

Water Right Conditions
Tracking Slip

Groundwater/Hydrology Section

FILE # # 17933

ROUTED TO: Kim French

TOWNSHIP/

RANGE-SECTION: T1S/R4E-S22

CONDITIONS ATTACHED?: ☒ yes ☐ no

REMARKS OR FURTHER INSTRUCTIONS:

Reviewer: Jen Woody

Jan. 13, 2015

[illegible]

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 01/13/2015

FROM: Groundwater Section Jen Woody
Reviewer's Name

SUBJECT: Application G- 17933 Supersedes review of n/a
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: Shawn Ueda County: Multnomah

A1. Applicant(s) seek(s) 1.12 cfs from 1 well(s) in the Sandy Basin,
Beaver Creek subbasin Quad Map: Sandy

A2. Proposed use Nursery 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	PROP 999999	Well 1	Troutdale Formation	1.11	T1S/R4E-S22 SE ¼ NW ¼	2030' S, 2455' E fr NW cor S 22
2						
3						
4						
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	705	225	-350	3/2014	500	0-250	0-250		none	500		

Use data from application for proposed wells.

A4. **Comments:** The application describes the seal interval and the screened interval as the same: 350-450' bls, with casing from 1-250'. That suggests sealing the screens, and not casing from 250 to 350 where the screens begin. For the purpose of this review, casing and seal are assumed from 0-250 feet below land surface (bls), and open hole or screens are assumed below 250 feet. Maximum estimates for well depth and pumping rate are also considered. Water level is based on MULT 2594's measurement from March, 2014. MULT 2594 is similar in depth and construction to proposed well. To meet current well construction standards, MULT 2594 was reconstructed to seal off the upper water bearing zone (see MULT 60890). Similar conditions may be encountered at the proposed well, in which case the seal must be placed to prevent commingling of distinct water-bearing zones within the Troutdale Formation.

A5. ☒ **Provisions of the Sandy** 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: 690-503-0050 Groundwater Classification: the groundwater resources of the Sandy Basin are classified for commercial, group domestic, industrial, irrigation, mining, municipal, and statutorily exempt groundwater uses. Groundwater hydraulically connected to, and within 1/4 mile of, surface water shall be classified for the same uses as the surface water source and for uses exempted by ORS 537.545. The proposed well is greater than 1/4 mile from the Sandy River, so this feature of the Basin rules is not activated.

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) 7G, 7J, 7F _____;
- 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 _____ **a single aquifer within the Troutdale Formation** _____ 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:**

B1a. With the exception of MULT 3476, nearby groundwater levels are relatively stable (see attached hydrograph). The proposed POA is located a little over 1/2 mile from the northern boundary of the Sandy-Boring Groundwater Limited Area. There is not a significant hydrogeologic boundary to indicate the proposed use is from a different aquifer than that utilized in the nearby limited area. Therefore, it is reasonable to assume the aquifer is similarly sensitive to overdraft. Water use metering and groundwater level monitoring and reporting should be required for any new groundwater permit.

B1c. Well logs report yields ranging from 0 to 470 gpm in T1S/R4E Sections 16, 21, 22, 28, 27, 26; median yield is 25 gpm.

B2c. There are at least two water bearing zones within the Troutdale Formation in this area. The attached hydrograph shows a group of nearby wells with groundwater level elevation around 350 feet above mean sea level (amsl) and a second, deeper group, with water levels around 290 feet amsl. Based on the proposed location and well depth, this well is expected to access the upper water bearing zone and have a static water level around 350' amsl. To meet current well construction standards, and to prevent head loss through commingling, the well should be completed into a single aquifer within the Troutdale Formation.

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 Formation	☒	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: Static water levels in nearby wells rise above the water-bearing zone, indicating 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	Sandy River	350	110-150	2600	☒	☐	☐	☐	☒
1	2	Beaver Creek	350	350	17,000	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: This review assumes that well casing and seal extend from 0-250 feet bls, and that the water level will be at about 350 feet amsl. The cone of depression will expand both to the west toward Beaver Creek and to the east toward the Sandy river. As topography slopes to the northwest, and creeks incise into the Troutdale formation, groundwater will eventually discharge to surface water. Groundwater is expected to be below Beaver Creek within a three mile radius of the well and therefore does not trigger PSI. To the east, springs about ½ mile from the proposed well represent a groundwater discharge point located upslope from the Sandy River.

The open interval of the well will be coincident with a spring mapped by Foxworthy et al. (1967) in T1S/R4W Section 22 NE ¼ SE ¼, and a reservoir located 1320 feet NE of the proposed POA. The bottom of the well will be coincident with a permitted spring located in T1S/R4W Section 22 NE ¼ NE ¼. This indicates that groundwater discharges to the Sandy River from the Troutdale Formation. Pumping the proposed well will capture some water that would otherwise discharge to the Sandy River.

Water Availability Basin the well(s) are located within: The well is located on the boundary of 2 WABs. Watershed ID# 71545: Beaver Cr>Sandy R – at Mouth, Watershed ID#72145: Sandy R> Columbia R – AB Unn Stream.

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	☐	☐	IS72145 A	550	☐	493	☐	*	☐
		☐	☐			☐		☐		☐

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: Pumping will affect both the Sandy River and Beaver Creek, but stream depletion is not quantifiable with the available models within 30 days. The bottom of the proposed well is above the Sandy River, so the Hunt and Jenkins stream depletion models are not applicable. Based on groundwater elevation, groundwater discharge locations to Beaver Creek are greater than one mile away. As long as the well is cased and sealed to 250' as proposed, it should access only the deep Troutdale aquifer. PSI is not identified. A more shallow completion will increase interference locally with reservoirs, springs and Beaver Creek.

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.

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(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: See comments for C3b.

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** _____

As long as the well is cased and sealed to 250' as proposed, it should access only the deep Troutdale aquifer. PSI is not identified

References Used:

Foxworthy, B.L.; Hogenson, G.M.; Hampton, E.R; 1964; Records of Wells and Springs, Water Levels and Chemical Quality of Ground Water in the East Portland Area, Oregon; State of Oregon Groundwater Report Number 3.

Trimble, Donald E.; 1963; Geology of Portland, Oregon, and adjacent areas; U.S. Geological Survey Bulletin 1119.

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.**

Water Availability Analysis Detailed Reports

BEAVER CR > SANDY R - AT MOUTH SANDY BASIN

Water Availability as of 12/30/2014

Watershed ID #: 71545 ([Map](#))

Exceedance Level:

Date: 12/30/2014

Time: 12:40 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	36.90	0.52	36.40	0.00	14.00	22.40
FEB	39.80	0.48	39.30	0.00	14.00	25.30
MAR	37.50	0.06	37.40	0.00	14.00	23.40
APR	32.50	0.11	32.40	0.00	14.00	18.40
MAY	16.70	0.73	16.00	0.00	14.00	1.97
JUN	13.40	1.13	12.30	0.00	3.00	9.27
JUL	9.58	2.10	7.48	0.00	1.00	6.48
AUG	7.19	1.68	5.51	0.00	1.00	4.51
SEP	7.07	0.60	6.47	0.00	1.00	5.47
OCT	9.75	0.11	9.64	0.00	1.00	8.64
NOV	20.10	0.21	19.90	0.00	14.00	5.89
DEC	36.40	0.53	35.90	0.00	14.00	21.90
ANN	21,600.00	502.00	21,100.00	0.00	6,320.00	14,800.00

Water Availability Analysis Detailed Reports

SANDY R > COLUMBIA R - AB UNN STR SANDY BASIN

Water Availability as of 12/30/2014

Watershed ID #: 72145 ([Map](#))

Exceedance Level:

Date: 12/30/2014

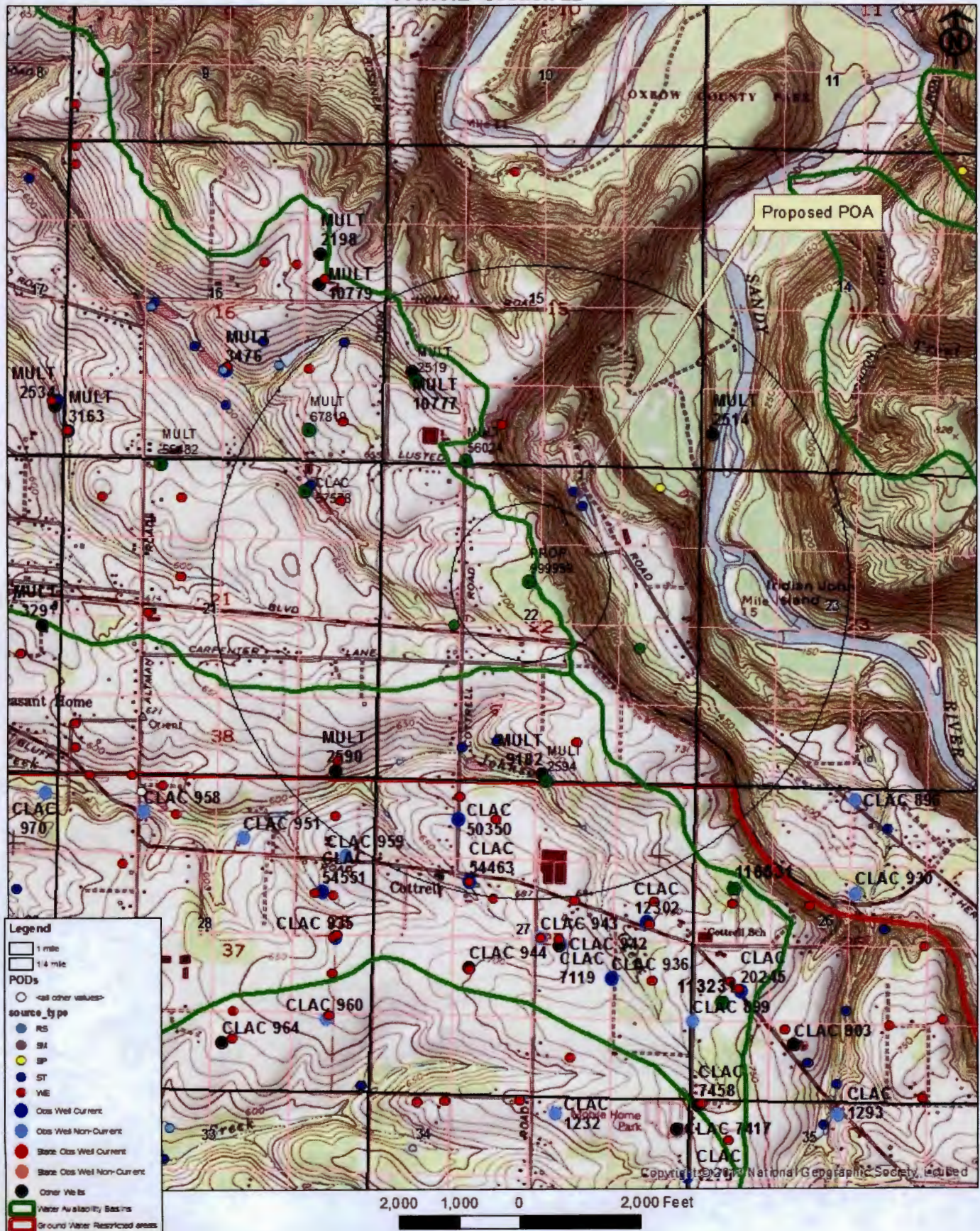
Time: 12:42 PM

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	1,760.00	1,100.00	660.00	0.00	1,900.00	-1,240.00
FEB	1,980.00	1,080.00	900.00	0.00	1,900.00	-1,000.00
MAR	1,940.00	989.00	951.00	0.00	2,000.00	-1,050.00
APR	2,140.00	1,150.00	990.00	0.00	2,000.00	-1,010.00
MAY	1,920.00	1,010.00	911.00	0.00	2,000.00	-1,090.00
JUN	1,170.00	529.00	641.00	0.00	1,700.00	-1,060.00
JUL	712.00	263.00	449.00	0.00	800.00	-351.00
AUG	528.00	179.00	349.00	0.00	550.00	-201.00
SEP	493.00	228.00	265.00	0.00	550.00	-285.00
OCT	547.00	356.00	191.00	0.00	700.00	-509.00
NOV	1,130.00	975.00	155.00	0.00	1,700.00	-1,550.00
DEC	1,830.00	1,130.00	700.00	0.00	1,700.00	-1,000.00
ANN	1,480,000.00	541,000.00	938,000.00	0.00	1,050,000.00	31,000.00

G-17933 Ueda
T1S/R4E- Section 22



Water Level Data

