

# Groundwater Application Review Summary Form

Application # G- 18974

GW Reviewer J. Hackett Date Review Completed: May 28, 2020

## Summary of GW Availability and Injury Review:

Groundwater for the proposed use is either over appropriated, will not likely be available in the amounts requested without injury to prior water rights, OR will not likely be available within the capacity of the groundwater resource per Section B of the attached review form.

## Summary of Potential for Substantial Interference Review:

There is the potential for substantial interference per Section C of the attached review form.

## Summary of Well Construction Assessment:

The well does not appear to meet current well construction standards per Section D of the attached review form. Route through Well Construction and Compliance Section.

*This is only a summary. Documentation is attached and should be read thoroughly to understand the basis for determinations and for conditions that may be necessary for a permit (if one is issued).*

**WATER RESOURCES DEPARTMENT**

**MEMO**

May 28, 2020

**TO:** Application G- 18974

**FROM:** **GW:** J. Hackett  
(Reviewer's Name)

**SUBJECT: Scenic Waterway Interference Evaluation**

**YES** The source of appropriation is hydraulically connected to a State Scenic Waterway or its tributaries

**NO**

**YES** Use the Scenic Waterway Condition (Condition 7J)

**NO**

Per ORS 390.835, the Groundwater Section is **able** to calculate ground water interference with surface water that contributes to a Scenic Waterway. The calculated interference is distributed below

Per ORS 390.835, the Groundwater Section is **unable** to calculate ground water interference with surface water that contributes to a scenic waterway; **therefore, the Department is unable to find that there is a preponderance of evidence that the proposed use will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway**

**DISTRIBUTION OF INTERFERENCE**

*Calculate the percentage of consumptive use by month and fill in the table below. If interference cannot be calculated, per criteria in 390.835, do not fill in the table but check the "unable" option above, thus informing Water Rights that the Department is unable to make a Preponderance of Evidence finding.*

Exercise of this permit is calculated to reduce monthly flows in \_\_\_\_\_ Scenic Waterway by the following amounts expressed as a proportion of the consumptive use by which surface water flow is reduced.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec



**B. GROUNDWATER AVAILABILITY CONSIDERATIONS, OAR 690-310-130, 400-010, 410-0070**

B1. **Based upon available data**, I have determined that groundwater\* for the proposed use:

- a.  is over appropriated,  is not over appropriated, or  **cannot be determined to be** over appropriated during any period of the proposed use. \* This finding is limited to the groundwater portion of the over-appropriation determination as prescribed in OAR 690-310-130;
- b.  **will not** or  **will** likely be available in the amounts requested without injury to prior water rights. \* This finding is limited to the groundwater portion of the injury determination as prescribed in OAR 690-310-130;
- c.  **will not** or  **will** likely to be available within the capacity of the groundwater resource; or
- d.  **will, if properly conditioned**, avoid injury to existing groundwater rights or to the groundwater resource:
  - i.  The permit should contain condition #(s) 7N;
  - ii.  The permit should be conditioned as indicated in item 2 below.
  - iii.  The permit should contain special condition(s) as indicated in item 3 below;

- B2. a.  **Condition** to allow groundwater production from no deeper than \_\_\_\_\_ ft. below land surface;
- b.  **Condition** to allow groundwater production from no shallower than \_\_\_\_\_ ft. below land surface;
- c.  **Condition** to allow groundwater production only from the \_\_\_\_\_ groundwater reservoir between approximately \_\_\_\_\_ ft. and \_\_\_\_\_ ft. below land surface;
- d.  **Well reconstruction** is necessary to accomplish one or more of the above conditions. The problems that are likely to occur with this use and without reconstructing are cited below. Without reconstruction, I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Groundwater Section.

**Describe injury** –as related to water availability– that is likely to occur without well reconstruction (interference w/ senior water rights, not within the capacity of the resource, etc): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

B3. **Groundwater availability remarks:** The applicant’s proposed wells will develop water from unconfined, predominately course-grained Quaternary alluvial deposits that have a saturated thickness of 20-40 feet (Conlon et al., 2005, P. 9). Water levels in the aquifer are closely tied to stream stage in the Willamette River (Conlon et al., 2005, P. 50). The wells will be located adjacent to the floodplain of the Willamette River where the Willamette Silt has been removed. Since the water levels in this system are closely tied to the Willamette River stage, the long-term stability of the aquifer is not likely to be a problem, but the saturated thickness of the aquifer could drop substantially in late summer in conjunction with lower stream stage. The seasonal fluctuations are unknown at this time. The nearest well similarly located within the unconsolidated alluvial sediments, with long-term water level reporting is BENT 1558 (located ~ 6.9 miles to the northeast). The hydrograph for BENT 1558 shows no long-term decline and a correlation to the flow of the Willamette River as measured at the station in Albany.

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

C1. **690-09-040 (1):** Evaluation of aquifer confinement:

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
1	Alluvium	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Alluvium	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

**Basis for aquifer confinement evaluation:** The wells will be located within the unconfined Quaternary sediments adjacent to the floodplain of the Willamette River (Conlon et al., 2005, P. 9).

C2. **690-09-040 (2) (3):** Evaluation of distance to, and hydraulic connection with, surface water sources. All wells located a horizontal distance less than ¼ mile from a surface water source that produce water from an unconfined aquifer shall be assumed to be hydraulically connected to the surface water source. Include in this table any streams located beyond one mile that are evaluated for PSI.

Well	SW #	Surface Water Name	GW Elev ft msl	SW Elev ft msl	Distance (ft)	Hydraulically Connected?			Potential for Subst. Interfer. Assumed?	
						YES	NO	ASSUMED	YES	NO
1	1	Mountain View Creek	210 -200	208	2550	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	Ashbar Lake	210 -200	190	4700	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	3	Willamette River	210 -200	180	9000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	1	Mountain View Creek	210 -200	208	3050	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	2	Ashbar Lake	210 -200	190	3600	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	3	Willamette River	210 -200	180	8000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Basis for aquifer hydraulic connection evaluation:** Water table maps indicate that ground water discharges to streams in the area. Additionally, water levels in nearby wells are coincident with the elevation of the Willamette River. These factors indicate a hydraulic connection between local surface water sources and the alluvial ground water system.

**Water Availability Basin the well(s) are located within:** 30200321: WILLAMETTE R > COLUMBIA R – AB PERIWINKLE CR AT GAGE 14174

C3a. **690-09-040 (4):** Evaluation of stream impacts for each well that has been determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water (SW) source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that SW source, not lower SW sources to which the stream under evaluation is tributary. Compare the requested rate against the 1% of 80% natural flow for the pertinent Water Availability Basin (WAB). If Q is not distributed by well, use full rate for each well. Any checked  box indicates the well is assumed to have the potential to cause PSI.

Well	SW #	Well < ¼ mile?	Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
1	1	<input type="checkbox"/>	<input type="checkbox"/>	N/A		<input type="checkbox"/>	2540.00	<input type="checkbox"/>	<25%	<input type="checkbox"/>
1	2	<input type="checkbox"/>	<input type="checkbox"/>	N/A		<input type="checkbox"/>	2540.00	<input type="checkbox"/>	<25%	<input type="checkbox"/>
2	1	<input type="checkbox"/>	<input type="checkbox"/>	N/A		<input type="checkbox"/>	2540.00	<input type="checkbox"/>	<25%	<input type="checkbox"/>
2	2	<input type="checkbox"/>	<input type="checkbox"/>	N/A		<input type="checkbox"/>	2540.00	<input type="checkbox"/>	<25%	<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"/>

C3b. **690-09-040 (4):** Evaluation of stream impacts by total appropriation for all wells determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water source. **Complete only if Q is distributed among wells.** Otherwise same evaluation and limitations apply as in C3a above.

	SW #		Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
			<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"/>

**Comments:** Modelling in similar circumstances suggests that due the distance from the well to nearby streams and the unconfined nature of the aquifer, impacts will be less than 25% of the pumping rate after 30 days of pumping.

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C4a. **690-09-040 (5):** Estimated impacts on **hydraulically connected surface water sources greater than one mile** as a percentage of the proposed pumping rate. Limit evaluation to the effects that will occur up to one year after pumping begins. This table encompasses the considerations required by 09-040 (5)(a), (b), (c) and (d), which are not included on this form. Use additional sheets if calculated flows from more than one WAB are required.

<b>Non-Distributed Wells</b>													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
<b>Distributed Wells</b>													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
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Well Q as CFS													
Interference CFS													
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Well Q as CFS													



**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.**

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**Water Availability Tables**

**Water Availability Analysis  
Detailed Reports**

**WILLAMETTE R > COLUMBIA R - AB PERIWINKLE CR AT GAGE 14174  
WILLAMETTE BASIN**

Water Availability as of 5/20/2020

Watershed ID #: 30200321 [\(Map\)](#)

Exceedance Level:  ▼

Date: 5/20/2020

Time: 1:08 PM

**Water Availability Calculation**

Monthly Streamflow in Cubic Feet per Second  
Annual Volume at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	10,100.00	1,370.00	8,730.00	0.00	1,750.00	6,980.00
FEB	11,600.00	4,290.00	7,310.00	0.00	1,750.00	5,560.00
MAR	11,000.00	4,560.00	6,440.00	0.00	1,750.00	4,690.00
APR	9,760.00	4,260.00	5,500.00	0.00	1,750.00	3,750.00
MAY	8,430.00	2,560.00	5,870.00	0.00	1,750.00	4,120.00
JUN	5,360.00	856.00	4,500.00	0.00	1,750.00	2,750.00
JUL	3,270.00	665.00	2,610.00	0.00	1,750.00	855.00
AUG	2,560.00	604.00	1,960.00	0.00	1,750.00	206.00
SEP	2,540.00	517.00	2,020.00	0.00	1,750.00	273.00
OCT	2,860.00	269.00	2,590.00	0.00	1,750.00	841.00
NOV	4,170.00	354.00	3,820.00	0.00	1,750.00	2,070.00
DEC	8,150.00	379.00	7,770.00	0.00	1,750.00	6,020.00
ANN	7,460,000.00	1,240,000.00	6,230,000.00	0.00	1,270,000.00	4,960,000.00

**Detailed Report of Instream Flow Requirements**

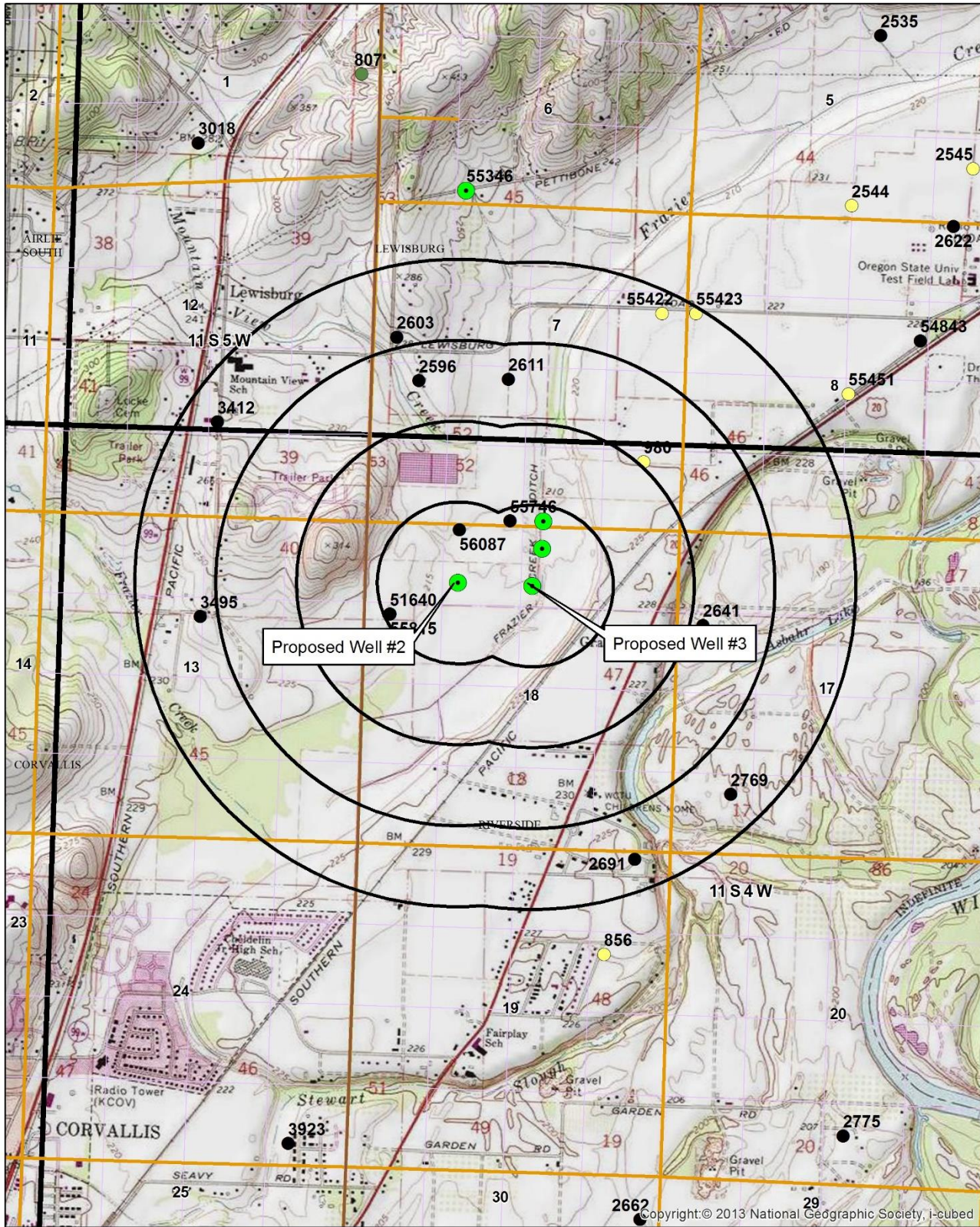
Instream Flow Requirements in Cubic Feet per Second

Application #	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
MF184A	APPLICATION	1,750.00	1,750.00	1,750.00	1,750.00	1,750.00	1,750.00	1,750.00	1,750.00	1,750.00	1,750.00	1,750.00	1,750.00
<b>Maximum</b>		<b>1,750.00</b>	<b>1,750.00</b>	<b>1,750.00</b>	<b>1,750.00</b>	<b>1,750.00</b>	<b>1,750.00</b>	<b>1,750.00</b>	<b>1,750.00</b>	<b>1,750.00</b>	<b>1,750.00</b>	<b>1,750.00</b>	<b>1,750.00</b>

Well Location Map

# G-18974, Dunning

1:24,000 scale



### Water-Level Trends in Bent 1558

