

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date August 22, 2016  
 FROM: Groundwater Section Aurora C Bouchier  
 SUBJECT: Application G- 18218 Reviewer's Name  
 Supersedes review of June 22, 2016 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: Clyde & Helen Kersting County: Clackamas

A1. Applicant(s) seek(s) 0.04 cfs from 1 well(s) in the Willamette Basin,  
Clackamas subbasin

A2. Proposed use nursery (3.0 acres) 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
+	PROPOSED	+	Alluvium	0.04	3S/3E-5 SE-SE	361' N, 124' W to SE cor S 5
1	PROPOSED	1	Alluvium	0.04	3S/3E-5 SE-SE	550' N, 600' W of SE 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	545		Est 150-200		Est 320							

Use data from application for proposed wells.

A4. **Comments:** The well is proposed. The well will be constructed to develop water from water-bearing zones within the Troutdale Formation. The application has a note saying they anticipate encountering water at ~230 feet in elevation based on well logs in the area. It is likely the driller meant 230 feet below land surface.

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 well will be constructed in a confined aquifer, so the pertinent basin rules do not apply (OAR 690-502-0240).

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) 7N \_\_\_\_\_;
  - 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 \_\_\_\_\_ 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 area in the vicinity of the proposed wells is underlain by basalt flows of the Boring Lavas and sediments of the Troutdale Formation and the Sandy River Mudstone (Trimble, 1963). In the area of the applicant’s proposed wells, basalt flows of the Boring Lavas occur at land surface (Trimble, 1963). The basalt flows are generally up to 200 feet thick in the area, except in areas near the eruption vents, where the basalts extend to much greater depths. A few wells in the area report Boring Lavas to depths of about 200-250 feet (see logs for CLAC 16549 and CLAC 70588). Beneath the Boring lava lies several hundred feet of older alluvium, which is generally fine-grained mudstone containing beds of sand and gravel. The Columbia River Basalts underlie the older sediments in the area, although the exact depth is uncertain. There are no known wells in the area that have encountered Columbia River Basalts, but the top of the basalts are estimated to be around 900-1000 feet below land surface in the area (Gannett and Caldwell, 1998).

Yields reported on well logs for wells completed similarly to the applicant’s proposed well generally range up to 30 gpm, with one nearby well log reporting 90 gpm with a drawdown of 376 feet (see log CLAC 66506).

No local data is available to evaluate water-level trends over time in this area. This indicates a need for water-level monitoring to assess the on-going health of the ground-water system.

**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	<input checked="" 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"/>

**Basis for aquifer confinement evaluation:** The well log for nearby wells, CLAC 16549 and CLAC 70588, indicate the presence of thin, confined beds encased in a thick sequence of silts and clays (the Troutdale Formation of Madin, 2004). This suggests that the productive water-bearing zones are likely to be 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	Distance (ft)	Hydraulically Connected?			Potential for Subst. Interfer. Assumed?	
						YES	NO	ASSUMED	YES	NO
1	1	Unnamed Trib to Clear Creek (south of applicant)	345-395	350	1325	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	Unnamed Trib to Clear Creek (west of applicant)	345-395	395	3800	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	3	Clear Creek	345-395	225	3430	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>

**Basis for aquifer hydraulic connection evaluation:** The groundwater elevation range is based on heads from two nearby wells (CLAC 16549 and CLAC 70588) which are completed similarly to the applicant's proposed well. Because the nearby wells are close to the applicant's proposed well and are completed to similar depths, the heads are likely a reasonable estimate for the head in the applicant's proposed well. Based on the well logs for ~84 wells completed in Sections 5 and 8, it appears there is a decreasing head with depth. The perennial nature of Clear Creek and its tributaries indicate a component of groundwater discharge that sustains surface water flows. The static water level in nearby wells, CLAC 16549 and CLAC 70588, suggest that the groundwater in the applicant's well is likely to be above the elevation of the nearby streams.

**Water Availability Basin the well(s) are located within:** 82: Clear Cr > Clackamas R – 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"/>	NA		<input type="checkbox"/>	5.65	<input type="checkbox"/>	See below	<input type="checkbox"/>
1	2	<input type="checkbox"/>	<input type="checkbox"/>	NA		<input type="checkbox"/>	5.65	<input type="checkbox"/>	See below	<input type="checkbox"/>
1	3	<input type="checkbox"/>	<input type="checkbox"/>	NA		<input type="checkbox"/>	5.65	<input type="checkbox"/>	See below	<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"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<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:** Due to uncertainties regarding the distribution and occurrence of productive water-bearing zones, a model was not used to estimate the interference at 30 days.

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
		%	%	%	%	%	%	%	%	%	%	%	%
Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
		%	%	%	%	%	%	%	%	%	%	%	%
		%	%	%	%	%	%	%	%	%	%	%	%
		%	%	%	%	%	%	%	%	%	%	%	%
		%	%	%	%	%	%	%	%	%	%	%	%
(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:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**References Used:** \_\_\_\_\_  
Application file: G-18218, and nearby G-16761, G-16978.

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.

Madin, I.P., 2004, Geologic Mapping & Database for Portland area fault studies: Final report, Clackamas, Multnomah & Washington Counties, OR, Open File Report O-04-02, Oregon Department of Geology and Mineral Industries, Portland, OR., map scale 1:24,000

McFarland, William D., and Morgan, David S., 1996, Description of the Groundwater Flow System in the Portland Basin, Oregon and Washington: U.S. Geological Survey Water-Supply Paper 2470-A, 58p, 7 plates.

Swanson, R.D., McFarland, W.D., Gonthier, J.B., and Wilkinson, J.M., 1993, A Description of Hydrogeologic Units in the Portland Basin, Oregon and Washington: U.S. Geological Survey Water-Resources Investigations Report 90-4196, 56 p., 10 sheets, scale 1:100,000.

Trimble, Donald E., 1963, Geology of Portland, Oregon and Adjacent Areas, Geological Survey Bulletin 1119, 119 p., 1 pl.

OWRD Groundwater Database and well logs.

**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:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

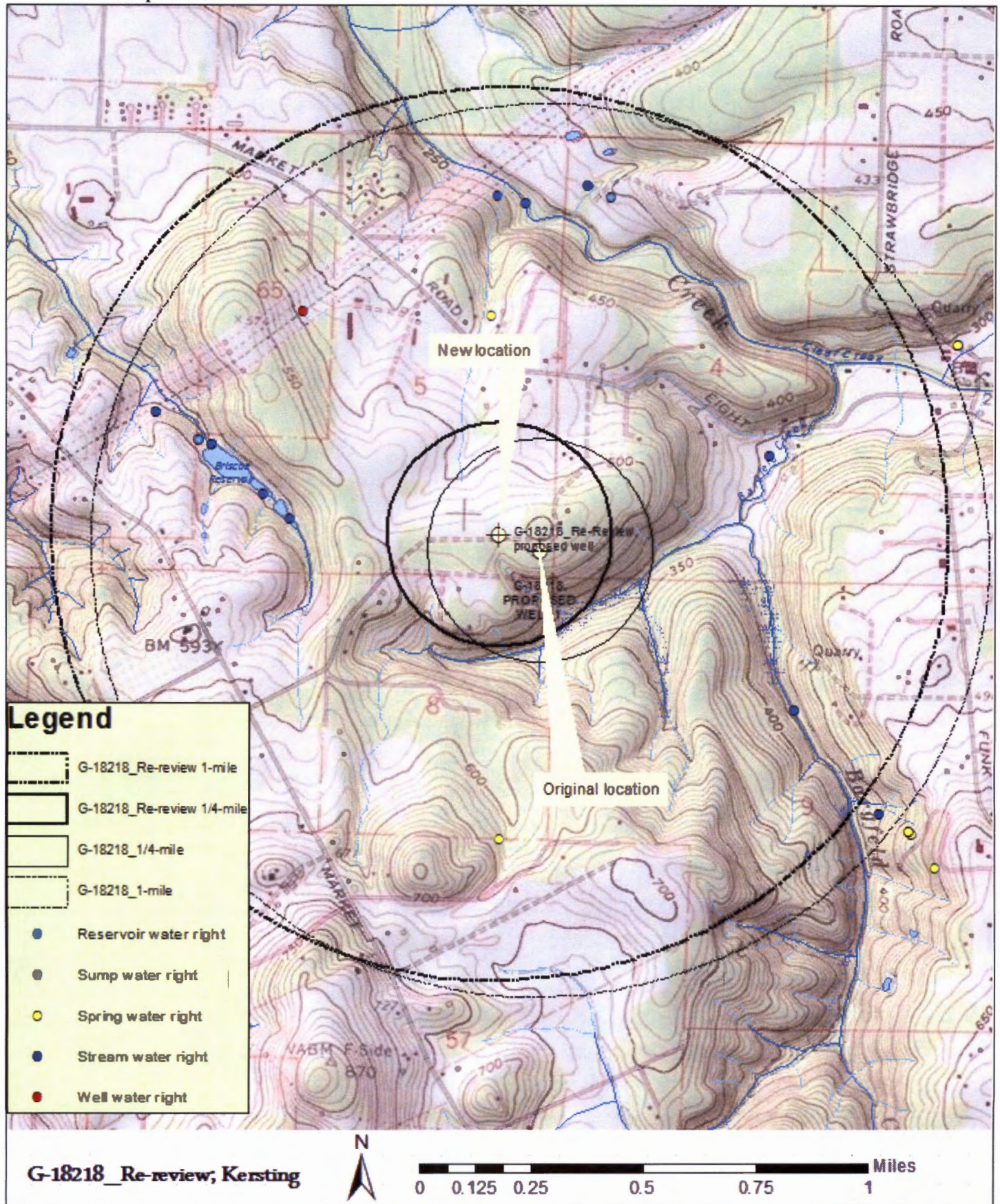
D4.  **Route to the Well Construction and Compliance Section for a review of existing well construction.**

**Water Availability Tables**

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION						
Watershed ID #: 82		CLEAR CR > CLACKAMAS R - AT MOUTH			Exceedance Level: 80	
Time: 1:32 PM		Basin: WILLAMETTE			Date: 06/22/2016	
Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net water Available
Monthly values are in cfs. Storage is the annual amount at 50% exceedance in ac-ft.						
JAN	126.00	1.29	125.00	0.00	0.00	125.00
FEB	128.00	1.19	127.00	0.00	0.00	127.00
MAR	128.00	0.79	127.00	0.00	0.00	127.00
APR	131.00	0.93	130.00	0.00	0.00	130.00
MAY	111.00	2.64	108.00	0.00	0.00	108.00
JUN	48.10	3.69	44.40	0.00	40.00	4.41
JUL	19.00	6.40	12.60	0.00	40.00	-27.40
AUG	8.02	5.22	2.80	0.00	20.00	-17.20
SEP	5.65	2.22	3.43	0.00	20.00	-16.60
OCT	6.23	0.86	5.37	0.00	0.00	5.37
NOV	21.50	0.85	20.60	0.00	0.00	20.60
DEC	103.00	1.36	102.00	0.00	0.00	102.00
ANN	99,100	1,670	97,400	0	7,260	93,300

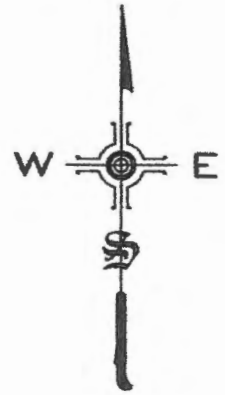
DETAILED REPORT OF INSTREAM REQUIREMENTS													
Watershed ID #: 82		CLEAR CR > CLACKAMAS R - AT MOUTH										Basin: WILLAMETTE	
Time: 1:32 PM												Date: 06/22/2016	
Application Number	Status	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly values are in cfs.													
MF82A	CERTIFICATE	0.0	0.0	0.0	0.0	0.0	40.0	40.0	20.0	20.0	0.0	0.00	0.0
	MAXIMUM	0.0	0.0	0.0	0.0	0.0	40.0	40.0	20.0	20.0	0.0	0.0	0.0

Well Location Map



**GROUND WATER RIGHT APPLICATION MAP  
 CLYDE & HELEN KERSTING  
 SE 1/4, SE 1/4, SEC. 5 T3S,R3E W.M.  
 TAX LOT 33E5 03102 CLACKAMAS COUNTY OR**

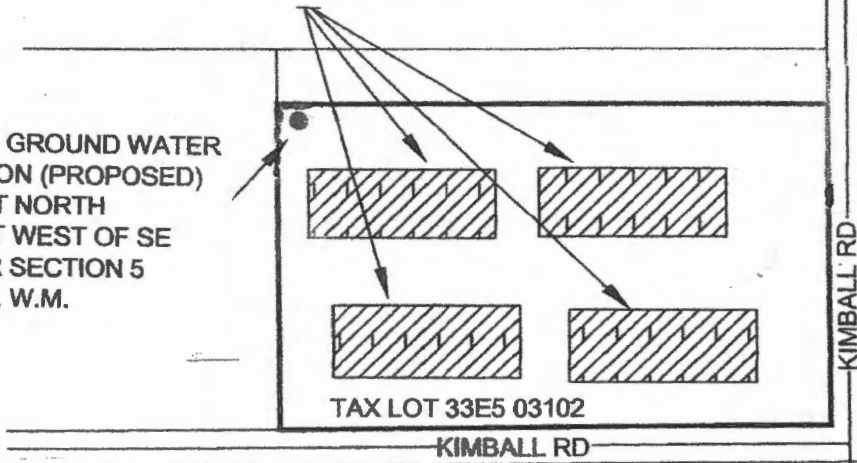
NORTH



TOTAL LOT AREA 4.78 ACRES  
 AREA PROPOSED FOR IRRIGATION 1.42 ACRES

AREAS OF PROPOSED IRRIGATION:  
 2 -15000 SF GREENHOUSES  
 2 -16000 SF BUILDINGS

WELL #1 GROUND WATER  
 DIVERSION (PROPOSED)  
 550 FEET NORTH  
 600 FEET WEST OF SE  
 CORNER SECTION 5  
 T3S,R3E, W.M.



SECTION LINES

54  
89

SE CORNER SEC.5  
 T3S,R3E, W.M.

GRAPHIC SCALE



( IN FEET )  
 1 inch = 200 ft.

**STREAMFIX**

19478 STARVIEW LANE  
 OREGON CITY, OR 97045  
 (503) 781-4885