

# Groundwater Application Review Summary Form

Application # G- 18622

GW Reviewer DENNIS ORLOWSKI

Date Review Completed: 10/09/2018

## 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.  
JL 10/14/18

*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).*

**SUBJECT: Scenic Waterway Interference Evaluation**



# MEMO

**To:** Kristopher Byrd, Well Construction and Compliance Section Manager  
**From:** Joel Jeffery, Well Construction Program Coordinator  
**Subject:** Review of Water Right Application G-18622  
**Date:** October 22, 2018

The attached application was forwarded to the Well Construction and Compliance Section by Water Rights. Dennis Orłowski reviewed the application. Please see Dennis's review and the well logs.

Applicant's Well #1 (CLAC 5268): Based on a review of the Well Report, Applicant's Well #1 does not appear to comply with current minimum well construction standards (See OAR 690 Division 210). The depth of the upper annular seal is inadequate. In order to meet minimum well construction standards, the well must be continuously cased and continuously sealed with an approved grout to a minimum depth of 72 feet below ground surface.

My recommendation is that the Department **not issue** a permit for Applicant's Well #1 (CLAC 5268) unless it is brought into compliance with current minimum well construction standards or information is provided showing that it is in compliance with current minimum well construction standards.

Bringing Applicant's Well #1 into compliance with minimum well construction standards may not satisfy hydraulic connection issues.

Applicant's Well #2 (CLAC 67759); Based on a review of the Well Report, Applicant's Well #2 seems to protect the groundwater resource.

The construction of Applicants Well #2 may not satisfy hydraulic connection issues.

## STATE OF OREGON

## WATER SUPPLY WELL REPORT

(as required by ORS 537.765 &amp; OAR 690-205-0210)

04-20-2011

WELL LABEL # L 105757

START CARD # 1012635

## (1) LAND OWNER

Owner Well I.D. \_\_\_\_\_

First Name GERRY Last Name WILLITS

Company \_\_\_\_\_

Address 12730 SE NORMANDY DRIVE

City CLACKAMAS State OR Zip 97015

## (2) TYPE OF WORK

☒ New Well ☐ Deepening ☐ Conversion☐ Alteration (repair/recondition) ☐ Abandonment

## (3) DRILL METHOD

☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger ☐ Cable Mud☐ Reverse Rotary ☐ Other \_\_\_\_\_

## (4) PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Community☐ Industrial/ Commercial ☐ Livestock ☐ Dewatering☐ Thermal ☐ Injection ☐ Other \_\_\_\_\_

## (5) BORE HOLE CONSTRUCTION

Special Standard ☐ (Attach copy)

Depth of Completed Well 160.00 ft.

| BORE HOLE |      |     | SEAL               |      |    | sacks/ |     |
|-----------|------|-----|--------------------|------|----|--------|-----|
| Dia       | From | To  | Material           | From | To | Amt    | lbs |
| 10        | 0    | 50  | Granular Bentonite | 0    | 3  | 2      | S   |
| 7.58      | 50   | 160 | Cement             | 3    | 50 | 1,900  | P   |

How was seal placed: Method ☐ A ☐ B ☒ C ☐ D ☐ E☒ Other POURED & TAMPED

Backfill placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Material \_\_\_\_\_

Filter pack from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Material \_\_\_\_\_ Size \_\_\_\_\_

Explosives used: ☐ Yes Type \_\_\_\_\_ Amount \_\_\_\_\_

## (6) CASING/LINER

| Casing                              | Liner                               | Dia | +                                   | From | To  | Gauge | Stl                                 | Plstc                               | Wld                                 | Thrd                     |
|-------------------------------------|-------------------------------------|-----|-------------------------------------|------|-----|-------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 6   | <input checked="" type="checkbox"/> | 2    | 160 | 250   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | 4   | <input type="checkbox"/>            | 20   | 140 | 200   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |

Shoe ☐ Inside ☐ Outside ☐ Other Location of shoe(s) 160Temp casing ☐ Yes Dia \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_

## (7) PERFORATIONS/SCREENS

Perforations Method AIR KNIFE

Screens Type CERTALOK Material PVC

| Perf/S | Casing/ | Screen | Dia | From | To  | Scr/slot | Slot   | # of  | Tele/     |
|--------|---------|--------|-----|------|-----|----------|--------|-------|-----------|
| creen  | Liner   |        |     |      |     | width    | length | slots | pipe size |
| Perf   | Casing  | 6      | 100 | 125  | .25 | 2        | 450    |       |           |
| Perf   | Casing  | 6      | 135 | 145  | .25 | 2        | 180    |       |           |
| Screen | Casing  | 4      | 140 | 160  | 10  |          |        |       |           |

## (8) WELL TESTS: Minimum testing time is 1 hour

☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

| Yield gal/min | Drawdown | Drill stem/Pump depth | Duration (hr) |
|---------------|----------|-----------------------|---------------|
| 180           |          | 159                   | 2             |

Temperature 57 °F Lab analysis ☐ Yes By \_\_\_\_\_Water quality concerns? ☐ Yes (describe below)

| From | To | Description | Amount | Units |
|------|----|-------------|--------|-------|
|      |    |             |        |       |

## (9) LOCATION OF WELL (legal description)

County Clackamas Twp 2.00 S N/S Range 3.00 E E/W WM

Sec 33 NE 1/4 of the SE 1/4 Tax Lot 300

Tax Map Number \_\_\_\_\_ Lot \_\_\_\_\_

Lat \_\_\_\_\_ " or \_\_\_\_\_ DMS or DD

Long \_\_\_\_\_ " or \_\_\_\_\_ DMS or DD

☒ Street address of well ☐ Nearest address

17572 S. SPRINGWATER RD

## (10) STATIC WATER LEVEL

Date SWL(psi) + SWL(ft)

|                              |            |    |
|------------------------------|------------|----|
| Existing Well / Predeepening |            |    |
| Completed Well               | 03-21-2011 | 12 |

Flowing Artesian? ☐ Dry Hole? ☐

WATER BEARING ZONES Depth water was first found 100

| SWL Date   | From | To  | Est Flow | SWL(psi) | + SWL(ft) |
|------------|------|-----|----------|----------|-----------|
| 03-21-2011 | 100  | 147 | 160      |          | 12        |

## (11) WELL LOG

Ground Elevation \_\_\_\_\_

| Material                       | From | To  |
|--------------------------------|------|-----|
| TOP SOIL                       | 0    | 1   |
| BROWN CLAY W/ COBBLES          | 1    | 25  |
| BROWN CLAY W/ COBBLES & GRAVEL | 25   | 50  |
| COBBLES & GRAVEL               | 50   | 125 |
| COARSE SAND MULTI COLORED      | 125  | 135 |
| GRAVEL                         | 135  | 147 |
| BROWN CLAYSTONE                | 147  | 160 |

Date Started 03-16-2011 Completed 03-21-2011

## (unbonded) Water Well Constructor Certification

I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

License Number 1512 Date 04-20-2011

Electronically Filed

Signed THOMAS YOUNGBERG (E-filed)

## (bonded) Water Well Constructor Certification

I accept responsibility for the construction, deepening, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

License Number 1771 Date 04-20-2011

Electronically Filed

Signed GEORGE YOUNGBERG (E-filed)

Contact Info (optional)



# PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 10/09/2018  
 FROM: Groundwater Section Dennis Orlowski  
 Reviewer's Name  
 SUBJECT: Application G- 18622 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: M & W Tree Farm County: Clackamas

A1. Applicant(s) seek(s) 0.125 cfs from two well(s) in the Willamette Basin,  
Clackamas River subbasin

A2. Proposed use Irrigation, nursery Seasonality: 3/1 – 10/31

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    | CLAC 5268  | 1                  | Alluvium          | 0.125              | T2S/R3E-33 NW-SE      | 2345'N, 1475'W fr SE cor S33                                     |
| 2    | CLAC 67759 | 2                  | Alluvium          | 0.125              | T2S/R3E-33 NE-SE      | 2600'N, 1175'W fr SE cor S33                                     |

\* 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    | 445              | 100                | 32         | 7/15/1976 | 108             | 0-25               | 0-34                  | --                   | --                           | 10               | 76             | Bail      |
| 2    | 450              | 100                | 12         | 3/21/2011 | 160             | 0-50               | 2-160                 | 20-140               | 100-125, 135-145, 140-160    | 180              | --             | Air       |

Use data from application for proposed wells.

A4. **Comments:** The proposed POA/POU location is approximately 7-8 miles east-northeast of Oregon City, and about 2 miles south and east of the Clackamas River. This location is within the boundaries of the Clackamas Scenic Waterway.

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 POAs obtain groundwater from a confined aquifer, and thus the pertinent 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: \_\_\_\_\_  
 Comments: Not applicable.

**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 measurements), 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 \_\_\_\_\_ 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 proposed permit location is on an upland terrace bounded approximately ¾ mile to the west-southwest by Clear Creek, and about 2 miles to the east-northeast by the Clackamas River. These two streams are deeply incised into underlying Quaternary alluvium, the Tertiary Troutdale Formation, and/or the Sandy River Mudstone. Basalt flows of the Boring Lava are also present in the area, although are more extensive to the south (Leonard and Collins, 1983; Conlon and others, 2005; Gannett and Caldwell, 1998).

Local wells obtain groundwater either from the uppermost Quaternary terrace deposits, the Troutdale Formation, or coarser sand and/or gravel units within the Sandy River Mudstone. Due to its relatively-shallow depth (108 ft), it is possible that proposed Well 1 (CLAC 5268) is completed within only terrace deposits, whereas proposed Well 2 (CLAC 67759) at 160 ft deep is perhaps completed within the Troutdale Formation and/or the Sandy River Mudstone. Well yields in terrace deposit wells range from 2-60 gpm. Wells completed in the deeper Troutdale Formation and Sandy River Mudstone range from 3-500 gpm, with a median of 30 gpm (Leonard and Collins, 1983).

Local groundwater development is moderate, with about 15 irrigation wells and 35 domestic wells reported for Sections 33 and 34. There are 13 permitted groundwater wells within about one mile of the proposed POA location, most for irrigation or nursery uses. The nearest of these are POAs associated with irrigation permit G-4619 and certificate 38515, located about 500 and 1300 feet, respectively, from this application's proposed wells.

Available groundwater level data for this area is extremely sparse. Water-level measurements from 2013-2018 from nearby CLAC 66853, completed similarly to proposed Well 2, indicate stable groundwater conditions at that location. However, the lack of additional data precludes being able to make a definitive conclusion about groundwater availability near the proposed use.

**If a permit is granted, the noted conditions are recommended to both protect existing groundwater users and to improve future understanding of groundwater conditions in this area.**

**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                    | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2    | Alluvium                    | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

**Basis for aquifer confinement evaluation:** Static water levels in local wells, including proposed Well 1 and 2, are far above the depths at which groundwater was first encountered and where the principal water-bearing zones are located, indicating confined conditions.

**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<br>ft msl | SW Elev<br>ft msl | Distance<br>(ft) | Hydraulically Connected?            |                          |                          | Potential for Subst. Interfer. Assumed? |                                     |
|------|------|---------------------------------------|-------------------|-------------------|------------------|-------------------------------------|--------------------------|--------------------------|-----------------------------------------|-------------------------------------|
|      |      |                                       |                   |                   |                  | YES                                 | NO                       | ASSUMED                  | YES                                     | NO                                  |
| 1    | 1    | Clear Creek                           | 430-440           | 220-300           | 4400             | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |
| 2    | 1    | Clear Creek                           | 430-440           | 220-300           | 4750             | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |
| 1    | 2    | Unnamed tributary to Clear Creek (SE) | 430-440           | 300-380           | 4800             | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |
| 2    | 2    | Unnamed tributary to Clear Creek (SE) | 430-440           | 300-380           | 4820             | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |
| 1    | 3    | Unnamed tributary to Clear Creek (NW) | 430-440           | 220-310           | 6200             | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |
| 2    | 3    | Unnamed tributary to Clear Creek (NW) | 430-440           | 220-310           | 6325             | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |
| 1    | 4    | Foster Creek                          | 430-440           | 310-340           | 6550             | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |
| 2    | 4    | Foster Creek                          | 430-440           | 340-340           | 6200             | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |

**Basis for aquifer hydraulic connection evaluation:** The headwaters of several tributaries to Clear Creek and Foster Creek are located within about ½ mile from the proposed POA locations; these tributaries are ephemeral in their upper reaches, but transition to perennial at downslope locations where they are more fully incised into underlying deposits. The distances shown for the two unnamed tributaries to Clear Creek (SW2 and 3) are from the wells to locations where the tributaries transition from ephemeral to perennial. The estimated range of static water levels in the proposed POAs is above the elevation ranges of the nearby surface water sources at their nearest perennial reach, indicating hydraulic connection.

Furthermore, the perennial nature of Clear Creek and its tributaries indicates that groundwater discharges sustain surface water flows during low-precipitation periods. This hydraulic connection between groundwater and surface water is substantiated by the presence of several permitted spring water rights along escarpments to the northeast and south of the proposed POAs; these springs discharge water from the terrace deposits at or just below the elevations of water-bearing zones noted on the logs for proposed Wells 1 and 2.

The hydraulic connection between the proposed POAs is likely strongest with Clear Creek and its tributaries (SW 1-3), given their relative proximity. It is unlikely that pumping impacts at the two proposed wells would extend beyond these nearer surface water sources to have a measurable impact on Foster Creek.

**Water Availability Basin** the well(s) are located within:

SW 1-3: WID 82, Clear Creek > Clackamas River – at mouth;

SW 4: WID 80, Clackamas River > Willamette 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 type="checkbox"/> | <input type="checkbox"/> | MF82A                   | 20.00                        | <input type="checkbox"/> | 5.65                   | <input checked="" type="checkbox"/> | See comment                | <input checked="" type="checkbox"/>     |
| 2    | 1    | <input type="checkbox"/> | <input type="checkbox"/> | MF82A                   | 20.00                        | <input type="checkbox"/> | 5.65                   | <input checked="" type="checkbox"/> | See comment                | <input checked="" type="checkbox"/>     |
| 1    | 2    | <input type="checkbox"/> | <input type="checkbox"/> | MF82A                   | 20.00                        | <input type="checkbox"/> | 5.65                   | <input checked="" type="checkbox"/> | See comment                | <input checked="" type="checkbox"/>     |
| 2    | 2    | <input type="checkbox"/> | <input type="checkbox"/> | MF82A                   | 20.00                        | <input type="checkbox"/> | 5.65                   | <input checked="" type="checkbox"/> | See comment                | <input checked="" 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: because readily-available analytical stream depletion models (e.g., Hunt 1999, 2003) are not well suited to analyses of hydrologic conditions in areas of high local relief, with large differences in hydraulic potential between groundwater and surface water, interference at 30 days was not estimated.

C3b: not applicable.

- 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)       |     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| (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:** C4a: hydraulically-connected surface water sources greater than one mile were not evaluated either because they are within the same WAB as sources evaluated in C3a (i.e., SW 3), or because potential impacts are less likely due to its relatively-greater distance from the proposed POAs (i.e., SW 4).

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-18622

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.

Hunt, B., 1999, Unsteady stream depletion from ground water pumping: Ground Water, v. 37, no. 1, p. 98-102.

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, Groundwater in the Northern Part of Clackamas County, Oregon: USGS Open File Report 80-1049.

OWRD Groundwater Information System (online), accessed 10/8/2018.

**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) \_\_\_\_\_

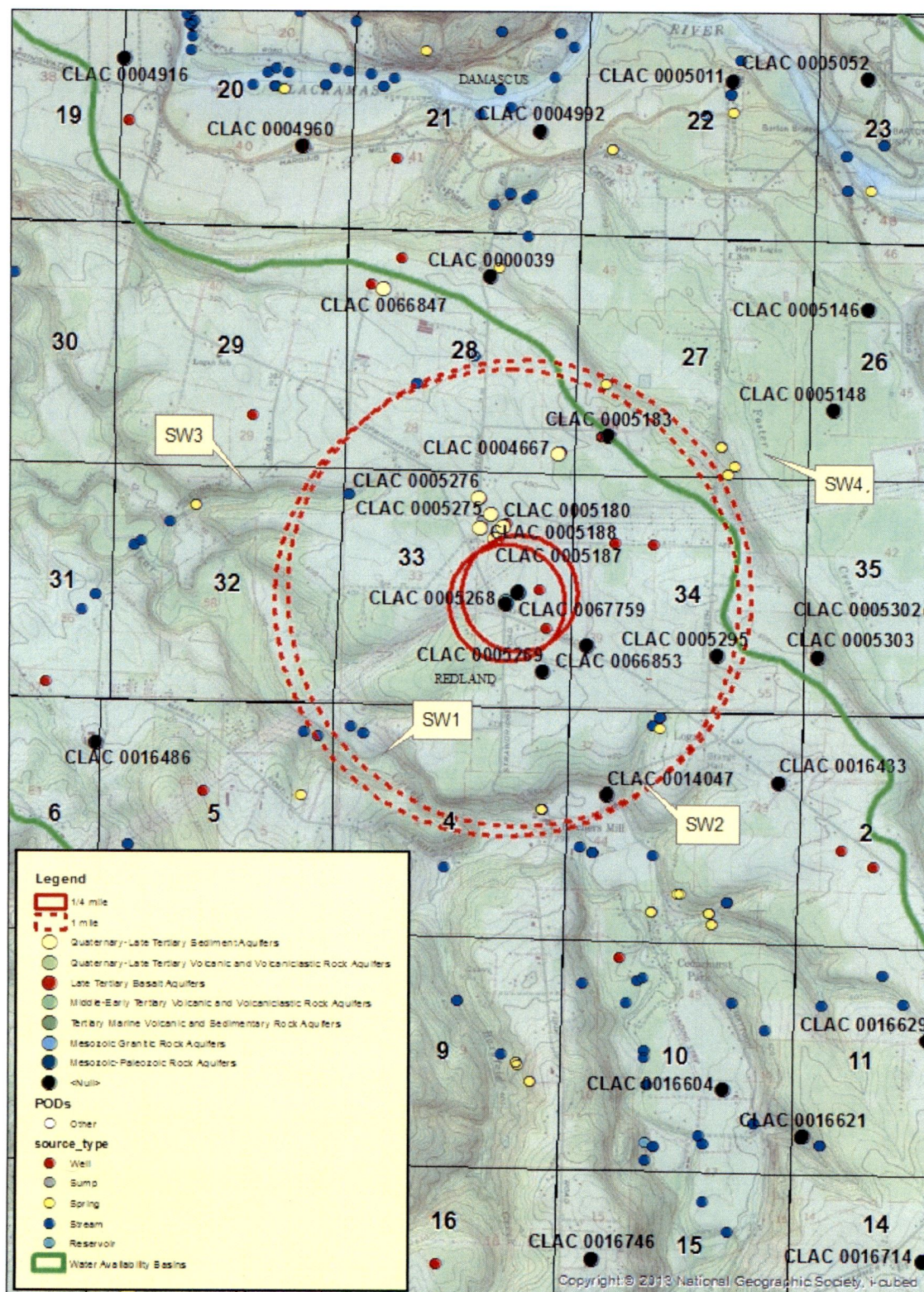
D3. **THE WELL construction deficiency or other comment is described as follows:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

\_\_\_\_\_

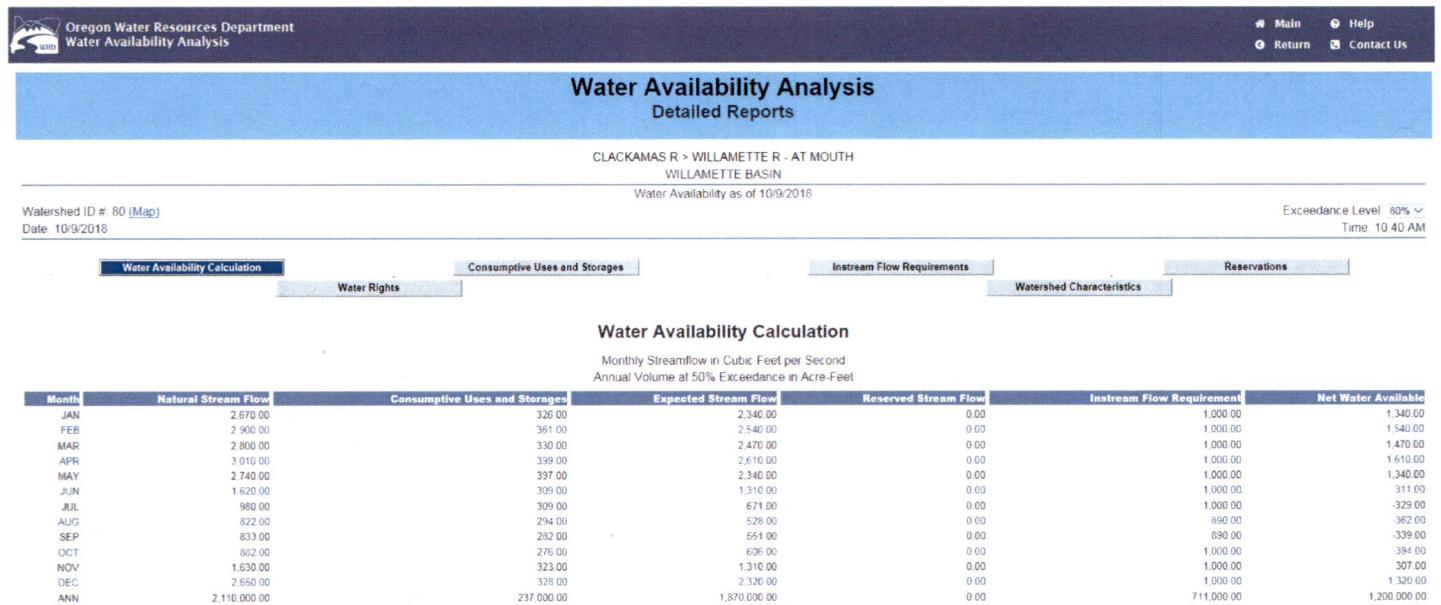
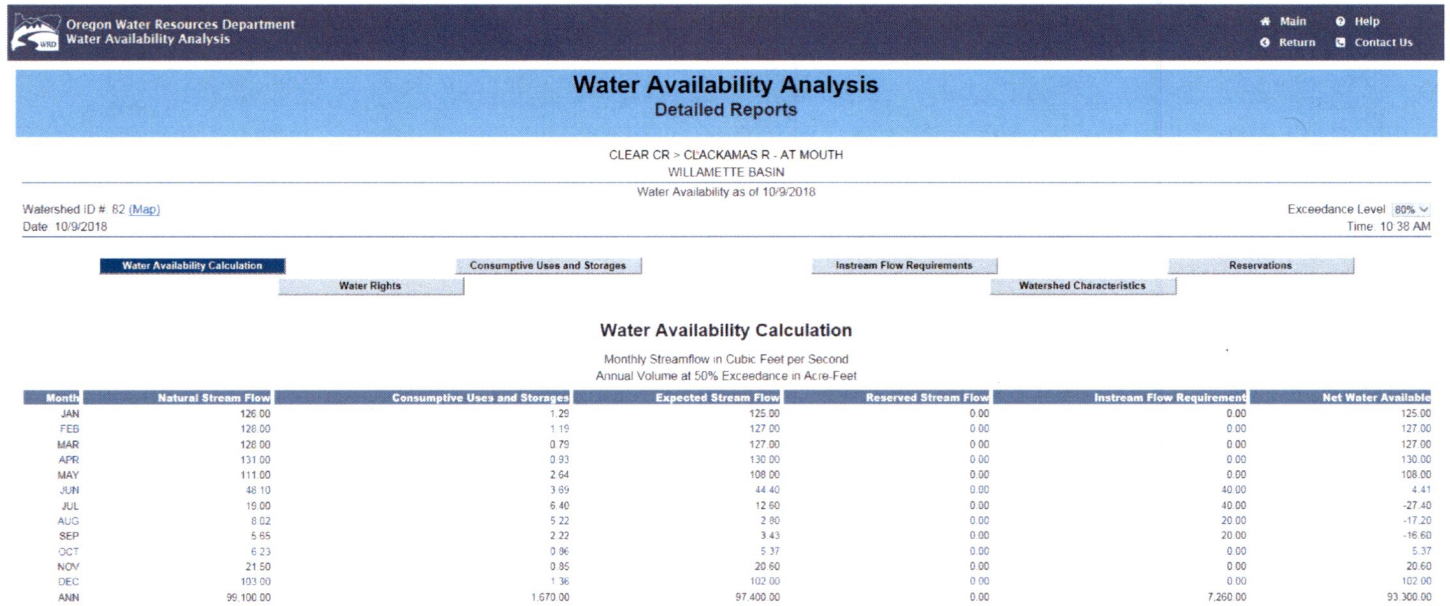
# Application G-18622 M & W Tree Farm T2S, R3E - Section 33



0 800 1,600 3,200 4,800 6,400  
Feet



## Water Availability Tables



## Water-Level Trends in Nearby Wells

