Groundwater Application Review Summary Form

Application # G- 19232

GW Reviewer Phillip I. Marcy Date Review Completed: 10/10/2023

Summary of GW Availability and Injury Review:

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

Summary of Potential for Substantial Interference Review:

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

Summary of Well Construction Assessment:

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

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

WATER RESOURCES DEPARTMENT

MEMO **_October 10, 2023_**

TO: **Application** G-**_19232_**

FROM: **GW:** **_Phillip I. Marcy_**
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☐ **YES**
☒ **NO** The source of appropriation is hydraulically connected to a State Scenic Waterway or its tributaries

☐ **YES**
☒ **NO** Use the Scenic Waterway Condition (Condition 7J)

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

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

DISTRIBUTION OF INTERFERENCE

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

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

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

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 10/10/2023
FROM: Groundwater Section Phillip I. Marcy
Reviewer's Name
SUBJECT: Application G- **19232** 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: **Recompense LLC** County: **Benton**

A1. Applicant(s) seek(s) 1.1378 cfs from 2 well(s) in the Willamette Basin, Long Tom River subbasin

A2. Proposed use Irrigation (91.0 ac / 227.5 af) Seasonality: March 1 – October 31 (245 days)

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	BENT 52375	WELL 1	Alluvium	1.1378	14S/5W-15 SE-SW	390'N, 1780'E fr SW cor S 15
2	BENT 50764	WELL 2	Alluvium	1.1378	14S/5W-15 SE-SW	300'N, 1740'E fr SW cor S 15

* 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	270	19	10	6/26/2003	27	0-18	+1-19	N/A	19-26 (Perf)	200+	Unknown	Air
2	271	19	10	4/16/1998	40	0-18	+1-19	N/A	19-38 (Perf)	400+	Unknown	Air

Use data from application for proposed wells.

A4. **Comments:** The proposed POA are ~1.5 miles northeast of Monroe, OR. Applicant indicated the "maximum total number of acre-feet [they expected] to use in an irrigation season" as 282.5 af. This is in excess of the maximum duty allowed for irrigation (2.5 af/ac) for the requested acreage (91.0 ac, total volume 227.5 af). However, the "Annual Volume" is listed as 227.5 af. It is unclear why the applicant indicated 2 different volumes. The proposed use should be limited to the allowable duty.

A5. ☐ **Provisions of the** Willamette 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: Per OAR 690-502-0240, the relevant basin rules are not activated because the proposed POA are not within ¼ mile of a surface water source.

A6. ☐ **Well(s) #** _____ , _____ , _____ , _____ , _____ , tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: **Not applicable**
Comments:

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

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

a. ☐ **is** over appropriated, ☒ **is not** over appropriated, *or* ☐ **cannot be determined to be** over appropriated during any period of the proposed use. * This finding is limited to the groundwater portion of the over-appropriation determination as prescribed in OAR 690-310-130;

b. ☐ **will not** *or* ☐ **will** likely be available in the amounts requested without injury to prior water rights. * This finding is limited to the groundwater portion of the injury determination as prescribed in OAR 690-310-130;

c. ☐ **will not** *or* ☐ **will** likely to be available within the capacity of the groundwater resource; or

d. ☒ **will, if properly conditioned**, avoid injury to existing groundwater rights or to the groundwater resource:

i. ☒ The permit should contain condition #(s) **7N, Large water use reporting**;

ii. ☒ The permit should be conditioned as indicated in item 2 below.

iii. ☐ The permit should contain special condition(s) as indicated in item 3 below;

B2. a. ☐ **Condition** to allow groundwater production from no deeper than _____ ft. below land surface;

b. ☐ **Condition** to allow groundwater production from no shallower than _____ ft. below land surface;

c. ☒ **Condition** to allow groundwater production only from the **unconfined alluvial** groundwater reservoir between approximately **18** ft. and **50** 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 proposed POA wells produce groundwater from unconfined upper Pleistocene alluvium deposited by the Willamette River and its major tributaries (O'Connor, 2001). The aquifer in this area is anticipated to have a very efficient hydraulic connection to the nearby Long Tom River to the west, the Willamette River to the east, and the numerous oxbow lakes and sloughs in the intervening flood plain. Regional flow of groundwater is predominantly west to east, from the Coast Range foothills toward the Willamette River (Woodward et al., 1998). Recharge to the proposed aquifer would be relatively high, with rapid infiltration of precipitation due to the lack of overlying fine-grained sediments (Woodward et al., 1998).

The proposed aquifer is not over-appropriated because the dominant source of water to the proposed POA wells will be through surface water capture.

The anticipated interference with neighboring wells due to the proposed use was assessed both analytically and qualitatively. The Theis (1935) analytical model for drawdown in a confined aquifer was used to estimate the drawdown at various radial distances around the proposed POA wells due to the proposed use. Although the Theis (1935) solution was derived for a confined aquifer, it may still be used in unconfined aquifers where the anticipated drawdown is small relative to the saturated thickness of the aquifer via the correction procedure of Jacob (1944). Hydraulic parameters used for the analytical model were derived from regional data and studies (Woodward et al., 1998). Results of the analytical model indicate the proposed use is unlikely to cause interference in excess of standard permit condition limits or that would be considered Substantial or Undue Interference under OAR 690-008-0001(8). Results of the analytical model generally concur with reported drawdowns

for nearby pumping tests in the same alluvial unit, although the quality of these tests precluded their use to derive aquifer parameters.

Current, representative water level data is unavailable for the proposed aquifer. However, persistent, long-term declines do not appear likely in this aquifer given the relatively high anticipated recharge and the very efficient hydraulic connection with nearby rivers. Due to the lack of current, representative data, however, the conditions specified in B1(d)(i) and B2(c) are recommended for any permit issued pursuant to this application.

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**	☒	☐
2	**Alluvium**	☒	☐

Basis for aquifer confinement evaluation: Reported water levels in the proposed POA wells are approximately coincident with nearby surface water elevations, suggesting a fairly efficient connection with local surface water. However, this appears to be variable with distance from surface water, as some wells including the proposed POAs report static water levels rising above the elevation of the productive water-bearing zones. Fine-grained lower permeability horizons are reported above these zones and conceptually provide at least localized confinement, and based upon local well log data, also appear to extend below local surface water sources. Thus, the productive aquifer may best be described as leaky confined.

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[a]	Distance (ft)[b]	Hydraulically Connected? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	**1**	**Long Tom River**	**~260**	**263-255**	**~2,600**	☒	☐	☐	☐	☒
2	**1**	**Long Tom River**	**~260**	**263-255**	**~2,620**	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: Water level elevations in the proposed POA wells are approximately coincident with the surface water elevation of the Long Tom River. The unconfined nature of the aquifer suggests the hydraulic connection with the Long Tom River is likely very efficient.

[a] Surface water elevation within 1 mile of the proposed POA wells, estimated from LIDAR (WatershedSciences, 2009)

[b] Distance to nearest anticipated point of hydraulic connection

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

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**	☐	☐	**MF184A**	**1750**	☐	**2,540**	☐	**<25%**	☐
2	**1**	☐	☐	**MF184A**	**1750**	☐	**2,540**	☐	**<25%**	☐

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

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

Comments: This section does not apply.

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

Non-Distributed Wells Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
Distributed Wells Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
(A) = Total Interf.													
(B) = 80 % Nat. Q													
(C) = 1 % Nat. Q													
(D) = (A) > (C)		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
(E) = (A / B) x 100		%	%	%	%	%	%	%	%	%	%	%	%

(A) = total interference as CFS; (B) = WAB calculated natural flow at 80% exceed. as CFS; (C) = 1% of calculated natural flow at 80% exceed. as CFS; (D) = highlight the checkmark for each month where (A) is greater than (C); (E) = total interference divided by 80% flow as percentage.

Basis for impact evaluation:

C4b. **690-09-040 (5) (b) The potential to impair or detrimentally affect the public interest is to be determined by the Water Rights Section.**

C5. ☐ **If properly conditioned**, the surface water source(s) can be adequately protected from interference, and/or groundwater use under this permit can be regulated if it is found to substantially interfere with surface water:

i. ☐ The permit should contain condition #(s)_____;

ii. ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions:** The hydraulic connection between groundwater and surface water appears to be fairly efficient locally, but the distance between the POA wells and these surface waters, in addition to the high storativity of the productive aquifer lessens this efficiency, thus delaying impacts as a result of groundwater pumping. Condition 7N is recommended to assess any changes to the groundwater system here and its relationship with local surface waters going forward.

References Used:

Jacob, C.E., 1944. Notes on determining permeability by pumping tests under water-table conditions, U.S. Geological Survey, 25p.

Theis, C.V., 1935. The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using groundwater storage, Am. Geophys. Union Trans., vol. 16, pp. 519-524.

Watershed Sciences, 2009, LIDAR remote sensing data collection, Department of Geology and Mineral Industries, Willamette Valley Phase I, Oregon: Portland, OR, December 21.

Woodward, D. G., M. W. Gannett, and J. J. Vaccaro. 1998. *Hydrogeologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington*. USGS Professional Paper 1424-B.

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:** _____

_____

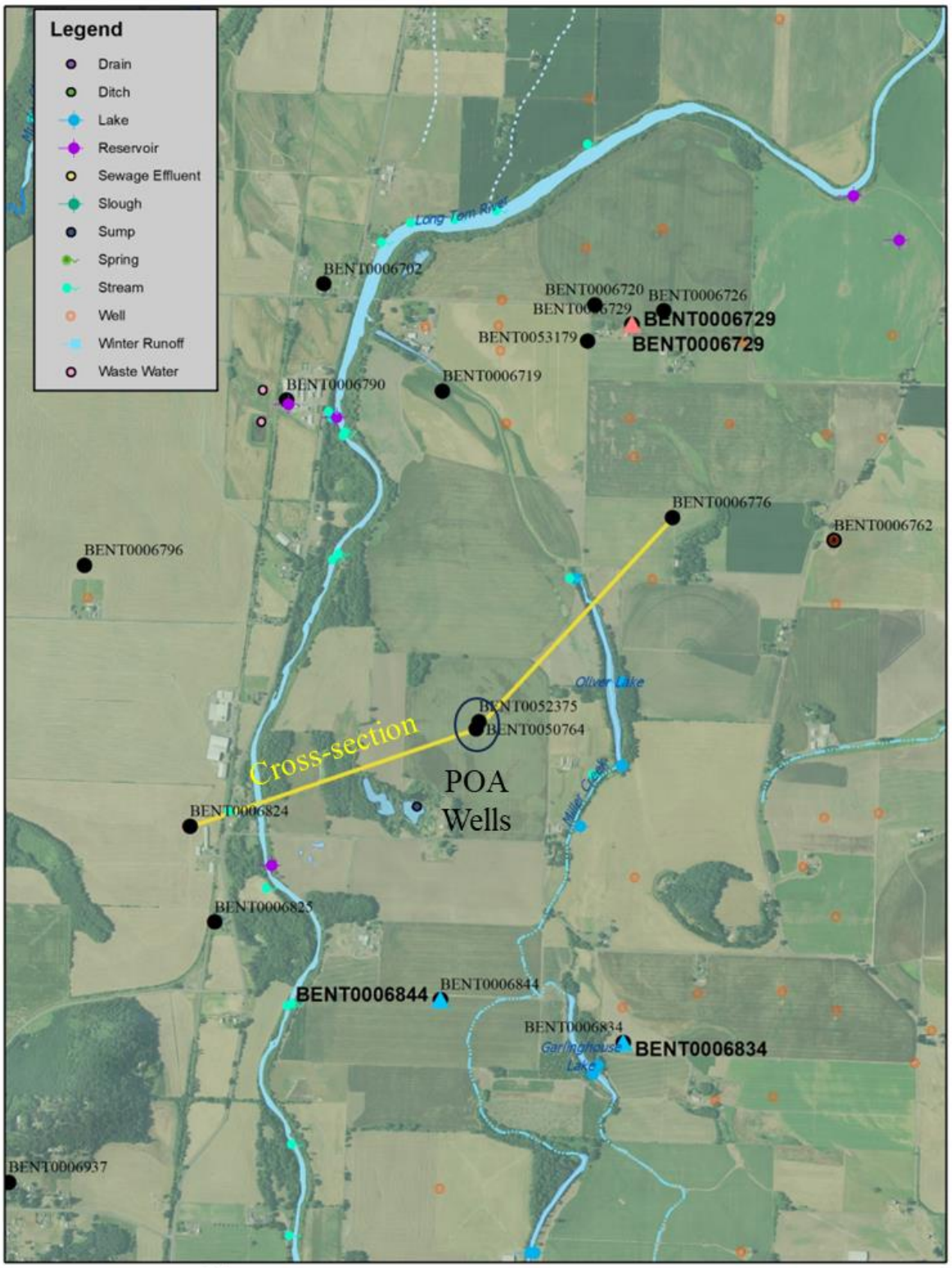
_____

_____

_____

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

Well Location Map



Water Availability Analysis

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

Watershed ID #: 30200321 Basin: WILLAMETTE Exceedance Level: 80

Time: 9:50 AM Date: 10/10/2023

Monthly values are in cfs.

Storage is the annual amount at 50% exceedance in ac-ft.

Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	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	666.00	2,600.00	0.00	1,750.00	854.00
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	270.00	2,590.00	0.00	1,750.00	840.00
NOV	4,170.00	355.00	3,810.00	0.00	1,750.00	2,060.00
DEC	8,150.00	381.00	7,770.00	0.00	1,750.00	6,020.00
ANN	7,460,000	1,240,000	6,230,000	0	1,270,000	4,960,000

Cross-section