

Water Right Conditions
Tracking Slip

Groundwater/Hydrology Section

FILE # # G-17609

ROUTED TO: Water Rights

TOWNSHIP/

RANGE-SECTION: Various

CONDITIONS ATTACHED?: yes no

REMARKS OR FURTHER INSTRUCTIONS:

Reviewer: Karl Wozniak

PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO: Water Rights Section Date November 13, 2013

FROM: Ground Water/Hydrology Section Karl Wozniak
Reviewer's Name

SUBJECT: Application G- 17609 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 ground water 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: Greater Albany Public School Dist County: Benton & Linn

- A1. Applicant(s) seek(s) 1.69 cfs from 10 well(s) in the Willamette Basin,
 _____ subbasin Quad Map: Albany & Tangent
- A2. Proposed use Irrigation Seasonality: March 1 – October 31
- 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	1	Alluvial aquifer	0.260	11S/03W-03 NE/NW	790' S, 390' W fr N1/4 cor S 3
2	No Log	2	Alluvial aquifer	0.367	10S/03W-31 SW/SW	810' N, 580' E fr SW cor S 31
3	Proposed	3	Alluvial aquifer	0.367	10S/04W-36 SE/SE	1030' N, 310' W fr SE cor S 36
4	Proposed	4	Alluvial aquifer	0.318	11S/03W-17 SW/SE	140' N, 510' W fr SE cor SW/SE S 17
5	LINN 8307	5	Alluvial aquifer (Low-yield bedrock)	0.568	11S/04W-13 NW/NE	420' S, 410' W fr NE cor NW/NE S 13
6	Proposed	6	Alluvial aquifer	0.568	11S/04W-12 SW/SE	315' N, 420' W fr SE cor SW/SE S 12
7	Proposed	7	Alluvial aquifer	0.568	11S/04W-13NW/NE	10' S, 930' W fr NE cor, NW/NE, S 13
8	Proposed	8	Alluvial aquifer	0.568	11S/04W-13NW/NE	570' N, 730' E fr SW cor, NW/NE, S 13
9	Proposed	9	Alluvial aquifer	0.084	11S/3W-7 SW/NW	645' N, 860' E fr W1/4 cor, S 7
10	Proposed	10	Alluvial aquifer	0.093	11S/3W-18 NE/SE	300' S, 800' w fr E1/4 cor S 18

* 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	225				80	18+	20					
2	200	?	?	?	?	?	?	?	?			
3	200				80	18+	20					
4	235				100	18+	20					
5	215	24	9	3/17/1988	215	18	0-186		174-184	75	32	B
6	215				50-100	18+	20					
7	215				50-100	18+	20					
8	215				50-100	18+	20					
9	215				60	18+	20					
10	225				60	18+	20					

Use data from application for proposed wells.

A4. **Comments:** The applicant does not have any construction information for existing Well 2. Well 5 is listed on the application as LINN 58865 (well tag L-96592) but this appears to be an alteration well log for LINN 8307. The legal location for Well 8 does not match the mapped location; therefore, the mapped location (~570 ft N, 130 ft E fr the SW cor of the NW/NE of sec. 13) was used in this review. A total of 1.69 cfs is applied for at 6 different school sites spread out over a 16 square mile area. Well 1 will serve a single site at 0.260 cfs. Wells 2 & 3 will serve a second site at a combined rate of 0.367 cfs. Well 4 will serve a third site at a rate of 0.318 cfs. Wells 5, 6, 7, & 8 will serve a fourth site at a total rate of 0.568 cfs. Well 9 will serve a fifth site at a rate of 0.084 cfs. Well 10 will serve a sixth site at 0.093 cfs. Well 5 (LINN 8307/58865) is currently completed in the low-yield bedrock aquifer.

A5. **Provisions of the Willamette** _____ Basin rules relative to the development, classification and/or management of ground water hydraulically connected to surface water are, or are not, activated by this application. (Not all basin rules contain such provisions.)
 Comments: All of the wells are greater than ¼ from a surface water source so the pertinent rules (OAR 690-502-0240) do not apply.

A6. Well(s) # _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
 Name of administrative area: _____
 Comments: _____

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

B1. Based upon available data, I have determined that ground water* 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 ground water 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 ground water 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 ground water resource; or
- d. will, if properly conditioned, avoid injury to existing ground water rights or to the ground water resource:
 - i. The permit should contain condition #(s) 7B _____;
 - 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 ground water production from no deeper than _____ ft. below land surface;
- b. Condition to allow ground water production from no shallower than _____ ft. below land surface;
- c. Condition to allow ground water production only from the _____ ground water 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 Ground Water 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. **Ground water availability remarks:** All 10 of the wells are located in areas underlain at shallow depths by a sand and gravel aquifer (the Willamette aquifer of Woodward and others, 1998). In the vicinity of wells 1, 2, and 3, the aquifer is unconfined and composed of Holocene floodplain or late Pleistocene stream terrace deposits. At the other well sites, the aquifer is composed of older Pleistocene gravels that are overlain by 10-20 feet of silt and clay (Willamette Silt) which partially confine the aquifer. The thickness of the sand and gravel aquifer varies considerably from well site to well site, ranging from about 20 feet thick near wells 2 and 3 to about 120-130 feet thick near wells 4 and 10. Clays or older bedrock underlie the sand and gravel aquifer. These underlying units (Willamette Confining Unit and Low-Yield Bedrock aquifer) generally only provide small amounts of water to wells.

Well 2 does not have an associated well log but is probably a relatively shallow well that produces from the sand and gravel aquifer. Well 5 (LINN 8307/58865) is completed in the low-yield bedrock aquifer although saturated sands and gravels were encountered between depths of 22-39 feet. There are no long-term observation wells in the area but the water supply in the sand and gravel aquifer is not likely to be under any excessive stress as all of the wells occur within the Albany city limits. The city obtains its drinking water from surface water supplies. A limited number of groundwater-irrigated lands are near some of the wells but most of these lands appear to have been subdivided and are unlikely to be actively irrigated with groundwater. These factors suggest that groundwater is not likely to be over appropriated in the area.

C. GROUND WATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040**C1. 690-09-040 (1):** Evaluation of aquifer confinement:

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
1-3	Sand & Gravel	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2-4	Sand & Gravel	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Low-yield bedrock	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7-10	Sand & Gravel	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: Nearby well logs and general information in USGS publications.

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	Willamette River	220	175	8550	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	1	Willamette River	180	175	4350	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	1	Willamette River	180	175	4400	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	2	Calapooia River	220	175	12500	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	2	Calapooia River	195	175	2900	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	2	Calapooia River	195	175	3050	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	2	Calapooia River	195	175	2500	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	2	Calapooia River	195	175	2150	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	1	Calapooia River	190	175	2400	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	2	Calapooia River	210	175	8500	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: Published water table maps indicate that groundwater flows toward, and discharges into, the Calapooia and Willamette Rivers.

Water Availability Basin the well(s) are located within: The wells fall into 3 different water availability basins. However, only wells 2, 3, 5, 6, 7, 8, and 9 are less than a mile from a stream: wells 2 & 3 are within a mile of the Willamette River and wells 5, 6, 7, 8, & 9 are within a mile of the Calapooia River. However, the latter set of wells are in closest proximity to the lower reaches of the Calapooia River which are at the same elevation as the Willamette River and are included in the associated Willamette River WAB. Therefore, pumping from these wells will deplete flow in the Willamette River and not the Calapooia River. For this reason, all of these wells are evaluated against the appropriate Willamette River WAB, namely, Willamette R > Columbia R – AB Periwinkle Cr at Gage 14174 (WAB 30200321).

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?
2	1	<input type="checkbox"/>	<input type="checkbox"/>		1750	<input type="checkbox"/>	2540	<input type="checkbox"/>	<25	<input type="checkbox"/>
3	1	<input type="checkbox"/>	<input type="checkbox"/>		1750	<input type="checkbox"/>	2540	<input type="checkbox"/>	<25	<input type="checkbox"/>
5	1	<input type="checkbox"/>	<input type="checkbox"/>		1750	<input type="checkbox"/>	2540	<input type="checkbox"/>	<25	<input type="checkbox"/>
6	1	<input type="checkbox"/>	<input type="checkbox"/>		1750	<input type="checkbox"/>	2540	<input type="checkbox"/>	<25	<input type="checkbox"/>
7	1	<input type="checkbox"/>	<input type="checkbox"/>		1750	<input type="checkbox"/>	2540	<input type="checkbox"/>	<25	<input type="checkbox"/>
8	1	<input type="checkbox"/>	<input type="checkbox"/>		1750	<input type="checkbox"/>	2540	<input type="checkbox"/>	<25	<input type="checkbox"/>
9	1	<input type="checkbox"/>	<input type="checkbox"/>		1750	<input type="checkbox"/>	2540	<input type="checkbox"/>	<25	<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: Interference after 30 days was not calculated with a model but modeling under similar circumstances suggests that interference is likely to be much less than 25% after 30 days for each well and its associated 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-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													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
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.

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: _____ Logid: _____

D2. **THE WELL does not 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:**

- a. constitutes a health threat under Division 200 rules;
- b. commingles water from more than one ground water reservoir;
- c. permits the loss of artesian head;
- d. permits the de-watering of one or more ground water reservoirs;
- e. other: (specify) _____

D4. **THE WELL construction deficiency is described as follows:** _____

- D5. **THE WELL**
- a. was, or was not constructed according to the standards in effect at the time of original construction or most recent modification.
 - b. I don't know if it met standards at the time of construction.

D6. **Route to the Enforcement Section.** I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Enforcement Section and the Ground Water Section.

THIS SECTION TO BE COMPLETED BY ENFORCEMENT PERSONNEL

D7. Well construction deficiency has been corrected by the following actions: _____

_____, 200_____
(Enforcement Section Signature)

D8. **Route to Water Rights Section (attach well reconstruction logs to this page).**

Water Availability Tables (80% Exceedance Level, All flows in cfs)**WILLAMETTE R > COLUMBIA R - AB PERIWINKLE CR AT GAGE 14174****WILLAMETTE BASIN**

Watershed ID	Month	Natural Stream Flow	Consumptive Use	Expected Stream Flow	Reserverd Stream Flow	Instream Requirement	Net Water Avail	Download Date
30200321	JAN	10100	1400	8700	0	1750	6950	11/7/2013
30200321	FEB	11600	4320	7280	0	1750	5530	11/7/2013
30200321	MAR	11000	4590	6410	0	1750	4660	11/7/2013
30200321	APR	9760	4290	5470	0	1750	3720	11/7/2013
30200321	MAY	8430	2580	5850	0	1750	4100	11/7/2013
30200321	JUN	5360	889	4470	0	1750	2720	11/7/2013
30200321	JUL	3270	695	2570	0	1750	825	11/7/2013
30200321	AUG	2560	634	1930	0	1750	176	11/7/2013
30200321	SEP	2540	551	1990	0	1750	239	11/7/2013
30200321	OCT	2860	303	2560	0	1750	807	11/7/2013
30200321	NOV	4170	387	3780	0	1750	2030	11/7/2013
30200321	DEC	8150	409	7740	0	1750	5990	11/7/2013
30200321	ANN	7460000	1260000	6200000	0	1270000	4940000	11/7/2013

Proposed Well Locations and Generalized Hydrogeologic Units G-17609, Greater Albany Public School District

