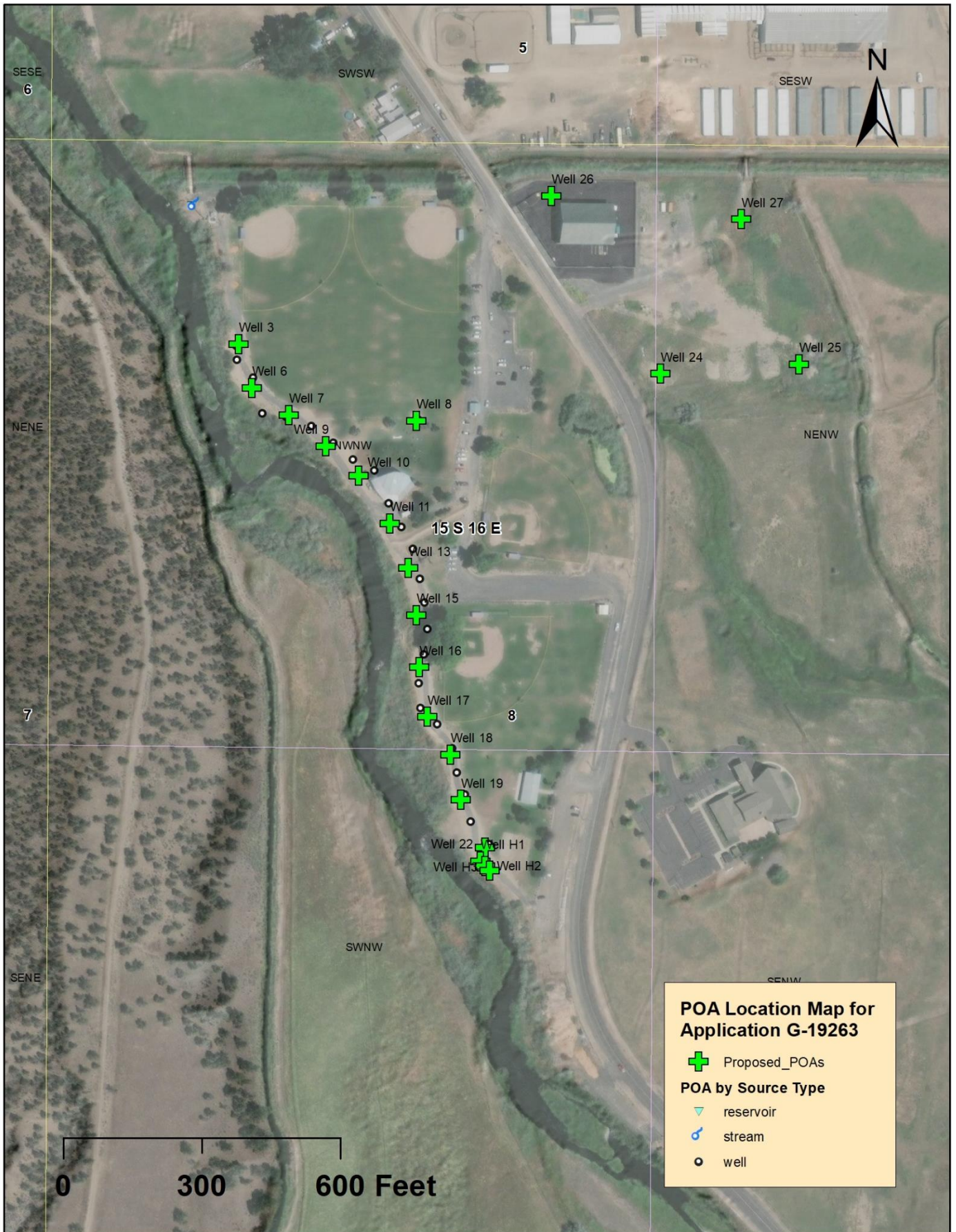
- a. review of the well log;
- b. field inspection by _____;
- c. report of CWRE _____;
- d. other: (specify) _____

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

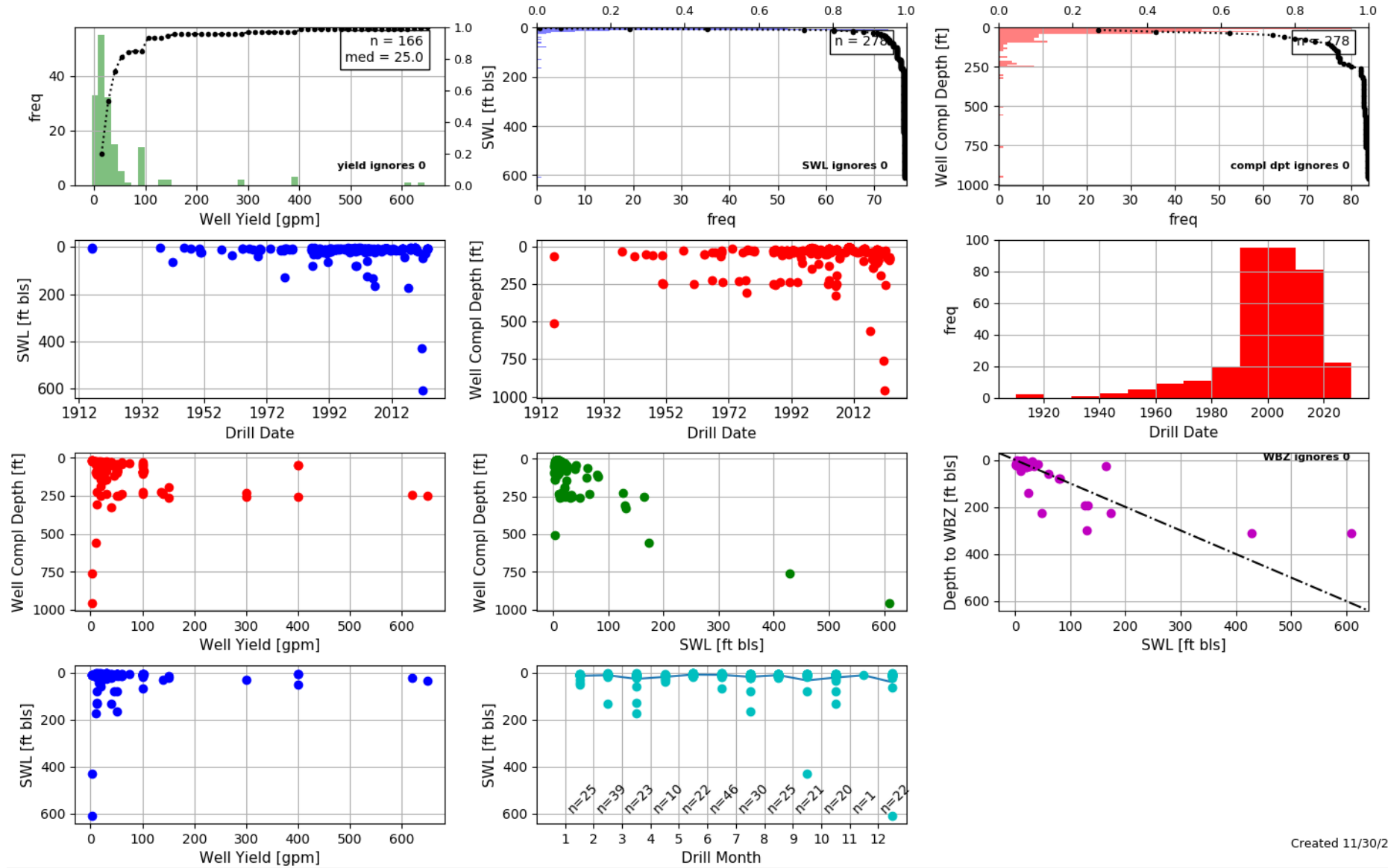
D4. **Route to the Well Construction and Compliance Section for a review of existing well construction.**

Well Location Maps





Well Statistics For TRS 15S/16E Sections 5 and 8



Created 11/30/2023

Water-Level Measurements in Nearby Wells

Observation Well Data

