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-18901

Date: April 16, 2020

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

Applicant's Well #1 (CROO 54530): 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.

Applicant's Well #2 (CROO 50296): Based on a review of the Well Report, Applicant's Well #2 seems to protect the groundwater resource.

The construction of Applicant's Well #2 may not satisfy hydraulic connection issues.

Applicant's Well #3 (CROO 50297): Based on a review of the Well Report, Applicant's Well #3 seems to protect the groundwater resource.

The construction of Applicant's Well #3 may not satisfy hydraulic connection issues.

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765 & OAR 690-205-0210)

CROO 54530

9/1/2017

WELL I.D. LABEL# L 127333
START CARD # 1036024
ORIGINAL LOG #

(1) LAND OWNER

Owner Well I.D.
First Name RANCE Last Name KASTER
Company
Address 8360 MEADOW RIDGE RD
City PRINEVILLE State OR Zip 97754

(2) TYPE OF WORK

☒ New Well ☐ Deepening ☐ Conversion ☐ Alteration (complete 2a & 10) ☐ Abandonment(complete 5a)

(2a) PRE-ALTERATION

	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
Casing:									

	Material	From	To	Amt	sacks/lbs
Seal:					

(3) DRILL METHOD

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

(4) PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Community
☐ Industrial/ Commericial ☐ Livestock ☐ Dewatering
☐ Thermal ☐ Injection ☐ Other

(5) BORE HOLE CONSTRUCTION

Special Standard ☐ (Attach copy)
Depth of Completed Well 250.00 ft.

BORE HOLE

Dia	From	To
12	0	62
8	62	250

SEAL

Material	From	To	Amt	sacks/lbs
Bentonite	0	24	60	S
		Calculated	13.61	
		Calculated		

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☒ Other BENTONITE DRY
Backfill placed from ft. to ft. Material
Filter pack from ft. to ft. Material Size
Explosives used: ☐ Yes Type Amount

(5a) ABANDONMENT USING UNHYDRATED BENTONITE

Proposed Amount Actual Amount

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
●	○	8	☒	2	62	.250	●	○	☒	☐
○	●	5	☐	10	250	80	○	●	☐	☐
○	○		☐				○	○	☐	☐
○	○		☐				○	○	☐	☐
○	○		☐				○	○	☐	☐

Shoe ☐ Inside ☐ Outside ☐ Other Location of shoe(s)
Temp casing ☐ Yes Dia From + ☐ To

(7) PERFORATIONS/SCREENS

Perforations Method Torch cut & Saw
Screens Type Material

Perf/ Screen	Casing/ Screen Liner	Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ pipe size
Perf	Casing	8	42	62	.125	10	200	
Perf	Liner	5	50	70	.125	10	80	
Perf	Liner	5	90	110	.125	10	80	
Perf	Liner	5	130	150	.125	10	80	
Perf	Liner	5	170	190	.125	10	80	

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

○ Pump ○ Bailer ◉ Air ○ Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
11		240	2.5

Temperature 62 °F Lab analysis ☐ Yes By
Water quality concerns? ☐ Yes (describe below) TDS amount 184 ppm

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)

County CROOK Twp 14.00 S N/S Range 17.00 E E/W WM
Sec 30 NW 1/4 of the NW 1/4 Tax Lot 711
Tax Map Number Lot
Lat ° ' " or 44.33020366 DMS or DD
Long ° ' " or -120.74634422 DMS or DD
◉ Street address of well ○ Nearest address
8360 MEADOW RIDGE ROAD

(10) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Pre-Alteration			☐	
Completed Well	8/31/2017		☐	15

Flowing Artesian? ☐ Dry Hole? ☐

WATER BEARING ZONES Depth water was first found 15.00

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
8/31/2017	15	214	11		☐	15
					☐	
					☐	
					☐	
					☐	

(11) WELL LOG

Ground Elevation

Material	From	To
Top soil	0	3
Clay Congl	3	8
Clay - Dice Rock - Gravels	8	17
Clay Stone Congl Hard	17	27
Clay Dice rock - Gravels	27	42
Gray Rock Broken Frac Soft then midd.	42	128
Gray Rock Midd Multicolerd Soft to Midd	128	151
Brown Rock midd multicolerd Soft to midd	151	203
Clay Stone Green Hard - Sticky	203	250

Date Started 8/28/2017 Completed 8/31/2017

(unbonded) Water Well Constructor Certification

I certify that the work I performed on the construction, deepening, 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 the best of my knowledge and belief.

License Number 1255 Date 9/1/2017

Signed WILLIAM DOUG AIKEN (E-filed)

(bonded) Water Well Constructor Certification

I accept responsibility for the construction, deepening, 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.

License Number 1970 Date 9/1/2017

Signed NEIL M FAGEN (E-filed)

Contact Info (optional) 541-548-1245

WATER SUPPLY WELL REPORT - continuation page

CROO 54530

9/1/2017

WELL I.D. LABEL# L 127333
START CARD # 1036024
ORIGINAL LOG #

(2a) PRE-ALTERATION

Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd

Material	From	To	Amt	sacks/lbs

Water Quality Concerns

From	To	Description	Amount	Units

(5) BORE HOLE CONSTRUCTION

BORE HOLE

Dia	From	To

SEAL

Material	From	To	Amt	sacks/ lbs
		Calculated		
		Calculated		
		Calculated		
		Calculated		

FILTER PACK

From	To	Material	Size

(10) STATIC WATER LEVEL

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)

(11) WELL LOG

Material	From	To

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd

(7) PERFORATIONS/SCREENS

Perf/ Screen	Casing/ Liner	Screen Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ pipe size
Perf	Liner	5	210	230	.125	10	80	

Comments/Remarks

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

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)

WATER SUPPLY WELL REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

CROO 54530

9/1/2017

Map of Hole

STATE OF OREGON
WELL LOCATION MAP

This map is supplemental to the WATER SUPPLY WELL REPORT

Oregon Water Resources Department
725 Summer St NE, Salem OR 97301
(503)986-0900

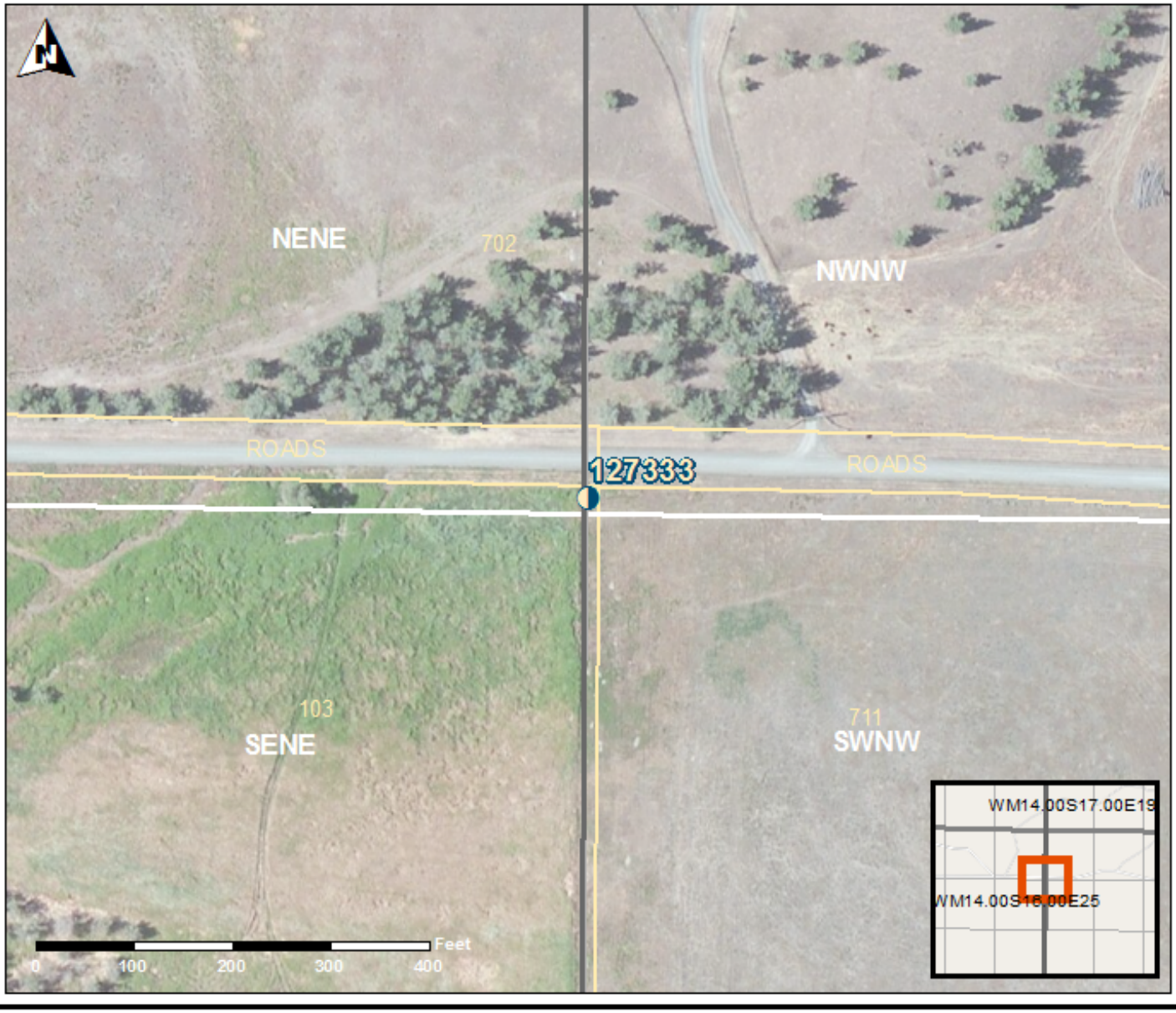
LOCATION OF WELL
Latitude: 44.3302036561 Datum: WGS84
Longitude: -120.74634422379
Township/Range/Section/Quarter-Quarter Section:
WM 6S 2W 34 NWNW
Address of Well:
8360 MEADOW RIDGE ROAD

Well Label: 127333

Printed: September 1, 2017

DISCLAIMER: This map is intended to represent the approximate location the well. It is not intended to be construed as survey accurate in any manner.

Provided by well constructor



CROD 50296

AUG - 1 1997

WELL ID: L11917

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

WATER RESOURCES DEPT.
SALEM, OREGON (START CARD) # 87924

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

(1) OWNER: Well Number 827
Name Nancy Borneman Gary Rossi
Address 2199 NW Spruce
City Redmond State OR Zip 97754

(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 500 ft.
Explosives used ☐ Yes ☒ No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
12"	0	18½	Bentonite	0	18½	15
8"	18½	500				

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☒ Other poured in Dry
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:	8"	1½	19½	250	☒	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s)

(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 ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
5	unKnown	500	1 hr.

Temperature of water 63 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:

(9) LOCATION OF WELL by legal description:
County CROOK Latitude Longitude
Township 14 N or (S) Range 17 (E) or W. WM.
Section 30 NE 1/4 NE 1/4
Tax Lot 211 Lot Block Subdivision
Street Address of Well (or nearest address) Meadow Ridge Rd

(10) STATIC WATER LEVEL:
40 ft. below land surface. Date 4/14/97
Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:
Depth at which water was first found 45'

From	To	Estimated Flow Rate	SWL
40	45	5	40

(12) WELL LOG:
Ground Elevation

Material	From	To	SWL
Top Soil	0	1	
Diced Rock Black & Brown	1	5	
Hard Black Rock	5	23	
Black & Brown Diced Rock	23	45	40
Hard Black Rock	45	55	
Greenish Brown Clay Stone soft	55	62	
Soft Bluish green clay stone	62	110	
Hard Black Rock	110	280	
Soft Blue Green clay stone	280	283	
Soft Red clay	283	485	
Soft Red clay Stone	485	500	

Date started 3/28/97 Completed 4/14/97

(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 the best of my 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 584
Signed Darrell Mapes Date 5-2-97

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

CROD 50297

AUG - 1 1997

WELL I.D. # L11921

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

WATER RESOURCES DEPT.
SALEM, OREGON

(START CARD) # 87927

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

(1) OWNER: Well Number 831
Name Nancy Borneman & Gary Bossi
Address 21199 NW SPRUCE
City Redmond State OR Zip 97756

(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 600 ft.
Explosives used ☐ Yes ☒ No Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Sacks or pounds
12"	0	18½	Bentonite	0	18½	1.5
8"	18½	600				

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☒ Other poured in Dry
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:	8"	1½	18½	250	☒	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s)

(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 ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
7	unknown	600	1 hr.

Temperature of water 61° 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:

(9) LOCATION OF WELL by legal description:
County Crook Latitude Longitude
Township 14 N or (S) Range 17 (E) or W. WM.
Section 30 NE 1/4 NE 1/4
Tax Lot 711 Lot Block Subdivision
Street Address of Well (or nearest address)

(10) STATIC WATER LEVEL:
21 ft. below land surface. Date 5/2/97
Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:
Depth at which water was first found 125

From	To	Estimated Flow Rate	SWL
125	130	7	21

(12) WELL LOG:
Ground Elevation

Material	From	To	SWL
Top Soil	0	2	
Dice Rock	2	15	
Hard Black Rock	15	85	21
Hard Black Rock w/Green clay Stone	85	90	
Hard Black Rock	90	130	
Green Clay Stone Soft	130	160	
Soft Green & Gray clay Stone	160	226	
Soft LT Gray Clay Stone	226	260	
Soft Green clay w/Brown clay Stone seams	260	280	
Soft Green clay w/white & Red Clay Stone Seams	280	295	
Soft Green & Brown clay Stone	295	306	
Soft Brown clay Stone	306	329	
Soft Gray & Green clay Stone	329	342	
Soft Red & Gray Clay Stone	342	382	
Hard Red & white Clay Stone	382	521	
Hard Red & Green clay stone	521	600	

Date started 4/30/97 Completed 5/2/97

(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 the best of my 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 584
Signed Date 5-2-97

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

Groundwater Application Review Summary Form

Application # G- _18901_

GW Reviewer _Aurora Bouchier_ Date Review Completed: _April 14, 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 **Date: April 14, 2020**

TO: **Application** G-__**18901**_____

FROM: **GW: __Aurora C Bouchier_____**
(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 April 14, 2020
FROM: Groundwater Section Aurora C Bouchier
Reviewer's Name
SUBJECT: Application G- 18901 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: **Rance Kastor** County: **Crook**

A1. Applicant(s) seek(s) 0.1 cfs from 3 well(s) in the Deschutes Basin, Lower Crooked River (Crooked ZOI) subbasin

A2. Proposed use NU (80 acres) 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	CROO 54530	1	Bedrock	0.025 (11 gpm)	14S/17E-30 SW-NW	3880' N, 80' E of SW cor Sec 30
2	CROO 50296	2	Bedrock	0.011 (5 gpm)	14S/17E-30 SE-NW	3750' N, 1410' E of SW cor Sec 30
3	CROO 50297	3	Bedrock	0.015 (7 gpm)	14S/17E-30 SE-NW	3310' N, 1560' E of SW cor Sec 30
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	3200	15	15	8/31/2017	250	0-24	-2-62	10-250	~42-230	11	--	A
2	3290	40	40	4/14/1997	500	0-18.5	1.5-19.5	Na	Na	5	--	A
3	3270	125	21	5/2/1997	600	0-18.5	1.5-18.5	Na	Na	7	--	A

Use data from application for proposed wells.

A4. **Comments:** The area of the applicant's wells is mapped as John Day Formation. The groundwater flow direction is likely to the southwest towards Ochoco Creek.

A similar application was submitted in 2017. However, the previous application was for 1.0 cfs for irrigation use on the same 80 acres. This current application states (in Section 10: Remarks) that it 'reflects changes required but not possible under withdrawn Groundwater Application G-18581. The Applicant's intention remains unchanged – to lightly water some specialty grasses for wildlife…'

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: The wells are within the USGS Study Area Boundary and are therefore subject to the pertinent rules (OAR 690-505-0500 to 0620).

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**;

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 wells are completed in the John Day Formation in an area mapped as dacitic vitric tuff and tuffaceous clay (Waters and Vaughan, 1968). In general, the John Day Formation has low permeability and is considered a barrier to groundwater flow (Gannett et al., 2001, and Lite and Gannett, 2002). This concept is supported by the well logs: within T14/R17-S30 and the adjacent T14S/R16-S25 there are well logs for 17 wells, 4 of which have been deepened and one of which has been abandoned. The median yield listed on the well logs is 8 gpm. It is possible that the combined production from the three wells will be capable of producing approximately 45 gpm.

No long term groundwater-level data from a nearby well, constructed into similar geology, was found.

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
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: _____

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
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: _____

Water Availability Basin the well(s) are located within: _____

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: ____

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:

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: G-18901 and previous (withdrawn) application G-18581.

Gannett, Marshall W., Lite, Kenneth E. Jr., Morgan, David S., and Collins, Charles A., 2001, Ground-Water Hydrology of te upper Deschutes Basin, Oregon: U.S. Geological Survey Water-Resources Investigations Report 00-4162.

Lite, Kenneth E., and Gannett, Marshall W., 2002, Geologic Framework of the Regional Ground-Water Flow System in the Upper Deschutes Basin, Oregon: U.S. Geological Survey Water-Resources Investigations Report 02-4015.

Waters, A.C., and Vaughan, R.H., 1968, Reconnaissance Geologic Map of the Ochoco Reservoir Quadrangle Crook County, Oregon; U.S. Geologic Survey Miscellaneous Geologic Investigations Map I-541.

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #**: **3** **Logid: CROO 50297**

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 _____;

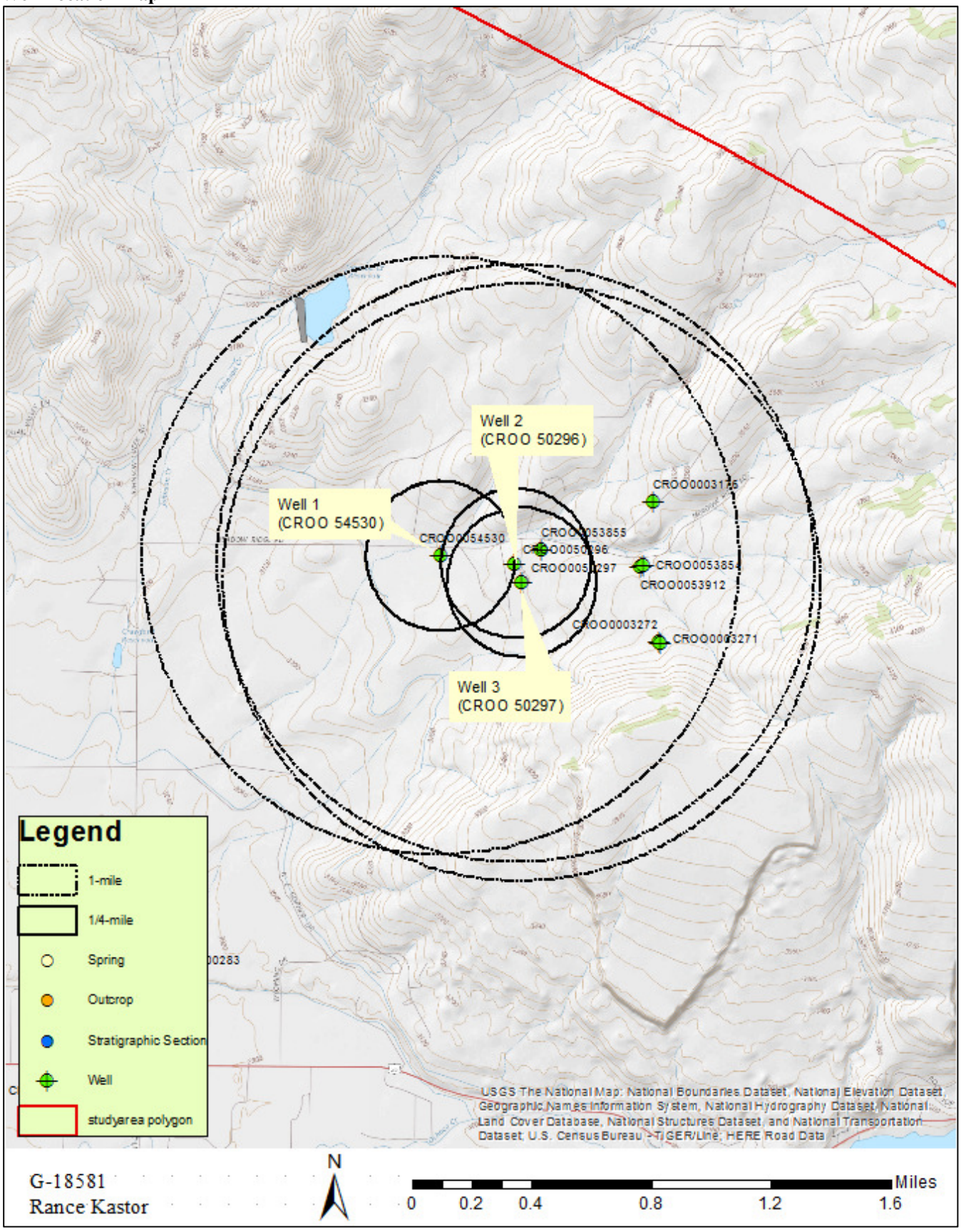
d. ☐ other: (specify) _____

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

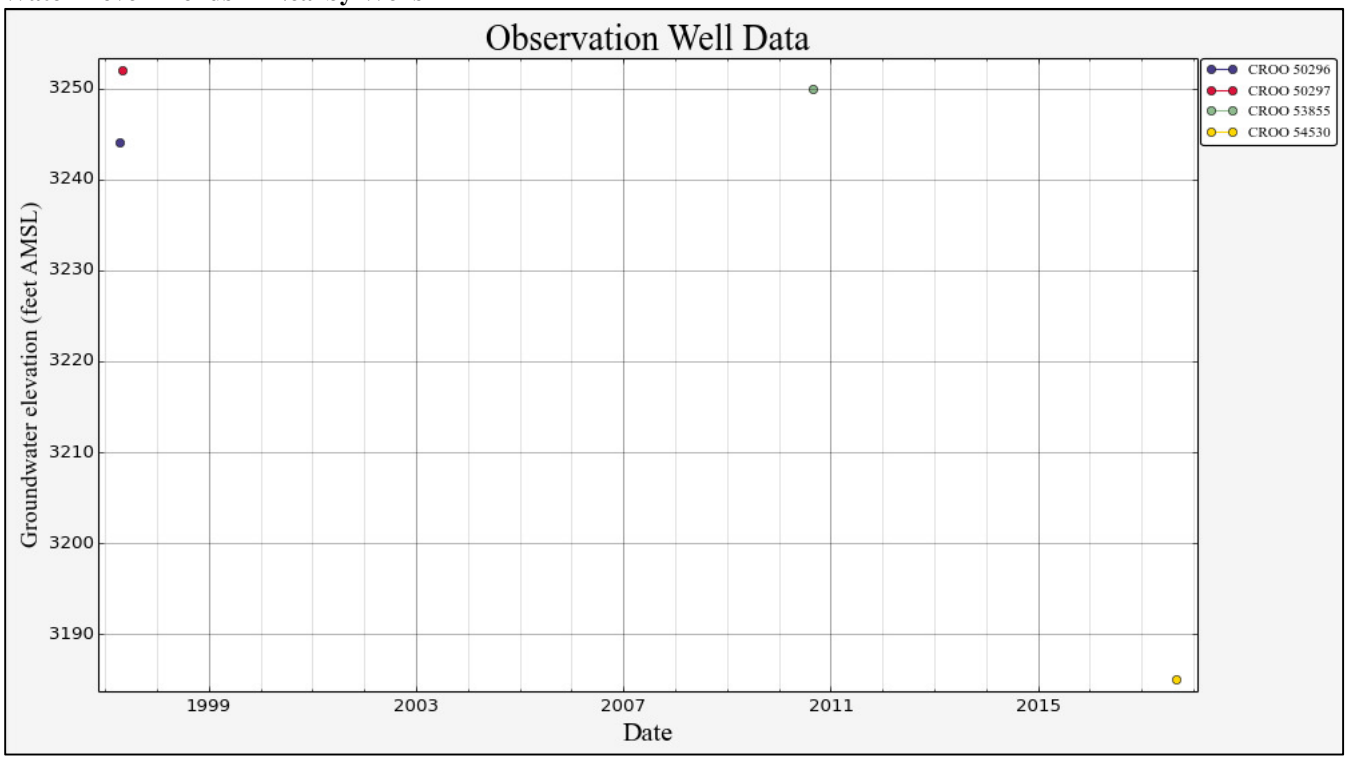
Well 1 (CROO 54530) and Well 2 (CROO 50296) both appear to meet construction rules. Although Well 3 (CROO 50297) lists a static water level approximately 100 feet above the depth at which it was first encountered (according to the well log, which generally triggers artesian well construction rules), it seems likely that the standard seal depth (18.5 feet) is acceptable as a deeper seal in this well would likely not change the potential inter-borehole flow dynamics nor would it alter the hydrologic response of the well to water level changes in the aquifer.

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

Well Location Map



Water-Level Trends in Nearby Wells



Lithologic Comparison