

# Groundwater Application Review Summary Form

Application # G- 18589

GW Reviewer DENNIS ORLOWSKI

Date Review Completed: 7/30/2018

## 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).*

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 7/30/2018  
 FROM: Groundwater Section Dennis Orłowski  
 Reviewer's Name  
 SUBJECT: Application G- 18589 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: Will Garrison – G-Can of Oregon, LLC  
 County: Clackamas

- A1. Applicant(s) seek(s) 0.0223 cfs from one well(s) in the Willamette Basin,  
Willamette subbasin
- A2. Proposed use Nursery, Pond Maintenance 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	Proposed	Well 1	Alluvium (see comment)	0.0223	T4S/R2E-5 NW-NE	210' S, 820' E fr N ¼ cor S 5

\* 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	580	TBD	TBD	TBD	184	Unk	Unk	Unk	Unk	TBD	TBD	TBD

Use data from application for proposed wells.

- A4. **Comments:** The proposed POA/POU location is approximately five miles due east of Canby, Oregon.  
The application does not provide planned well construction details other than a total depth of 184 feet and a proposed source aquifer of "clay tan w/sand tan, packed fine." Existing wells in this area of similar depth obtain groundwater from what is generally considered an alluvial aquifer, which was assumed for this review (see discussion in Section B3).
- 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: The proposed POA will produce groundwater from a confined aquifer and therefore the pertinent Willamette Basin rules (OAR 690-502-0240) do not apply.
- 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 (annual measurement condition) and 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 200 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 POA is located near the southwestern edge of the upland plateau located east of Canby and south of Oregon City that divides the Portland Basin and the central Willamette Valley. In this upland area the Boring Lava rests unconformably on the eroded Pliocene Troutdale Formation, and is locally overlain by Quaternary gravel and mudflow deposits. The Troutdale Formation in this area is typically comprised of low permeability silts and clays, with some thin interbeds of water-bearing sand and fine gravel that provide local sources of groundwater (Gannett and Caldwell, 1998; Woodward and others, 1998; Conlon and others, 2005). Local well logs also indicate occasional interfingering of Boring Lava basalt with sedimentary deposits (typically clay and silt). Other nearby wells obtain groundwater from only the Boring Lava or the Troutdale Formation, or possibly some combination of both.

Groundwater development in this area is limited, and thus groundwater level measurement data are likewise sparse. Furthermore, wells relatively close to each other but completed in different aquifers (e.g., Troutdale, Boring Lava) typically show static heads that vary greatly, on the order of up to several hundred feet (see hydrograph ). Water-bearing zones in each of these aquifers do not appear to be laterally extensive, due largely to the heavily dissected topography in this portion of the upland plateau.

Available groundwater level data for most area wells completed in both alluvial and Boring Lava basalt aquifers have been generally stable for the past 10-plus years. One exception is CLAC 57020, located about 2 miles east-northeast of the proposed POA and with a similar completion depth/aquifer type, that experienced more than a 22-ft decline from 2001 to 2008. Thus, despite the low requested allocation for this application and general groundwater level stability in the area, but because of the limited extent and low storage capacity of these aquifers, the following permit conditions are recommended to protect the resource:

- 7N: annual measurement condition
- Medium water-use reporting

**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 (Troutdale Fm/Boring Lava)	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Basis for aquifer confinement evaluation:** Well logs for nearby wells show static water levels above the principal water-bearing zone(s), typically tens of feet higher. Furthermore, the water-bearing units near the proposed POA (clayey sand) are overlain by almost 200 feet of low-permeability silt and clay deposits. These facts indicate that the proposed POA obtains groundwater from a confined aquifer.

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	Unnamed tributary to Parrott Creek (N)	470-480	200-490	900	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	Unnamed tributary to Parrott Creek (SW)	470-480	300-400	5000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Basis for aquifer hydraulic connection evaluation:** Groundwater levels reported from nearby wells are highly variable, largely dependent on the total depth/elevation of well completion and the types of water-bearing host rock/sediment open to a given well (e.g., only sedimentary aquifer versus only Boring Lava aquifer versus a possible combination of the two). The attached hydrograph shows groundwater elevation data from three nearby wells: CLAC 13583, CLAC 13612, and CLAC 13589. The completion depths/elevations vary significantly for these three wells, which largely accounts for the vastly different range of groundwater elevations. Because the completion depth and elevation for CLAC 13612 is most similar to the proposed total depth for Well 1, its reported groundwater elevation was used to estimate a range for proposed Well 1.

The estimated range of groundwater elevations at proposed Well 1 is coincident with or just above surface water elevations for SW1 and SW2 within approximately one mile of Well 1. This relationship suggests a likely hydraulic connection with both SW1 and SW2.

**Water Availability Basin the well(s) are located within:** WID 181: Willamette River > Columbia River – at mouth

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 source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that surface water source, and 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 checked="" type="checkbox"/>	<input type="checkbox"/>	MF181A	1500	<input type="checkbox"/>	4890	<input type="checkbox"/>	<<25% (see comment)	<input checked="" type="checkbox"/>
1	2	<input type="checkbox"/>	<input type="checkbox"/>	MF181A	1500	<input type="checkbox"/>	4890	<input type="checkbox"/>	<<25% (see comment)	<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"/>

**Comments:** C3a: There are no readily-available analytical groundwater models that are applicable for this mixed aquifer system. However, both SW1 and SW2 are located within the Willamette River WAB. Because the requested pumping allocation is extremely low relative to Willamette River flows, it was concluded that potential stream interference at 30 days would be much less than 25%.

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													
(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:** Not applicable.

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:** **PSI with SW1 was concluded only because it is less than 1/4 mile from the proposed Well 1 location. However, the extremely low requested allocation (10 gpm, 0.0223 cfs) is unlikely to adversely impact flows in SW1.**

**References Used:**

Application files: G-18589, G-18399

Conlon, T.D., Wozniak, K.C., Woodcock, D., Herrera, N.B., Fisher, B.J., Morgan, D.S., Lee, K.K., and Hinkle, S.R., 2005, Ground-water hydrology of the Willamette Basin, Oregon: U.S. Geological Survey Scientific Investigations Report 2005-5168.

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.

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**

D1. Well #: \_\_\_\_\_ Logid: \_\_\_\_\_

D2. **THE WELL does not appear to meet current well construction standards based upon:**

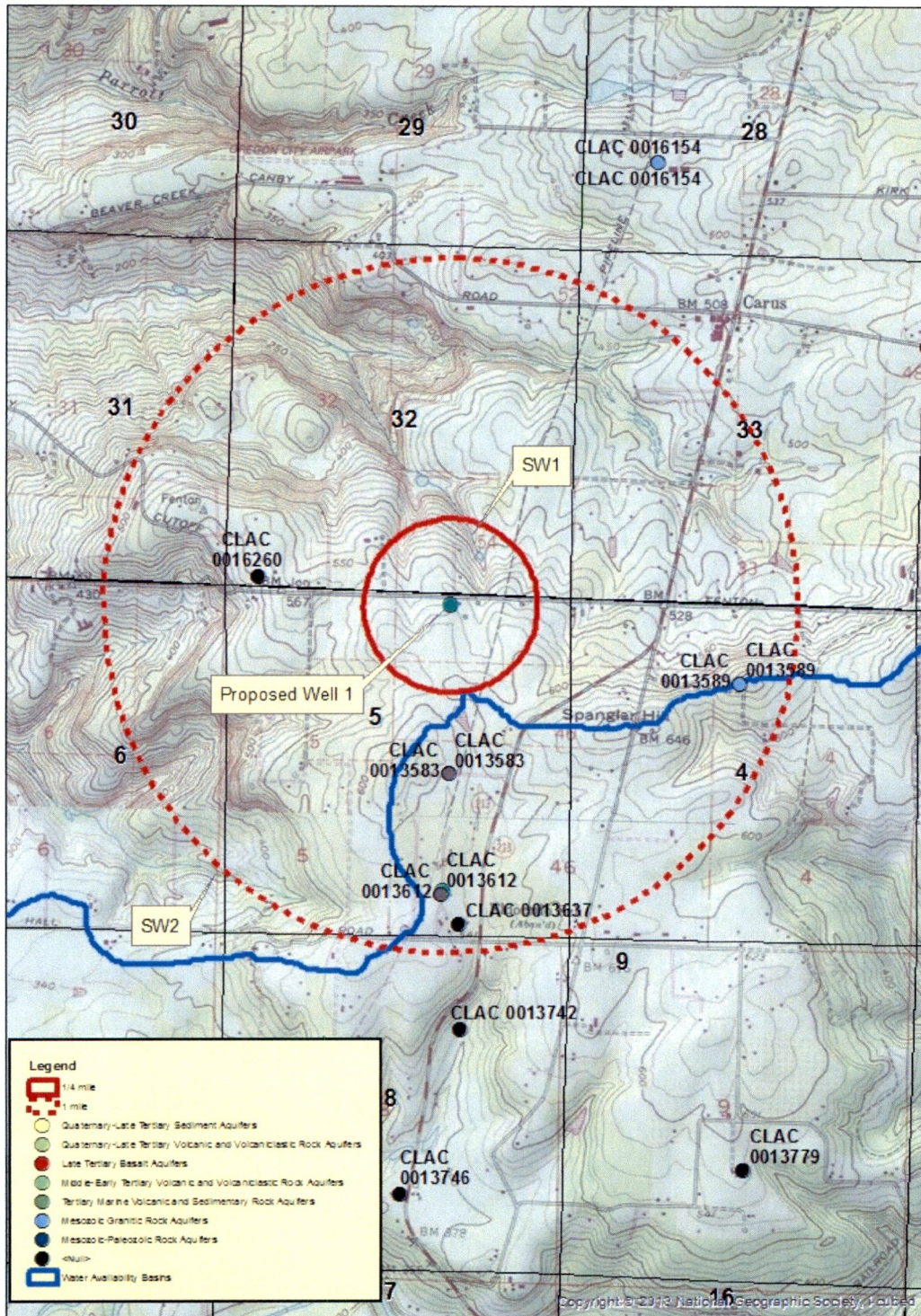
- a.  review of the well log;
- b.  field inspection by \_\_\_\_\_;
- c.  report of CWRE \_\_\_\_\_;
- d.  other: (specify) \_\_\_\_\_

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

# Application G-18589, Garrison - G-Can T4S, R2E, Section 5



Water Availability Table

Oregon Water Resources Department  
Water Availability Analysis

Main Help  
Return Contact Us

Water Availability Analysis  
Detailed Reports

WILLAMETTE R > COLUMBIA R - AT MOUTH  
WILLAMETTE BASIN

Watershed ID # 181 (Map)  
Date 7/30/2018

Water Availability as of 7/30/2018

Exceedance Level 80%  
Time 2:50 PM

Water Availability Calculation  
Water Rights  
Consumptive Uses and Storages  
Instream Flow Requirements  
Watershed Characteristics  
Reservations

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	27,500.00	2,790.00	24,700.00	0.00	1,500.00	23,200.00
FEB	30,000.00	8,060.00	21,900.00	0.00	1,500.00	20,400.00
MAR	28,500.00	7,610.00	20,900.00	0.00	1,500.00	19,400.00
APR	25,400.00	7,220.00	18,200.00	0.00	1,500.00	16,700.00
MAY	20,700.00	4,440.00	16,300.00	0.00	1,500.00	14,800.00
JUN	11,000.00	2,340.00	8,660.00	0.00	1,500.00	7,160.00
JUL	6,200.00	2,290.00	3,990.00	0.00	1,500.00	2,490.00
AUG	4,690.00	2,040.00	2,650.00	0.00	1,500.00	1,350.00
SEP	4,630.00	1,670.00	3,260.00	0.00	1,500.00	1,760.00
OCT	5,990.00	714.00	5,280.00	0.00	1,500.00	3,780.00
NOV	12,700.00	1,050.00	11,700.00	0.00	1,500.00	10,200.00
DEC	24,800.00	1,440.00	23,400.00	0.00	1,500.00	21,900.00
ANN	19,700,000.00	2,490,000.00	17,200,000.00	0.00	1,090,000.00	16,200,000.00

Water-Level Trends in Nearby Wells

