

Will Van Vactor, Director  
Crook County Community Development

Crook County

MAR 02 2022

March 1, 2022

Crook County Planning Commissioners  
Re: Knife River Expansion

Community Development



The following is information and facts regarding the Knife River mining operations on Stahancyk Lane and current application on the Vanier property to be submitted to the record.

1) The December 8, 2021 letter from Fitch & Neary covers some of the many concerns. Knife River, in their reports, has made multiple misrepresentations. Ed Fitch points out the well logs for the bore drillings were not provided to the county. The logs and summary of those logs are attached. Note that each of the 7 well logs has identical static water levels (SWL) of 18 feet which the driller certified to OWRD to be true. This data appears to be manipulated and false. The actual SWL varied in all 7 wells as I witnessed all the drillings. The SWL varied mostly between 8-12 feet with only one SWL at 17 feet. Current test pits dug on the Vanier property show SWL mostly from 2 feet to 8 feet with only the most western portion next to Porfily somewhat deeper.

2) We are now encountering saturated soils due to encroachment of sub-surface water that was diverted by the backfill of non-permeable soils on the Woodward property. Knife River is denying they created this problem yet in Ordinance 328, Exhibit A, page 18, the Knife River "experts" report says "mining the cell from east to west and backfilling with low permeability soils, effectively re-routes the groundwater". That is exactly what has happened when the Woodward mine was backfilled, the flow going into those cells was diverted down gradient to the northwest. In 4 years farming this property, 2 of which were extreme drought years, I have not encountered any saturated soils, soils so saturated that our equipment actually got stuck. The Davis family who owned and farmed this property for many years prior, confirm they never experienced saturated soils. Knife River has denied any responsibility to DOGAMI and DOGAMI has refused to investigate the matter stating that Knife River has a good track record with them. This confirms the local concerns that the burden of proof is on the neighborhood and Knife River will do whatever they want. To even suggest a DOGAMI permit is going to protect anyone other than Knife River is laughable. It appears the last time a DOGAMI staff person visited the Woodward site was in 2019 when Ben Mundie wrote his report that is part of the record. Attached is a copy of the DOGAMI permit application for the Woodward mine. Multiple violations have been addressed with DOGAMI, all of which they have ignored as suggested by the attached e-mails. In December 2021, Knife River even hired a 20 year veteran geologist away from DOGAMI to work for them.

### 3) Ground water

a) Ground water flow in the Woodward/DOGAMI permit in 2015 was interpreted by Knife River "experts" to be W-SW. Now, in 2021 Knife River "experts" are interpreting the ground water flow to be NE-SW. It appears the direction of the flow changed as a matter of convenience for a permit application and to be able to deny responsibility.

b) Knife River de-watered the Woodward mine in violation of their permit at a rate of 500-1000gpm from Feb-Oct 2020. Knife River told DOGAMI they only discharged water briefly in the stream for the benefit of many farmers. That discharge was full of silt and sand which plugged my pumps and settling pond and resulted in the rebuilding of 2 irrigation pumps. Again, Knife River denies any responsibility saying "we rebuilt them last time, you rebuild them this time". The de-watering continued to allow Knife River to mine the NW corner of the Woodward mine.

Now, the Knife River "experts" are representing that their "models" suggest there will be an inflow of ground water to the Vanier property of as little as 10-20gpm (see attached Lidstone flow model). Knife River admits that as they mine west to east they have encountered greater flows of water. They further represent in their reports that even more ground water is expected on the Vanier property. The inflow to the Woodward mine was significant. By example, my August 2021 document (Exhibit 21) shows the SE portion of the mine submerged in water. In 48 hours the water level raised more than 3 feet. Each 5 acres of that open mine equals 217,800 square feet. 3 feet of water on 5 acres is 15 acre feet of water or 4,887,765 gallons. The inflow would be more than 1700gpm to raise the water level 3 feet on 5 acres in 48 hours.

Multiple other violations exist in the Woodward/DOGAMI permit.

- 1) 18 inches of top soil was to be returned to reclaimed ground but remains in berms along Stahancyk Lane.
- 2) Mining depth was limited to 20' maximum but instead went to 35'.
- 3) Open mining was to be limited to 5 acres but exceeded 40 acres.
- 4) Reject and fines generated in mining and processing were to be mixed with backfill silts for backfill material instead remains stock piled.
- 5) No mining below the water level or de-watering was permitted yet mining occurred below water level and millions of gallons of water were discharged without permits into Crooked River.

c) Mr. Lidstone, for Knife River, represents the "pump test" he did supports a minimal amount of ground water inflow and is merely a small amount of perched water with no flow. Mr. Newton, in his memorandum, stated that the data provided by Mr. Lidstone is severely flawed. Mr. Lidstone further represents in his data provided on the record that the 3 test wells he installed on the SW corner of the Woodward property reflect accurate data regarding the SWL and aquifer volume on the Woodward and Vanier properties. The Lidstone report on 1/21/21 states the SWL of the 3 test wells as 20.6 feet, 21.4 feet and 17.5 feet below ground surface (BGS). On 11/10/21, Hudspeth Land and Water (HLW) on behalf of Knife River measured the wells at 20.6 feet, 21.3 feet and 17.2 feet to the top of the well casing, not BGS. The well casings are 3 feet above the ground surface. After adjusting to BGS, the SWL of the test wells are 17.6 feet, 18.3 feet and 14.2 feet—a substantial increase in SWL from what Mr.

Lidstone represented in his reports. Mr. Lidstone also represented in his report the SWL in the test pits dug near the test wells with an excavator on the Woodward property pre-mining was 7-9 feet with flowing water through pits. The post mining elevation is now 5-6' lower. This means the SWL post mining on the Woodward property is most likely 2-3 feet BGS. I confirmed that finding on the reclaimed ground I leased in 2021 in a test pit on the NE corner of the Woodward property. The 3 test wells were installed on the SE corner of the Woodward property at the highest point of elevation at 2930' before mining. These wells are located a few feet from the Vanier property north/south fence line. Immediately east of the wells, the Woodward land has been mined and reclaimed with a post mining field elevation 12-13 feet below the ground level at the well base. The SWL of the wells pre-mining on 11/10/21 was 14.2' adjusted to BGS. After adjusting the height of the 12-13' cut bank to the post mining field elevation, the SWL on the reclaimed land is only 2-3' BGS.

When you move from south to north along the Woodward/Vanier boundary there is a 20' decline in elevation to the north boundary of the Vanier property. To the west, the Woodward property has been mined and backfilled with non-permeable soils which provides the barrier for diverting the aquifer to the north and to a lower elevation. That lower elevation is our field that has currently become saturated and is not farmable. Given the elevation pre-mining and proposed post mining relative to the current SWL, a significant portion of the Vanier property will be below the SWL by 8-10'. Backfilling the north and east Vanier boundaries with non-permeable soils may also flood the septic fields of at least 3 residences, contaminate the shared well which has a SWL of 10' BGS and contaminate the aquifer. If Knife River breaks it they not only will not fix it, they CAN NOT fix it. There are not enough conditions imaginable to place on a CUP to address this issue.

d) Reference attached communications with Tom Byler for a ground water permit application filed June 1, 2021 by Knife River for the use of 239 acre feet (78 million gallons) of ground water annually from 1 existing well and 3 new (to be drilled) wells on the Woodward property. The permit would allow 500+gpm from these 4 wells to be used 12 months each year for 5 consecutive years. The place of use is to be on the reclaimed irrigated farm land but was represented to be an industrial/commercial use. There is a question if this is a legal use of ground water. This will most likely create substantial interference with surrounding ground water users. The nearby OWRD observation well reflects a decline in the aquifer of 30 feet in 2021. OWRD determined this will create substantial interference with surface water and Knife River can mitigate that interference by providing (purchasing) 59.8 acre feet annually in the Crooked River Zone. OWRD further stated that injury to existing ground water users could not be determined. At the same time, Knife River is seeking an OWRD permit for new wells, Mr. Lidstone is representing to Crook County Planning that there is a sensitive and limited aquifer with 80-100 wells within ½ mile of the Woodward and Vanier property that could be significantly affected by the mining activity. With these added new wells and added ground water use plus the 30' decline in the aquifer in 2021, this would be devastating for neighboring ground water users. It appears OWRD was not aware of the new application and the interferences currently being dealt with. It also seems that it would have been important for Knife River to disclose to the county their OWRD application which was approved October 6, 2021. OWRD application review states there is potential for substantial interference and that hydraulic connection between the shallow and deeper aquifers may create issues. This creates an overwhelming situation for many neighbors when Knife River potentially depletes the

aquifer and dries up neighboring wells. To further exacerbate the problem, the repeated years of drought will likely affect the aquifer.

e) Irrigation water from OLD, based on the current outlook, will be limited. In order for Knife River to meet all the requirements of watering berms, stock piles, roads, open mine areas, and operate their wash plant, the need for a massive amount of water is required. This amount does not appear to be available under any circumstances this year without taking it away from existing users.

Knife River repeatedly says if we break it, then we will fix it. It has to be proven that they broke it. Knife River has a “fleet of experts” that will say it isn’t anything Knife River did or is responsible for. DOGAMI is supposed to be the “watch dog” but they do nothing. According to DOGAMI, Knife River has 3 years to correct any infractions. Knife River leaves with millions of dollars in revenues, Vaniers “sell” their property for millions through mining royalties, and the residual property post mining is walked away from with no way to hold Knife River or Vanier accountable and the local community is left without any remedy.

Knife River gives many assurances, has many “experts” who provide possible models and scenarios, all in hopes of obtaining a CUP. However, the facts and circumstances based on actual data in front of us do not support the Knife River theories and models.



Richard L. Zimmerlee  
International Agribusiness Consultant (Retired)

### Background

Lifetime of experience developing, operating, financing and consulting large scale irrigated agribusiness projects both domestic and foreign. This includes working extensively with some of the most respected engineers, hydrogeologists, agronomists and professionals in the industry for the past 45 years.



Edward P. Fitch  
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December 8, 2021

Will Van Vactor, Director  
Crook County Community Development  
300 NE 3<sup>rd</sup> St, Rm 12  
Prineville, OR 97754

**Re: Zimmerlee/Knife River/Veneer Property**

Dear Will:

Jim Newton and Mr. and Mrs. Zimmerlee came in to see me regarding the mining application on the Veneer property. As I understand it, this is an expansion of the mining activity that occurred on the Woodward property. I understand the Crook County Court is going to take this up in January for a decision. I also understand that the record is closed. Please consider this letter a request to reopen the record just for the purpose of adding this letter to it. If that is not feasible, then this letter is just directed to you in drafting your staff report.

The Planning Commission, as relayed to me, denied the permit under the ESEE analysis Section 3(b). From our perspective, obviously, that was the correct decision because the adverse impacts on this mining on other uses is just way to severe to be alleviated by mitigate. First, the county has been misled regarding the static water level on the Veneer property. Although bore drilling information is provided to the County, the well logs that were associated with them were not provided. Those are public records. As I understand it, the static water level on the Veneer property ranges from 18' from the surface to the south to 2' feet in the north. Near the residence on the Veneer property at 6487 NE Lamonta Road the static water level is at approximately 10' below ground surface.

The applicant's proposal to mine out approximately 15' to 33' below the surface to reach the aggregate that ranges in estimated thickness from 9' to 14' is simply not feasible given the static water level on the Veneer property. Further, with estimated reduction in reclaimed surface elevations reducing the Veneer site the average 12' of thickness of the aggregate removed may have impacts to groundwater and post-mine reclamation use as farm land in an EFU zone area not reasonably possible. The Zimmerlees have already experienced levels of water saturation on the property which now makes it impossible for them to farm parts of the Veneer property. There is also the very real prospect that this mining will have a significant adverse impact on the groundwater particularly, if the septic drainfield is flooded.

There is also a significant concern regarding the quality of the information provided by Knife River.



The geologist, Mr. Christopher Lidstone, who testified at the December 3, 2021 hearing is not licensed in the State of Oregon, nor was the report submitted with the Vanier application noted to have been prepared by an Oregon licensed geologist. The report that was submitted and StanTec is now under investigation by the Oregon State Board of Geologist Examiners. In a nutshell, they did not follow the guidelines issued by the State of Oregon for appropriate report on hydrology.

In sum, our recommendation is that with the information already submitted to the County Court, there is ample information to show that the Planning Commission had it right. There are two many negative impacts associated with this mining proposal to warrant approval. This includes the interference with the ongoing farming operation on the Veneer property, the potential adverse impact on the groundwater in this area because of the mining operation in the water table itself as well as a history of poor implementation of their Conditional Use Permit on the Woodward property which has resulted in severe saturation of parts of the Veneer property.

Finally, as much as Knife River has apparently tried to shift the burden of proof to the neighbors and opponents, the burden of proof remains with Knife River.

If you have any questions, please advise.

Thank you.

Very truly yours,

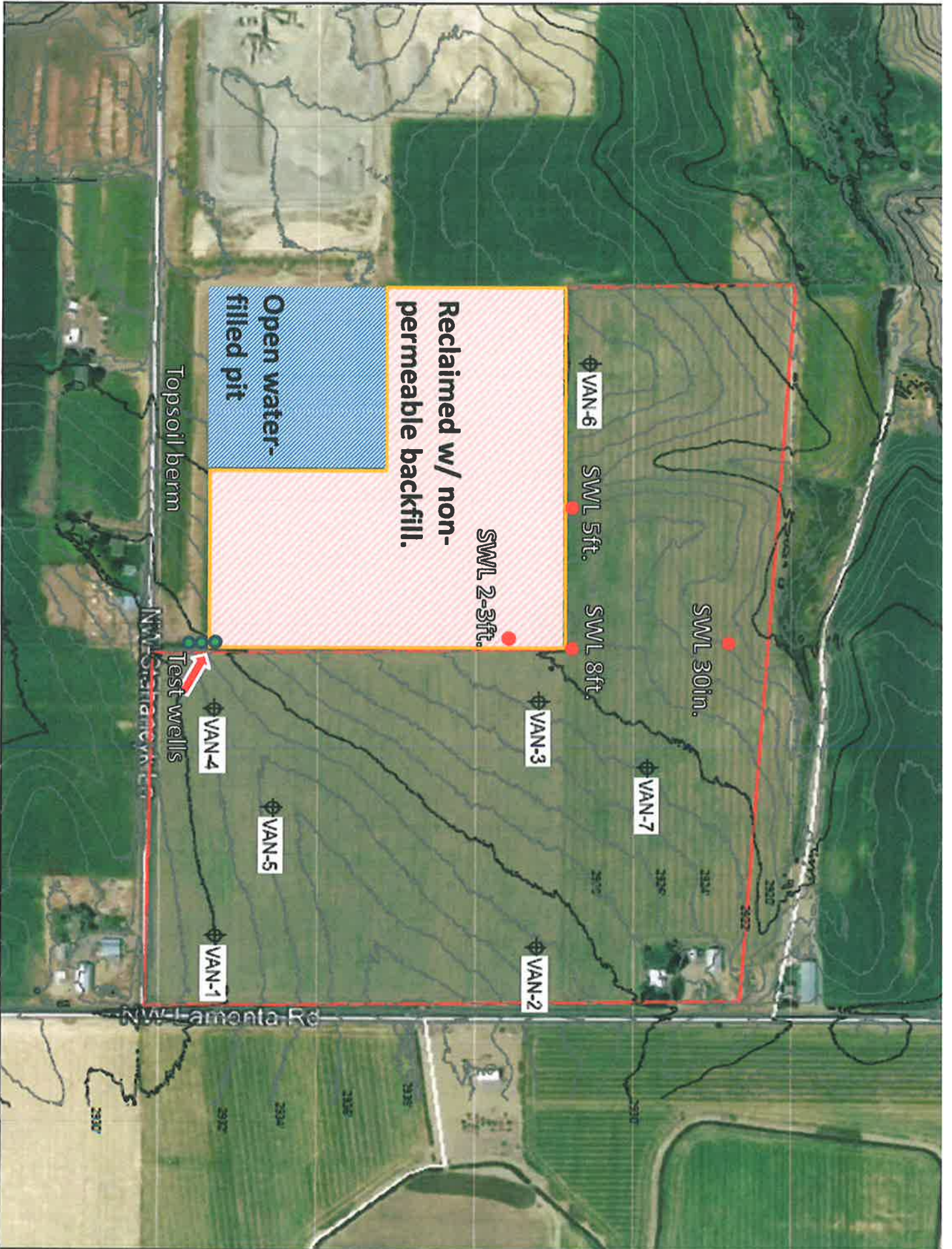
A handwritten signature in black ink, appearing to read "Edward P. Fitch", is written over a horizontal line.

EDWARD P. FITCH

EPF:pjr

cc: Client

Jim Newton



**Well Report Query Results** *gps points, where available are at the far right of the table. Click link to view on map*

Township: 14 S, Range: 15 E, Sections: 14

Well Log	Details	T.R.S. Q-Q	Taxlot	Street of Well	Owner	Company	Special Standards	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	New	Abandon	Deepen	Alteration	Conversion	Domestic	Irrigation	Community	Livestock	Industrial	Injection	Thermal	Dewatering	Piezometer	Latitude/Longitude			
CR00_5471	Details	14 00S-15 00E-14 NE-NE	101	4200 NW GRIMES RD, PRINEVILLE, OREGON 97754	GABELE, JOHN & NORMA 4200 NW GRIMES RD, PRINEVILLE OR 97754			W	20.00	225.00	20.0	100.0	08/07/2007	08/11/2007	MARSHET DIERBEL MAP-ET WELL DRILLING AND PUMP	1001141	80420	✓																	
CR00_5391	Details	14 00S-15 00E-14 NW-SW	701	4850 NW PUCKETT RD, PRINEVILLE, OREGON 97754	PROFFLEY SCOTT POB 972 PRINEVILLE OR 97754			W	250.00	250.00	13.0	40.0	01/18/2009	01/20/2009	MAR-ET DIERBEL MAP-ET WELL DRILLING AND PUMP	1005933	99576	✓																	
CR00_5365	Details	14 00S-15 00E-14 NW-NW	500	4540 NW GRIMES PRINEVILLE	POMERANING, DON & MOVA 1020 MEMORIAL DRIVE #44 HOUSTON TX 77024			W	152.00	320.00	9.0	20.0	08/11/2010	08/19/2010	SCHLOTTING, DAVID A D & D WELL DRILLING LLC	1010882	103108	✓																	
CR00_5478	Details	14 00S-15 00E-14 SE-SE	00103	6487 NW LAMONTA ROAD, PRINEVILLE, OR 97754	VANER, ROBERT J (JR.) PO BOX 326 DAVILLE OR 97825			G	18.00	35.00	18.0		09/12/2019	08/20/2019				✓																	
CR00_5476	Details	14 00S-15 00E-14 NE-SE	00103	6487 NW LAMONTA ROAD, PRINEVILLE, OR 97754	VANER, ROBERT J (JR.) PO BOX 326 DAVILLE OR 97825			G	18.00	35.00	18.0		08/12/2019	08/20/2019				✓																	
CR00_5477	Details	14 00S-15 00E-14 NE-SE	00103	6487 NW LAMONTA ROAD, PRINEVILLE, OR 97754	VANER, ROBERT J (JR.) PO BOX 326 DAVILLE OR 97825			G	18.00	30.00	18.0		08/12/2019	08/20/2019				✓																	
CR00_5479	Details	14 00S-15 00E-14 SE-SE	00103	6487 NW LAMONTA ROAD, PRINEVILLE, OR 97754	VANER, ROBERT J (JR.) PO BOX 326 DAVILLE OR 97825			G	18.00	35.00	18.0		08/12/2019	08/20/2019				✓																	
CR00_5480	Details	14 00S-15 00E-14 NW-SE	00103	6487 NW LAMONTA ROAD, PRINEVILLE, OR 97754	VANER, ROBERT J (JR.) PO BOX 326 DAVILLE OR 97825			G	18.00	30.00	18.0		08/13/2019	08/20/2019				✓																	
CR00_5481	Details	14 00S-15 00E-14 NE-SE	00103	6487 NW LAMONTA ROAD, PRINEVILLE, OR 97754	VANER, ROBERT J (JR.) PO BOX 326 DAVILLE OR 97825			G	18.00	30.00	18.0		08/13/2019	08/20/2019				✓																	

Download Data



STATE OF OREGON  
GEOTECHNICAL HOLE REPORT  
(as required by OAR 690-240-0035)

8/20/2019

**(1) OWNER/PROJECT** Hole Number B-1

PROJECT NAME/NBR: 110-19-1059

First Name ROBERT J (JR.) Last Name VANIER

Company \_\_\_\_\_

Address PO BOX 326

City DAYVILLE State OR Zip 97825

**(2) TYPE OF WORK**  New  Deepening  Abandonment  
 Alteration (repair/recondition)

**(3) CONSTRUCTION**

Rotary Air  Hand Auger  Hollow stem auger  
 Rotary Mud  Cable  Push Probe  
 Other SONIC

**(4) TYPE OF HOLE:**

Uncased Temporary  Cased Permanent  
 Uncased Permanent  Slope Stability  
 Other  
 Other: \_\_\_\_\_

**(5) USE OF HOLE**

SOIL SAMPLES

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**(6) BORE HOLE CONSTRUCTION** Special Standard  (Attach copy)

Depth of Completed Hole 35.00 ft.

BORE HOLE			SEAL			sacks/ lbs	
Dia	From	To	Material	From	To	Amt	lbs
6	0	35	Other	0	2	2	S
			Bentonite Chips	2	35	9	S

Backfill placed from 0 ft. to 2 ft. Material SOIL / GRAVEL

Filter pack from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Material \_\_\_\_\_ Size \_\_\_\_\_

**(7) CASING/SCREEN**

Casing	Screen	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
<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"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**(8) WELL TESTS**

Pump  Bailer  Air  Flowing Artesian

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

Temperature 52 °F Lab analysis  Yes By \_\_\_\_\_

Supervising Geologist/Engineer \_\_\_\_\_

Water quality concerns?  Yes (describe below) TDS amount 110 ppm

From	To	Description	Amount	Units

**(9) LOCATION OF HOLE (legal description)**

County CROOK Twp 14.00 S N/S Range 15.00 E E/W WM  
 Sec 14 SE 1/4 of the SE 1/4 Tax Lot 00103

Tax Map Number \_\_\_\_\_ Lot \_\_\_\_\_

Lat \_\_\_\_\_ " or \_\_\_\_\_ DMS or DD  
 Long \_\_\_\_\_ " or \_\_\_\_\_ DMS or DD

Street address of hole  Nearest address

6487 NW LAMONTA ROAD, PRINEVILLE, OR 97754

**(10) STATIC WATER LEVEL**

Existing Well / Predeepening	Date	SWL(psi)	+	SWL(ft)
Completed Well	6/12/2019			18

Flowing Artesian?

WATER BEARING ZONES

Depth water was first found 18.00

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
6/12/2019	18	35				18

**(11) SUBSURFACE LOG** Ground Elevation \_\_\_\_\_

Material	From	To
Sandy Silt	0	9
Silty sand w/ gravel	9	19
Sand and Gravel	19	29
Silt	29	35

Date Started 6/12/2019 Completed 6/12/2019

**(12) ABANDONMENT LOG:**

Material	From	To	Amt	sacks/ lbs
Other	0	2	2	S
Bentonite Chips	2	35	9	S

Date Started 6/12/2019 Completed 6/12/2019

**Professional Certification** (to be signed by an Oregon licensed water or monitoring well constructor, Oregon registered geologist or professional engineer),

I accept responsibility for the construction, deepening, alteration, or abandonment work performed during the construction dates reported above. All work performed during this time is in compliance with Oregon geotechnical hole construction standards. This report is true to the best of my knowledge and belief.

License/Registration Number 10637 Date 8/20/2019

First Name ZANE Last Name SHADRICK

Affiliation ZANESHADRICK

GEOTECHNICAL HOLE REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

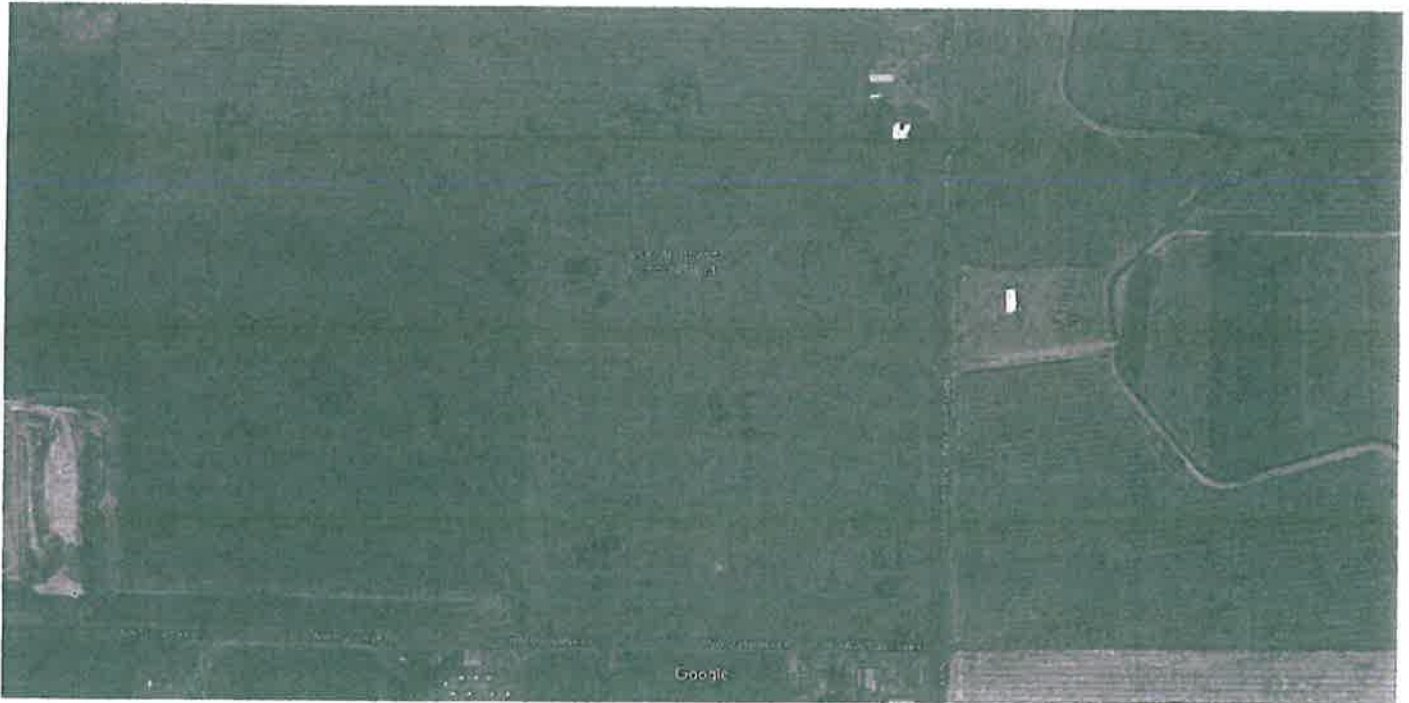
CROO 54795

8/20/2019

Map of Hole

Google Maps 6487 NW Lamonta Rd  
Prineville OR

110-19-1059



STATE OF OREGON  
GEOTECHNICAL HOLE REPORT  
(as required by OAR 690-240-0035)

8/20/2019

(1) OWNER/PROJECT Hole Number B-5

PROJECT NAME/NBR: 110-19-1059

First Name ROBERT J.(JR.) Last Name VANIER

Company \_\_\_\_\_

Address PO BOX 326

City DAYVILLE State OR Zip 97825

(2) TYPE OF WORK  New  Deepening  Abandonment  
 Alteration (repair/recondition)

(3) CONSTRUCTION

Rotary Air  Hand Auger  Hollow stem auger

Rotary Mud  Cable  Push Probe

Other SONIC

(4) TYPE OF HOLE:

- Uncased Temporary  Cased Permanent
- Uncased Permanent  Slope Stability
- Other
- Other: \_\_\_\_\_

(5) USE OF HOLE

SOIL SAMPLES

(6) BORE HOLE CONSTRUCTION Special Standard  Attach copy)

Depth of Completed Hole 35.00 ft.

BORE HOLE			SEAL				
Dia	From	To	Material	From	To	Amt	sacks/ lbs
6	0	35	Other	0	2	2	S
			Bentonite Chips	2	35	9	S

Backfill placed from 0 ft. to 2 ft. Material SOIL / GRAVEL  
Filter pack from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Material \_\_\_\_\_ Size \_\_\_\_\_

(7) CASING/SCREEN

Casing	Screen	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd

(8) WELL TESTS

- Pump  Bailer  Air  Flowing Artesian
- Yield gal/min \_\_\_\_\_ Drawdown \_\_\_\_\_ Drill stem/Pump depth \_\_\_\_\_ Duration(hr) \_\_\_\_\_

Temperature 52 °F Lab analysis  Yes By \_\_\_\_\_

Supervising Geologist/Engineer \_\_\_\_\_

Water quality concerns?  Yes (describe below) TDS amount 110 ppm

From	To	Description	Amount	Units

(9) LOCATION OF HOLE (legal description)

County CROOK Twp 14.00 S N/S Range 15.00 E E/W WM

Sec 14 SE 1/4 of the SE 1/4 Tax Lot 00103

Tax Map Number \_\_\_\_\_ Lot \_\_\_\_\_

Lat \_\_\_\_\_ " or \_\_\_\_\_ DMS or DD

Long \_\_\_\_\_ " or \_\_\_\_\_ DMS or DD

Street address of hole  Nearest address

6487 NW LAMONTA ROAD, PRINEVILLE, OR 97754

(10) STATIC WATER LEVEL

Existing Well / Predeepening	Date	SWL(psi)	+ SWL(ft)
Completed Well	<u>6/13/2019</u>		<u>18</u>

Flowing Artesian?  Depth water was first found 18.00

WATER BEARING ZONES

SWL Date	From	To	Est Flow	SWL(psi)	+ SWL(ft)
<u>6/13/2019</u>	<u>18</u>	<u>35</u>			<u>18</u>

(11) SUBSURFACE LOG

Material	From	To
Sandy Silt	0	18
Sand and Gravel	18	32
Silt	32	35

Date Started 6/13/2019 Completed 6/13/2019

(12) ABANDONMENT LOG:

Material	From	To	Amt	sacks/ lbs
Other	0	2	2	S
Bentonite Chips	2	35	9	S

Date Started 6/13/2019 Completed 6/13/2019

Professional Certification (to be signed by an Oregon licensed water or monitoring well constructor, Oregon registered geologist or professional engineer).

I accept responsibility for the construction, deepening, alteration, or abandonment work performed during the construction dates reported above. All work performed during this time is in compliance with Oregon geotechnical hole construction standards. This report is true to the best of my knowledge and belief.

License/Registration Number 10637 Date 8/20/2019

First Name ZANE Last Name SHADRICK

Affiliation ZANESHADRICK

GEOTECHNICAL HOLE REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

CROO 54799

8/20/2019

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### Map of Hole

Google Maps 6487 NW Lamont's Rd  
Prineville OR

110-19-1059



STATE OF OREGON
GEOTECHNICAL HOLE REPORT
(as required by OAR 690-240-0035)

8/20/2019

(1) OWNER/PROJECT Hole Number B-2
PROJECT NAME/NBR: 110-19-1059
First Name ROBERT J (JR) Last Name VANIER
Company
Address PO BOX 326
City DAYVILLE State OR Zip 97825

(2) TYPE OF WORK [X] New [ ] Deepening [X] Abandonment
[ ] Alteration (repair/recondition)

(3) CONSTRUCTION
[ ] Rotary Air [ ] Hand Auger [ ] Hollow stem auger
[ ] Rotary Mud [ ] Cable [ ] Push Probe
[X] Other SONIC

(4) TYPE OF HOLE:
[ ] Uncased Temporary [ ] Cased Permanent
[ ] Uncased Permanent [ ] Slope Stability
[ ] Other
Other:

(5) USE OF HOLE
SOIL SAMPLES

(6) BORE HOLE CONSTRUCTION Special Standard [ ] Attach copy
Depth of Completed Hole 35.00 ft.

Table with columns: Dia, From, To, Material, SEAL From, To, Amt, sacks/lbs. Includes rows for Other and Bentonite Chips.

Backfill placed from 0 ft. to 2 ft. Material SOIL / GRAVEL
Filter pack from ft. to ft. Material Size

(7) CASING/SCREEN
Casing Screen Dia + From To Gauge Stl Plstc Wld Thrd

(8) WELL TESTS
[ ] Pump [ ] Bailer [ ] Air [ ] Flowing Artesian
Yield gal/min Drawdown Drill stem/Pump depth Duration(hr)

Temperature 52 °F Lab analysis [ ] Yes By

Supervising Geologist/Engineer

Water quality concerns? [ ] Yes (describe below) TDS amount 110 ppm

Table with columns: From, To, Description, Amount, Units

(9) LOCATION OF HOLE (legal description)
County CROOK Twp 14.00 S N/S Range 15.00 E E/W WM
Sec 14 NE 1/4 of the SE 1/4 Tax Lot 00103
Tax Map Number Lot
Lat or DMS or DD
Long or DMS or DD
[ ] Street address of hole [ ] Nearest address

6487 NW LAMONTA ROAD, PRINEVILLE, OR 97754

(10) STATIC WATER LEVEL
Date SWL(psi) + SWL(ft)
Existing Well / Predeepening
Completed Well 6/12/2019 18

WATER BEARING ZONES
Flowing Artesian? [ ]
Depth water was first found 18.00
SWL Date From To Est Flow SWL(psi) + SWL(ft)
6/12/2019 18 35 18

(11) SUBSURFACE LOG
Ground Elevation
Material From To
Silt 0 10
Sandy silt 10 17
Sand and Gravel 17 28
Sandy Silt 28 35

Date Started 6/12/2019 Completed 6/12/2019

(12) ABANDONMENT LOG:
Material From To Amt sacks/lbs
Other 0 2 2 S
Bentonite Chips 2 35 9 S

Date Started 6/12/2019 Completed 6/12/2019

Professional Certification (to be signed by an Oregon licensed water or monitoring well constructor, Oregon registered geologist or professional engineer).

I accept responsibility for the construction, deepening, alteration, or abandonment work performed during the construction dates reported above. All work performed during this time is in compliance with Oregon geotechnical hole construction standards. This report is true to the best of my knowledge and belief.

License/Registration Number 10637 Date 8/20/2019

First Name ZANE Last Name SHADRICK

Affiliation ZANESHADRICK

GEOTECHNICAL HOLE REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

CROO 54796

8/20/2019

Map of Hole

Google Maps 6487 NW Lamonta Rd  
Prineville OR

110-19-1059



STATE OF OREGON
GEOTECHNICAL HOLE REPORT
(as required by OAR 690-240-0035)

8/20/2019

(1) OWNER/PROJECT Hole Number B-6
PROJECT NAME/NBR: 110-19-1059
First Name ROBERT J (JR.) Last Name VANIER
Company
Address PO BOX 326
City DAYVILLE State OR Zip 97825

(2) TYPE OF WORK [X] New [ ] Deepening [X] Abandonment
[ ] Alteration (repair/recondition)

(3) CONSTRUCTION
[ ] Rotary Air [ ] Hand Auger [ ] Hollow stem auger
[ ] Rotary Mud [ ] Cable [ ] Push Probe
[X] Other SONIC

(4) TYPE OF HOLE:
[ ] Uncased Temporary [ ] Cased Permanent
[ ] Uncased Permanent [ ] Slope Stability
[ ] Other
Other:

(5) USE OF HOLE
SOIL SAMPLES

(6) BORE HOLE CONSTRUCTION Special Standard [ ] Attach copy
Depth of Completed Hole 30.00 ft.

Table with columns: Dia, From, To, Material, SEAL From, To, Amt, lbs. Includes rows for Other and Bentonite Chips.

Backfill placed from 0 ft. to 2 ft. Material SOIL / GRAVEL
Filter pack from ft. to ft. Material Size

(7) CASING/SCREEN
Casing Screen Dia + From To Gauge Stl Plstc Wld Thrd

(8) WELL TESTS
[ ] Pump [ ] Bailer [ ] Air [ ] Flowing Artesian
Yield gal/min Drawdown Drill stem/Pump depth Duration(hr)

Temperature 52 °F Lab analysis [ ] Yes By
Supervising Geologist/Engineer
Water quality concerns? [ ] Yes (describe below) TDS amount 110 ppm
From To Description Amount Units

(9) LOCATION OF HOLE (legal description)
County CROOK Twp 14.00 S N/S Range 15.00 E E/W WM
Sec 14 NW 1/4 of the SE 1/4 Tax Lot 00103
Tax Map Number Lot
Lat or DMS or DD
Long or DMS or DD
[ ] Street address of hole [ ] Nearest address

6487 NW LAMONTA ROAD, PRINEVILLE, OR 97754

(10) STATIC WATER LEVEL
Date SWL(psi) + SWL(ft)
Existing Well / Predeepening
Completed Well 6/13/2019 18
Flowing Artesian? [ ]

WATER BEARING ZONES
Depth water was first found 18.00
SWL Date From To Est Flow SWL(psi) + SWL(ft)
6/13/2019 18 30 18

(11) SUBSURFACE LOG
Material From To
Silt 0 5
Silty sand and gravel 5 17
Silt 17 30

Date Started 6/13/2019 Completed 6/13/2019

(12) ABANDONMENT LOG:
Material From To Amt lbs
Other 0 2 2 S
Bentonite Chips 2 30 8 S

Date Started 6/13/2019 Completed 6/13/2019

Professional Certification (to be signed by an Oregon licensed water or monitoring well constructor, Oregon registered geologist or professional engineer).

I accept responsibility for the construction, deepening, alteration, or abandonment work performed during the construction dates reported above. All work performed during this time is in compliance with Oregon geotechnical hole construction standards. This report is true to the best of my knowledge and belief.

License/Registration Number 10637 Date 8/20/2019
First Name ZANE Last Name SHADRICK
Affiliation ZANESHADRICK

GEOTECHNICAL HOLE REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

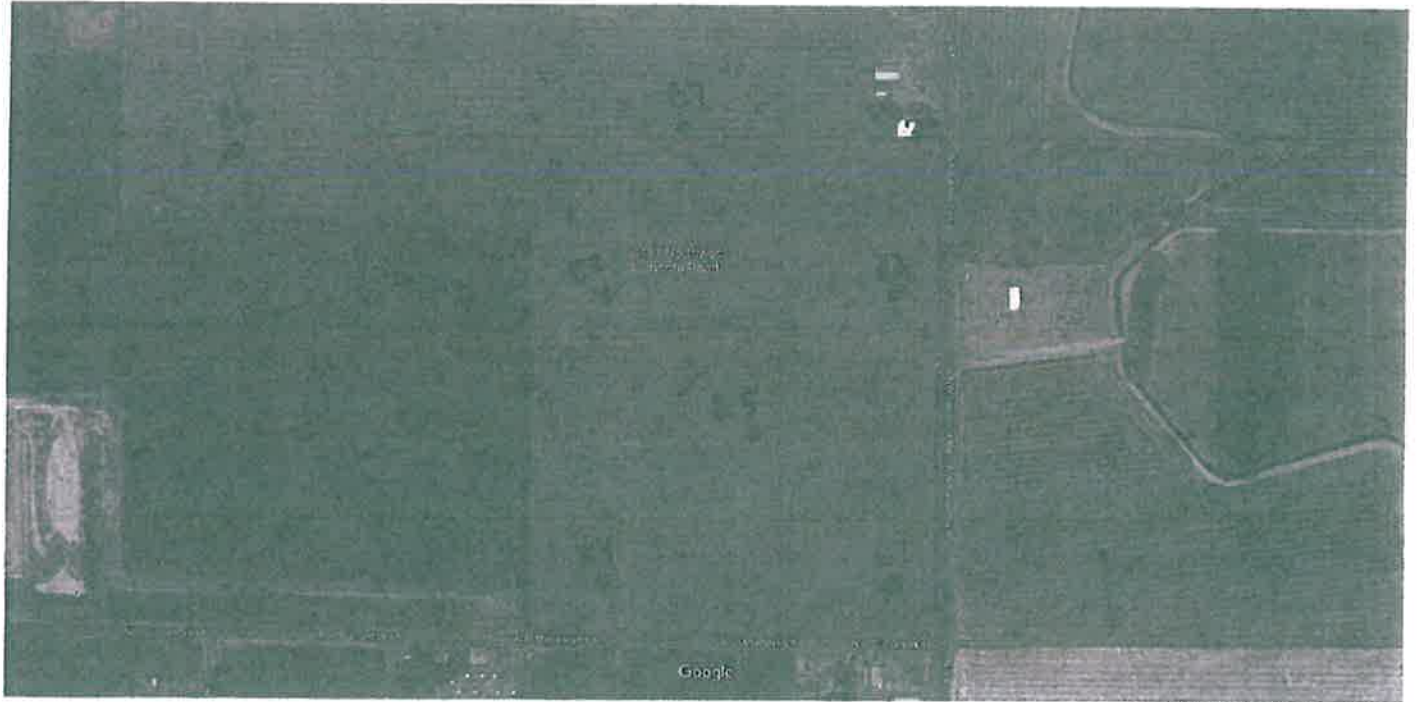
CROO 54800

8/20/2019

Map of Hole

Google Maps 6467 NW Lamonta Rd  
Prineville OR

110-19-1059





STATE OF OREGON
GEOTECHNICAL HOLE REPORT
(as required by OAR 690-240-0035)

8/20/2019

(1) OWNER/PROJECT Hole Number B-3

PROJECT NAME/NBR: 110-19-1059

First Name ROBERT J.(JR.) Last Name VANIER

Company

Address PO BOX 326

City DAYVILLE State OR Zip 97825

(2) TYPE OF WORK [X] New [ ] Deepening [X] Abandonment [ ] Alteration (repair/recondition)

(3) CONSTRUCTION

[ ] Rotary Air [ ] Hand Auger [ ] Hollow stem auger

[ ] Rotary Mud [ ] Cable [ ] Push Probe

[X] Other SONIC

(4) TYPE OF HOLE:

- [X] Uncased Temporary [ ] Cased Permanent
[ ] Uncased Permanent [ ] Slope Stability
[ ] Other

(5) USE OF HOLE

SOIL SAMPLES

(6) BORE HOLE CONSTRUCTION Special Standard [ ] Attach copy

Depth of Completed Hole 30.00 ft.

Table with columns: Dia, From, To, Material, From, To, Amt, sacks/lbs. Includes rows for Other and Bentonite Chips.

Backfill placed from 0 ft to 2 ft. Material SOIL / GRAVEL
Filter pack from ft. to ft. Material Size

(7) CASING/SCREEN

Table with columns: Casing, Screen, Dia, From, To, Gauge, Stl, Plstc, Wld, Thrd. Includes a diagram of casing and screen sections.

(8) WELL TESTS

- [ ] Pump [ ] Bailer [ ] Air [ ] Flowing Artesian
Yield gal/min Drawdown Drill stem/Pump depth Duration(hr)

Table for well test results with columns for Yield, Drawdown, Depth, and Duration.

Temperature 52 °F Lab analysis [ ] Yes By

Supervising Geologist/Engineer

Water quality concerns? [ ] Yes (describe below) TDS amount 110 ppm

Table for water quality concerns with columns: From, To, Description, Amount, Units.

(9) LOCATION OF HOLE (legal description)

County CROOK Twp 14.00 S N/S Range 15.00 E E/W WM

Sec 14 NE 1/4 of the SE 1/4 Tax Lot 00103

Tax Map Number Lot

Lat " or " DMS or DD

Long " or " DMS or DD

[X] Street address of hole [ ] Nearest address

6487 NW LAMONTA ROAD, PRINEVILLE, OR 97754

(10) STATIC WATER LEVEL

Table for static water level with columns: Existing Well / Predeepening, Date, SWL(psi), SWL(ft).

Flowing Artesian? [ ]

WATER BEARING ZONES

Depth water was first found 18.00

Table for water bearing zones with columns: SWL Date, From, To, Est Flow, SWL(psi), SWL(ft).

(11) SUBSURFACE LOG

Ground Elevation

Table for subsurface log with columns: Material, From, To. Includes rows for Sandy Silt, Silty sand, Sand and Gravel, Silt.

Date Started 6/12/2019 Completed 6/12/2019

(12) ABANDONMENT LOG:

Table for abandonment log with columns: Material, From, To, Amt, sacks/lbs. Includes rows for Other and Bentonite Chips.

Date Started 6/12/2019 Completed 6/12/2019

Professional Certification (to be signed by an Oregon licensed water or monitoring well constructor, Oregon registered geologist or professional engineer).

I accept responsibility for the construction, deepening, alteration, or abandonment work performed during the construction dates reported above. All work performed during this time is in compliance with Oregon geotechnical hole construction standards. This report is true to the best of my knowledge and belief.

License/Registration Number 10637 Date 8/20/2019

First Name ZANE Last Name SHADRICK

Affiliation ZANESHADRICK

GEOTECHNICAL HOLE REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

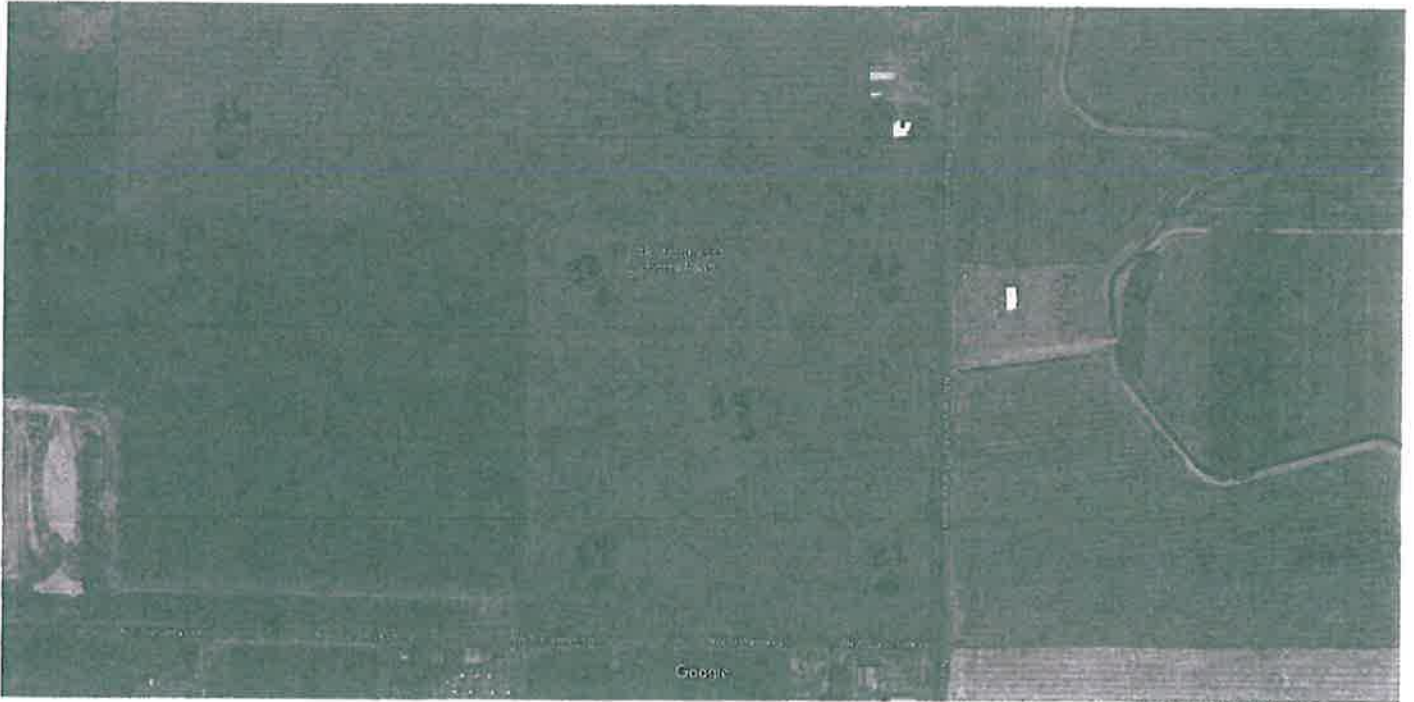
CROO 54797

8/20/2019

Map of Hole

Google Maps 6487 NW Lamonta Rd  
Prineville OR

110-19-1059



STATE OF OREGON  
GEOTECHNICAL HOLE REPORT  
(as required by OAR 690-240-0035)

8/20/2019

(1) OWNER/PROJECT Hole Number B-7

PROJECT NAME/NBR: 110-19-1059

First Name ROBERT J (JR.) Last Name VANIER

Company \_\_\_\_\_

Address PO BOX 326

City DAYVILLE State OR Zip 97825

(2) TYPE OF WORK  New  Deepening  Abandonment  
 Alteration (repair/recondition)

(3) CONSTRUCTION

Rotary Air  Hand Auger  Hollow stem auger

Rotary Mud  Cable  Push Probe

Other SONIC

(4) TYPE OF HOLE:

Uncased Temporary  Cased Permanent

Uncased Permanent  Slope Stability

Other

Other: \_\_\_\_\_

(5) USE OF HOLE

SOIL SAMPLES

(6) BORE HOLE CONSTRUCTION Special Standard  Attach copy

Depth of Completed Hole 30.00 ft.

BORE HOLE			SEAL			sacks/ lbs	
Dia	From	To	Material	From	To	Amt	Units
6	0	30	Other	0	2	2	S
			Bentonite Chips	2	30	8	S

Backfill placed from 0 ft. to 2 ft. Material SOIL / GRAVEL  
Filter pack from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Material \_\_\_\_\_ Size \_\_\_\_\_

(7) CASING/SCREEN

Casing	Screen	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
<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"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(8) WELL TESTS

Pump  Bailer  Air  Flowing Artesian

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

Temperature 52 °F Lab analysis  Yes By \_\_\_\_\_

Supervising Geologist/Engineer \_\_\_\_\_

Water quality concerns?  Yes (describe below) TDS amount 110 ppm

From	To	Description	Amount	Units

(9) LOCATION OF HOLE (legal description)

County CROOK Twp 14.00 S N/S Range 15.00 E E/W WM

Sec 14 NE 1/4 of the SE 1/4 Tax Lot 00103

Tax Map Number \_\_\_\_\_ Lot \_\_\_\_\_

Lat \_\_\_\_\_ " or \_\_\_\_\_ DMS or DD

Long \_\_\_\_\_ " or \_\_\_\_\_ DMS or DD

Street address of hole  Nearest address

6487 NW LAMONTA ROAD, PRINEVILLE, OR 97754

(10) STATIC WATER LEVEL

Existing Well / Predeepening	Date	SWL(psi)	+	SWL(ft)
Completed Well	<u>6/13/2019</u>			<u>18</u>

Flowing Artesian?  Depth water was first found 18.00

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
<u>6/13/2019</u>	<u>18</u>	<u>30</u>				<u>18</u>

(11) SUBSURFACE LOG Ground Elevation \_\_\_\_\_

Material	From	To
Sandy Silt	0	10
Sand and gravel	10	23
Silt	23	30

Date Started 6/13/2019 Completed 6/13/2019

(12) ABANDONMENT LOG:

Material	From	To	Amt	sacks/ lbs
Other	0	2	2	S
Bentonite Chips	2	30	8	S

Date Started 6/13/2019 Completed 6/13/2019

Professional Certification (to be signed by an Oregon licensed water or monitoring well constructor, Oregon registered geologist or professional engineer).

I accept responsibility for the construction, deepening, alteration, or abandonment work performed during the construction dates reported above. All work performed during this time is in compliance with Oregon geotechnical hole construction standards. This report is true to the best of my knowledge and belief.

License/Registration Number 10637 Date 8/20/2019

First Name ZANE Last Name SHADRICK

Affiliation ZANESHADRICK

GEOTECHNICAL HOLE REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

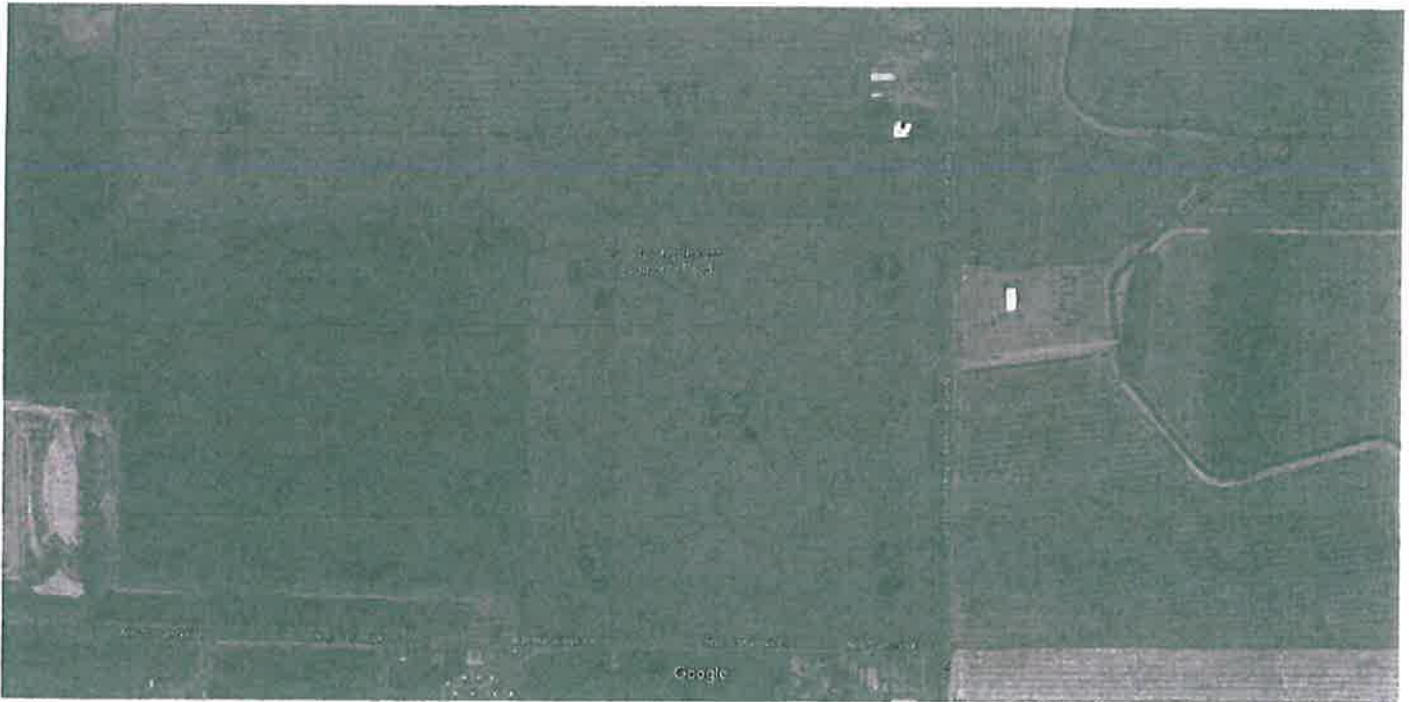
CROO 54801

8/20/2019

### Map of Hole

Google Maps 6487 NW Lamonta Rd  
Prineville OR

110-19-1059



STATE OF OREGON  
GEOTECHNICAL HOLE REPORT  
(as required by OAR 690-240-0035)

8/20/2019

(1) OWNER/PROJECT Hole Number B-4

PROJECT NAME/NBR: 110-19-1059

First Name ROBERT J (JR.) Last Name VANIER

Company \_\_\_\_\_

Address PO BOX 326

City DAYVILLE State OR Zip 97825

(2) TYPE OF WORK  New  Deepening  Abandonment  
 Alteration (repair/recondition)

(3) CONSTRUCTION

Rotary Air  Hand Auger  Hollow stem auger

Rotary Mud  Cable  Push Probe

Other SONIC

(4) TYPE OF HOLE:

Uncased Temporary  Cased Permanent

Uncased Permanent  Slope Stability

Other

Other: \_\_\_\_\_

(5) USE OF HOLE

SOIL SAMPLES

(6) BORE HOLE CONSTRUCTION Special Standard  Attach copy

Depth of Completed Hole 30.00 ft.

BORE HOLE			SEAL			sacks/	
Dia	From	To	Material	From	To	Amt	lbs
6	0	30	Other	0	2	2	S
			Bentonite Chips	2	30	8	S

Backfill placed from 0 ft. to 2 ft. Material SOIL / GRAVEL

Filter pack from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Material \_\_\_\_\_ Size \_\_\_\_\_

(7) CASING/SCREEN

Casing	Screen	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
<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"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(8) WELL TESTS

Pump  Bailer  Air  Flowing Artesian

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

Temperature 52 °F Lab analysis  Yes By \_\_\_\_\_

Supervising Geologist/Engineer \_\_\_\_\_

Water quality concerns?  Yes (describe below) TDS amount 110 ppm

From	To	Description	Amount	Units

(9) LOCATION OF HOLE (legal description)

County CROOK Twp 14.00 S N/S Range 15.00 E E/W WM

Sec 14 SE 1/4 of the SE 1/4 Tax Lot 00103

Tax Map Number \_\_\_\_\_ Lot \_\_\_\_\_

Lat \_\_\_\_\_ " or \_\_\_\_\_ DMS or DD

Long \_\_\_\_\_ " or \_\_\_\_\_ DMS or DD

Street address of hole  Nearest address

6487 NW LAMONTA ROAD, PRINEVILLE, OR 97754

(10) STATIC WATER LEVEL

Existing Well / Predeepening	Date	SWL(psi)	+	SWL(ft)
Completed Well	6/12/2019			18

Flowing Artesian?

WATER BEARING ZONES

Depth water was first found 18.00

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
6/12/2019	18	30				18

(11) SUBSURFACE LOG

Ground Elevation \_\_\_\_\_

Material	From	To
Silt	0	8
Silty sand	8	19
Sand and Gravel	19	29
Silt	29	30

Date Started 6/12/2019 Completed 6/12/2019

(12) ABANDONMENT LOG:

Material	From	To	Amt	sacks/	lbs
Other	0	2	2	S	
Bentonite Chips	2	30	8	S	

Date Started 6/12/2019 Completed 6/12/2019

Professional Certification (to be signed by an Oregon licensed water or monitoring well constructor, Oregon registered geologist or professional engineer).

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License/Registration Number 10637 Date 8/20/2019

First Name ZANE Last Name SHADRICK

Affiliation ZANESHADRICK

GEOTECHNICAL HOLE REPORT - Map with location identified must be attached and shall include an approximate scale and north arrow

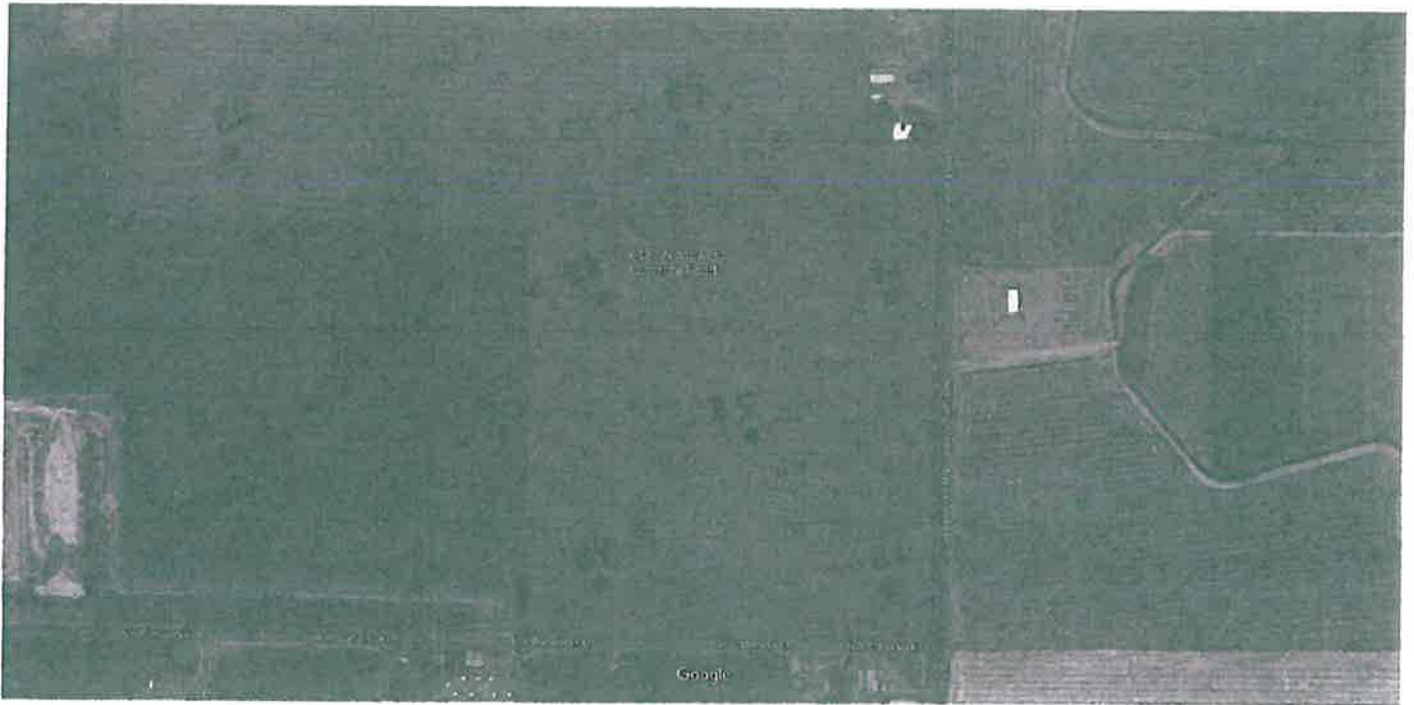
CROO 54798

8/20/2019

Map of Hole

Google Maps 6467 NW Lamonte Rd  
Prineville OR

110-19-1059



# Memorandum



**CASCADE**  
GEOENGINEERING

21145 Scottsdale DR, Bend, Oregon 97701  
360-907-4162 newtonjim@hotmail.com

November 15, 2021

**TO:**

Crook County  
Community Development Department  
Planning Division  
300 NE 3<sup>rd</sup> Street, Room 12  
Prineville, Oregon 97754

**FROM:**

Jim Newton, P.E., R.G., C.W.R.E.

**RE: CROOK COUNTY COURT HEARING RECORD NUMBER 217-21-000436-PLNG; REVIEW OF STANTEC CONSULTING SERVICES INC. REPORT, "WOODWARD/VANIER AGGREGATE MINE HYDROGEOLOGIC CHARACTERIZATION", DATED MARCH 2021. SITE LOCATED NEAR PRINEVILLE, OREGON**

Dear Crook County Community Planning Department:

This memorandum has been prepared by Cascade Geoengineering, LLC (CGE) on behalf of Richard Zimmerlee (resident and lease property farm tenant of the Vanier property located at 6487 NW Lamonta Road), and provides a review of a portion of the Knife River Corporation-Northwest (KR) Crook County Condition Use Application file number 217-21-000436-PLNG (Application), specifically, the "Woodward/Vanier Aggregate Mine Hydrogeologic Characterization" report prepared by Stantec Consulting Services Inc. (Stantec), dated March 2021, that is included in the file 217-21-000436-PLNG submittal, and the Exhibit 33 rebuttal letter from Stantec dated September 8, 2021. The review contained within this memorandum was completed and prepared by Jim Newton of CGE, an Oregon registered professional geologist (RG), Oregon registered professional engineer (PE) and Oregon certified water right examiner (CWRE).

## INTRODUCTION

The review of the Stantec Consulting Services Inc. (Stantec) report (noted as "Wenck, now part of Stantec", "Stantec Consulting Services Inc." on the March 2021 report) and Stantec rebuttal letter dated September 8, 2021 was requested of CGE by Mr. Zimmerlee based on his concern over potential groundwater conditions of the active mine site and areas that have been reclaimed and the continued ability to farm these areas, as Mr. Zimmerlee is currently leasing the Vanier lands included in the KR Application, and has leased the reclaimed portions of the existing Woodward portion of the active KR mine site. Mr. Zimmerlee is concerned that during active mining of the Vanier property, groundwater conditions may change in ways that affect the ability to continue to farm portions of the undisturbed Vanier lands, and, upon reclamation of the post-mined Vanier lands also. These concerns have been expressed to the County by Mr. Zimmerlee and included in documents contained with the KR Application as Exhibit 31a and 31b dated September 1, 2021.

Jim Newton of CGE was contacted by Mr. Zimmerlee on October 28, 2021 to discuss concerns regarding the proposed KR Application to mine the Vanier property that he currently leases to farm fodder crops. Mr. Newton disclosed that he had previously worked with neighbors of the KR active mine site prior to the Woodward mine site being permitted in approximately 2015, as concerns over groundwater impacts to the shallow aquifer that supplied domestic water to neighboring properties was a concern at that time. Mr. Newton provided a cursory review of the Stantec report noting some concern over the report preparation, methodology and conclusions included in the report, and subsequently coordinated a brief site visit with Mr. Zimmerlee on Monday November 8, 2021. The November 8 site visit allowed Mr. Newton to peruse the adjacent area around active the KR mine site, observe general existing site conditions of the area surrounding the KR mine site and discuss with Mr. Zimmerlee concerns related to continued farming adjacent to the potentially expanded mining operations. Further, Mr. Zimmerlee and Newton met with Mr. and Mrs. Adam and Karen Mikulski to discuss their concerns related generally to living across the street from the KR mine site on the southside of NW Stahancyk Lane.

### **Review of Stantec Hydrogeologic Characterization Report dated March 2021**

CGE conducted a review of the March 2021 Stantec Hydrogeologic report and noted several deficiencies in the report that include:

- Failure to follow Oregon State Board of Geologist Examiners Hydrogeologic Report Guideline, Second Edition, dated May 30, 2014, including the requirement the report be stamped and signed by an Oregon registered professional geologist, *"The registrant's seal (stamp) and signature can be placed either on the title page, a separate signature page, or another location, which indicates that the registrant is responsible for the entire contents of the report."*
  - As there is no mention of whom prepared or takes responsibility for the report, other than Stantec of Fort Collins, Colorado, this likely constitutes a violation of Oregon Revised Statutes (ORS) 672.525 'Geologist registration; public practice of geology', nor does it appear that Stantec would qualify under an exemption in ORS 672.535 'Exemptions from



ORS 672.505 to 672.705'-generally refers to exemptions for employees of the United States of America (employed by a U.S. federal agency), or as a geologic teaching professional; or ORS 672.545 'Practice of geology by proprietorship, partnership or corporation; employment of nonregistered geologist; practice by other professionals; practice by nonresident.'

- Specifically, ORS 672.525 states,

*"(8) A person shall be construed to publicly practice or offer to publicly practice geology if the person:*

*(a) Publicly practices any branch of the profession of geology;*

*(b) By verbal claim, sign, advertisement, letterhead or card, or in any other way, purports to be a registered geologist, or through the use of some other title implies that the person is a registered geologist or that the person is registered under ORS 672.505 to 672.705; or*

*(c) Offers to provide any geological services or work recognized as the public practice of geology for a fee or other compensation."* Source: [https://www.oregonlegislature.gov/bills\\_laws/ors/ors672.html](https://www.oregonlegislature.gov/bills_laws/ors/ors672.html)

- Contradictions made in Section 3.0 in the Stantec March 2021 Report noted that, *"Wenck [the Stantec report refers to themselves as Wenck] prepared a water table map. Wenck prepared this map by plotting groundwater elevations measured at nearby shallow wells drilled or screened to a maximum depth of 40 feet."* Further language in the Stantec Report noted, *"Only water level measurements recorded between June and October were considered in part to reduce error caused by seasonal fluctuations in the water table and an abundant amount of available data recorded during these months."*
  - It is interesting that the Stantec report only included water level data recorded between June and October to develop the water table map, when the test borings and well tests conducted in the Stantec report were installed, recorded and conducted between January and March of 2021.
  - Stantec could have been more diligent to obtain current water level data from wells that includes the actual well locations, ground surface elevations, and use this data to prepare a current water table map that is from the same timeframe and likely more reflective of the actual groundwater flow regime in the identified project area.
- In Sections 4.0, 5.0, 6.0, and 7.0, Stantec describes generally the *how* and *why* the geologic borings and pump testing of the borings were conducted, however, there is insufficient data provided to determine the design of the completed borings into test wells (Oregon Water Resource Department well logs were filed as monitoring wells for all three of the Stantec/Yellow Jacket drilling wells), nor that the completion methods and materials were conducive to allow for adequate or accurate pump testing of each installed well boring.

- Further, upon review of the Stantec pump test data and analysis there is little consistency to follow pump testing guidelines past the initial step-drawdown testing (step-drawdown testing is conducted at incremental pumping rates in an effort to determine the likely flow rate to conduct a longer-term constant rate pump test).
  - Conducting a constant rate pump test requires water levels to be recorded at prescribed intervals that vary depending on the timeframe during such a test, with the flow rate of the well to be maintained at a constant flow rate (or near constant flow rate with minimal fluctuation in flow rate). Based on the reported data in the Stantec report the flow rate varied during pump testing of the installed wells between around 2.5 to 1.7 gallons per minute, which constitutes a roughly 30% deviation in pump rate, which explains the poor initial water level data that was not used in the calculations of aquifer parameters-the initial 10 minutes of a well test typically provide the most accurate and detailed data to conduct calculations on aquifer parameters.
  - Further, data collected during the latter portions of the pump testing well WW-1A and the WW-1A Re-Test past minutes 300 and minutes 150 minutes demonstrate a change in the slope of the drawdown during the pumping portion of the well testing. This change in slope is commonly referred to as a secondary response, indicating the aquifer is demonstrating a change in parameters that may be attributed to a boundary condition, or other change in aquifer's ability to transmit water towards the pumping well. This data does not appear to be considered by Stantec in their aquifer evaluations or calculations, nor is this data reflected in the discussions of Sections 4.0 through the end of the report.
- Section 8.0 of the Stantec Report attempts to describe a review and analysis of 'Water Rights Impact Analysis', however, this section refers to the potential for the KR site to impact surrounding water users of the 'shallow' aquifer system (wells completed at depths 40-feet or shallower, the maximum anticipated depth the KR mining may have a potential impact to groundwater). This Section 8.0 may be more accurately described as attempting to assess the impacts to shallow groundwater users, as the Stantec Report attempts to locate wells completed in the shallow aquifer system, not areas where water rights issued by the OWRD are issued. Water rights in Oregon prescribe generally the type of water right (e.g., permit application, permit, certificate), the use of water (e.g. irrigation, municipal), location of the water to be used ('Place of Use', or POU), the source of water (i.e. surface water, or groundwater) as in the 'Point of Diversion' (POD) for surface water, or 'Point of Appropriation' (POA) for groundwater, and a priority date (the date generally recognized as either first requested from the OWRD, or historically the timeframe when water was first used by a water user). The Stantec report references none of these, nor the assigned OWRD water right application/permit/certificate number, POU, POA/POD, type (e.g., irrigation), etc.
- Section 9.0 of the Stantec Report relies upon the derelict, inaccurate, or failed aquifer testing and analysis and water right review included in the Stantec Report, noting that, "In conclusion, dewatering of the mine cells at the Vanier property can be accomplished with minimal impact to nearby water rights. The use of recharge trenches is a proven method, and the installation of

observation wells will minimize and/or eliminate the negative impacts from dewatering.” This statement from Stantec appears to be unsupported by the data and analysis included in their report, further emphasizing potential for concern by surrounding landowners.

- Section 10.0 of the Stantec Report notes that “The final ground surface will be close to the recovery elevation of the groundwater and should be acceptable for growing hay and similar forage crops.” This statement seems to present and support the concerns expressed by Mr. Zimmerlee during the November 8, 2021 site visit that shallow groundwater (groundwater within 2-feet or less of the ground surface) has a significant effect on the ability to farm the grounds after reclamation. This concern may further be supported by the exposure of such shallow groundwater to farming practices that involve the inclusion of fertilizers, both chemical or organic fertilizers, that could become a contaminate source for groundwater that is otherwise currently a potable water source.
  - The Stantec report does not appear to account for such concerns related to increasing groundwater elevations to nearly ground surface, and resultant potential impacts that may have to both nearby groundwater users, or downstream groundwater users, or potential discharge of now mobilized groundwater contaminants that could discharge to surface water via springs or seeps.

#### **Review of the September 8, 2021 Rebuttal letter Stantec, authored by Mark Stacy, RG, and Christopher Lidstone.**

The review of the September 8, 2021 rebuttal letter provided by Mark Stacy, RG (the letter was stamped and certified by Mr. Stacy, an Oregon registered geologist) and Christopher Lidstone, both of Stantec, provided essentially a direct response to information from Mr. Zimmerlee with nearly word-for-word phrasing of the process, conclusions and proposed mitigative efforts recommended by the Stantec Report dated March 2021. This September 8, 2021 letter did include a statement that, “...will ensure groundwater availability to neighboring wells and springs:...” and a “Groundwater Guarantee” by KR that there will be monitoring and continued availability of groundwater to all nearby shallow groundwater users. The following statement is directly quoted from the September 8, 2021 Stantec rebuttal letter:

*“In summary, Stantec anticipates there will be no impact to groundwater quantity or quality from Knife River’s operation during or following the completion of mining and reclamation. This expectation is based on the following: (1) during mining, groundwater pulled from the shallow aquifer of a mined cell will be placed into a downgradient recharge trench; this will ensure groundwater availability to neighboring wells and springs; (2) groundwater quality will be monitored for mining related impacts; and (3) the natural filtering characteristics of the un-mined gravels will provide additional protection to all users. Following the completion of mining, groundwater movement may exhibit local changes in the area where sand and gravel was removed, but local area shallow water wells will not be affected. Knife River has proposed a practical and transparent monitoring program to ensure that no impact will occur. Furthermore, Knife River is also offering a “Groundwater Guarantee” so that neighboring residents can continue to operate their homes and businesses without interruption.”*

Although CGE does hope that KR does, in fact, conduct mining practices on the proposed site in a manner that will reduce the potential for impacts to both groundwater availability and groundwater quality, Mr. Stacy does not appear to support these conclusions with new data that may suggest additional reassurances beyond the flawed March 2021 Stantec Report.

## CONCLUSIONS

Based a review of the March 2021 Stantec Report, the above referenced report deficiencies, including but not limited to, the lack of adherence to the responsibility to the professional practice of geology, application of sound geologic analysis and supporting data, it is the opinion of CGE that the March 2021 Stantec Report be deemed suspect and not relied upon by the County to provide a determination of adequate review of potential groundwater impacts to the proposed KR mining expansion/Vanier area, or the area immediately surrounding the proposed KR mining expansion/Vanier area. Further, Stantec extrapolated pump test data from a very isolated location on the existing KR site to a large area across the Vanier site that does not provide a reasonable approach to estimate such critical mining conditions or strategies that may alleviate groundwater conditions in suitable manner.

## RECOMMENDATIONS

Considering the likelihood that KR will continue to pursue permitting of the expansion/Vanier area, CGE would like to offer recommendations that may provide additional basis for geologic and hydrogeologic investigations that may assist the applicant to address concerns by Mr. Zimmerlee and potentially other nearby landowners:

- If KR or Stantec is to conduct additional analysis on potential groundwater impacts to the proposed KR mining expansion/Vanier area, it would be recommended the investigative and evaluation work be conducted under the direction of an Oregon registered professional geologist that will certify such work and follow Oregon guidelines as presented by the Oregon State Board of Geologist Examiners.
- Install exploratory borings and wells within the actual proposed expansion/Vanier mining area, this will allow the evaluation of actual materials to be mined, and the aquifer to be impacted by mining to be evaluated.
- Engage with concerned neighboring residents/landowners in a manner that is proactive to address concerns directly and provide an avenue for neighbors to both voice concerns and develop mining and reclamation strategies that addresses these concerns.

**CLOSURE**

If you have questions regarding this memorandum, please feel free to contact me at your convenience. I can be reached by email at [newtonjim@hotmail.com](mailto:newtonjim@hotmail.com), or by telephone at 360-907-4162.

Sincerely,



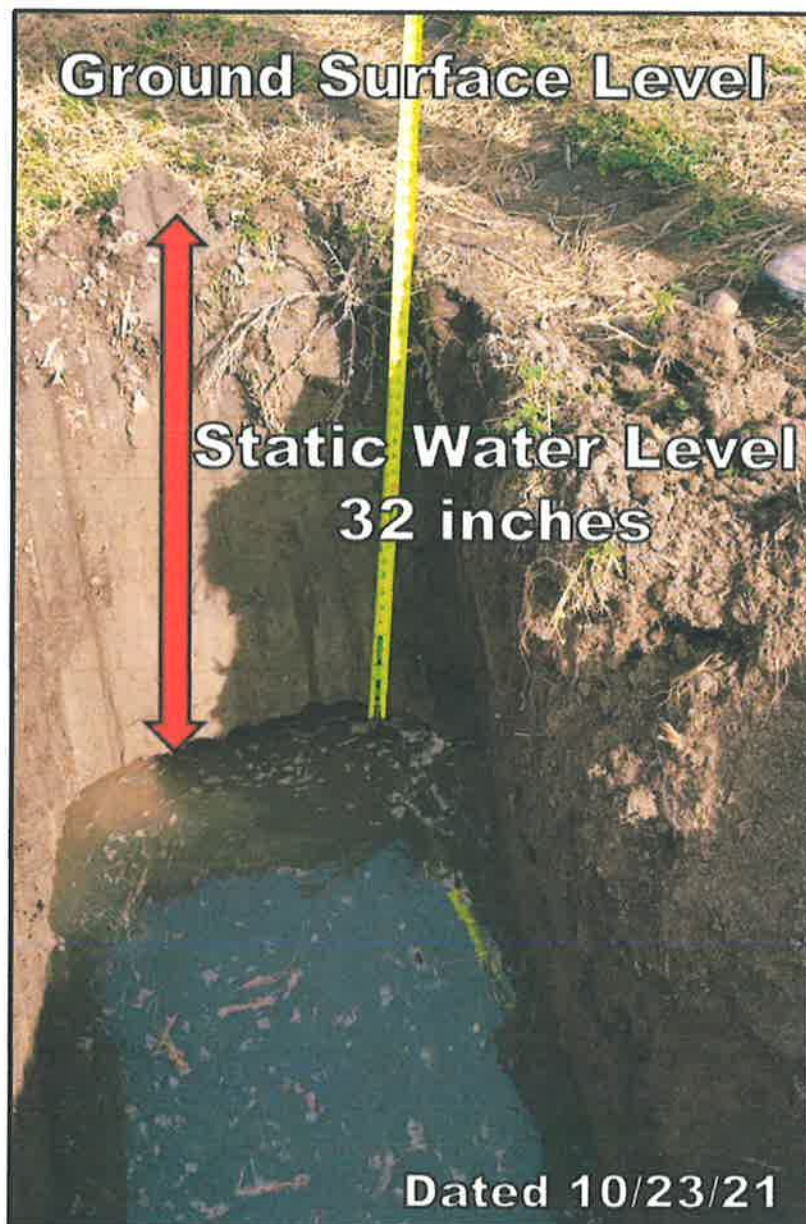
Expires 5/1/2022

Jim Newton, PE, RG, CWRE  
Principal – Engineer-Geologist  
Cascade Geoengineering, LLC

## GROUND WATER ENCROACHMENT AND OTHER CONCERNS

One of the many concerns in my first report submitted as Exhibit 21 to the planning department on August 23, 2021 was regarding the amount of ground water Knife River has encountered on the Woodward property. Those concerns include the damming of the water with the earthen plug of overburden and topsoil after removing the gravel which provided the natural drainage system. The ground water had to go somewhere once it was dammed up. As a result, the static water level in places on the Vanier property is now approximately 30" below ground surface and has encroached on several acres of farm land. This farm land is completely saturated and is totally unusable. We cannot drive any equipment across it without getting stuck in the muddy surface. The water continues to advance daily and expand the size of the "mud bog".

The proposed "new field elevation" after mining is represented to be 5-8 feet below the current elevation. That would mean the field level will be 2-3 feet below the current static level of ground water and that would make it impossible to reclaim the land to "current agricultural use" in as good or better condition as required by a DOGAMI permit.



Further concerns regard the reclamation of the ground. I lease the Porfily property (unmined) and the Woodward 13 acres of reclaimed land contiguous with the Porfily property. I manage both properties uniformly regarding water, fertilizer, harvest, etc. There is a reduced yield on the reclaimed Woodward property due to soil compaction that will not allow water to penetrate the soils. There is also a reduced yield on this same property due to low or non-existent fertility levels. The yield difference is between 50 and 60% less than the unmined Porfily property.



Equipment  
Stuck in mud

Equipment  
Stuck in mud  
SWL 30in.



**Saturated soil where equipment got stuck**

**Test well - SWL 30in.**

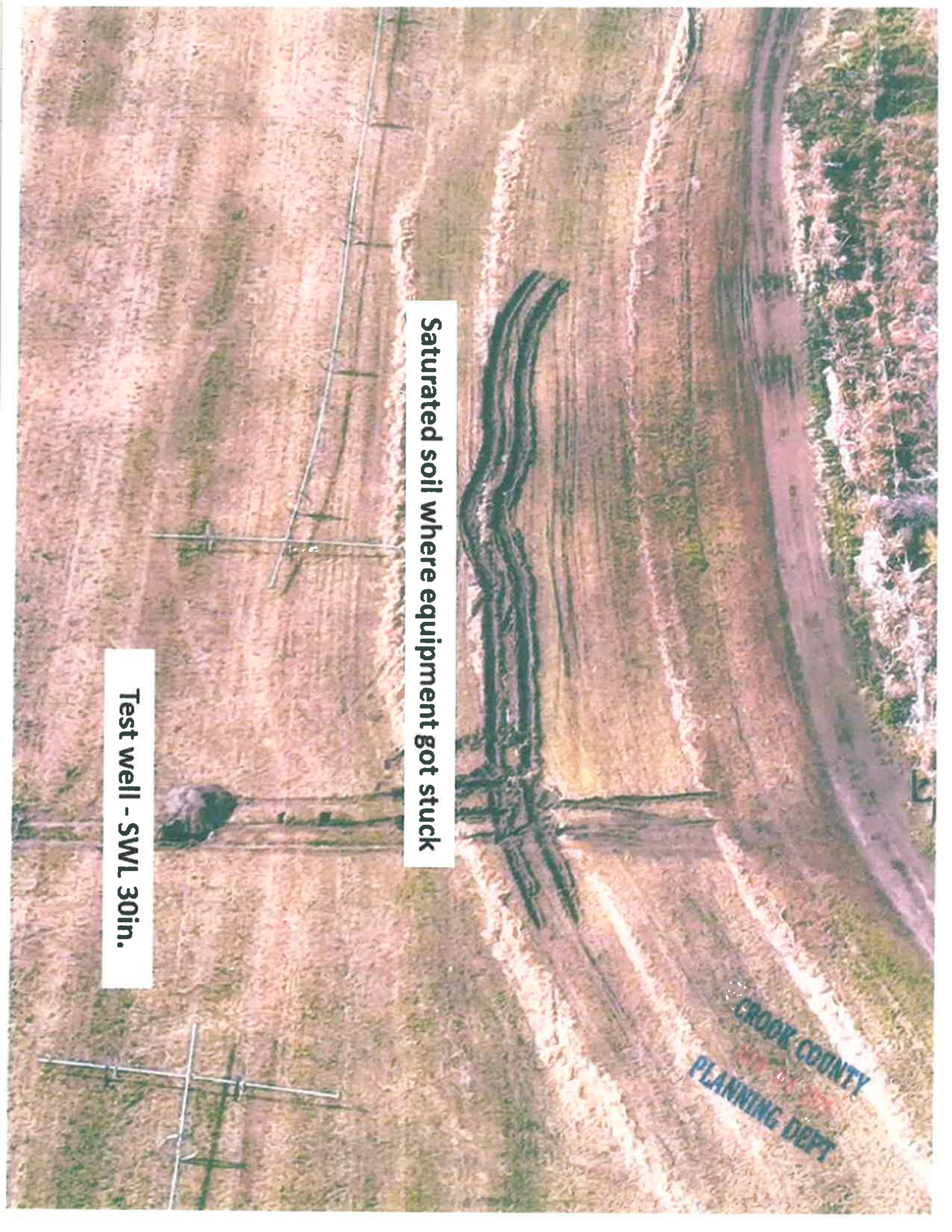
CROOK COUNTY  
PLANNING DEPT  
APR 13 2011



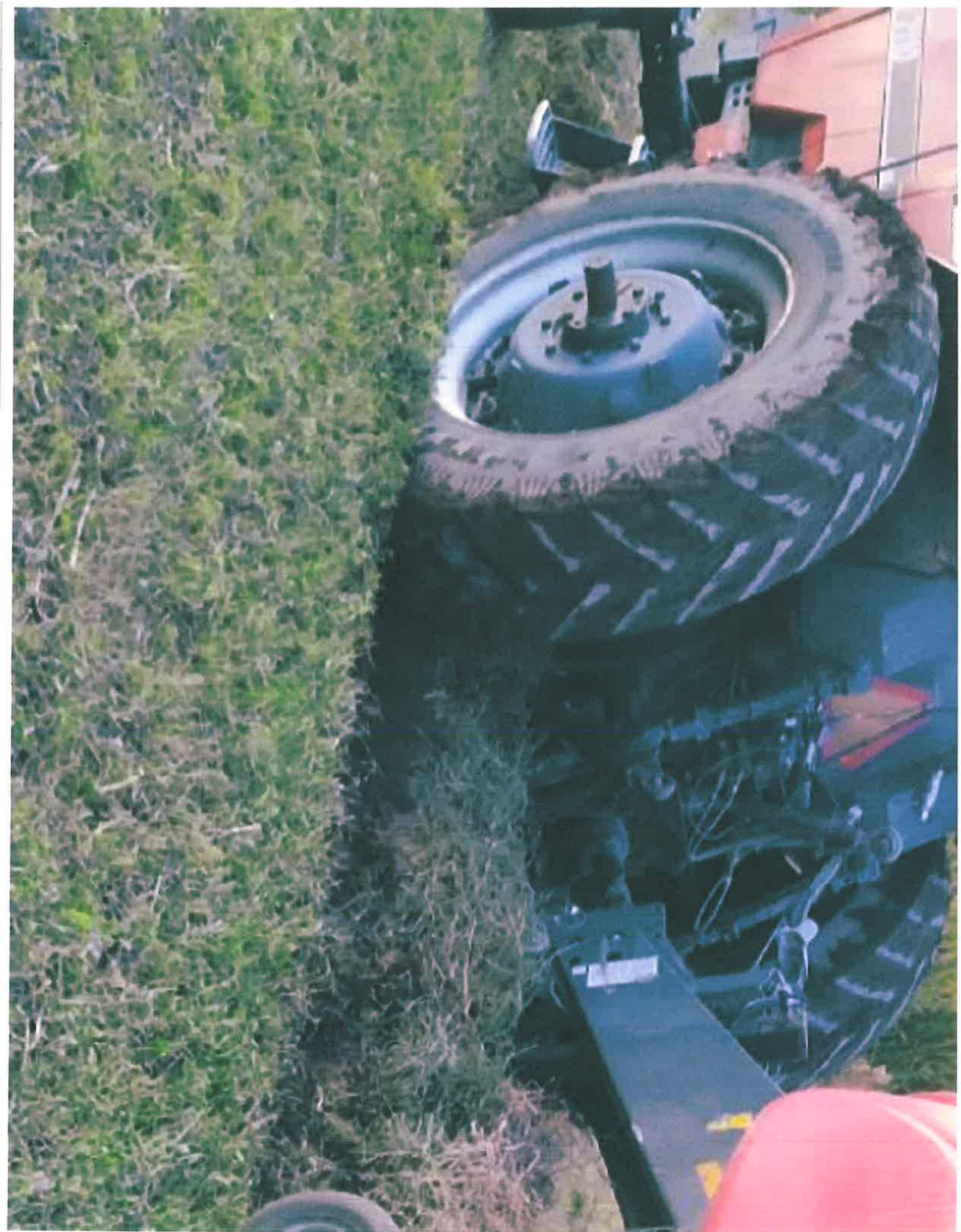
CROOK COUNTY  
PLANNING DEPT

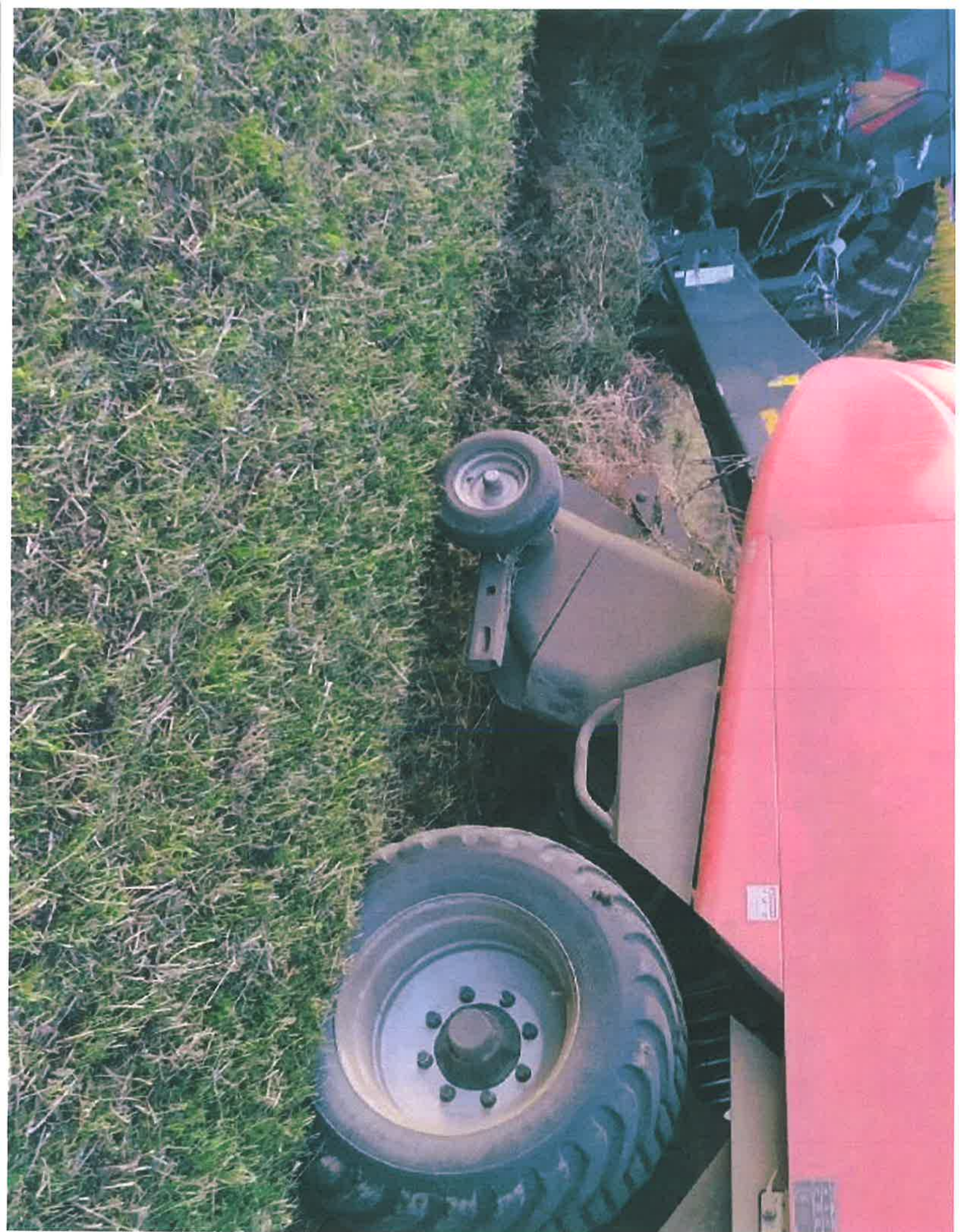
Saturated soil where equipment got stuck

Test well - SWL 30in.









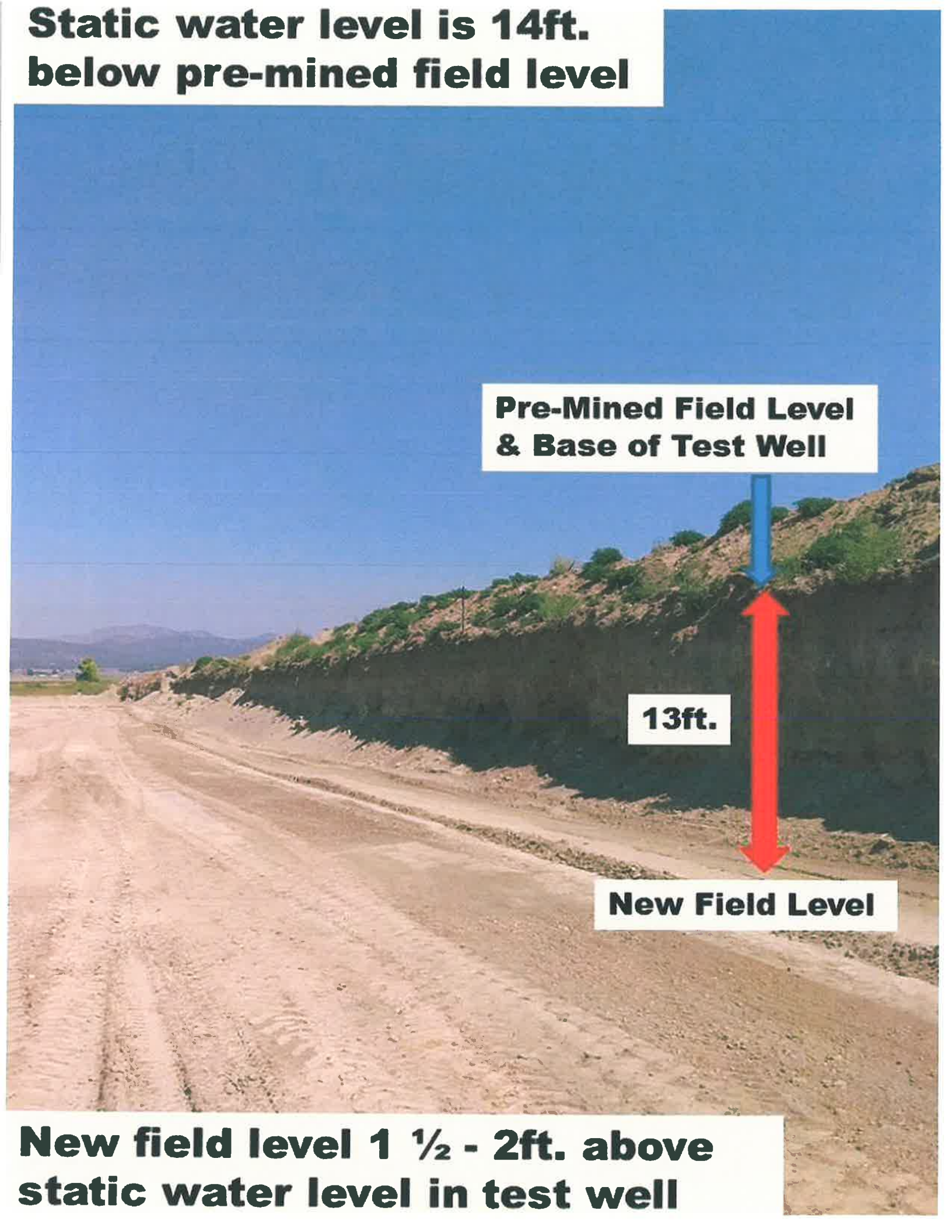
**Static water level is 14ft. below pre-mined field level**

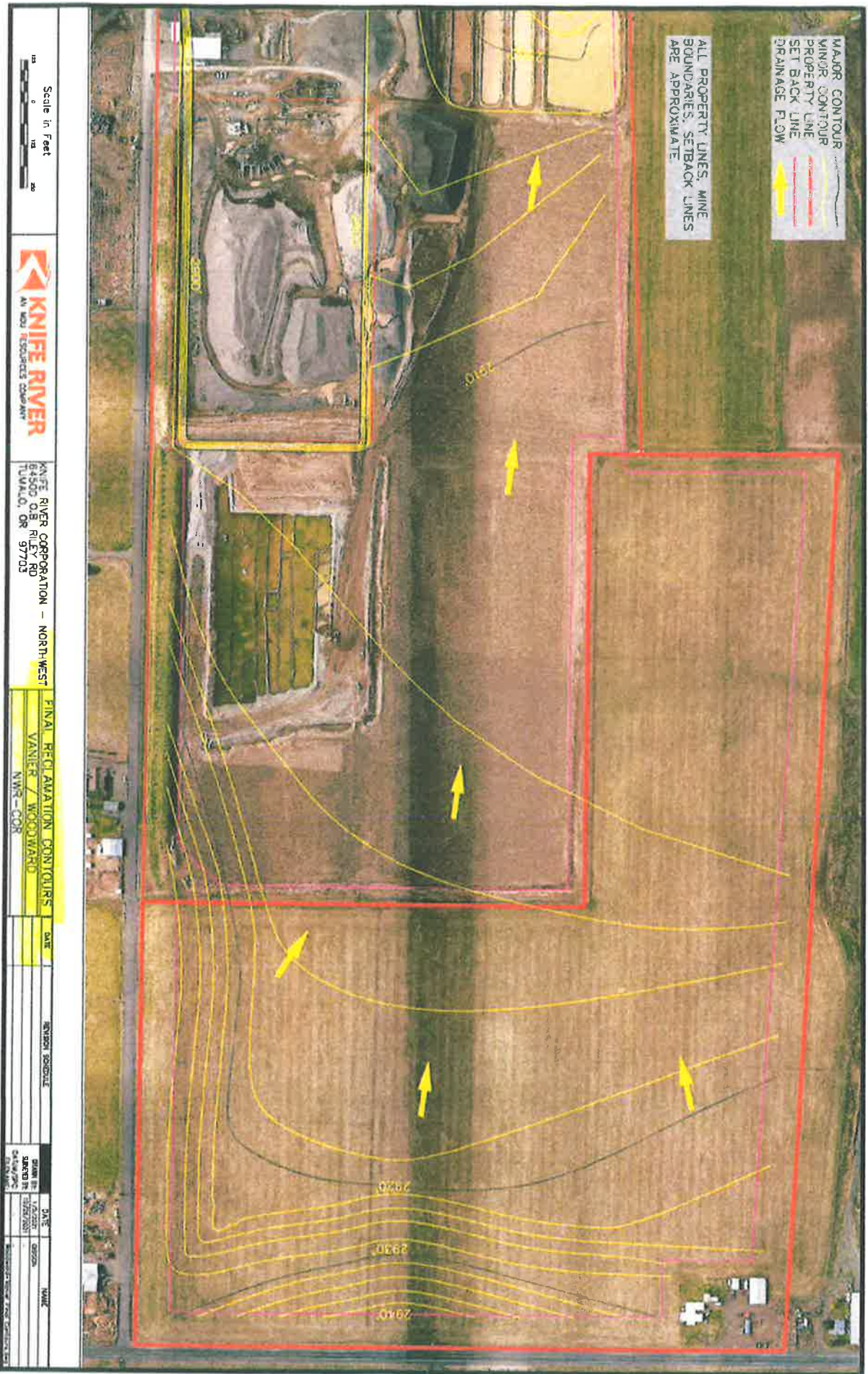
**Pre-Mined Field Level & Base of Test Well**

**13ft.**

**New Field Level**

**New field level 1 ½ - 2ft. above static water level in test well**





**CROOK COUNTY**

**NOV 15 2021**

**PLANNING DEPT**

tabbles®

**EXHIBIT**

**59**

**MUCH OF THE INFORMATION REQUESTED CAN BE EXPLAINED ON THE MINE PLAN MAP.**

The map must be a stamped survey from a Professional Land Surveyor on a topographic base map. Surveyed coordinates must be supplied. See *Guide to Surveying and Marking*.

Map Requirements include (but are not limited to)

1. Scale (1" = 100' to 500')
2. North arrow
3. Appropriate legal description(s) and tax lot numbers, etc.
4. Permit boundary (must be labeled)
5. Location of plant, office, and maintenance facilities
6. Locations of all intermittent water courses, perennial streams, springs, wetlands, and wells
7. Present mine areas and future mining blocks
8. Areas for topsoil and overburden storage or spoil locations, including berms
9. Location of all proposed access roads
10. All property lines within 500' of the permit boundary
11. Location of processing and stockpile areas, plus visual and sound berms or screens
12. Setbacks from property lines, streams, etc.
13. Utility poles, gas line rights-of-way, etc.
14. Storage location of chemicals and petroleum products
15. Date of map preparation and name of the person preparing map

Pre- and post-mining cross-sections of the land surface may be required.

**1. PRE-MINE CONDITIONS**

- Heavy Lot 702 - Industrial*
- a) Current land use and zoning *Lot 703 - EFL 2*
  - b) Average depth of topsoil *18"*
  - c) Type and density of vegetation  
*Pasture grass dense before grazing*
  - d) Are there any springs, seeps, intermittent or perennial streams on or near the site?  yes  no  
If yes, list here and locate on mine plan map.  
*Unnamed stream flowing SW near NW corner of the site.*
  - e) Has a wetland delineation been completed?  yes  no  
If yes, attach report.
  - f) Has a landslide investigation been completed on this property?  yes  no  
If yes, attach report.

RECEIVED  
MHP

JUN - 6 2015

**2. POST-MINING LAND USE**

a) What is the planned post-mining beneficial use of the permit area?

- Agriculture *Lot 703*
- Range/Open Space
- Forestry
- Housing/Construction
- Wildlife/Wetland
- Recreation
- Other *Industrial, Lot 702*

The post-mining use must be compatible with the local comprehensive plan or have specific land-use approval. For significant aggregate sites zoned for mining, local government must determine the post-mining land use.

**3. RECLAMATION TIMING**

a) How many days after mining is completed will reclamation begin?

OR

b) If reclamation will be concurrent with mining, explain the procedure for concurrent reclamation.

*At the completion of each mining cell it will be graded with silty overburden and then covered with the reserved topsoil and cultivated for pasture grass.*

**4. OPERATING PLAN**

a) Mining method(s) to be employed (mark all that apply):

- single bench  multiple bench  pond excavation
- placer mine  side hill cut  hill top removal
- other:

b) Equipment to be used for mining:

*Excavator, loader, haul trucks*

c) Will there be on-site processing?  yes  no  
If yes, check type of processing:

- wash water contained in a closed system  
source of water: *Ochoco Irrigation District*
- wash water discharged off site
- dry processing
- other:

d) Will blasting be employed?  yes  no

e) Distance to closest structure not owned by permittee.

*260'*

f) Disposition of removed vegetation.

*Vegetation will be grazed or harvested with remainder cultivated into topsoil.*

ID No.

*01-019-09*

g) Soil types which will be disturbed by mining, processing, or reclamation.

Ochoco-Prineville complex

h) Average soil salvage depth

18"

i) Overburden removal depth

Avg. 5.6'

j) Will soil, overburden, rock waste or crusher reject dumps or stockpiles be created during mining?.....  yes  no

If yes, list the estimated volume of each at the end of this form and locate on a mine plan map.

Additional information may be required for large dumps or those located on steep terrain.

k) Will this plan require excavating across any property lines? ..... Same ownership.....  yes  no

l) How and where will soil or subsoils be stored for reclamation? Locate storage areas on mine plan map.

Up to 100,000 cubic yards can be stored in the screening beams surrounding the mining area

m) What measures will be taken to reduce compaction and prevent water and wind erosion of the topsoil stockpiles and when will they be implemented?

They will be planted with native seed immediately and irrigated.

n) What will be the minimum property line setback:

for the excavation

50'

for processing or storage

100'

### 5. WATER RESOURCE PROTECTION

a) Will mining occur below groundwater level?...  yes  no

b) Will mine site dewatering be necessary?.....  yes  no

If yes, explain procedure and estimated depth to which water will be drawn down inside of the mine and where water will be discharged.

Some perched water was encountered in several test pits. It is not expected to result in a discharge.

### WRD

A permit may be required from the Water Resources Department for dewatering activity.

c) Will process water be contained on site? .....  yes  no

d) Will storm water be contained on site?.....  yes  no

e) Will a pond(s) be used to contain water? .....  yes  no

Explain containment procedures.

Processing area will be established on top of gravel deposit to allow for stormwater infiltration. Process water will be circulated through ponds for infiltration.

If the answer to c) or d) is no, please explain discharge procedures.

A permit from the Department of Environmental Quality may be required for off-site discharges and is required for any discharge into public waters, wetlands, streams or lakes. Contact DOGAMI for these permits.

### DEQ

f) Will any drainages/streams be relocated? .....  yes  no  
If yes, complete Section 11.

g) What will be the minimum undisturbed setback(s) of the operation from all stream(s) or drainage(s)? 100'

List the name of stream(s) or drainage(s) and setback from each at the end of this form and locate on a mine plan map.

h) How will the buffer(s) be identified and protected during mining and reclamation?

Aggregate does not extend to within 100' of drainage.

i) Describe methods employed to control erosion in the permit area. Be specific, i.e., seeding and mulching, sediment basins or ponds, contour ditching, waterbars, etc.

Seeding with irrigation; sediment basins and ponds; reseed to pasture soon after mining.

j) Will settling ponds/dams be constructed? .....  yes  no  
State the number and size of the impoundment(s) and how they will be built. Will the pond be excavated or will berms be constructed? Locate on a mine plan map.

Ponds will be excavated.

k) If dams will be constructed, how high will they be and what is the maximum amount of water (in acre feet) to be impounded behind each dam?

NA

### WRD

If a dam is higher than 10 feet, and stores more than 9.2 acre feet of water, approval from the Water Resources Dept. is required prior to construction.

l) If berms or a dam will be constructed, describe construction details and attach a sketch showing construction methods.

NA



- m) How deep will impoundment(s) be? 210'
- n) If the impoundment(s) are to be removed upon completion of mining, how will they be drained and/or filled?  
Water will be irrigated and infiltrated over the site then filled.
- o) Will settling ponds, wetlands, or a water impoundment be left upon final reclamation?  yes  no

### 6. GROUNDWATER INFORMATION

- a) Proposed mine depth in SE corner 30'
- b) Groundwater depth 29'  
(Under static (pre-mine) conditions)
- c) What is groundwater depth estimate based on?  
Water well on site (log attached)  
CRDD 50140
- d) Flow direction of groundwater, if known. Interpreted to be to W-SW
- e) Distance to closest well outside the permit boundary.  
CRDD 329 300'

300gpm  
24' SWL  
25' SWL

**Wells within permit area must be shown on mine plan map. Attach a copy of the well log(s).**

### 7. VISUAL AND NOISE SCREENING

Screening can be very effectively employed to isolate sites from public notice and to minimize noise from operations.

- a) Does a natural landform or vegetative screen currently exist along the permit boundary?  yes  no  
If yes, what screen width will be maintained during mining?  
50'
- b) Will a berm and/or vegetation be established to develop a visual screen for the operation?  yes  no  
If yes, describe the height and width of the berms and/or the type and density of vegetation; show location on mine map.

(Crushed rock stockpiles, although not permanent, can also be used to reduce noise from the operation.)  
10' high soil berms with native grass vegetation

### 8. EQUIPMENT AND STRUCTURES REMOVED

- a) Upon final reclamation, will all structures, visual berms, equipment, and refuse be removed?  yes  no  
If no, explain what will be left.

### 9. RECLAMATION TECHNIQUES

- a) What will be done with oversized rock not used during mining?  
It will be crushed and sold or sold as down rock.

- b) What will be the average depth of soil replaced on the area to be reclaimed? 18"

**If less than 12" of topsoil is available, a substitute material may be required.**

- c) Will additional material be utilized as a soil substitute to complete the revegetation?  yes  no  
If yes, specify type(s), amount(s), and source(s).

- d) Will any waste products, such as tailings, crusher rejects, etc., be generated during mining?  yes  no  
If yes, what will be done with them?

Fines from aggregate washing will be incorporated into reclamation fill with the existing soil.

- e) How will processing and stockpile sites be reclaimed? If they are to be revegetated, explain procedures which will be employed to decompact areas prior to topsoiling/seeding.

Processing and stockpile sites are to be reclaimed for industrial use as a level gravel-covered lot on to pasture grass.

### 10. REVEGETATION TECHNIQUES

- a) Species to be seeded/planted by type and amount.  
Landowner will plant with his desired pasture grass for his livestock.
- b) Describe method and time of year for planned planting.  
Landowner's decision based on livestock needs.
- c) List fertilizers and lime to be used (include amount).  
Landowner's decision based on his evaluation for livestock needs.
- d) List type and amount of mulch or other erosion control techniques such as erosion netting.  
mulch not anticipated to be necessary. Irrigation available.

**Vegetative survival comparable to the density of original ground cover will normally be considered acceptable.**

### 11. RECLAMATION PROCEDURES - POST-MINE DRAINAGE CONTROL AND RECONSTRUCTION

- a) During reclamation, will stream channel and/or bank stabilization and rehabilitation be necessary?  yes  no  
If yes, attach plans.  n/a

A Division of State Lands' permit is required for relocation of all perennial and some intermittent water courses.

**DSL**

- b) How will surface water runoff and erosion be controlled upon completion of mining? Describe and list structures that will be used.

*Gentle slopes on agricultural field planted with hay crop.*

**12. RECLAMATION PROCEDURES - IMPOUNDMENTS & POND DECOMMISSIONING**

- a) Will dewatering be required? .....  yes  no
- b) Will it be necessary to backfill a water filled excavation pit or pond? .....  yes  no
- c) How will settling ponds be stabilized and revegetated?  
*Water will be removed, pond filled, and topsoil placed and cultivated for pasture use.*
- d) How will quality of imported backfill be monitored to protect groundwater quality?  
*None anticipated.*

*Monitoring may be required to ensure groundwater protection.*

**13. RECLAMATION PROCEDURES - LAND SHAPING**

Long continuous slopes should be avoided or broken up with surface contours, ditches, or complex slope shape.

- a) What will be the:
- i) -steepest above-water *excavated* slopes left after mining? (1½:1 is generally maximum) *3:1*
- ii) -steepest above-water *fill* slopes left after mining? (2:1 is generally maximum) *3:1*
- b) What will be done to ensure the stability of excavated slopes?  
*Final slopes are mostly gentle for livestock access. Site will be planted with pasture grass.*
- c) What will be done to ensure the stability of fill slopes?  
*Graded to low slopes followed by planting.*

- d) Will this site be shaped or backfilled to blend in with surrounding topography? .....  yes  no

**14. POST-MINING WATER IMPOUNDMENT(S)**

- a) Number of impoundment(s) *NA*
- b) Use of impoundment(s) *NA*
- c) Total surface area in acres *NA*
- d) Average depth *NA*
- e) How much is the water level expected to fluctuate annually? *NA*
- f) What will be the steepest and flattest in-water slopes left after mining? *NA*

*Generally 3:1 in-water slopes are the steepest allowable, except off islands. To increase potential for wetland habitat establishment, 5:1 to 20:1 slopes are needed.*

- g) Will shallow ponds, shorelines, or other areas conducive to wetland plant development be left? .....  yes  no
- h) What will be the impoundment water source?  
*NA*

**WRD** *A water right for the water source may be needed needed from the Water Resources Department.*

- i) What will be done for wildlife & fish enhancement, e.g. fish structures, islands, peninsulas, and irregular shorelines?  
*NA*
- j) If wetlands are to be constructed, explain the methods and final configuration.  
*NA*

**15. OTHER PERMITS**

In order to assist other agencies in the review of this plan and their ability to ascertain compliance with their laws, list all permits by type and number that are held (or applications filed) for this mine site or processing equipment (such as fill/removal permits, water rights, air quality and stormwater or waste water permits).

Agency/Permit Type

Permit Number

**16. LANDOWNER CONSENT**

As surface or mineral rights owner, I concur with the proposed subsequent use for any mining operation and with the operating and reclamation plan as submitted. I also agree to allow access to the State Department of Geology and Mineral Industries or their contractor for reclamation of the mine site if it is declared abandoned by the Department of Geology and Mineral Industries. By my signature below, I certify that I have a legal right to sign this document.

*Appropriate signatures are needed for EACH land parcel.*

**I CONCUR (Surface Rights)**

Name (Please Print or Type) Craig Woodward  
 Signature *Craig Woodward*  
 Title owner  
 Date 5-4-15

**I CONCUR (Mineral Rights):**

Name (Please Print or Type) \_\_\_\_\_  
 Signature \_\_\_\_\_  
 Title \_\_\_\_\_  
 Date \_\_\_\_\_

**17. APPLICANT'S ACCEPTANCE**

Name (Please Print or Type) Ronald D. Myers  
 Assistant Secretary  
 Signature *Ronald D. Myers*  
 Title Ronald D. Myers  
 Assistant Secretary  
 Date June 05, 2015

**18. PREPARED BY (IF OTHER THAN APPLICANT)**

Name (Please Print or Type) \_\_\_\_\_  
 Signature \_\_\_\_\_  
 Title \_\_\_\_\_  
 Company \_\_\_\_\_  
 Date \_\_\_\_\_

ID No. \_\_\_\_\_

**16. LANDOWNER CONSENT**

As surface or mineral rights owner, I concur with the proposed subsequent use for any mining operation and with the operating and reclamation plan as submitted. I also agree to allow access to the State Department of Geology and Mineral Industries or their contractor for reclamation of the mine site if it is declared abandoned by the Department of Geology and Mineral Industries. By my signature below, I certify that I have a legal right to sign this document.

*Appropriate signatures are needed for EACH land parcel.*

I CONCUR (Surface Rights)

Name (Please Print or Type) Craig Woodward  
Signature *Craig Woodward*  
Title Landowner  
Date Nov - 23 - 2015

I CONCUR (Mineral Rights):

Name (Please Print or Type) Craig Woodward  
Signature *Craig Woodward*  
Title Landowner  
Date Nov - 23 - 2015

**17. APPLICANT'S ACCEPTANCE**

Name (Please Print or Type) \_\_\_\_\_  
Signature \_\_\_\_\_  
Title \_\_\_\_\_  
Date \_\_\_\_\_

**18. PREPARED BY (IF OTHER THAN APPLICANT)**

Name (Please Print or Type) \_\_\_\_\_  
Signature \_\_\_\_\_  
Title \_\_\_\_\_  
Company \_\_\_\_\_  
Date \_\_\_\_\_

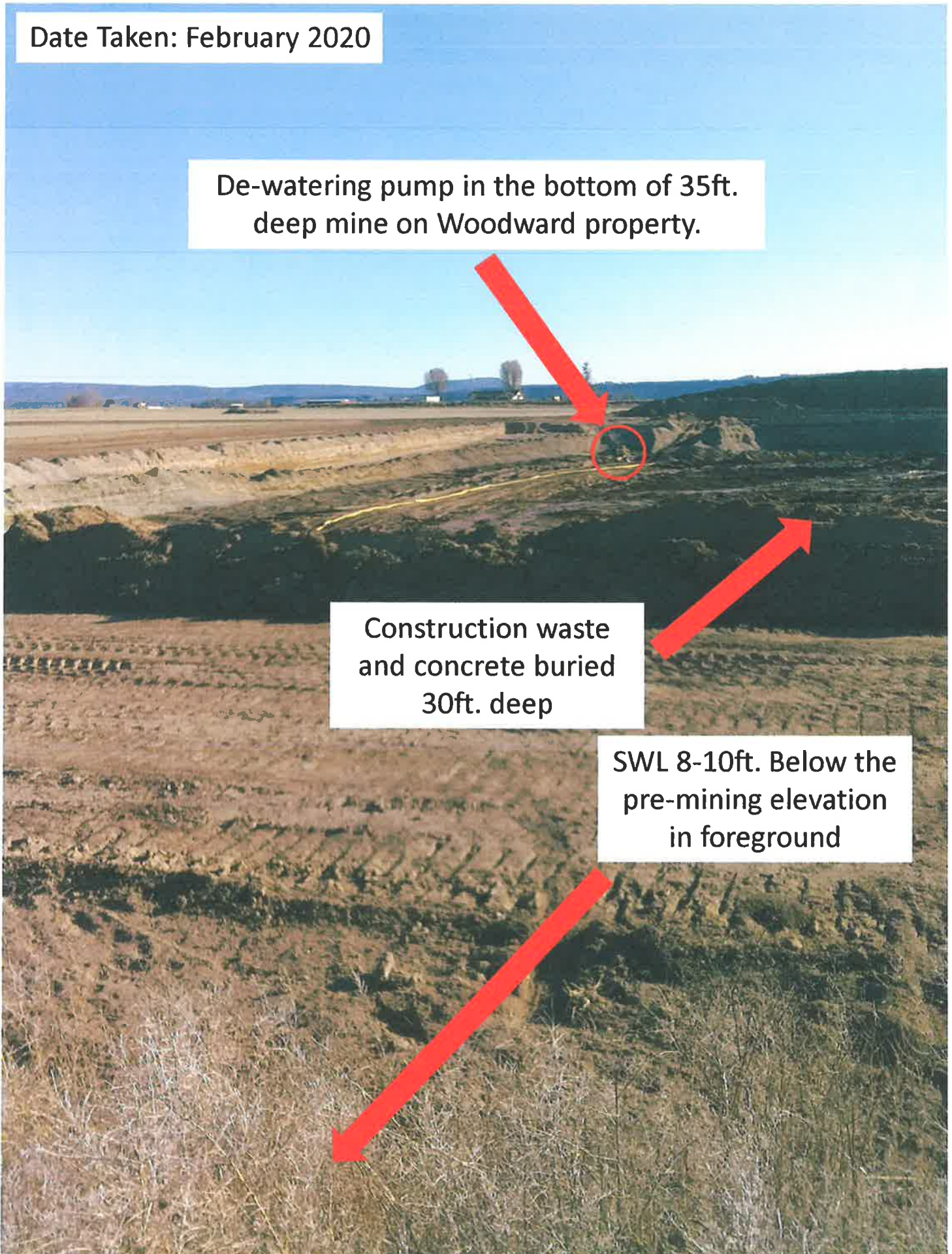
ID No. 07 - 0159

Date Taken: February 2020

De-watering pump in the bottom of 35ft. deep mine on Woodward property.

Construction waste and concrete buried 30ft. deep

SWL 8-10ft. Below the pre-mining elevation in foreground



## Fw: Fwd: Knife River Response

From: Richard Zimmerlee (rzimmerlee@yahoo.com)

To: debbiemaggard@rocketmail.com

Date: Thursday, December 16, 2021, 6:39 PM PST

[Sent from Yahoo Mail on Android](#)

----- Forwarded Message -----

**From:** "Karen mikulski" <karenmikulski@centurylink.net>  
**To:** "rzimmerlee@yahoo.com" <rzimmerlee@yahoo.com>  
**Sent:** Thu, Dec 16, 2021 at 9:33 AM  
**Subject:** Fwd: Knife River Response

----- Original Message -----

**Subject:** RE: Knife River Response  
**From:** MUNDIE Ben \* DGMI <Ben.MUNDIE@dogami.oregon.gov>  
**Sent:** Wednesday, December 15, 2021, 10:12 AM  
**To:** Karen mikulski <karenmikulski@centurylink.net>  
**CC:**

Good morning Karen - DOGAMI received the following information from Knife River.

**Dewatering Activity:**

Knife River had used a pump to dewater 3-5 feet of water that had accumulated in the floor of the mining area.

This activity occurred from around May 2020 – August 2020. This activity was to facilitate reclamation backfilling and not mining.

This activity has ceased and has not occurred since August 2020.

**Oregon DEQ WPCF:**

During the dewatering activity Knife River was using most of the water from the excavation dewatering to fill the onsite settling ponds for use of aggregate wash water instead of filling the ponds with the Rye Grass Irrigation Canal. It was estimated that about 3 days each month from May 2020 to August 2020, that 300-500 GPM were discharged into the Rye Grass Irrigation Canal. This Canal is used by many farmers downstream for irrigation of their crops and would have been in high demand during these months.

This activity has ceased and has not occurred since August 2020.

Knife River continues to monitor the settling pond freeboard on a daily basis during operations.

Knife River has notified and will be submitting a Notice of Noncompliance to Oregon DEQ, Eastern Regional Office with a copy to Lisa Reinhart, DOGAMI.

**Clean Fill Import:**

Knife River has received from it's Knife River Redmond Concrete facility concrete debris and used it as reclamation fill at the Woodward site. This was all placed above the static water level.

Knife River has not received any large quantities of recycled asphalt pavement. The material that may have been mistaken as recycled asphalt was likely stockpiles of aggregate basalt (black) rock from the KRC Lone Pine Quarry that was used for nearby projects.

**Mining Depth:**

Knife River has a maximum mining depth of 20 feet from original grade surface.

This depth has not been significantly exceeded and has been verified with drone imagery that provides 3-D elevations.

Knife River has a good track record with DOGAMI as a responsible operator at numerous sites across Oregon. Jeff Steyaert is their property manager [jeff.steyaert@kniferiver.com](mailto:jeff.steyaert@kniferiver.com) 541-918-5142

Lisa Reinhart is the water quality specialist for DOGAMI [lisa.reinhart@dogami.oregon.gov](mailto:lisa.reinhart@dogami.oregon.gov) 541-967-2051.

Cari Buchner is the mining compliance specialist for DOGAMI [Cari.Buchner@dogami.oregon.gov](mailto:Cari.Buchner@dogami.oregon.gov) 541-967-2081.

After 40 years in the business of reclaiming lands disturbed by mining in Montana and Oregon - I am retiring at the end of year. Please contact Lisa or Cari should you have any further concerns regarding the Woodward site.

Have a Merry Christmas and safe New Year.

Ben Mundie  
Reclamationist  
Oregon Department of Geology and Mineral Industries  
[ben.mundie@dogami.oregon.gov](mailto:ben.mundie@dogami.oregon.gov)  
Office 541-967-2149  
Mobile 541-619-4645

COVID -19 Response: To help address COVID-19 concerns, many DOGAMI staff are teleworking. MLRR is continuing normal operations, but response times may increase. For best service, please contact us by email.

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-----Original Message-----

From: Karen mikulski <[karemikulski@centurylink.net](mailto:karemikulski@centurylink.net)>  
Sent: Wednesday, December 15, 2021 8:41 AM  
To: MUNDIE Ben \* DGMI <[Ben.MUNDIE@dogami.oregon.gov](mailto:Ben.MUNDIE@dogami.oregon.gov)>  
Subject: Knife River Response

Good morning, Ben

We were wondering how much time KR has to submit their written response?

It's been 14 days since DOGAMI met with the KR, NW people.

Hope your day goes well and thank you for any information you can share.

Karen Mikulski

## Fw: Concerns regarding the Woodward Site DOGAMI ID# 07-0139

From: Richard Zimmerlee (rzimmerlee@yahoo.com)

To: debbiemaggard@rocketmail.com

Date: Thursday, December 16, 2021, 6:40 PM PST

[Sent from Yahoo Mail on Android](#)

----- Forwarded Message -----

**From:** "BALZER Vaughn \* DGMI" <Vaughn.BALZER@dogami.oregon.gov>

**To:** "rzimmerlee@yahoo.com" <rzimmerlee@yahoo.com>

**Cc:** "LEWIS Sarah \* DGMI" <Sarah.LEWIS@dogami.oregon.gov>

**Sent:** Thu, Dec 16, 2021 at 4:43 PM

**Subject:** Concerns regarding the Woodward Site DOGAMI ID# 07-0139

Hi Dick,

Thank you for taking the time to explain your concerns in regard to the existing Woodward Site (DOGAMI ID# 07-0159) permitted to Knife River. As I explained on the phone I will be conveying your concerns directly to my manager and Interim DOGAMI Director/State Geologist, Sarah Lewis, whom I have cc'd on this email. I have also provided Sarah's contact information below just in case you should need it in the future but I am happy to be your point of contact for now.

I will briefly note that we discussed a number concerns regarding the site related to, reclamation of mined areas to agriculture, lack of true top soil in reclaimed areas, compacted and impervious back filled materials, concerns that some of the backfilled material may not be clean fill or appropriate fill to be placed below the groundwater table, concerns about the depth of mining, concerns about impacts to ground water and ground water flow interruptions from impervious back filled material, and unapproved pit dewatering. I may have missed some concerns and if so please feel free to correct me.

I will note here that your most pressing request is to show me the areas you have concerns about via an on-site meeting next week. As I noted on the phone I will bring these concerns directly to my manager, Sarah Lewis, and I will follow up with you via phone either late tomorrow or Monday with the a response to your request for an onsite meeting next week.

Here is Sarah Lewis' contact information should you need it in the future.

**Sarah L. Lewis | she/her/hers**

**Interim Director / State Geologist**

**and MLRR Program Manager**

Cell: (503) 853-5139

Oregon Department of Geology and Mineral Industries

Finally, please feel free to respond to this email with any documentation regarding your concerns, and any additional questions you may have.

Sincerely,

Vaughn Balzer



DOGAMI-MLRR

Floodplain Mining Reclamationist – Rules Coordinator

[vaughn.balzer@dogami.oregon.gov](mailto:vaughn.balzer@dogami.oregon.gov)

Office (541) 967-2082

Cell (541) 231-8368

Fax (541) 967-2075

229 Broadalbin SW, Albany OR 97321

<http://www.oregongeology.org/mlrr/>

***Due to an increase in permit applications and inquiries submitted to the MLRR office, processing and response times have increased. Permit applications are processed in the order they are received and moved forward as applicants respond to deficiencies. Thank you for your patience.***

**COVID-19 Response:** To help address COVID-19 concerns, many DOGAMI staff are teleworking. MLRR is continuing normal operations. For best service, please contact us by email.

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**From:** Richard Zimmerlee <[rzimmerlee@yahoo.com](mailto:rzimmerlee@yahoo.com)>  
**Sent:** Wednesday, February 2, 2022 2:10 PM  
**To:** BALZER Vaughn \* DGMI <[Vaughn.BALZER@dogami.oregon.gov](mailto:Vaughn.BALZER@dogami.oregon.gov)>  
**Subject:** Re: DOGAMI ID # 07-0159 RE: LL 1876

Vaughn

The neighborhood is even more concerned about water as OID just did the snow measurements and water content projections yesterday. Based on their results, water from OID may be extremely limited this year, even more than last year. Based on what is being discussed, it may be the most limited year in the history of the district. We will need to have a very wet rest of the winter and early spring to just get to where we started last year. Ochoco and Prineville reservoirs are at less than 10% and 20% respectively. OID is very concerned as are many farmers.

Dick

[Sent from Yahoo Mail on Android](#)

On Wed, Feb 2, 2022 at 1:44 PM, BALZER Vaughn \* DGMI <[Vaughn.BALZER@dogami.oregon.gov](mailto:Vaughn.BALZER@dogami.oregon.gov)> wrote:

Hi Debbie and Dick,

Thank you for the information in the email below. Bob Brinkmann and I had a meeting with Knife River last week after which they submitted additional information. I will follow up after Bob and I have had a chance to review the additional materials which may not be until early next week.

Sincerely,  
Vaughn Balzer  
DOGAMI-MLRR  
Floodplain Mining Reclamationist – Rules Coordinator

229 Broadalbin SW, Albany OR 97321

<http://www.oregongeology.org/mlrr/>

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**From:** Richard Zimmerlee <[rzimmerlee@yahoo.com](mailto:rzimmerlee@yahoo.com)>

**Sent:** Wednesday, February 23, 2022 9:12 AM

**To:** BALZER Vaughn \* DGMI <[Vaughn.BALZER@dogami.oregon.gov](mailto:Vaughn.BALZER@dogami.oregon.gov)>

**Subject:** RE: DOGAMI ID # 07-0159 RE: LL 1876

Vaughn,

It's been several weeks since you assured me that you would communicate with me about what Knife River is going to do regarding the water in my field. You said KR had responded to you and I would be informed about what they said. What is going on? I need to hear from you this morning. Thanks

Regards

Dick Zimmerlee

[Sent from Yahoo Mail on Android](#)

On Fri, Feb 11, 2022 at 2:55 PM, BALZER Vaughn \* DGMI

<[Vaughn.BALZER@dogami.oregon.gov](mailto:Vaughn.BALZER@dogami.oregon.gov)> wrote:

Hi Dick,

My goal is to follow up with you next week as soon as I can which is looking like Wednesday or Thursday at this point. I understand the concerns noted in your email below and we can discuss those next week.

Sincerely,

Vaughn Balzer

DOGAMI-MLRR

Floodplain Mining Reclamationist – Rules Coordinator

[vaughn.balzer@dogami.oregon.gov](mailto:vaughn.balzer@dogami.oregon.gov)

[Sent from Yahoo Mail on Android](#)

On Wed, Feb 23, 2022 at 12:10 PM, BALZER Vaughn \* DGMI  
<[Vaughn.BALZER@dogami.oregon.gov](mailto:Vaughn.BALZER@dogami.oregon.gov)> wrote:

Hi Dick,

Sorry for the delay in following up. This email is specific to the concerns regarding the Vanier property being impacted by mining at the Woodward site (DOGAMI ID# 07-0159). Our hydrogeologist, Bob Brinkmann, and I did meet with Knife River and Knife River submitted materials with their groundwater data for our consideration (available via a public records request). While my goal is to draft a memo to formally address this, other priorities have limited the time I have had to work on this issue. I will draft a memo addressing the concerns but I do not have a time frame yet for when that will be complete.

What I can say now is that our hydrogeologist, Bob Brinkmann, has review the materials you submitted as well as the materials the Knife River has submitted and based on that review DOGAMI can not tie the wet soils in the north of the Vanier property to the mining activity at the Woodward site. Based on the evidence provided in relation to the water table, water level elevations below ground surface and wetlands/spring discharge it appears that the saturated soils in the north central portion of the Vanier property are in hydraulic connection or are a result of the spring discharge in proximity to that area. This is also based on water table elevations that are not showing a rise or resultant groundwater mounding in 3-wells installed south of the spring and bordering backfilled/reclaimed portions of the Woodward site. If the backfilling operations in proximity to these wells was causing an impediment to groundwater flow a resultant mounding affect would be expected and manifest itself in saturation of the soil column above the water table which has not been observed. Additionally, Sandy Vanier stated during the meeting with Knife River that, since his time as the landowner which predated the mining at the Woodward site, it was a well known fact that soil saturation existed in this portion of the property due to proximity and surface discharge of the spring which is adjacent to and north of the subject area.

I can add that in reviewing the location of the saturated soil area DOGAMI noted the following; 1) The location of the wet soils is adjacent to a known spring, and 2) the surface elevation of that portion of the field with wet soils is lower than the surrounding portions of the field.

I will prepare a memo as a formal response to the concern and that will be forthcoming. I would also be happy to discuss this with you on Friday if you are available.

Sincerely,  
Vaughn Balzer  
DOGAMI-MLRR  
Floodplain Mining Reclamationist – Rules Coordinator  
[vaughn.balzer@dogami.oregon.gov](mailto:vaughn.balzer@dogami.oregon.gov)  
Office (541) 967-2082  
Cell (541) 231-8368  
Fax (541) 967-2075

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**From:** Richard Zimmerlee <rzimmerlee@yahoo.com>  
**Sent:** Wednesday, February 23, 2022 2:07 PM  
**To:** BALZER Vaughn \* DGMI <Vaughn.BALZER@dogami.oregon.gov>  
**Subject:** RE: DOGAMI ID # 07-0159 RE: LL 1876

Vaughn

It may be true that the monitoring wells do not show an increased static water level, however, Mr. Lidstone represented in his hydrogeology report submitted with the expansion application the swl of the test wells were 20.6 ft/ 21.4 ft/ 17.5ft below ground surface (bgs) respectively on 1/21/2021. Hudspeth Land Water (HLW) represented the swl on 11/10/2021 at 20.6 ft / 21.3 ft / 17.2 ft. below top of well casing. The well casings are 3 ft above ground surface. When corrected to bgs, the swl of the wells 11/10/2021 would be 17.6 ft / 18.3 ft / 14.2 ft respectively. This would seem to reflect a mounding of in the aquifer of about 3 ft.

Additionally, the Knife River monitoring wells are located at the highest elevation point on the most southern point atop a 12-13 ft cut bank on the Woodward property. It appears the aquifer flow is being diverted at the most northern point on the Woodward property. This would agree with Mr. Lidstone testimony that once the aquifer hit the nonpermeable fill it would be diverted and find a new way to flow out. The direction flow maps provided by Knife River support that. Also, well logs provided to Oregon Water Resources(OWRD) all reflect the swl of each of the 7 test wells at 18 ft bgs. I have found the swl in test holes at 6 ft and 7 ft just across the north Woodward fence and 2 ft about 100-150 feet south of the north vanier property line.

I have been involved farming this property for 4 years and never encountered saturated soils in those areas. The Davis family owned this property prior to Vanier and confirmed the same. The only area that showed any sign of saturation is a very narrow short strip in a low spot next to the drainage. We have farmed across and through that area and never stuck any equipment or even rutted the ground until October 2021.

The increased flow of water in that drainage is now significant. The current measurement is between 1100-1200 gpm. The past three winters the flow was 200-250 gpm. The Davis family does not recall there ever being that much flow this time of year.....especially after years of drought.

Lastly, the Davis family recalls the swl of the shared well on the Vanier property being about 20 ft. It is currently at about 10 ft.

Therefore, based on the facts that are in front of us, the only change that would create these situations directly point to the mining on the Woodward property and the backfill with nonpermeable materials which diverted the aquifer flow.

I disagree with you and Knife River and you may need to reconsider.

Dick Zimmerlee

Fw: DOGAMI ID # 07-0159 RE: LL 1876

From: Richard Zimmerlee (rzimmerlee@yahoo.com)

To: debbiemaggard@rocketmail.com

Date: Saturday, February 26, 2022, 1:16 PM PST

[Sent from Yahoo Mail on Android](#)

----- Forwarded Message -----

**From:** "Richard Zimmerlee" <rzimmerlee@yahoo.com>

**To:** "Jim Newton" <newtonjim@hotmail.com>

**Sent:** Fri, Feb 25, 2022 at 9:49 AM

**Subject:** Fw: DOGAMI ID # 07-0159 RE: LL 1876

[Sent from Yahoo Mail on Android](#)

----- Forwarded Message -----

**From:** "BALZER Vaughn \* DGMI" <Vaughn.BALZER@dogami.oregon.gov>

**To:** "Richard Zimmerlee" <rzimmerlee@yahoo.com>

**Sent:** Fri, Feb 25, 2022 at 9:29 AM

**Subject:** RE: DOGAMI ID # 07-0159 RE: LL 1876

Good morning Dick,

Thank you for the additional information. DOGAMI will consider this and follow up as soon as we can.

Sincerely,

Vaughn Balzer

DOGAMI-MLRR

Floodplain Mining Reclamationist – Rules Coordinator

[vaughn.balzer@dogami.oregon.gov](mailto:vaughn.balzer@dogami.oregon.gov)

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11.13.2021

Memo

To  
Matt Ropp  
Knife River

From  
Amber L. [Signature]  
Hudspeth  
Hudspeth  
Land+Water

Re  
Woodward Site  
Monitoring Well  
Access

On November 10, 2021 at approximately 12:00 PM, I accompanied Jim Newton of Cascade Geoengineers LLC (Cascade) on a site visit to the Woodward property. Also present were Bill Gibson of Knife River, Emily Wells of Hudspeth Land+Water (HLW) and Dick Zimmerlee. The purpose of the site visit was to measure static water levels in three on-site monitoring wells.

Monitoring well background: Three monitoring wells were constructed at the direction of Knife River, under the supervision of Stantec, in February 2021. HLW has been monitoring water levels and fluctuations since the time of construction.

As requested by Knife River, Mr. Newton shared his static water level measurement (top of well head measurement) with HLW. They are as follows:

Well WW 1: 21.25'

Well WW 2: 20.41'

Well WW 3: 17.14'

HLW also took measurements of static water levels during the site visit (top of wellhead measurement). HLW's measurements are as follows:

Well WW 1: 21.3'

Well WW 2: 20.6'

Well WW 3: 17.2'

HLW's static water level measurements on October 29, 2021 are as follows:

Well WW 1: 20.8'

\*Well WW 1 is the southern most well/nearest Stahancyk Lane

HUDSPETH LAND+WATER

Tel 541.420.2710

7485 SW Joshua Court  
Powell Butte, Or 97753

amber@hlworegon.com



Table 3. Wells Within a One-Half Mile and 1000-foot Buffer of the Woodward and Vanier Property

Buffer from Woodward/Vanier Property Boundary	Well #	Owner Name	Primary Use	Tax Lot	Top of Perforations (ft bgs)	Completed Depth (ft bgs)	Township & Range	Section	Potential Adverse Impacts	
1000-foot buffer	86	MRS WILLIS STAFFORD	Domestic	115	35	50	T14S R15E	23	Possible	
	951	BEN KOOPS	Domestic	801	20	40	T14S R15E	15	Possible	
	953	CARL SHUMWAY	Domestic	801	30	50	T14S R15E	15	Possible	
	970	RAY FOX	Domestic	801	20	40	T14S R15E	15	Possible	
	972	WILLIS STAFFORD	Domestic	801	35	50	T14S R15E	15	Possible	
	977	ELMER SELF	Domestic	108	30	50	T14S R15E	23	Possible	
	329	RON WILKINSON	Domestic	116	259	280	T14S R15E	23	Not Likely	
	907	L M DAIRY	Domestic	--	235	257	T14S R15E	14	Not Likely	
	915	ED HUNT	Domestic	103	220	220	T14S R15E	14	Not Likely	
	891	LESLIE PAYNE	Domestic	602	225	235	T14S R15E	15	Not Likely	
	946	RAY MCLAMB	Domestic	600	210	220	T14S R15E	15	Not Likely	
	50140	--	Industrial	702	250	255	T14S R15E	14	Not Likely	
	50577	--	Irrigation	112	175	275	T14S R15E	23	Not Likely	
	53566	JOHN WOERNER	Domestic	102	200	300	T14S R15E	23	Not Likely	
	53661	SCOTT PROFILEY	Domestic	701	240	280	T14S R15E	14	Not Likely	
	54339	ADAM MIKULSKI	Domestic	114	100	281	T14S R15E	23	Not Likely	
	54660	TAUNDY BYRD	Domestic	600	140	220	T14S R15E	15	Not Likely	
	54787	--	Domestic	200	245	255	T14S R15E	23	Not Likely	
	One-half Mile	81	JOHN COLLIN	Domestic	202	30	45	T14S R15E	13	Possible
		82	JOHN MITTS	Domestic	1000	30	60	T14S R15E	15	Possible
83		N L MATHEWS	Domestic	1200	31	50	T14S R15E	15	Possible	
86		MRS WILLIS STAFFORD	Domestic	115	35	50	T14S R15E	23	Possible	
900		ARNOLD EVANS	Domestic	202	40	60	T14S R15E	13	Possible	
903		JACK BRIGGS	<Null>	104	18	34	T14S R15E	14	Possible	
904		CECIL HARNDEN	Domestic	503	30	50	T14S R15E	14	Possible	
906		JOHN DEMERITT	Domestic	503	30	50	T14S R15E	14	Possible	
909		VIRGIL W SHARP	Domestic	809	30	50	T14S R15E	15	Possible	
912		JACK BRIGGS	UNKNOWN	1300	20	50	T14S R15E	15	Possible	
916		JOHN MITTS	Domestic	1000	40	80	T14S R15E	15	Possible	
918		DALE BANNON	Domestic	2500	40	60	T14S R15E	15	Possible	
923		JIM HALSEY	Domestic	1100	20	55	T14S R15E	15	Possible	
924		TIM COOLEY	Domestic	802	40	60	T14S R15E	15	Possible	
926		PHILLIP R POWELL	UNKNOWN	800	34	54	T14S R15E	15	Possible	
927		IRA O FINLEY	Domestic	804	40	60	T14S R15E	15	Possible	
934		JOHN G PRUNER	Domestic	2400	21	42	T14S R15E	15	Possible	
939		JERRY PAYNE	Domestic	600	31	51	T14S R15E	15	Possible	
940		LARRY CHAMBERLAIN	Domestic	900	35	50	T14S R15E	15	Possible	
941		LLOYD DYMOND	Domestic	500	34	50	T14S R15E	15	Possible	
942		BASAL TURNER	Domestic	802	40	60	T14S R15E	15	Possible	
945		DAVE TURNER	Domestic	200	35	55	T14S R15E	15	Possible	
951		BEN KOOPS	Domestic	400	20	40	T14S R15E	15	Possible	
952		RICHARD FULTON	Domestic	807	36	48	T14S R15E	15	Possible	
953		CARL SHUMWAY	Domestic	601	30	50	T14S R15E	15	Possible	
970		RAY FOX	Domestic	102	20	40	T14S R15E	23	Possible	
972		WILLIS STAFFORD	Domestic	116	35	50	T14S R15E	23	Possible	
977		ELMER SELF	Domestic	111	30	50	T14S R15E	23	Possible	
980		TOM PAYNE	Domestic	110	30	42	T14S R15E	23	Possible	
983		AL BUSTILLO	Domestic	113	30	50	T14S R15E	23	Possible	
1001		CAL CATLETT	UNKNOWN	504	30	50	T14S R15E	24	Possible	
1002		GLENN A CHEEK	Domestic	501	34	48	T14S R15E	24	Possible	
51597		MARK FLEMING	Domestic	1900	40	60	T14S R15E	23	Possible	
51786		RHETT SHULTZ	Domestic	807	32	52	T14S R15E	15	Possible	
54367		MARK FLEMING	Domestic	1900	40	80	T14S R15E	23	Possible	
55017		--	Unknown	703	10	30	T14S R15E	14	Possible	
55018		--	Unknown	703	10	25	T14S R15E	14	Possible	
55019		--	Unknown	703	10	28	T14S R15E	14	Possible	
329		RON WILKINSON	Domestic	116	255	280	T14S R15E	23	Not Likely	
416		CARROL RICE	Domestic	503	60	82	T14S R15E	24	Not Likely	
438		GERALD L WHALEY	Domestic	809	196	206	T14S R15E	15	Not Likely	
458		WAYNE ROBISON	Domestic	700	192	200	T14S R15E	15	Not Likely	
460		W K TCHENOR	Domestic	1100	193	204	T14S R15E	15	Not Likely	
530		JERRY HILL	Domestic	300	220	230	T14S R15E	15	Not Likely	
548		CHARLES MERIDITH	Domestic	800	207	215	T14S R15E	15	Not Likely	
907		L M DAIRY	Domestic	--	235	257	T14S R15E	14	Not Likely	
910		BEN OWENS	Domestic	100	196	206	T14S R15E	15	Not Likely	
915		ED HUNT	Domestic	103	220	220	T14S R15E	14	Not Likely	
925		BIFFLY TURNER	Domestic	803	240	250	T14S R15E	15	Not Likely	
931		LESLIE PAYNE	Domestic	602	225	235	T14S R15E	15	Not Likely	
932		COLE STILL	Domestic	805	250	260	T14S R15E	15	Not Likely	
946		RAY MCLAMB	Domestic	600	210	220	T14S R15E	15	Not Likely	
947		--	Domestic	809	50	70	T14S R15E	15	Not Likely	
948		TERRY HILD	Domestic	801	55	75	T14S R15E	15	Not Likely	
955	M D COLAHAN	Domestic	801	210	210	T14S R15E	15	Not Likely		
974	FLOYD FITCH	Domestic	108	45	60	T14S R15E	23	Not Likely		
985	ERNEST E FORTNER	Irrigation	103	45	80	T14S R15E	23	Not Likely		
988	CLAUDE F WILLIAMS	Irrigation	405	298	320	T14S R15E	23	Not Likely		
993	CALVIN CATLETT	Domestic	502	90	62	T14S R15E	24	Not Likely		
3154	ROY PAZK	Domestic	808	180	210	T14S R15E	15	Not Likely		
3177	KEITH TAYLOR	Domestic	503	222	230	T14S R15E	14	Not Likely		
3252	GLEN HOPFER	Domestic	810	225	235	T14S R15E	15	Not Likely		
50140	--	Industrial	702	250	255	T14S R15E	14	Not Likely		
50578	--	Irrigation	200	250	<Null>	T14S R15E	23	Not Likely		
50577	--	Irrigation	112	175	275	T14S R15E	23	Not Likely		
50890	DONALD SHELTON	Domestic	900	220	230	T14S R15E	15	Not Likely		
50851	LEONARD CHANDLER	Domestic	200	235	<Null>	T14S R15E	15	Not Likely		
52281	ELSIE M SIMMONS	Domestic	402	220	325	T14S R15E	24	Not Likely		
52344	LAWRENCE E ADAMSON	Domestic	504	41	240	T14S R15E	24	Not Likely		
52453	KERMIT MCGREW	Domestic	100	65	335	T14S R15E	23	Not Likely		
53208	JULIE THOMPSON	Domestic	809	200	240	T14S R15E	15	Not Likely		
53346	DON WORTHING	Domestic	2400	232	232	T14S R15E	15	Not Likely		
53457	ILOMAE ZEHNER	Domestic	1100	190	260	T14S R15E	23	Not Likely		
53588	JOHN WOERNER	Domestic	102	200	300	T14S R15E	23	Not Likely		
53661	SCOTT PROFILEY	Domestic	701	240	280	T14S R15E	14	Not Likely		
54339	ADAM MIKULSKI	Domestic	114	100	281	T14S R15E	23	Not Likely		
54660	TAUNDY BYRD	Domestic	600	140	220	T14S R15E	15	Not Likely		
54787	--	Domestic	200	245	255	T14S R15E	23	Not Likely		



**Table 2. Groundwater Inflow Scenario at the Vanier Property**

Mining Cell	Scenario	Hydraulic Conductivity (gpd/ft <sup>2</sup> )	Radius of Influence (ft)	Estimated Inflow (gpm)	Mining Cell	Scenario	Hydraulic Conductivity (gpd/ft <sup>2</sup> )	Radius of Influence (ft)	Estimated Inflow (gpm)
Area 1	1	218	1000	54.9	Area 8	1	218	1000	69.4
		903	1000	228.2			903	1000	288.4
	2	218	4000	26.3		2	218	4000	33.9
		903	4000	109.5			903	4000	141
Area 2	1	218	1000	39.2	Area 9	1	218	1000	29.9
		903	1000	162.7			903	1000	124.4
	2	218	4000	20.4		2	218	4000	13.9
		903	4000	84.7			903	4000	58.1
Area 3	1	218	1000	43.2	Area 10	1	218	1000	33.19
		903	1000	179.5			903	1000	137.7
	2	218	4000	21.1		2	218	4000	15.5
		903	4000	87.64			903	4000	64.3
Area 4	1	218	1000	18.1	Area 11	1	218	1000	3.5
		903	1000	75.1			903	1000	14.5
	2	218	4000	9.4		2	218	4000	1.6
		903	4000	39.3			903	4000	6.8
Area 5	1	218	1000	65.1	Area 12	1	218	1000	35.5
		903	1000	270.2			903	1000	147.6
	2	218	4000	31.8		2	218	4000	17.4
		903	4000	132.3			903	4000	72.2
Area 6	1	218	1000	46.3	Area 13	1	218	1000	16.8
		903	1000	192.3			903	1000	70.1
	2	218	4000	22.7		2	218	4000	8.27
		903	4000	94.2			903	4000	34.33
Area 7	1	218	1000	15.4	Area 14	1	218	1000	51.34
		903	1000	63.9			903	1000	213.09
	2	218	4000	7.5		2	218	4000	25.15
		903	4000	31.2			903	4000	104.41

Tom Byler-Director  
Oregon Department of Water Resources

February 2, 2022

Re: LL1876

Dear Tom,

I have recently become aware of the approval for Limited License 1876 and would ask you to look into significant concerns that arise with myself and other neighbors.

Knife River Corporation is attempting to expand its mining operations and has encountered "spirited" opposition from the neighbors, of which I am one, and the community. Much of that opposition involves concerns of the effects on the aquifer that services approximately 100 wells within a half mile of the mining site and the current use of Ochoco Irrigation District (OID) water to run their operation.

The concerns are as follows:

- 1) The application map shows the proposed new wells within a close proximity of "rye grass canal". That is not a canal but instead is an "unnamed stream" which flows 2-3cfs year around and dumps into Crooked River about a mile away. The "unnamed stream" is referred to in the Knife River application presented to Crook County for their proposed mine expansion. Knife River has admitted to pumping water from the current mine site into this "unnamed stream" and is subject to DEQ sanctions. DOGAMI is also investigating the current Knife River permit regarding multiple violations, some involving encroachment of shallow aquifer water onto neighboring properties. It is my understanding that wells cannot be drilled within 1 mile of a stream. If so, how can this Limited License be authorized?
- 2) The "place of use" appears to be on EFU farm land that has been reclaimed and planted to crops for agricultural uses. The Limited License states the use is for "industrial/commercial". Is that an authorized use for irrigating EFU farm land?
- 3) Attached is a page from the Knife River application made to Crook County in June 2021 listing nearly 100 wells within a half mile of the proposed and existing mine site. To add 3 new wells and pump over 500gpm year around from that aquifer could have a significant impact on the neighborhood domestic wells. This has been a huge issue regarding the proposed mine expansion and how that will affect the more shallow aquifer.

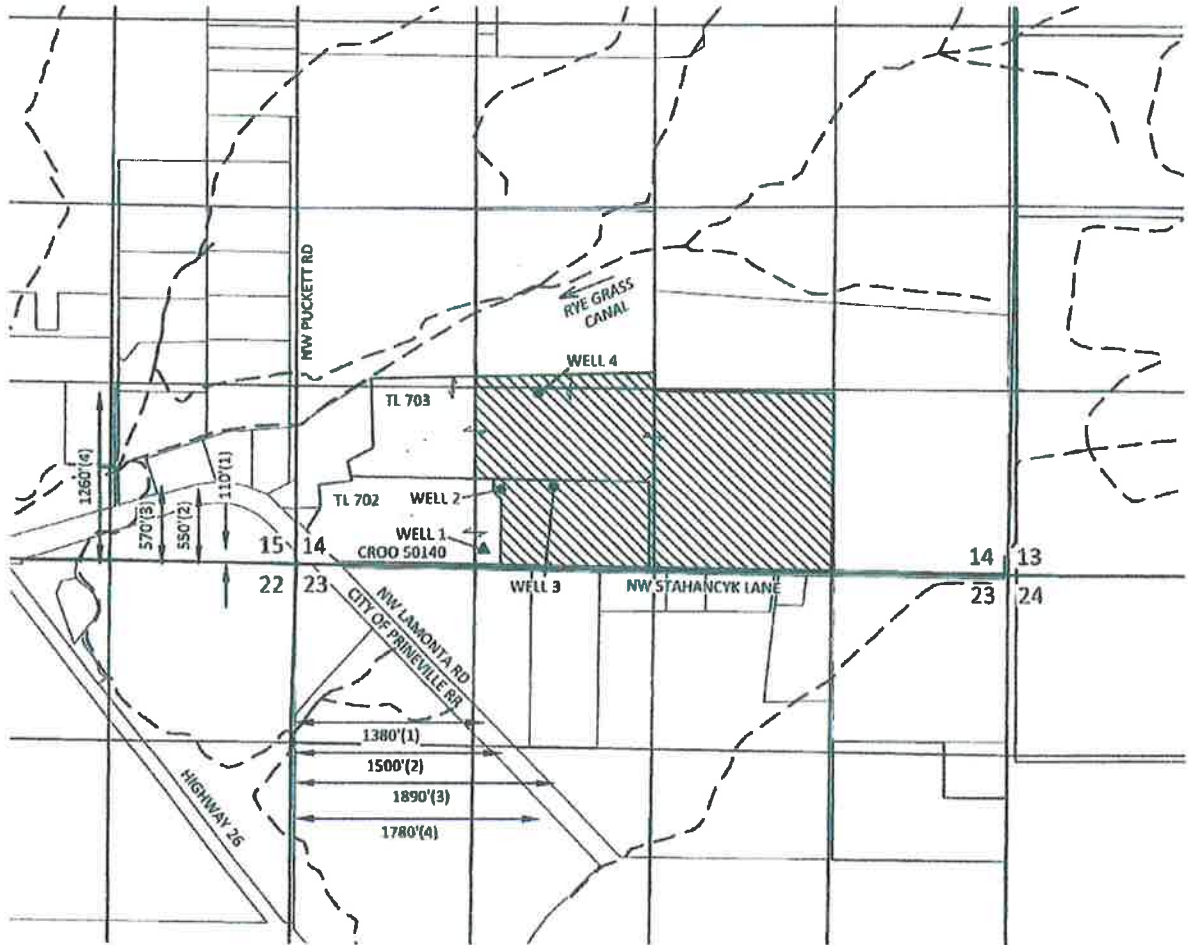
In conclusion, how can this Limited License be allowed given these and other concerns? Thank you for your consideration and review.

Best Regards,




Dick Zimmerlee

Section 14, T14S, R15E, W.M.,  
Crook County, Oregon

LIMITED LICENSE APPLICATION MAP  
Knife River Corporation



EXPLANATION

-  PROPOSED INDUSTRIAL/COMMERCIAL PLACE OF USE
-  PROPOSED WELL
-  EXISTING WELL CROO 50140



May 26, 2021

This map is not intended to provide legal dimensions or locations of property ownership lines

Figure 1

**SKOOKUM**  
WATER ASSOCIATES INC

1626 VICTORIAN WAY  
EUGENE, OR 97401  
(503) 319-8926

KPFF 1700014.72

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LL-1876



Oregon Water Resources Department  
725 Summer Street NE, Suite A  
Salem Oregon 97301-1271  
(503) 986-0900  
www.wrd.state.or.us

# Application for Limited Water Use License

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JUN 01 2021

License No.: LL-1876

## Applicant Information

OWRD

NAME Knife River Corporation – Northwest Attn: Jeff Steyaert			PHONE (HM)
PHONE (WK) (541) 918-5142	CELL		FAX
ADDRESS 32260 Old Highway 34			
CITY Tangent	STATE OR	ZIP 97389	E-MAIL * jeff.steyaert@kniferiver.com

## Agent Information

NAME Steven R. Bruce Skookum Water Associates Inc.			PHONE (503) 319-8926	FAX
ADDRESS 1626 Victorian Way			CELL	
CITY Eugene	STATE OR	ZIP 97401	E-MAIL * steve@skookumwater.com	

I (We) make application for a Limited License to use or store the following described surface waters or groundwater – not otherwise exempt, or to use stored water of for a use of a short-term or fixed-duration:

- SOURCE(S) OF WATER:** Up to Four Wells a tributary of Crooked River
- AMOUNT OF WATER** to be diverted;  
Maximum and instantaneous rate (cubic feet or gallons per minute): 500 gpm  
Total volume (gallons or acre-feet): 239 AF/year but consumptive use is 20% of this total volume (see Remarks). If water is to be used from more than one source, give the quantity from each: NA – the source aquifer is sand & gravel (see CROO 50140).
- INTENDED USE(S) OF WATER:** (check all that apply)
  - Road construction or maintenance
  - General construction
  - Forestland and rangeland management; or
  - X Other: Industrial & Commercial - Aggregate washing, dust control and general cleanup
- DESCRIPTION OF PROPOSED PROJECT:** Include a description of the place of use as shown on the accompanying site map, the method of water diversion, the type of equipment to be used (including pump horsepower, if applicable), length and dimensions of supply ditches and pipelines: Water will be pumped from up to two wells using a 50-hp submersible pumps and conveyed by pipeline to a pond and reservoir for use. The water from aggregate washing will be reused repeatedly.
- PROJECT SCHEDULE:** (List day, month, and year)  
Date water use will begin: As soon as license is issued  
Date water use will be completed: June 15, 2026

Months of the year water would be diverted and used: As soon as license is issued until June 15, 2026  
If for other than irrigation from stored water, how and where will water be discharged after use: Water used for the described purposes will be rediverted to a pond and reservoir for reuse. Consumptive use is expected to be less than 20 percent of the total rate and volume proposed to be diverted.

Applicant Signature

Jeff Steyaert; Assist. Secretary  
Print Name and title if applicable

5-26-2021  
Date

**PLEASE READ CAREFULLY**

**NOTE:** A completed water availability statement from the local watermaster, Land Use Information Form completed by the local Planning Department, fees and site map meeting the requirements of OAR 690-340-030 must accompany this request. The fee for this request is \$280 for the first point of diversion plus \$30 for each additional point of diversion. Please review the Department's fee schedule to view fees required to request a limited license for Aquifer Storage and Recovery testing purposes or for Artificial Groundwater Recharge testing purposes.

**Failure to provide any of the required information will result in return of your application.** The license, if granted, will not be issued or replaced by a new license for a period of more than five consecutive years. The license, if granted, will be subordinate to all other authorized uses that rely upon the same source, or water affected by the source, and may be revoked at any time it is determined the use causes injury to any other water right or minimum perennial streamflow.

If water source is well, well logs or adequate information for the Department to determine aquifer, well depth, well seal and open interval, etc. are required. The licensee shall indicate the intended aquifer. If for multiple wells, each map location shall be clearly tied to a well log.

If a limited license is approved, the licensee shall give notice to the Department (Watermaster) at least 15 days in advance of using the water under the Limited License and shall maintain a record of use. The record of use shall include, but need not be limited to, an estimate of the amount of water used, the period of use and the categories of beneficial use to which the water is applied. During the period of the Limited License, the record of use shall be available for review by the Department upon request.

*\*A summary of review criteria and procedures that are generally applicable to these applications is available at: <http://www.oregon.gov/owrd/pages/pubs/forms.aspx>*

**Mapping Requirements (OAR 690-340-0030):**

- (1) A request for a limited license shall be submitted on a form provided by the Water Resources Department, and shall be accompanied by the following:
- a. A site map of reproducible quality, drawn to a standard, even scale of not less than 2 inches = 1 mile, showing:
    - i. The locations of all proposed points of diversion referenced by coordinates or by bearing and distance to the nearest established or projected public land survey corner;
    - ii. The general course of the source for the proposed use, if applicable;
    - iii. Other topographical features such as roads, streams, railroads, etc., which may be helpful in locating the diversion points in the field.

**REMARKS:** Up to two wells will be used. Additional locations are proposed in case PSI is identified.

Water is needed to augment water from the Ochoco Irrigation District during drought years. The water used in the aggregate washing will be returned to a sump for reuse. This type of reuse is common in aggregate mining. Consumptive use is expected to be less than 20 percent of the total rate and volume proposed to be diverted. Given this, the consumptive use would be 47.9 AF/year based on a consumptive use of 100 gpm for 50 hours/week x 52 weeks/year and assuming no water is available from the Ochoco Irrigation District.

For WRD Use Only

LL-1876

# Land Use Information Form



Oregon Water Resources Department  
725 Summer Street NE, Suite A  
Salem, Oregon 97301-1266  
(503) 986-0900  
www.wrd.state.or.us

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## NOTE TO APPLICANTS

In order for your application to be processed by the Water Resources Department (WRD), this Land Use Information Form must be completed by a local government planning official in the jurisdiction(s) where your water right will be used and developed. The planning official may choose to complete the form while you wait, or return the receipt stub to you. Applications received by WRD without the Land Use Form or the receipt stub will be returned to you. Please be aware that your application will not be approved without land use approval.

**This form is NOT required if:**

- 1) Water is to be diverted, conveyed, and/or used only on federal lands; **OR**
- 2) The application is for a water right transfer, allocation of conserved water, exchange, permit amendment, or ground water registration modification, and all of the following apply:
  - a) The existing and proposed water use is located entirely within lands zoned for exclusive farm-use or within an irrigation district;
  - b) The application involves a change in place of use only;
  - c) The change does not involve the placement or modification of structures, including but not limited to water diversion, impoundment, distribution facilities, water wells and well houses; and
  - d) The application involves irrigation water uses only.

## NOTE TO LOCAL GOVERNMENTS

The person presenting the attached Land Use Information Form is applying for or modifying a water right. The Water Resources Department (WRD) requires its applicants to obtain land-use information to be sure the water rights do not result in land uses that are incompatible with your comprehensive plan. Please complete the form or detach the receipt stub and return it to the applicant for inclusion in their water right application. You will receive notice once the applicant formally submits his or her request to the WRD. The notice will give more information about WRD's water rights process and provide additional comment opportunities. You will have 30 days from the date of the notice to complete the land-use form and return it to the WRD. If no land-use information is received from you within that 30-day period, the WRD may presume the land use associated with the proposed water right is compatible with your comprehensive plan. Your attention to this request for information is greatly appreciated by the Water Resources Department. If you have any questions concerning this form, please contact the WRD's Customer Service Group at 503-986-0801.

# Land Use Information Form



Oregon Water Resources Department  
 725 Summer Street NE, Suite A  
 Salem, Oregon 97301-1266  
 (503) 986-0900  
 www.wrd.state.or.us

Applicant(s): Knife River Corporation – Northwest Attn: Jeff Steyaert

Mailing Address: 32260 Old Highway 34

City: Tangent

State: OR

Zip Code: 97389

Daytime Phone: (541) 918-5142

## A. Land and Location

Please include the following information for all tax lots where water will be diverted (taken from its source), conveyed (transported), and/or used or developed. Applicants for municipal use, or irrigation uses within irrigation districts may substitute existing and proposed service-area boundaries for the tax-lot information requested below.

Township	Range	Section	¼ ¼	Tax Lot #	Plan Designation (e.g. Rural Residential/RR-5)	Water to be	Proposed Land Use:
14 South	15 East	14	NE SW	703		<input type="checkbox"/> Diverted <input checked="" type="checkbox"/> Conveyed <input checked="" type="checkbox"/> Used	Commercial/Industrial
14 South	15 East	14	SE SW	702 & 703		<input checked="" type="checkbox"/> Diverted <input checked="" type="checkbox"/> Conveyed <input checked="" type="checkbox"/> Used	Commercial/Industrial
14 South	15 East	14	SW SE	703		<input type="checkbox"/> Diverted <input checked="" type="checkbox"/> Conveyed <input checked="" type="checkbox"/> Used	Commercial/Industrial

List all counties and cities where water is proposed to be diverted, conveyed, and/or used or developed:

Crook County

## B. Description of Proposed Use

Type of application to be filed with the Water Resources Department:

- Permit to Use or Store Water   
  Water Right Transfer   
  Permit Amendment or Ground Water Registration Modification  
 Limited Water Use License   
  Allocation of Conserved Water   
  Exchange of Water

Source of water:  Reservoir/Pond     Ground Water     Surface Water (name) \_\_\_\_\_

Estimated quantity of water needed: 500     cubic feet per second     gallons per minute     acre-feet

Intended use of water:  Irrigation     Commercial     Industrial     Domestic for \_\_\_\_\_ household(s)  
 Municipal     Quasi-Municipal     Instream     Other \_\_\_\_\_

Briefly describe:

Water will be pumped from one or two wells into a pond and reservoir and then used for aggregate washing, dust control and general site cleanup year-round for up to 5 years. Water not consumed in these operations (expected to be about 80 percent) will be reused. This type of water use is common at aggregate mines. The consumptive use is expected to be 47.9 AF/year.

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Note to applicant: If the Land Use Information Form cannot be completed while you wait, please have a local government representative sign the receipt at the bottom of the next page and include it with the application filed with the Water Resources Department.

See bottom of Page 3. →

LL-1876

## For Local Government Use Only

The following section must be completed by a planning official from each county and city listed unless the project will be located entirely within the city limits. In that case, only the city planning agency must complete this form. This deals only with the local land-use plan. Do not include approval for activities such as building or grading permits.

**Please check the appropriate box below and provide the requested information**

- Land uses to be served by the proposed water uses (including proposed construction) are allowed outright or are not regulated by your comprehensive plan. Cite applicable ordinance section(s):
- Land uses to be served by the proposed water uses (including proposed construction) involve discretionary land-use approvals as listed in the table below. (Please attach documentation of applicable land-use approvals which have already been obtained. Record of Action/land-use decision and accompanying findings are sufficient.) If approvals have been obtained but all appeal periods have not ended, check "Being pursued."

Type of Land-Use Approval Needed (e.g., plan amendments, rezones, conditional-use permits, etc.)	Cite Most Significant, Applicable Plan Policies & Ordinance Section References	Land-Use Approval	
Site plan & conditional use approval - file #	217-15-000-115-PLNG	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Denied	<input type="checkbox"/> Being Pursued <input type="checkbox"/> Not Being Pursued
	217-15-000-350-PLNG	<input type="checkbox"/> Obtained <input type="checkbox"/> Denied	<input type="checkbox"/> Being Pursued <input type="checkbox"/> Not Being Pursued
	217-18-000-347-PLNG	<input type="checkbox"/> Obtained <input type="checkbox"/> Denied	<input type="checkbox"/> Being Pursued <input type="checkbox"/> Not Being Pursued
		<input type="checkbox"/> Obtained <input type="checkbox"/> Denied	<input type="checkbox"/> Being Pursued <input type="checkbox"/> Not Being Pursued
		<input type="checkbox"/> Obtained <input type="checkbox"/> Denied	<input type="checkbox"/> Being Pursued <input type="checkbox"/> Not Being Pursued
		<input type="checkbox"/> Obtained <input type="checkbox"/> Denied	<input type="checkbox"/> Being Pursued <input type="checkbox"/> Not Being Pursued

Local governments are invited to express special land-use concerns or make recommendations to the Water Resources Department regarding this proposed use of water below, or on a separate sheet.

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Name: Katie McDonald Title: Planner OWRD  
 Signature: *Katie McDonald* Phone: 541-447-3211 Date: 5/27/21  
 Government Entity: Crook County

**Note to local government representative:** Please complete this form or sign the receipt below and return it to the applicant. If you sign the receipt, you will have 30 days from the Water Resources Department's notice date to return the completed Land Use Information Form or WRD may presume the land use associated with the proposed use of water is compatible with local comprehensive plans.

**Receipt for Request for Land Use Information**

Applicant name: \_\_\_\_\_  
 City or County: \_\_\_\_\_ Staff contact: \_\_\_\_\_  
 Signature: \_\_\_\_\_ Phone: \_\_\_\_\_ Date: \_\_\_\_\_

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This page to be completed by the local Watermaster.

WATER AVAILABILITY STATEMENT

Name of Applicant: Knife River Corp. - NW Limited License Number: LL-1876

1 To your knowledge, has the stream or basin that is the source for this application ever been regulated for prior rights?

0 Yes [X] No

If yes, please explain:

2. Based on your observations, would there be water available in the quantity and at the times needed to supply the use proposed by this application?

[X] Yes 0 No

3. Do you observe this stream system during regular fieldwork?

[X] Yes 0 No

If yes, what are your observations for the stream?

Subtle long-term decline in groundwater head in the Lamonika area due to climatic conditions and on-going development.

4. If the source is a well and if WRD were to determine that there is the potential for substantial interference with nearby surface water sources, would there still be ground water and surface water available during the time requested and in the amount requested without injury to existing water rights?

[X] Yes 0 No 0 N/A

What would you recommend for conditions on a limited license that may be issued approving this application?

Applicant must mitigate the consumption use in the appropriate zone of impact. Based on information in the application, aggregate washing, dust control, and general cleanups are all 100% consumption use.

5. Any other recommendations you would like to make?

User to install flow meters on all applicable P.O.A.'s (Wells). User to maintain accurate pumping records for duration of limited license.

Signature: [Signature] WM District#: Date: 5/27/21



Oregon Water Resources Department  
 725 Summer Street NE, Suite A  
 Salem Oregon 97301-1271  
 (503) 986-0900  
 www.wrd.state.or.us

# Application for Limited Water Use License

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License No.: \_\_\_\_\_

**Applicant Information**

NAME: Knife River Corporation – Northwest Attn: Jeff Steyaert			PHONE (HM)
PHONE (WK) (541) 918-5142	CELL.	FAX	
ADDRESS 32260 Old Highway 34			
CITY Tangent	STATE OR	ZIP 97389	E-MAIL. * jeff.steyaert@kniferiver.com

**Agent Information**

NAME Steven R. Bruce Skookum Water Associates Inc			PHONE (503) 319-8926	FAX
ADDRESS 1626 Victorian Way			CELL.	
CITY Eugene	STATE OR	ZIP 97401	E-MAIL. * steve@skookumwater.com	

I (We) make application for a Limited License to use or store the following described surface waters or groundwater – not otherwise exempt, or to use stored water of for a use of a short-term or fixed-duration:

- SOURCE(S) OF WATER:** Up to Four Wells a tributary of Crooked River
- AMOUNT OF WATER** to be diverted;  
 Maximum and instantaneous rate (cubic feet or gallons per minute): 500 gpm  
 Total volume (gallons or acre-feet): 239 AF/year but consumptive use is 20% of this total volume (see Remarks). If water is to be used from more than one source, give the quantity from each: NA – the source aquifer is sand & gravel (see CROO 50140).
- INTENDED USE(S) OF WATER:** (check all that apply)
  - Road construction or maintenance
  - General construction
  - Forestland and rangeland management; or
  - X Other: Industrial & Commercial - Aggregate washing, dust control and general cleanup
- DESCRIPTION OF PROPOSED PROJECT:** Include a description of the place of use as shown on the accompanying site map, the method of water diversion, the type of equipment to be used (including pump horsepower, if applicable), length and dimensions of supply ditches and pipelines: Water will be pumped from up to two wells using a 50-hp submersible pumps and conveyed by pipeline to a pond and reservoir for use. The water from aggregate washing will be reused repeatedly.
- PROJECT SCHEDULE:** (List day, month, and year)  
 Date water use will begin: As soon as license is issued  
 Date water use will be completed: June 15, 2026

Months of the year water would be diverted and used: As soon as license is issued until June 15, 2026

If for other than irrigation from stored water, how and where will water be discharged after use: Water used for the described purposes will be rediverted to a pond and reservoir for reuse. Consumptive use is expected to be less than 20 percent of the total rate and volume proposed to be diverted.

\_\_\_\_\_  
 Applicant Signature

Jeff Steyaert; Assist. Secretary  
 \_\_\_\_\_  
 Print Name and title if applicable

\_\_\_\_\_  
 Date

22-1874

May 28, 2021  
Project No. 10166.01



Oregon Water Resources Department  
725 Summer Street NE, Suite A  
Salem, OR 97301-1271



**Water-Use Estimates to Support a Limited License Application  
Knife River Corporation Prineville, Oregon Facility  
Crook County, Oregon**

To Whom It May Concern:

In accordance with our May 27, 2021 conversation with Dwight French, we are providing the following estimates of the proposed year-round water uses described in the attached limited license application being filed by the Knife River Corporation. This information is intended to assist the Department with identifying the number of mitigation credits needed to offset the proposed groundwater use.

The application is requesting 500 gallons per minute (gpm) of groundwater from wells for commercial/industrial use. More specifically, the water would be used for aggregate washing, dust control and general cleanup. Water is needed this year under a limited license because the Ochoco Irrigation District, the customary water supplier for the facility, is only able to provide 80 gpm of water, instead of the full volume requested in this application. The application also requests the license for 5 years in case reduced deliveries from the District continue for several years. Knife River is aware that the mitigation credits would need to be purchased every year that the license is in effect.

The estimates below are based on pumping up to 10 hours/day during a 5 day/workweek each year (52 weeks assumed). This is equivalent to 2,600 hours or 156,000 minutes each year. For convenience, the following first summarizes the estimated dust control and general cleanup rates and duties, followed by the aggregate washing estimates.

**Dust Control and General Cleanup Estimates**

The dust control and general cleanup activities are considered to be 100% consumptive. The dust control uses are projected to consist of filling a 3,000-gallon-capacity water truck 3 times/day for a total of 9,000 gallons per day (gpd). General cleanup uses would typically involve using hoses to wash equipment at about 30 gpm for up to 3 hours/day, which is approximately 5,400 gpd. Combined these uses would total approximately 14,500 gpd.

The 14,500 gpd volume would approximately equate to 24.1 gpm when averaged over a 10-hour day. Based on the 24.1 gpm average, we propose a rate of 25 gpm for these consumptive uses. Multiplying 25 gpm by 156,000 minutes/year yields a total use of 3.9 million gallons/year (MG/year) or essentially 12 acre-feet/year (AF/year).

**Aggregate Washing Estimates**

Aggregate washing would constitute the majority of the water use and is only partially consumptive. As with many aggregate mines in Oregon, this process recycles water. Water losses from these operations at the site would be related to evaporation, seepage from the unlined settling pond (which recharges groundwater in the vicinity) and water retained on the aggregate trucked from the site. The consumptive

use for aggregate washing has been estimated to be 20%, based on past discussions with Bruce Estes (Estes Surveys LLC).

For estimating purposes, we assume the balance of the requested water not consumed for dust control and general cleanup would be used for aggregate washing. The application requests a rate of 500 gpm and a total volume of 239.4 AF/year. Therefore, subtracting the 25 gpm and 12 AF/year from this total would provide 475 gpm and 227.4 AF/year for aggregate washing. An averaged water loss of 20% from the 475 gpm and 227.4 AF/year would approximately equal 95 gpm and 45.5 AF/year.

**Other Considerations**

The above estimates of 12 AF/year for dust control and general cleanup and 45.5 AF/year for aggregate washing total 57.5 AF/year of consumptive use.


The following are two key factors that would affect the proposed water use under the Limited License Application.

- The 80 gpm of water the District plans to deliver to Knife River in 2021 has not been included in the above estimates. This water source would be expected to reduce the rate and volume of groundwater needed this year under the limited license. Water use in the other 4 years requested under the limited license may be substantially less if the District delivers more water during that time.
- Water lost to seepage from the unlined pond will recharge the aquifer in the vicinity from which the water would be pumped.

Please call or email us if you have any questions regarding this letter.

Sincerely,

SKOOKUM WATER ASSOCIATES INC.



Steven R. Bruce, RG, CWRE  
Principal

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Enclosures

cc. Jeff Steyaert; Knife River Corporation

# Amended Well Report

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

CR00  
50140

L01442 L01435 per  
 (START CARD) # 71925 driller

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

**(1) OWNER:** Well Number 795

Name Painville Saw Mill Comp.  
 Address 126 W First St  
 City Painville State OR Zip 97254

**(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 255 ft.  
 Explosives used  Yes  No Type \_\_\_\_\_ Amount \_\_\_\_\_

HOLE		SEAL				
Diameter	From	To	Material	From	To	Sacks or pounds
12"	0	165	Bentonite	0	25	37
			Cement	25	165	40

How was seal placed: Method  A  B  C  D  E

Backfill placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Material \_\_\_\_\_  
 Gravel placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Size of gravel \_\_\_\_\_

**(6) CASING/LINER:**

Casing/Liner	Diameter	From	To	Gauge	Material			
					Steel	Plastic	Welded	Threaded
Casing	8"	0	255	250	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Liner					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Final location of shoe(s) \_\_\_\_\_

**(7) PERFORATIONS/SCREENS:**

Perforations Method Facility  
 Screens Type \_\_\_\_\_

From	To	Slot size	Number	Diameter	Material	Casing	Liner
250	255	1/2 x 3/32	30	8"	Steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

<input checked="" type="checkbox"/> Pump	<input type="checkbox"/> Baller	<input type="checkbox"/> Air	<input type="checkbox"/> Flowing Artesian
Yield gal/min	Drawdown	Drill stem at	Time
300	80		1 hr.

Temperature of water 54 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 Clatsop Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
 Township 14 N or (S) Range 15 (E) or W. WM.  
 Section 14 SE 1/4 SW 1/4  
 Tax Lot 702 Lot \_\_\_\_\_ Block \_\_\_\_\_ Subdivision \_\_\_\_\_  
 Street Address of Well (or nearest address) \_\_\_\_\_

**(10) STATIC WATER LEVEL:**

24 ft. below land surface. Date 7-15-96  
 Artesian pressure \_\_\_\_\_ lb. per square inch. Date \_\_\_\_\_

**(11) WATER BEARING ZONES:**

Depth at which water was first found 60'

From	To	Estimated Flow Rate	SWL
60	50	50	60
256	255	300+	24

**(12) WELL LOG:**

Ground Elevation \_\_\_\_\_

Material	From	To	SWL
Gravel fill	0	2	
Top Soil	2	4	
Hard gravel Cong.	4	26	
Brown sandy clay	26	66	60
Black Sand fine & silt	66	80	
light grey clay soft	80	236	
Gravel & Sand	236	255	24

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SALEM, OREGON

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JUN 01 2021

OWRD

Date started 6-11-96 Completed 7-15-96

**(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.

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

Signed \_\_\_\_\_ WWC Number 389

LL-1876

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

CR00  
50140

L 01442 1435

(START CARD) # 71925

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

(1) OWNER: Well Number 795  
Name Prinville Saw Mill Comp.  
Address 126 W First St  
City Prinville State OR Zip 97254

(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 Do: .. Completed Well 255 ft.  
Explosives used  Yes  No Type \_\_\_\_\_ Amount \_\_\_\_\_

HOLE		MATERIAL		SACKS OR POUNDS	
Diameter	Depth	From	To	From	To
12"	0 to 165'	Bentonite	0 to 25'	37	
		Gravel	25 to 165'	40	

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: 8"	0 to 255'	250'		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Liner:				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(7) PERFORATIONS/SCREENS:

Perforations Method Factory  
 Screens Type \_\_\_\_\_ Material \_\_\_\_\_

From	To	Slot size	Number	Diameter	Casing	Liner
250'	255'	1/2" x 3/32"	30	8"	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

Pump  Dailer  Air  Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
300	80		1 hr.

Temperature of water 54 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 Clatsop Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
Township 14 N or (S) Range 15 (P) or W. WM.  
Section 14 SE 1/4 SW 1/4  
Tax Lot 702 Lot \_\_\_\_\_ Block \_\_\_\_\_ Subdivision \_\_\_\_\_  
Street Address of Well (or nearest address) \_\_\_\_\_

(10) STATIC WATER LEVEL:  
24 ft. below land surface. Date 7-15-96  
Artesian pressure \_\_\_\_\_ lb. per square inch. Date \_\_\_\_\_

(11) WATER BEARING ZONES:

Depth at which water was first found 60'

From	To	Estimated Flow Rate	SWL
60	90	50	60
236	255	300+	24

(12) WELL LOG:

Ground Elevation \_\_\_\_\_

Material	From	To	SWL
Gravel fill	0	2	
Top Soil	2	4	
Hard gravel cong.	4	26	
Brown sandy clay	26	66	60
Black sand fine & silt	66	80	
Light Gray clay soil	80	236	
Gravel & Sand	236	255	24

Date started 6-11-96 Completed 7-15-96  
(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.

WVC 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.

Signed Daniel M. ... WVC Number 584  
Date 7-25-96

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

11-1876

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-1876  
**Date:** September 17, 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 Well #1 (CROO 50140): 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 (Proposed Well): Well# 2 is a proposed well, therefore it cannot be reviewed for construction. Construction of the proposed well 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 the well, specific attention should be paid to ensure sealing requirements are met and that the well does not commingle aquifers.

The construction of proposed Well #2 may not satisfy hydraulic connection issues.

Applicant's Well #3 (Proposed Well): Well #3 is a proposed well, therefore it cannot be reviewed for construction. Construction of the proposed well 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 the well, specific attention should be paid to ensure sealing requirements are met and that the well does not commingle aquifers.

The construction of proposed Well #3 may not satisfy hydraulic connection issues.

Applicant's Well #4 (Proposed Well): Well #4 is a proposed well, therefore it cannot be reviewed for construction. Construction of the proposed well 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 the well, specific attention should be paid to ensure sealing requirements are met and that the well does not commingle aquifers.

The construction of proposed Well #4 may not satisfy hydraulic connection issues.

# Amended Well Report

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

CR00  
50140

L01442 L01435 per driller  
(START CARD) # 71925

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

(1) OWNER: Well Number 795  
Name Painville Saw Mill Comp  
Address 126 W First St  
City Painville State OR Zip 97254

(2) TYPE OF WORK  
 New Well  Deepening  Alteration (repair/recondition)  Abandonment

(3) DRILL METHOD:  
 Rotary Air  Rotary Mud  Cables  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 255 ft.  
Explosives used  Yes  No Type \_\_\_\_\_ Amount \_\_\_\_\_

HOLE			SEAL			Sacks or pounds
Diameter	From	To	Material	From	To	
12	0	165	Bentonite	0	25	37
			Cement	25	165	40

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	Material			
				Steel	Plastic	Welded	Threaded
Casing: 5	0	255	250	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Liner:				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Final location of shoe(s) \_\_\_\_\_

(7) PERFORATIONS/SCREENS:

Perforations Method Factory  
 Screens Type \_\_\_\_\_ Material \_\_\_\_\_

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
250	255	1/2 x 3/32	30	8		<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

Pump  Bailor  Air  Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
300	80		1 hr.

Temperature of water 54 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 CLATSOP Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
Township 14 N or (S) Range 15 (E) or W. WM.  
Section 14 SE 1/4 SW 1/4  
Tax Lot 702 Lot \_\_\_\_\_ Block \_\_\_\_\_ Subdivision \_\_\_\_\_  
Street Address of Well (or nearest address) \_\_\_\_\_

(10) STATIC WATER LEVEL:  
29 ft. below land surface. Date 7-15-96  
Artesian pressure \_\_\_\_\_ lb. per square inch. Date \_\_\_\_\_

(11) WATER BEARING ZONES:  
Depth at which water was first found 60'

From	To	Estimated Flow Rate	SWL
60	50	50	60
256	255	300+	24

(12) WELL LOG:  
Ground Elevation \_\_\_\_\_

Material	From	To	SWL
Gravel fill	0	2	
Top Soil	2	4	
Hard gravel Cong.	4	26	
Brown sandy sil.	26	66	60
Black Sand Fine & Sil	66	80	
light grey clay soft	80	236	
Gravel & Sand	236	255	24

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WATER RESOURCES DEPT.  
SALEM, OREGON

Date started 6-11-96 Completed 7-15-96

(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 384



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

CROO  
50140

L01442  
(START CARD) # 71925

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

(1) OWNER: Well Number 795  
Name Painville Saw Mill Comp.  
Address 126 W First St  
City Painville State OR Zip 97254

(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 255 ft.  
Explosives used  Yes  No Type \_\_\_\_\_ Amount \_\_\_\_\_

HOLE			SEAL			Sacks or pounds
Diameter	From	To	Material	From	To	
12	0	165	Benstone	0	25	37
			cemt	25	165	40

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: 8	+2	255	250	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Liner:				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Final location of shoe(s) \_\_\_\_\_

(7) PERFORATIONS/SCREENS:

Perforations Method Factory  
 Screens Type \_\_\_\_\_ Material \_\_\_\_\_

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
250	255	1/8 x 3/32	30	8"		<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

Yield gal/min	Drawdown	Drill stem at	Flowing Artesian Time
300	80		1 hr.

Temperature of water 54 Depth Artesian Flow Found \_\_\_\_\_  
Was a water analysis done?  Yes By whom \_\_\_\_\_  
Did any strata contain water not suitable for intended use?  Too little  
 Saky  Muddy  Odor  Colored  Other \_\_\_\_\_  
Depth of strata: \_\_\_\_\_

(9) LOCATION OF WELL by legal description:  
County Clatsop Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
Township 14 N or (S) Range 15 (E) or W. WM.  
Section 14 SE 1/4 SW 1/4  
Tax Lot 702 Lot \_\_\_\_\_ Block \_\_\_\_\_ Subdivision \_\_\_\_\_  
Street Address of Well (or nearest address) \_\_\_\_\_

(10) STATIC WATER LEVEL:  
24 ft. below land surface. Date 7-15-96  
Artesian pressure \_\_\_\_\_ lb. per square inch. Date \_\_\_\_\_

(11) WATER BEARING ZONES:  
Depth at which water was first found 60'

From	To	Estimated Flow Rate	SWL
60	80	50	60
256	255	300+	24

(12) WELL LOG:  
Ground Elevation \_\_\_\_\_

Material	From	To	SWL
Gravel fill	0	2	
Top Soil	2	4	
Hard gravel cong.	4	26	
Brown sandy clay	26	66	60
Black sand fine silt	66	80	
light gray clay soil	80	236	
Gravel & Sand	236	255	24

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WATER RESOURCES DEPT  
SALEM, OREGON

Date started 6-11-96 Completed 7-15-96  
(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.

WVC 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.

WVC Number 584  
Signed Dan M. [Signature] Date 7-25-96

# Groundwater Application Review Summary Form

Application # LL- 1876

GW Reviewer M. Thoma

Date Review Completed: 08/17/2021

## 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 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**

08/12/2021

**TO: Application LL- 1879**

**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 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 08/17/2021  
 FROM: Groundwater Section M. Thoma  
Reviewer's Name  
 SUBJECT: Application LL- 1876 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: Knife River Corp County: Crook

A1. Applicant(s) seek(s) 1.114 cfs from 4 well(s) in the Deschutes Basin,  
Crooked River subbasin

A2. Proposed use Commercial / Industrial 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 50140	1	Bedrock	1.114	14.00S-15.00E-14-SE SW	110 NORTH AND 1380 FEET EAST FROM SW CORNER, SECTION 14
2	PROPOSED	2	Bedrock	1.114	14.00S-15.00E-14-SE SW	550 NORTH AND 1500 FEET EAST FROM SW CORNER, SECTION 14
3	PROPOSED	3	Bedrock	1.114	14.00S-15.00E-14-SE SW	570 NORTH AND 1890 FEET EAST FROM SW CORNER, SECTION 14
4	PROPOSED	4	Bedrock	1.114	14.00S-15.00E-14-SE SW	1260 NORTH AND 1780 FEET EAST FROM SW CORNER, SECTION 14

\* 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	2910	60	24	7/15/96	255	0-165	+2-255		250-255	300	80	P
2	2910											
3	2910											
4	2910											

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: The proposed POAs are located within the Deschutes Groundwater 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;
- 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) 7C (7-yr SWL); Medium 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:** Groundwater studies by the USGS and OWRD estimated recharge and groundwater appropriation for the Deschutes Basin as a whole and while those studies showed that recharge to the basin vastly exceeds groundwater appropriation, further calculation at the local scale has not been performed and so Over-Appropriation cannot be determined.

The proposed POAs will likely be producing from a shallow groundwater system that is in hydraulic connection with the Crooked River near the POAs. Therefore, it is unlikely that the proposed use will have a significant affect on the capacity of the resource at the local scale (i.e., will not likely lead to or contribute to groundwater level declines).

\_\_\_\_\_

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

Analysis in Section C omitted in leu of the Deschutes Mitigation Rule

**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., Risley, 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.

Swanson, D. A., 1969, Reconnaissance Geologic Map of the East Half of the Bend Quadrangle, Crook, Wheeler, Jefferson, Wasco, and Deschutes Counties, Oregon, USGS Misc. Geologic Investigations Map I-568, [https://ngmdb.usgs.gov/Prodesc/proddesc\\_9354.htm](https://ngmdb.usgs.gov/Prodesc/proddesc_9354.htm)

**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: \_\_\_\_\_

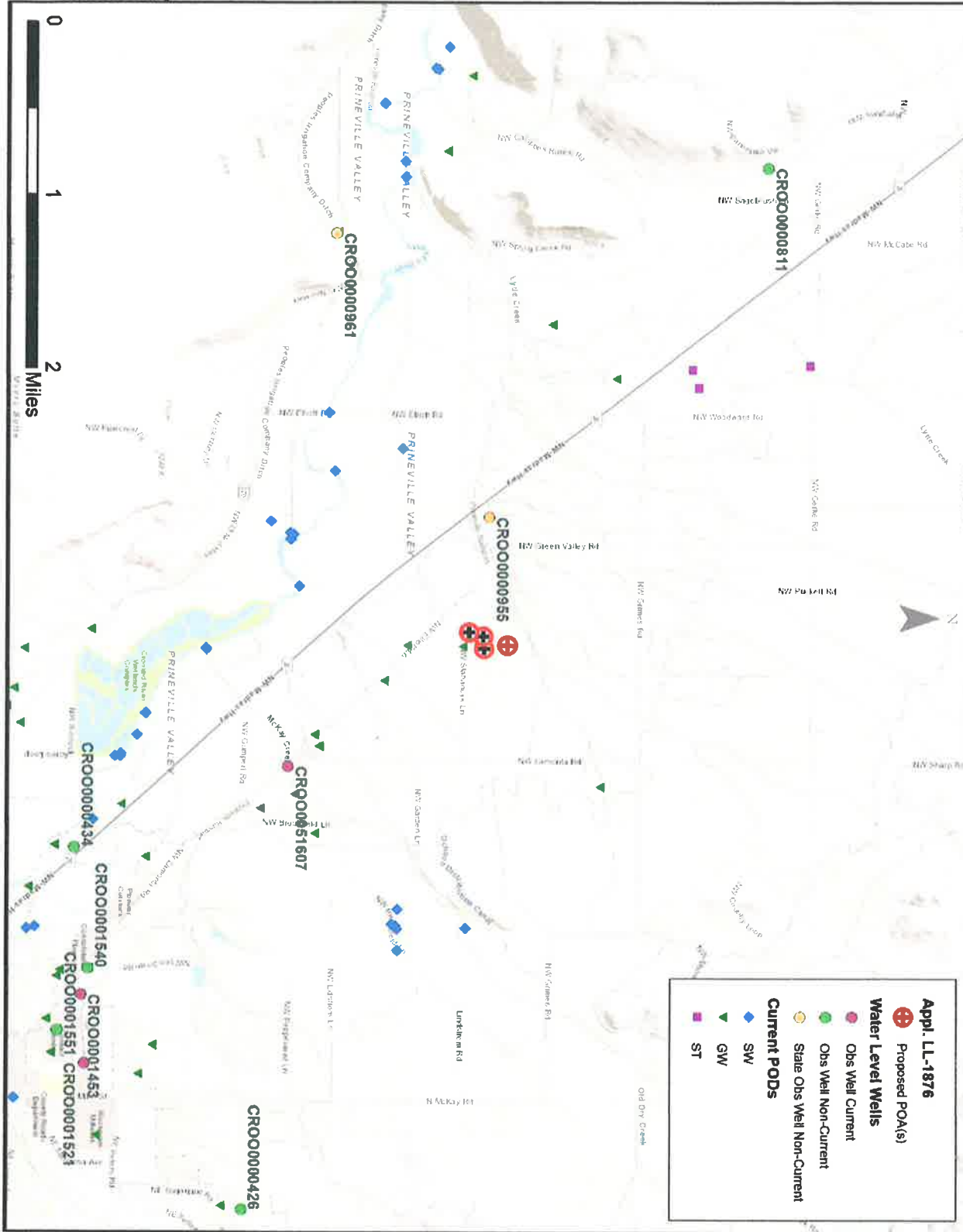
\_\_\_\_\_

\_\_\_\_\_

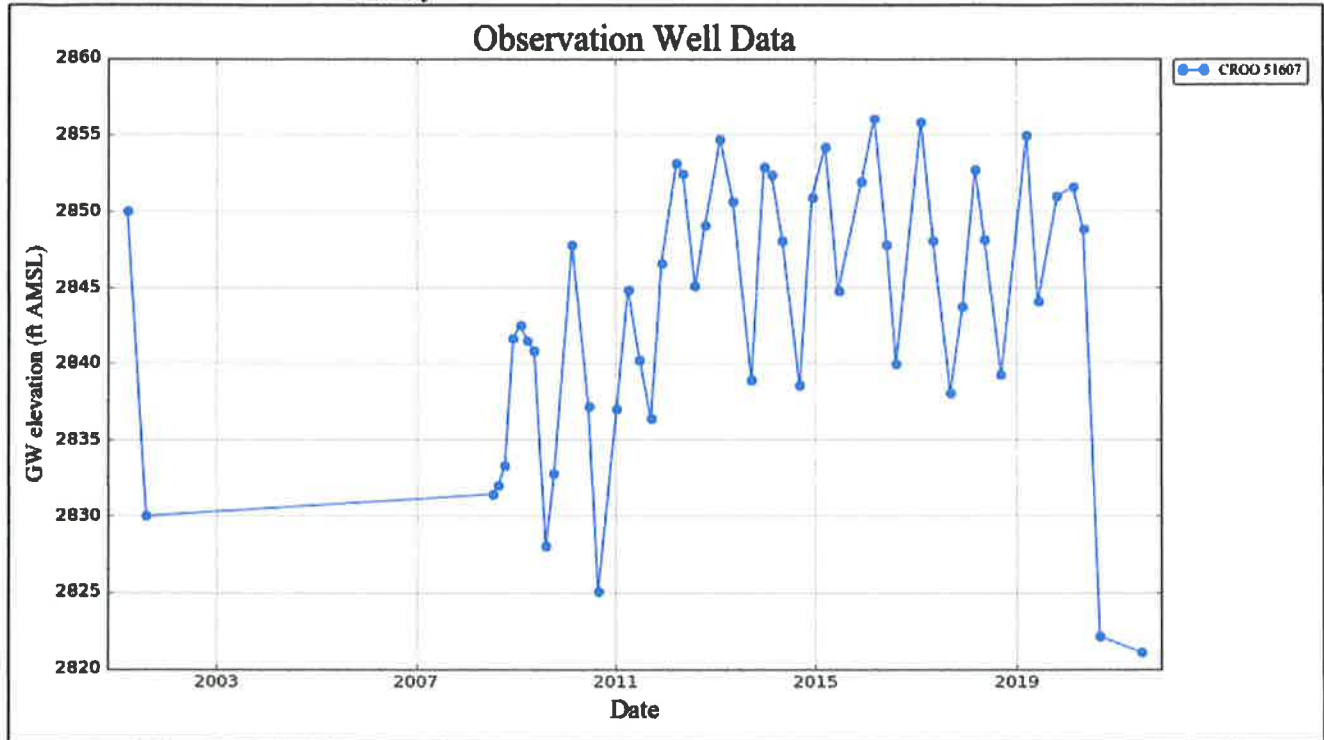
\_\_\_\_\_

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

Well Location Map



Water-Level Measurements in Nearby Wells





# Oregon Water Resources Department

## Final Order Limited License Application LL-1876



### *Appeal Rights*

This is a final order in other than a contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review must be filed within the 60-day time period specified by ORS 183.484(2). Pursuant to ORS 536.075 and OAR 137-004-0080 you may either petition for judicial review or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the Director, and if no action is taken within 60 days following the date, the petition was filed, the petition shall be deemed denied.

### *Requested Water Use*

**Applicant:** KNIFE RIVER CORPORATION - NORTHWEST  
**Date Submitted:** JUNE 1, 2021  
**Amount:** 1.114 CUBIC FEET PER SECOND (CFS)  
**Source:** WELL 1 (CROO 50140) AND PROPOSED WELL 2, WELL 3 AND WELL 4  
**Use:** INDUSTRIAL AND COMMERCIAL USE  
**Period of Use:** ISSUANCE THROUGH JUNE 15, 2026  
**County:** CROOK COUNTY  
**Well Locations:** 14.00S-15.00E-14 SE SW

### *Authorities*

The Department may approve a limited license pursuant to its authority under ORS 537.143, 537.144 and OAR 690-340-0030.

ORS 537.143(2) authorizes the Director to revoke the right to use water under a limited license if it causes injury to any water right or a minimum perennial streamflow.

A limited license will not be issued for more than five consecutive years for the same use, as directed by ORS 537.143(8).

### *Findings of Fact*

1. The forms, fees, and map have been submitted, as required by OAR 690-340-0030(1).
2. On June 8, 2021 the Department provided public notice of the application, as required by OAR 690-340-0030(2).
3. The Department has not received public comment related to the possible issuance of the limited license.

4. This limited license request is limited to an area within a single drainage basin, as required by OAR 690-340-0030(3).
5. As part of its review to determine groundwater availability, the Department has determined that groundwater cannot be determined to be over appropriated. The proposed use will, if properly conditioned, avoid injury to existing groundwater rights or to the groundwater resource.
6. The Department has stipulated conditions pertaining to water-use and static water level measurements, and mitigation for impacts to surface water.
7. The Department has determined that the proposed source has not been withdrawn from further appropriation per ORS 538.200.
8. The Department has determined that the use is subject to its rules under OAR 690-33-0310. These rules aid the Department in determining whether a proposed use will impair or be detrimental to the public interest with regard to sensitive, threatened, or endangered fish species.
9. Because the proposed use is located in the Deschutes Groundwater Study Area, it has the potential for substantial interference with surface water. The Department has determined that mitigation shall be provided by the applicant in the amount of **59.8** acre-feet annually for the life of the limited license. Without the required mitigation, there is a preponderance of evidence that the proposed use will measurably reduce surface water flows necessary for the Deschutes River Scenic Waterway. The mitigation must be produced in the Crooked River Zone of Impact as defined in OAR 690-505-0605.
10. The Department has determined that, with mitigation, water is available for the requested use.
11. Pursuant to OAR 690-340-0030(4)(5), conditions have been added with regard to notice and water-use measurement.
12. Crook County has indicated that the proposed use is compatible with the applicable acknowledged comprehensive land-use plan. A copy of the land use compatibility statement is in the file.

### ***Conclusions of Law***

The proposed water use will not impair or be detrimental to the public interest pursuant to OAR 690-340-0030(2), as limited in the order below.

### ***Order***

Therefore, pursuant to ORS 537.143, ORS 537.144, and OAR 690-340-0030, Application LL-1876 is approved as conditioned below.

1. The authorized use of water under this limited license is as follows:

**Amount:** 1.114 CFS

**Source:** WELL 1 (CROO 50140) AND PROPOSED WELL 2, WELL 3 AND WELL 4

**Use:** INDUSTRIAL AND COMMERCIAL USE

**Duration:** ISSUANCE THROUGH JUNE 15, 2026

2. Use of water under this limited license is not authorized until proof of acceptable mitigation<sup>1</sup> in the amount of 59.8 acre-feet in the Crooked River Zone of Impact as defined in OAR 690-505-0605, has been submitted to the Department, and accepted in writing by the Department.
3. The licensee shall give notice to the Watermaster in the district where use is to occur not less than 15 days or more than 60 days in advance of using the water under the limited license. The notice shall include the location of the diversion, the quantity of water to be diverted, and the intended use and place of use. In the case of this application, this order serves as the notice described above.
4. Before water use may begin under this limited license, the licensee shall install a totalizing flow meter at each point of appropriation. The totalizing flow meters must be installed and maintained in good working order.
5. The licensee shall maintain a record of all water use, including the total number of hours of pumping, the total quantity pumped, and the categories of beneficial use to which the water is applied. During the period of the limited license, the record of use shall be submitted to the Department upon request.
6. Use of water under authority of this license may be regulated if analysis of data available after the license is issued discloses that the appropriation will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway in quantities necessary for recreation, fish and wildlife in effect as of the priority date of the right or as those quantities may be subsequently reduced.
7. To monitor the effect of water use from the well(s) authorized under this license, the Department requires the water user to obtain, from a qualified individual (see below), and report annual static water-level measurements. The static water level shall be measured in the month of March. Reports shall be submitted to the Department within 30 days of measurement.

Measurements must be made according to the following schedule:

**Before Use of Water Takes Place**

Initial and Annual Static Water Level Measurements

The Department requires the licensee to report an initial water-level measurement in the month specified above once well construction is complete, and annually thereafter until use of water begins; and

**After Use of Water has Begun**

Seven Consecutive Annual Static Water Level Measurements

Following the first year of water use, the user shall report seven consecutive annual static water-level measurements. The first of these seven annual measurements will establish the reference level against which future annual measurements will be compared. Based on an analysis of the data collected, the Director may require the user to obtain and report additional annual static water-level measurements beyond the seven year minimum reporting period. The additional measurements may

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<sup>1</sup> Mitigation opportunities may include, but are not limited to, new instream leases and new instream transfers (Contact Sarah Henderson at 503-979-9872) or purchasing water already protected instream (Contact Gen Hubert at gen@deschutesriver.org or 541-382-4077 ext 116) for more information.

be required in a different month. If the measurement requirement is stopped, the Director may restart it at any time.

All measurements shall be made by a certified water rights examiner, registered professional geologist, registered professional engineer, licensed well constructor or pump installer licensed by the Construction Contractors Board and be submitted to the Department on forms provided by the Department. The Department requires the individual performing the measurement to:

- A. Identify each well with its associated measurement;
- B. Measure and report water levels to the nearest tenth of a foot as depth-to-water below ground surface;
- C. Specify the method used to obtain each well measurement; and
- D. Certify the accuracy of all measurements and calculations reported to the Department.

The water user shall discontinue use of, or reduce the rate or volume of withdrawal from, the well(s) if any of the following events occur:

- A. Annual water-level measurements reveal an average water-level decline of three or more feet per year for five consecutive years; or
- B. Annual water-level measurements reveal a water-level decline of 15 or more feet in fewer than five consecutive years; or
- C. Annual water-level measurements reveal a water-level decline of 25 or more feet; or
- D. Hydraulic interference leads to a decline of 25 or more feet in any neighboring well with senior priority.

The period of non-use or restricted use shall continue until the water level rises above the decline level which triggered the action or until the Department determines, based on the licensee's and/or the Department's data and analysis, that no action is necessary because the aquifer in question can sustain the observed declines without adversely impacting the resource or senior water rights. The water user shall in no instance allow excessive decline, as defined in Commission rules, to occur within the aquifer as a result of use under this license. If more than one well is involved, the water user may submit an alternative measurement and reporting plan for review and approval by the Department.

8. The Director may revoke the right to use water for any reason described in ORS 537.143(2), and OAR 690-340-0030(6). Such revocation may be prompted by field regulatory activities or by any other information.
9. Use of water under a limited license shall not have priority over any water right exercised according to a permit or certificate, and shall be subordinate to all other authorized uses that rely upon the same source.
10. The licensee shall install, use, and maintain fish screening and by-pass devices as required by the Oregon Department of Fish and Wildlife to prevent fish from entering the proposed diversion. See copy of enclosed fish screening criteria for information.
11. By law, the land use associated with this water use must be in compliance with statewide land-use goals and any local acknowledged land-use plan.

12. A copy of this limited license shall be kept at the place of use, and be made available for inspection by the Watermaster or other state authority.

NOTE: This water-use authorization is temporary. Applicants are advised that issuance of this final order does not guarantee that any permit for the authorized use will be issued in the future; any investments should be made with that in mind.

Issued OCT 06 2021



Dwight French, Water Right  
Services Division Administrator, *for*  
Thomas M. Byler, Director  
Oregon Water Resources Department

cc: Jeremy T. Giffin, District 11 Watermaster  
Danette Faucera, ODFW  
Deschutes, DEQ  
Steve Bruce, Skookum Water Associates Inc. – 1626 Victorian Way, Eugene, OR 97401  
Surface Water Section  
File

If you need further assistance, please contact the Water Rights Section at the address, phone number, or fax number below. When contacting the Department, be sure to reference your limited license number for fastest service.

Remember, this limited license does not provide a secure source of water. Water use can be revoked at any time. Such revocation may be prompted by field regulatory activities or many other reasons.

Water Rights Section  
Oregon Water Resources Department  
725 Summer Street NE, Suite A  
Salem OR 97301-1271  
Phone: (503) 986-0817      Fax: (503) 986-0901

503 80 10

# FISH SCREENING CRITERIA FOR WATER DIVERSIONS

This summary describes ODFW fish screening criteria for all fish species.

**Screen material openings for ditch (gravity) and pump screens** must provide a minimum of 27% open area:

**Perforated plate:** Openings shall not exceed  $3/32$  or 0.0938 inches (2.38 mm).

**Mesh/Woven wire screen:** Square openings shall not exceed  $3/32$  or 0.0938 inches (2.38 mm) in the narrow direction, e.g.,  $3/32$  inch x  $3/32$  inch open mesh.

**Profile bar screen/Wedge wire:** Openings shall not exceed 0.0689 inches (1.75 mm) in the narrow direction.

**Screen area** must be large enough to prevent fish impact. Wetted screen area depends on the water flow rate and the approach velocity.

**Approach velocity:** The water velocity perpendicular to and approximately three inches in front of the screen face.

**Sweeping velocity:** The water velocity parallel to the screen face.

**Bypass system:** Any pipe, flume, open channel or other means of conveyance that transports fish back to the body of water from which the fish were diverted.

**Active pump screen:** Self cleaning screen that has a proven cleaning system.

**Passive pump screen:** Screen that has no cleaning system other than periodic manual cleaning.

**Screen approach velocity for ditch and active pump screens** shall not exceed 0.4 fps (feet per second) or 0.12 mps (meters per second). The wetted screen area in square feet is calculated by dividing the maximum water flow rate in cubic feet per second (1 cfs = 449 gpm) by 0.4 fps.

**Screen sweeping velocity for ditch screens** shall exceed the approach velocity. Screens greater than 4 feet in length must be angled at 45 degrees or less relative to flow. An adequate bypass system must be provided for ditch screens to safely and rapidly collect and transport fish back to the stream.

**Screen approach velocity for passive pump screens** shall not exceed 0.2 fps or 0.06 mps. The wetted screen area in square feet is calculated by dividing the maximum water flow rate by 0.2 fps. Pump rate should be less than 1 cfs.

*For further information please contact:*

Statewide Fish Screening Coordinator  
Oregon Dept. Fish and Wildlife  
4034 Fairview Industrial Drive SE  
Salem, OR 97302  
(503) 947-6229