# **Groundwater Application Review Summary Form**

Application # G- <u>18912</u>

GW Reviewer Phil Marcy Date Review Completed: 04/03/2020

## 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		<u>April 3, 2020</u>
то:	Application G- <u>18912</u>	_
FROM:	GW: <u>Phil Marcy</u>	
	(Reviewer's Name)	

# SUBJECT: Scenic Waterway Interference Evaluation

	YES	The source of appropriation is hydraulically connected to a State Scenic
$\boxtimes$	NO	Waterway or its tributaries

- 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

PUBL	IC INTE	RES	T REVIEV	W FOR GF	ROUND	WATER	APPL	[CA	TIONS					
TO: FROM			r Rights Se ndwater Se	ction ction		Phillip	I. Marcy	7	Date	04/0	3/2020			
						Revie	wer's Nam	ne						
SUBJE		Аррп	cation G-	8912		Sup	ersedes	rev	iew of		D	ate of Revi	ew(s)	
PURLI	C INTE	REST	r presun	1PTION; (	ROUND	WATEE								
OAR 69 welfare, to detern the press	<b>90-310-13</b> <i>safety and</i> nine whet umption cr	0 (1) 7 d healt her the riteria.	The Departm th as describ e presumptio . <b>This revie</b>	bent shall pre bed in ORS 5 on is establis w is based u	esume that 37.525. De hed. OAR pon availa	<i>a proposet</i> epartment 690-310-1 <b>ble inform</b>	d ground staff rev 40 allov nation a	iew g vs the and a	er use will en groundwater e proposed us agency polici	applic se be r <b>ies in</b>	ations un modified o place at t	der OAR or conditi he time o	690-310 oned to r of evalua	-140 neet tion.
A. <u>GE</u>	NERAL I	INFO	RMATIO	<u>N</u> : App	olicant's Na	ame:	Gold Da	d In	vestment, Ll	LC	Co	ounty: <u>(</u>	Clackam	as
A1.	Applican	t(s) se		8 cfs from					Willamette					Basin,
A2.	Proposed	use <u>N</u>	Jursery (7.4	acres) and C	ommercial	Seaso	onality:	Yea	ar-round					
A3.	Well and	aquife	er data <b>(atta</b>	ch and num	ber logs fo	or existing	wells;	marl	k proposed v	vells a	is such ur	nder logi	<b>d)</b> :	
Well	Logid	l	Applicant' Well #	s Propose	d Aquifer*	Propo Rate(			Location (T/R-S QQ-Q	))		n, metes a I, 1200' E i		
1	PROP		1		uvium	0.20	8		3S/2E-30 SE-S	E	550'N	N, 1175'W	fr SE cor S	30
23	PROP		2	All	uvium	0.20	8		3S/2E-30 SW-S	SE	600'N	N, 1465'W	fr SE cor S	30
	ım, CRB, B	edrock	5			1								
	Well	Firs	st SWL	SWL	Well	Seal	Casi	ng	Liner	Perf	forations	Well	Draw	Test
Well	Elev ft msl	Wate ft bl	er ft ble	Date	Depth (ft)	Interval (ft)	Interv (ft)		Intervals (ft)	10000	Screens (ft)	Yield	Down	Туре
1	339	NA	NA	NA	~250	0-200	0-20		Unknown	20	00-250	(gpm) NA	(ft) NA	NA
2	341	NA	NA	NA	~250	0-200	0-20	0	Unknown	20	00-250	NA	NA	NA
Use data	from applic	cation 1	for proposed	wells.										
A4.	Commen depths be 37.0 AF/y	tween	he applicant 200 and 25	proposes to 0 feet below	construct t land surfa	wo POA w ce. Water	vells to is to be i	produ used	uce groundwa on a year-rou	ater froud ba	om the Tr sis, with	outdale F a total ex	Formation pected du	<u>n at</u> ity of
A5. 🛛			he <u>Willame</u>						es relative to		-			
	(Not all b Comment	asin r ts: <u>Pr</u>	ules contain oposed well	such provisi locations are	ons.) e outside of	f ¼ mile fr	om near	by si	] are, or ⊠ urface water 0-502-0240)	source	es, and wi	ll be cons	structed t	
A6. 🗌	Name of	admin	istrative are	a: ,					s) an aquifer					iction.

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

- B1. **Based upon available data**, I have determined that <u>groundwater</u>\* 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 years of measurements); "medium water-use reporting";
    - ii.  $\Box$  The permit should be conditioned as indicated in item 2 below.
    - iii.  $\Box$  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:** Based upon available data, there is not sufficient evidence that groundwater is overappropriated. The nearest observation wells are located more than one mile from proposed POA locations, and do not display significant declines. There is little development within one mile of the proposed POAs, and given this distance and the relatively low pumping rate, interference with nearby senior rights is unlikely.

Based on nearby water well reports, the proposed POA are anticipated to produce water from thin beds of water-bearing sand and possibly some gravel between 200 to 250 ft below land surface (bls). Most nearby water well reports indicate finegrained sediments overlying observed water-bearing zones. Trimble (1963) and Hampton (1972) have mapped the Tertiary (Neogene) sediments in this area as part of the Troutdale Formation (Fmn); however, Leonard and Collins (1983) mapped the area of interest as part of the undifferentiated Troutdale Fmn and Sandy River Mudstone, the latter of which they describe as "500 to 700 ft of mostly dark, thin-bedded siltstone and claystone" that locally "contains thin beds of sandstone or conglomerate that yield a few to about 50 gal/min to wells that are a few hundred feet deep[.]" Hydrostratigraphically, the predominantly fine-grained sediments in this area have been assigned to the Willamette confining unit of Woodward et al. (1998), estimated at greater than 800 ft thick in the area of interest. Although Leonard and Collins (1983) mapped a narrow lobe of Boring Lava at land surface in this area, based on nearby well logs, it appears that any lava near this location is thin and has been very deeply weathered.

# 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	Troutdale Fmn./Sandy River Mudston	ie	$\boxtimes$	
2	Troutdale Fmn./Sandy River Mudston	ie	$\boxtimes$	

**Basis for aquifer confinement evaluation:** <u>Reported static water levels from completed wells typically rise above the elevations of productive zones within the local aquifer system, indicating confined conditions.</u>

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 <sup>1</sup>/<sub>4</sub> 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)	1	Conne	llically cted? ASSUMED	Potential for Subst. Interfer. Assumed? YES NO	
1	1	Parrott Creek	~160*	125-	1430					$\boxtimes$
				410						
2	1	Parrott Creek	~160*	125-	1420	$\boxtimes$				$\boxtimes$
				410						
1	2	Unnamed Trib to South	~160*	125-	1330					$\square$
				383						
2	2	Unnamed trib to South	~160*	125- 383	1380					$\boxtimes$

#### Basis for aquifer hydraulic connection evaluation:

\* Water level elevations for proposed wells based upon similarly constructed wells nearby.

Groundwater elevations from wells producing from the target aquifer fall easily within the range of surface water elevations within one mile of the proposed POA locations. According to our conceptual model, hydraulic connection is facilitated by stream incision of productive horizons within the Troutdale Formation, such as sands and gravels, which contribute to local surface water flow.

Water Availability Basin the well(s) are located within: <u>WILLAMETTE R> COLUMBIA R- AT MOUTH</u>

C3a. **690-09-040** (4): Evaluation of stream impacts for <u>each well</u> 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 (2) 30 days (%)	Potential for Subst. Interfer. Assumed?
1	1			NA	NA		4890		<25%	
2	1			NA	NA		4890		<25%	
1	2			NA	NA		4890		<25%	
2	2			NA	NA		4890		<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.

e rui														
		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:** Due to low hydraulic conductivity, and the deposition of fine-grained streambed sediments, the portion of groundwater pumped at the proposed POA locations after 30 days is expected to be much less than 25%. Analytical modeling of potential stream impacts was performed using local pump test values, calculated to be in the range of 50-150 ft<sup>2</sup>/day, and assuming the shortest distance between POA locations and surface waters, as to estimate the likely maximum impact to the stream.

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-Di	istributed	Wells											
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	9
	) as CFS												
Interfere	ence CFS												
Distrib	uted Well	6		Ne de la Calenda da							and the second		edigineske)
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	9
Well Q	as CFS												
Interfere	ence CFS												
		%	%	%	%	%	%	%	%	%	%	%	9
Well Q	) as CFS												
Interfere	ence CFS												
		%	%	%	%	%	%	%	%	%	%	%	9
	as CFS												
Interfere	ence CFS												
		%	%	%	%	%	%	%	%	%	%	%	9
	as CFS												
Interfere	ence CFS												
		%	%	%	%	%	%	%	%	%	%	%	9
	as CFS												
Interfere	ence CFS												
		%	%	%	%	%	%	%	%	%	%	%	9
	as CFS												
Interfere	ence CFS										4		
$(\mathbf{A}) = \mathbf{To}$	tal Interf.												
(B) = 80	% Nat. Q												
(C) = 1	% Nat. Q											_	~
(D) = (	A) > (C)	$\checkmark$	~	$\checkmark$	$\checkmark$	1	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
	(A) > (C) (B) x 100	%	%	%	%	%	%	°⁄0	%	°⁄0	%	%	%
$(\mathbf{L}) = (\mathbf{A})$	B) X 100	70	70	70	70	70	70	70	70	70	70	70	%

Version: 05/07/2018

(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 im	pact eval	uation: <u>This s</u>	ection does not	apply.						
b.	690-09-040	) (5) (b)	The potential	to impair or d	etrimenta	lly affect t	he public	interest	s to be de	termined b	y the Water
	<b>Rights</b> S		-	-							
5. 🗆	If properly	y conditio	oned, the surfac	e water source	(s) can be	adequately	protected	from inte	rference, a	nd/or groun	idwater use
			n be regulated if							0	
	i. 🗆		mit should cont			-					
											,
	ii. 🗌	The per	mit should conta	ain special con-	dition(s) a	s indicated	in "Rema	rks" belov	v;		

#### C6. SW / GW Remarks and Conditions: <u>Condition 7C is recommended above to establish a period of record during the onset of</u> use to assess the impacts of increased groundwater pumping in the local aquifer system.

**References Used:** 

Application File: G-18912

Application Review for G-18749

Pump Test Evaluations for: CLAC 12181, CLAC 12188, CLAC 16144

- Gannett, M.W. and Caldwell, R., 1998, Geologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-A, 32 p.
- Hunt, B., 2003, Unsteady stream depletion when pumping from semiconfined aquifer: Journal of Hydrologic Engineering, January/February, 2003.
- Leonard, A.R., and Collins, C.A., 1983, Ground water in the northern part of Clackamas County, Oregon: Oregon Water Resources Department Ground Water Report 29. 85 p.
- McFarland, W.D., and Morgan, D.S., 1996, Description of the Ground-Water Flow System in the Portland Basin, Oregon and Washington: U.S. Geological Survey Water Supply Paper 2470-A, 58 p.

Trimble, D.E., 1963, Geology of Portland, Oregon, and adjacent areas: U.S. Geological Survey Bulletin 1119, 119 p.

Woodward, D.G., Gannett, M.W., and Vaccaro, J.J., 1998, Hydrogeologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-B, 82 p.

# D. WELL CONSTRUCTION, OAR 690-200

	WELL does not appear to meet current well construction standards based upon:
a. L	review of the well log;
b. [	field inspection by
c. [	report of CWRE
d. [	other: (specify)
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.

## Water Availability Tables

		DETAILED REPORT	ON THE WATER AVAILA	BILITY CALCULATIO	N	
Watershed ID #: Time: 10:39 AM	181	WILLAM	ETTE R > COLUMBIA R Basin: WILLAMET			edance Level: 80 Date: 04/03/2020
Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available
		Storage is	Monthly values a the annual amount at	re in cfs. 50% exceedance i	n ac-ft.	
FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC	27,500.00 30,000.00 28,500.00 25,400.00 20,700.00 11,000.00 6,280.00 4,890.00 4,930.00 5,990.00 12,700.00 24,800.00 9,700.000	2,700.00 7,970.00 7,550.00 7,190.00 4,430.00 2,360.00 2,310.00 2,070.00 1,690.00 733.00 1,040.00 1,360.00 2,480,000	24,800.00 22,000.00 21,000.00 18,200.00 16,300.00 8,640.00 3,970.00 2,820.00 3,240.00 5,260.00 11,700.00 23,400.00 17,300.000		1,500.00 1,500.00 1,500.00 1,500.00 1,500.00 1,500.00 1,500.00 1,500.00 1,500.00 1,500.00 1,500.00 1,500.00 1,500.00 1,500.00	23,300.00 20,500.00 19,500.00 16,700.00 14,800.00 7,140.00 2,470.00 1,320.00 1,740.00 3,760.00 10,200.00 21,900.00 16,200.000



### Water-Level Trends in Nearby Wells



Water level data from nearby wells display reasonably stable water levels. Color symbols are shown on location map.



Water-bearing zones accessed by most nearby wells, and the proposed POA wells, are at elevations coincident with the range of elevations of nearby incised drainages. Production from these wells in the Lower Troutdale/Sandy River Mudstone sequence is limited to fairly thin horizons of sands and gravels within thick sequences of mudstone.