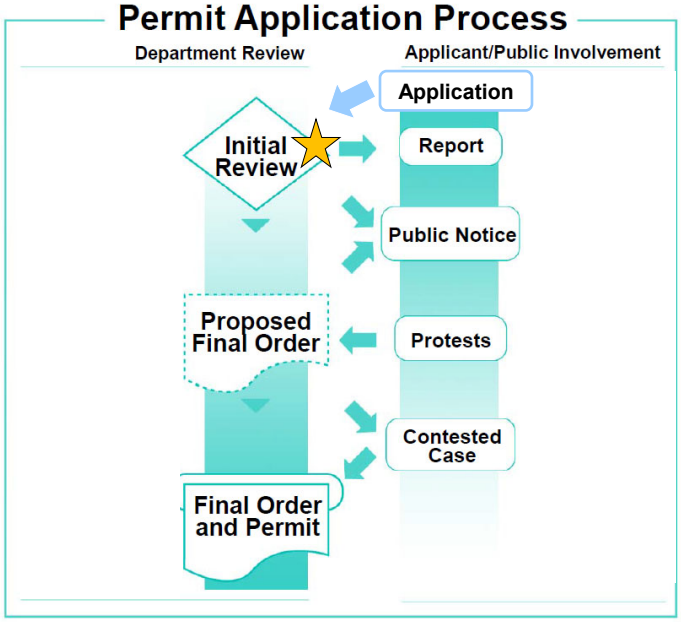
# New Groundwater Right Application Technical Review


1

# GW Technical Review in Context




2

## Public Interest Presumption

**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 if:**

**(OAR 690-310-130)**

3

## Public Interest Presumption

a) **Allowed in the Basin Plan**
b) **Water is available (for further appropriation)**
c) **Will not injure existing water rights**
d) **Complies with the rules of the Commission**

**(OAR 690-310-130)**

4

# GW Technical Review Form

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date _____
FROM: Groundwater Section _____
Reviewer's Name
SUBJECT: Application G-_____ 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: _____ County: _____

A1. Applicant(s) seek(s) _____ cfs from _____ well(s) in the _____ Basin, _____ subbasin

A2. Proposed use _____ Seasonality: _____

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 | | | | | | |
| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |

5

# GW Technical Review Form

## Four sections:

## A. Information pertinent to the technical review

## B. Groundwater availability public interest review (Division 310)

## C. Hydraulic connection between groundwater and surface water (Division 9)

## D. Compliance with well construction regulations (Divisions 200 – 230)

6

# Section A: General Information

- Capture essential groundwater information assessed during the technical review
- Research available information

A1. Applicant(s) seek(s) 0.2 cfs from 2 well(s) in the Willamette Basin, Middle Willamette subbasin

A2. Proposed use Industrial / Fire Suppression 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 | LANE 8305 | 1 | Alluvium | 0.13 | 16S/04W-34 SWSW | 1472'N, 232'E of SW cor S34 |
| 2 | LANE 1965 | 2 | Alluvium | 0.07 | 16S/04W-34 SWSW | 1134'N, 413'E of SW cor S34 |
| 3 | | | | | | |

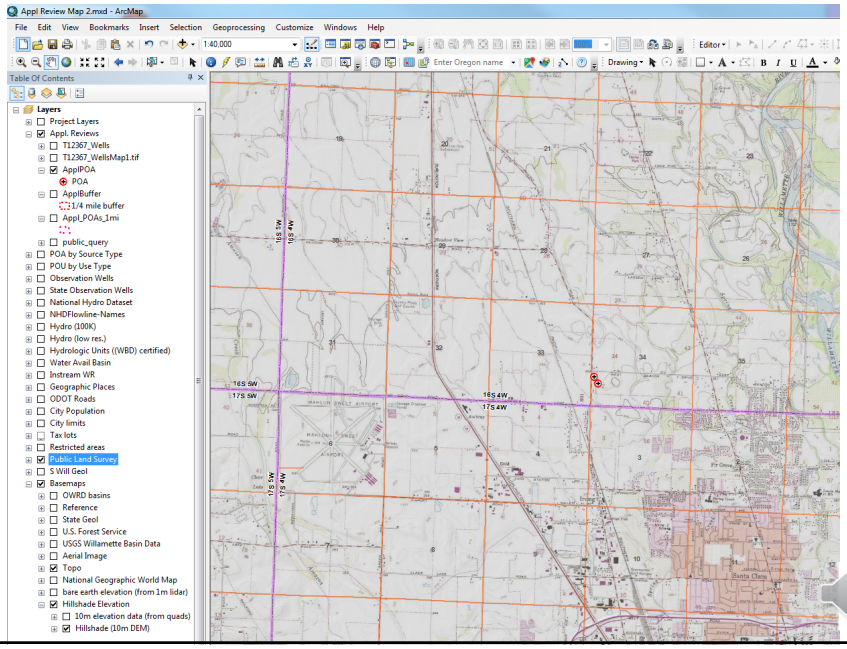
* Alluvium, CRB, Bedrock

| 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 | 370 | 6 | 6 | 03/17/1982 | 40 | 0-19 | +1-39 | | 34-39 | 60 | | A |
| 2 | 370 | 28 | 5 | 3/11/1991 | 39 | 0-19 | +1-39 | | 28-31 | 30 | | A |
| | | | | | | | | | | | | |

Use data from application for proposed wells.

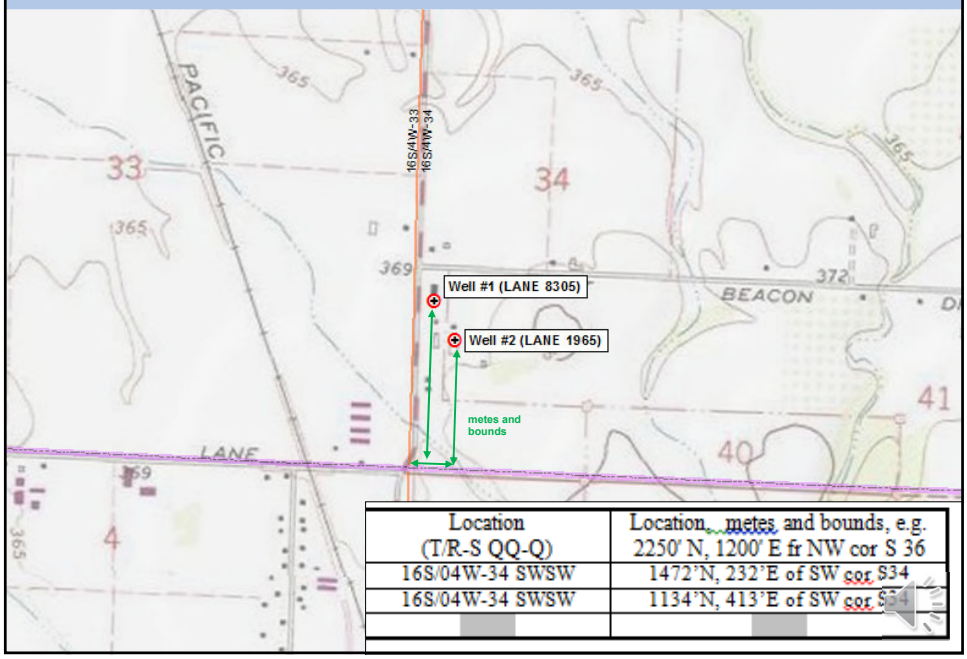
7

# Section A: General Information




8

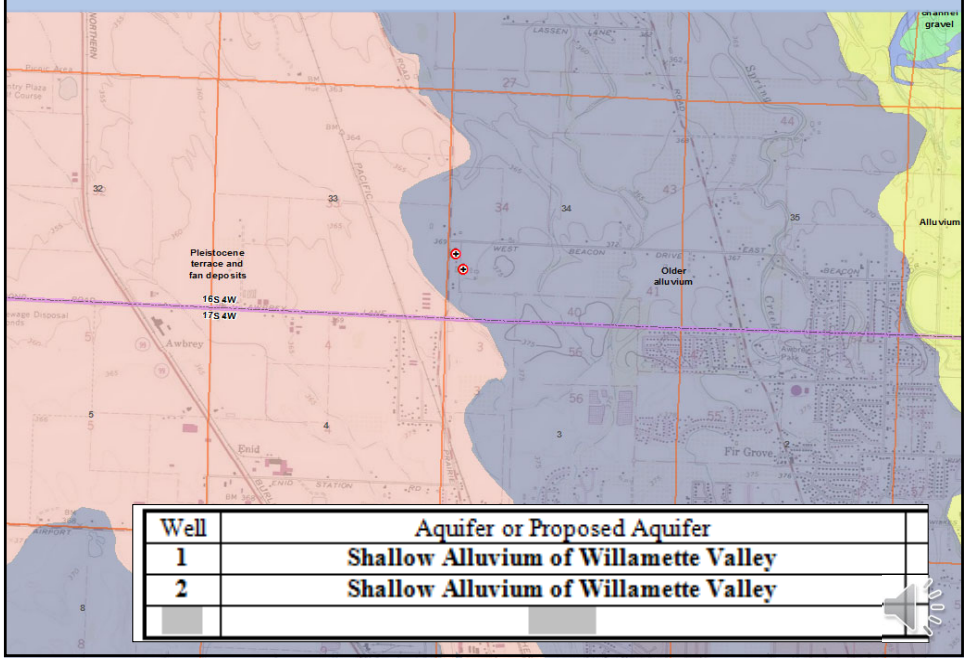
# Section A: General Information




| Location (T/R-S QQ-Q) | Location, metes and bounds, e.g. 2250' N, 1200' E fr NW cor S 36 |
|---|---|
| 16S/04W-34 SWSW | 1472'N, 232'E of SW cor S34 |
| 16S/04W-34 SWSW | 1134'N, 413'E of SW cor S34 |
| | |

9

# Section A: General Information




| Well | Aquifer or Proposed Aquifer |
|---|---|
| 1 | Shallow Alluvium of Willamette Valley |
| 2 | Shallow Alluvium of Willamette Valley |
| | |

10

# Section A: General Information

- **Geology and Hydrogeology**
  - **Aquifer Description**

C1. **690-09-040 (1):** Evaluation of aquifer confinement:

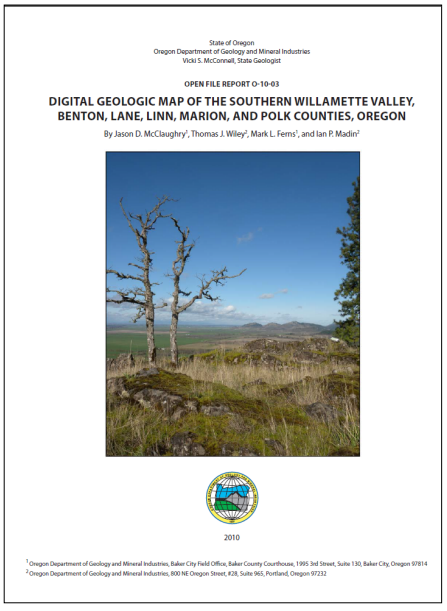
| Well | Aquifer or Proposed Aquifer | Confined | Unconfined |
|---|---|---|---|
| 1 | **Shallow Alluvium of Willamette Valley** | ☐ | ☒ |
| 2 | **Shallow Alluvium of Willamette Valley** | ☐ | ☒ |
| | | ☐ | ☐ |

**Basis for aquifer confinement evaluation:** *SWLs* reported on well logs* for the applicant's wells are approx. equal to reported *First Water*; well logs for similarly constructed well in the area also show *SWLs* coincident with *First Water*.

*The applicant's Well #2 (LANE 1965) reports *First Water* at 28 ft depth. However, Well #2 is constructed very similar to Well #1 and reports similar *SWL* so the reviewer assumes that *First Water* reported on the well log for Well #2 does not represent the actual shallowest water-bearing zone and that both wells are producing from unconfined zones within the aquifer.

11

# Section A: General Information



State of Oregon
Oregon Department of Geology and Mineral Industries
Vicki S. McConnell, State Geologist

OPEN FILE REPORT O-10-03

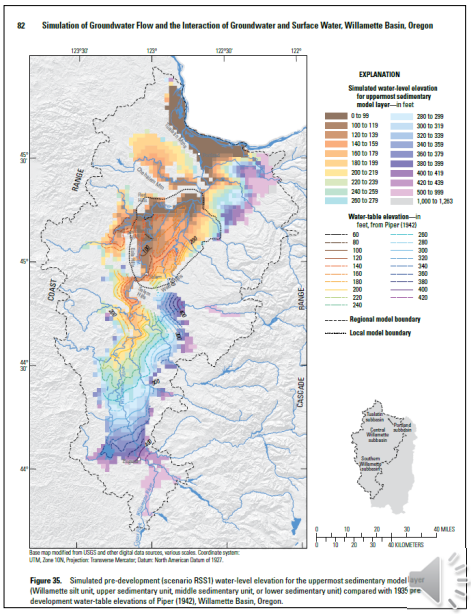
**DIGITAL GEOLOGIC MAP OF THE SOUTHERN WILLAMETTE VALLEY, BENTON, LANE, LINN, MARION, AND POLK COUNTIES, OREGON**

By Jason D. McClaughry[1], Thomas J. Wiley[2], Mark L. Ferns[1], and Ian P. Madin[2]



2010

[1] Oregon Department of Geology and Mineral Industries, Baker City Field Office, Baker County Courthouse, 1995 3rd Street, Suite 130, Baker City, Oregon 97814
[2] Oregon Department of Geology and Mineral Industries, 800 NE Oregon Street, #28, Suite 965, Portland, Oregon 97232



82 Simulation of Groundwater Flow and the Interaction of Groundwater and Surface Water, Willamette Basin, Oregon

EXPLANATION

Simulated water-level elevation for uppermost sedimentary model layer—in feet

0 to 99
100 to 119
120 to 139
140 to 159
160 to 179
180 to 199
200 to 219
220 to 239
240 to 259
260 to 279
280 to 299
300 to 319
320 to 339
340 to 359
360 to 379
380 to 399
400 to 419
420 to 439
500 to 999
1,000 to 1,263

Water-table elevation—in feet, from Piper (1942)

60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
420

Regional model boundary
Local model boundary

RANGE
COAST
CASCADE

0 10 20 30 40 MILES
0 10 20 30 40 KILOMETERS

Base map modified from USGS and other digital data sources, various scales. Coordinate system: UTM, Zone 10N, Projection: Transverse Mercator, Datum: North American Datum of 1927.

**Figure 35.** Simulated pre-development (scenario RSS1) water-level elevation for the uppermost sedimentary model layer (Willamette silt unit, upper sedimentary unit, middle sedimentary unit, or lower sedimentary unit) compared with 1925 pre-development water-table elevations of Piper (1942), Willamette Basin, Oregon.

12

# Section A: General Information

- **Basin and groundwater administrative area rules and restrictions**

A5. ☒ **Provisions of the** Willamette (OAR 690-502) 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 produce from an unconfined aquifer but are not hydraulically connected to surface waters within ¼ mile.

**690-502-0240**

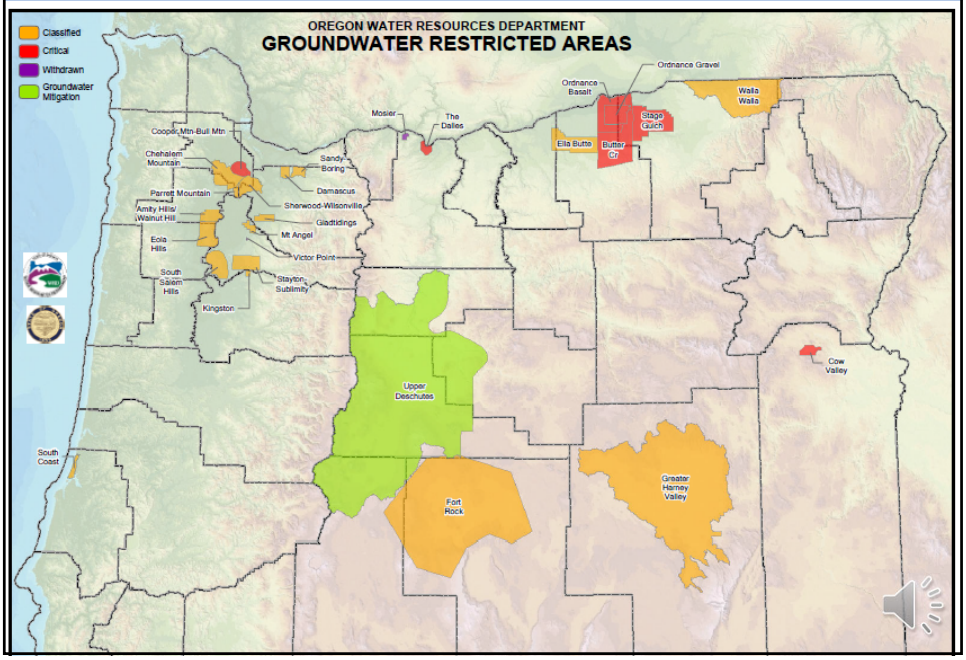
**Groundwater-Surface Water Hydraulic Connection**

These rules are in addition to the requirements of OAR chapter 690, division 009. Groundwater in unconfined alluvium within 1/4 mile of the banks of a stream or surface water source is presumed to be in hydraulic connection with the surface water source, unless the applicant or appropriator provides satisfactory information or demonstration to the contrary. This hydraulically connected groundwater shall be classified the same as the surface source. This section shall not apply to those groundwater uses exempted by ORS 537.545. Notwithstanding such classification, permits may be issued for the use of water from a well in an unconfined aquifer that is hydraulically connected to groundwater, within a quarter mile of a stream, provided that surface water impacts are mitigated through storage releases.

Stat. Auth.: ORS 536 & ORS 537
Stats. Implemented:
Hist.: WRD 3-2003, f. & cert. ef. 12-4-03, Renumbered from 690-502-0160

13

# Section A: General Information




14

# Section B: Groundwater Availability

a. Over-appropriation

b. Injury

c. Capacity

d. Protective Conditions

Narrative

**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) 7C (7-year SWL); 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.

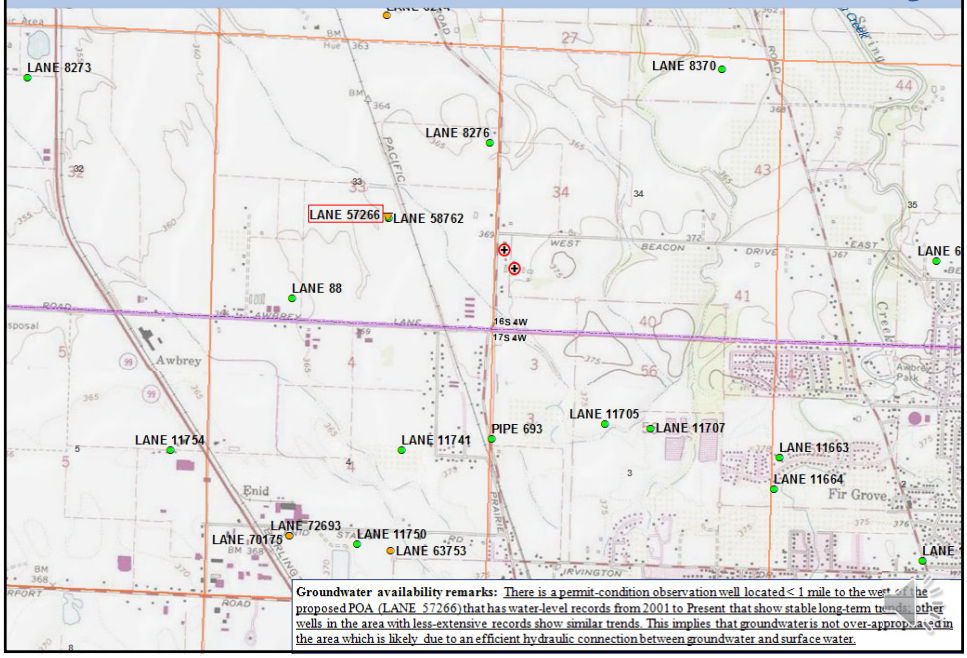
**Describe injury**...–as related to water availability– that is likely to occur without well reconstruction (interference w/ senior water rights, not within the capacity of the resource, etc): ____

B3. **Groundwater availability remarks:** There is a permit-condition observation well located < 1 mile to the west of the proposed POA (LANE 57266) that has water-level records from 2001 to Present that show stable long-term trends; other wells in the area with less-extensive records show similar trends. This implies that groundwater is not over-appropriated in the area which is likely due to an efficient hydraulic connection between groundwater and surface water.

There are a few permitted groundwater PODs in the vicinity of the proposed POA and most wells in the area are similarly constructed to produce from the shallow alluvial material in the upper part of the basin-fill sediments (~70% of wells in the area are completed to < 50 ft). Given the unconfined nature of the aquifer, the thickness of the sediments (part of the Eugene Fan), and relatively high productivity of the aquifer (i.e., high K, high T), interference to nearby groundwater users will likely be insignificant to minor.

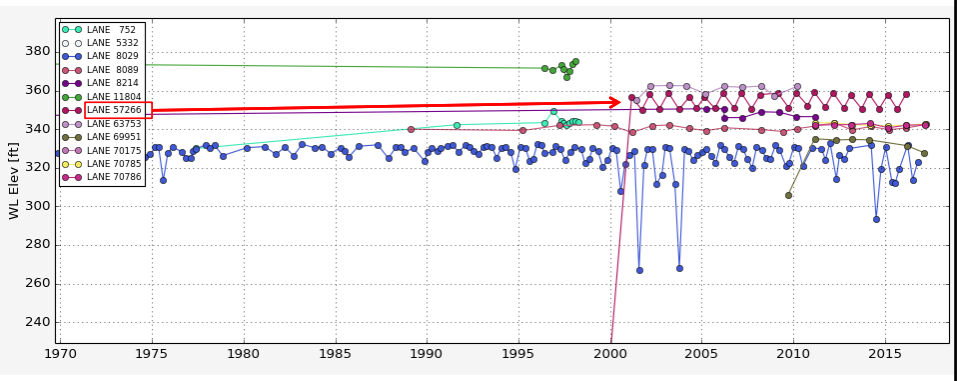
15

# Section B: Groundwater Availability




16

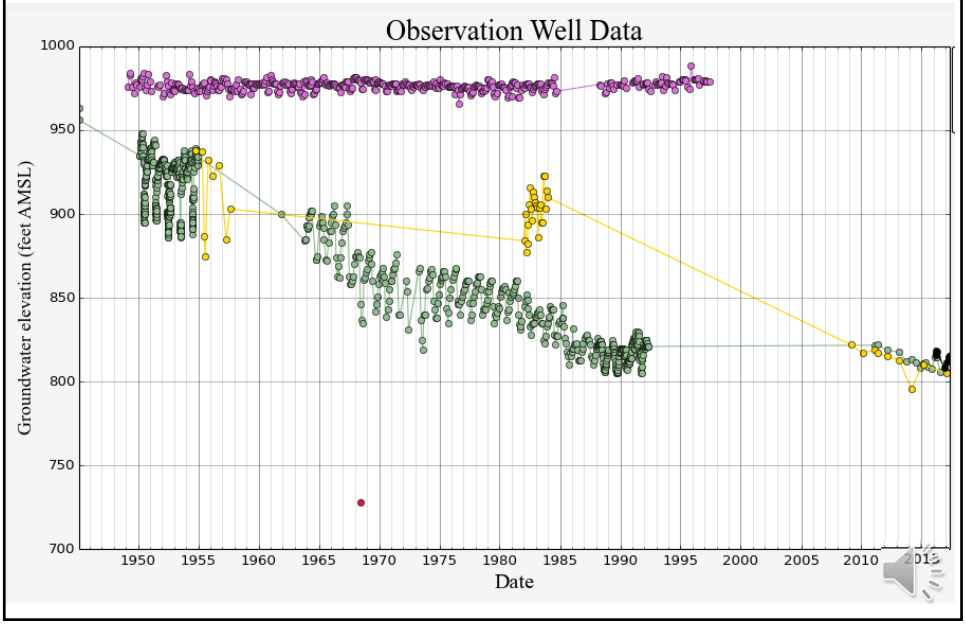
# Section B: Groundwater Availability




**Groundwater availability remarks:** There is a permit-condition observation well located < 1 mile to the west of the proposed POA (LANE 57266) that has water-level records from 2001 to Present that show stable long-term trends; other wells in the area with less-extensive records show similar trends. This implies that groundwater is not over-appropriated in the area which is likely due to an efficient hydraulic connection between groundwater and surface water.

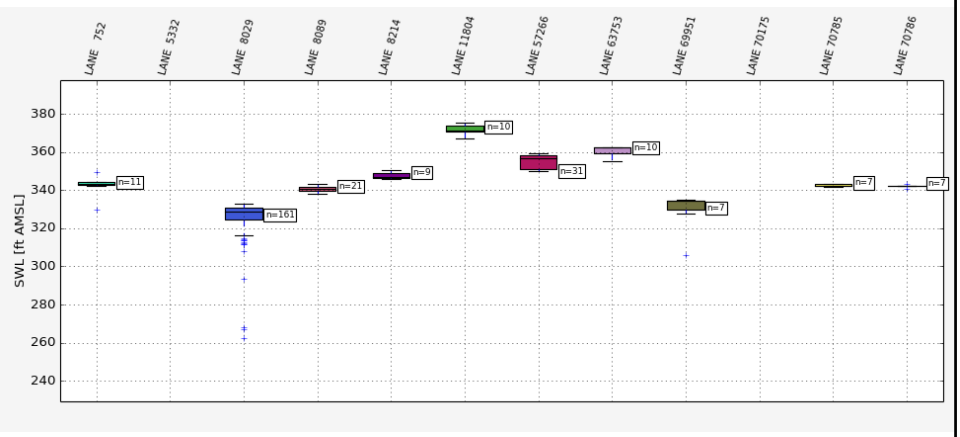
17

# Section B: Groundwater Availability



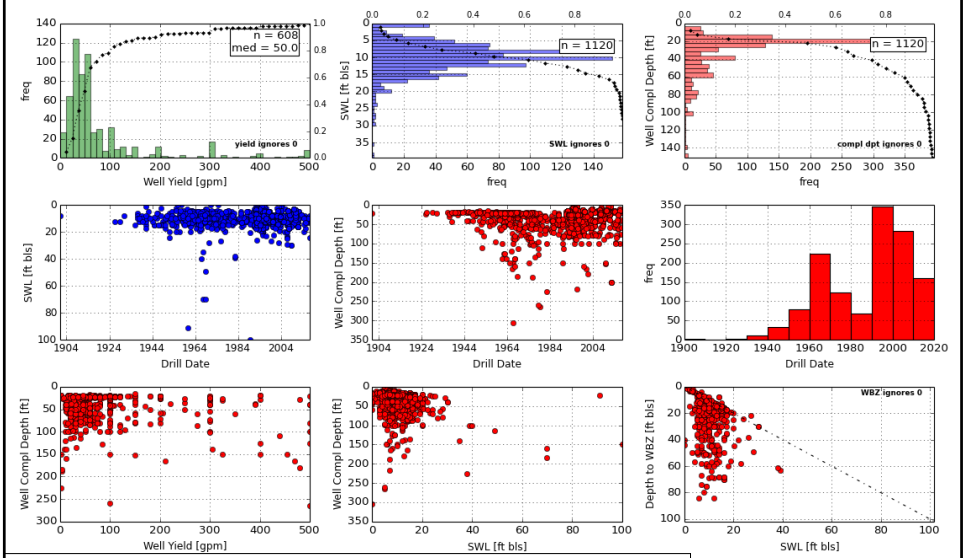

18

# Section B: Groundwater Availability




19

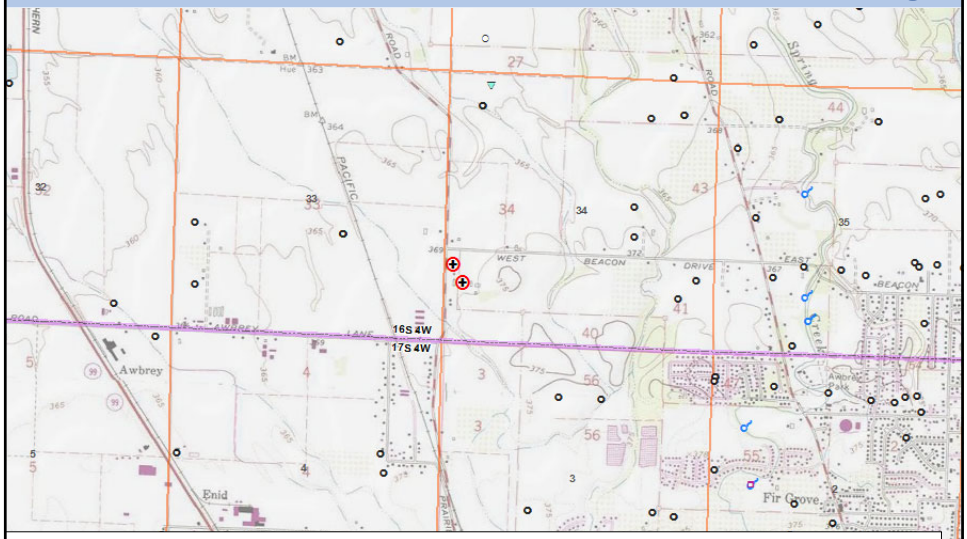
# Section B: Groundwater Availability




There are a few permitted groundwater PODs in the vicinity of the proposed POA and most wells in the area are similarly constructed to produce from the shallow alluvial material in the upper part of the basin-fill sediments (~70% of wells in the area are completed to < 50 ft). Given the unconfined nature of the aquifer, the thickness of the sediments (part of the Eugene Fan), and relatively high productivity of the aquifer (i.e., high K, high T), interference to nearby groundwater users will likely be insignificant to minor.

20

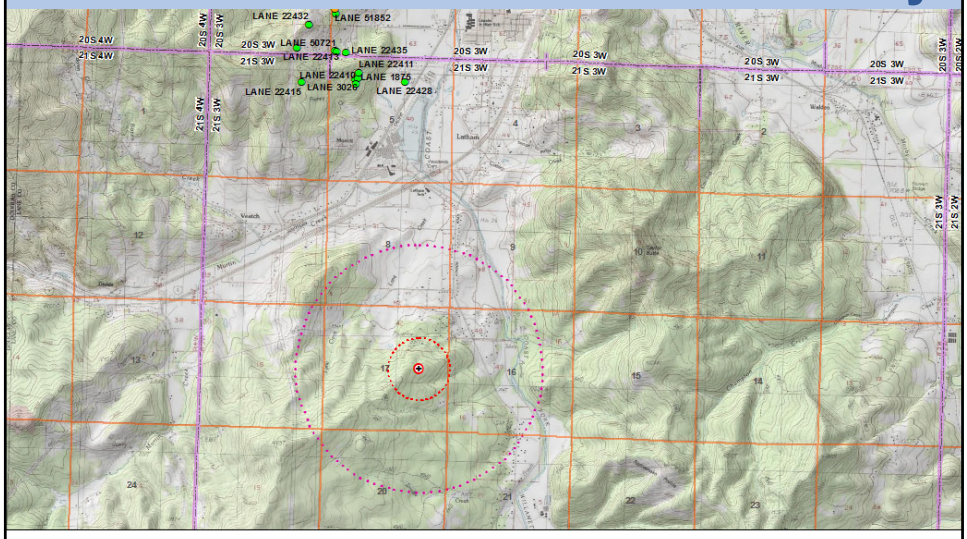
# Section B: Groundwater Availability




There are a few permitted groundwater PODs in the vicinity of the proposed POA and most wells in the area are similarly constructed to produce from the shallow alluvial material in the upper part of the basin-fill sediments (~70% of wells in the area are completed to < 50 ft). Given the unconfined nature of the aquifer, the thickness of the sediments (part of the Eugene Fan), and relatively high productivity of the aquifer (i.e., high K, high T), interference to nearby groundwater users will likely be insignificant to minor.

21

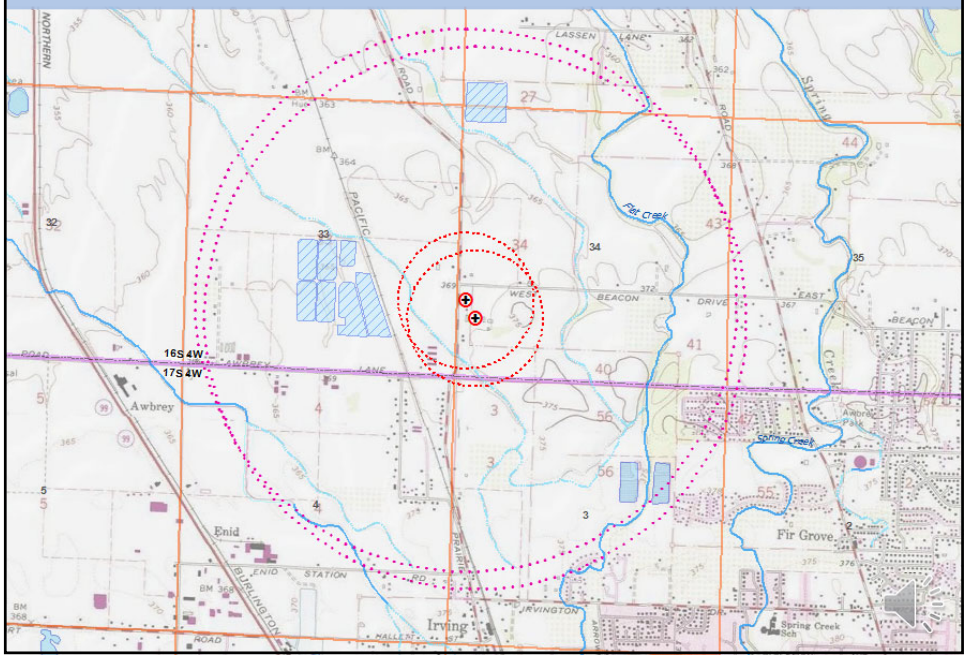
# Section B: Groundwater Availability




**Groundwater availability remarks:** The applicant's proposed POA is located in an area where there has been little groundwater development – mostly semi-forested, rural landscape. The closest well that OWRD has water level data on is located over 3 miles to the north and likely in a separate aquifer. The nearest permitted groundwater POA is over 2 miles away and will likely not experience any impacts from the proposed use. Domestic well use in the immediate area is also fairly low and mostly restricted to lower in the valley of the Coast Fork Willamette River.

22

# Section C: GW/SW Interaction




23

# Section C: GW/SW Interaction

- **Aquifer Type and Hydraulic Connection**

**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 | **Shallow Alluvium of Willamette Valley** | ☐ | ☒ |
| 2 | **Shallow Alluvium of Willamette Valley** | ☐ | ☒ |
| | | ☐ | ☐ |

**Basis for aquifer confinement evaluation:** *SWLs* reported on well logs* for the applicant's wells are approx. equal to reported *First Water*; well logs for similarly constructed well in the area also show *SWLs* coincident with *First Water*.

*The applicant's Well #2 (LANE 1965) reports *First Water* at 28 ft depth. However, Well #2 is constructed very similar to Well #1 and reports similar *SWL* so the reviewer assumes that *First Water* reported on the well log for Well #2 does not represent the actual shallowest water-bearing zone and that both wells are producing from unconfined zones within the 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? YES | NO | ASSUMED | Potential for Subst. Interfer. Assumed? YES | NO |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | **Spring Creek** | 365 | 360-365 | 6940 | ☒ | ☐ | ☐ | ☐ | ☒ |
| 2 | 1 | **Spring Creek** | 365 | 360-365 | 6650 | ☒ | ☐ | ☐ | ☐ | ☒ |
| | | | | | | ☐ | ☐ | ☐ | ☐ | ☐ |

**Basis for aquifer hydraulic connection evaluation:** GW elevations are estimated to be similar to or above SW elevations suggesting that groundwater is flowing towards and discharging to surface water

**Water Availability Basin the well(s) are located within:** Willamette R > Columbia R – AB Periwinkle Cr At Gage 14174

24

# Section C: GW/SW Interaction

- **Potential for Substantial Interference (PSI)**

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 | ☐ | ☐ | MF181A | 1500.00 | ☐ | 4890.00 | ☐ | <25% | ☐ |
| 1 | 2 | ☐ | ☐ | IS69796A | 100.00 | ☐ | 134.00 | ☐ | <25% | ☐ |
| 1 | 3 | ☐ | ☐ | IS69998A | 40.00 | ☐ | 67.90 | ☐ | <25% | ☐ |

**Comments:** C3a: The requested allocation (0.25 cfs) is much less than 1% of relevant flows in both SW1 and SW2, and somewhat less than in SW3 (although the latter is likely immaterial because the relevant portion of SW3 (Pudding River) is limited to a very small reach near its confluence with SW2 (Molalla River); furthermore, most if not all, stream interference will be with the two nearer streams).

The Hunt 2003 analytical stream depletion model was used to estimate pumping interference at 30 days at SW1 (Willamette River). Model results indicate that interference is expected to be less than 25% of the maximum allocated pumping rate at 30 days.

25

# Section C: GW/SW Interaction

## Water Availability Analysis
### Detailed Reports

WILLAMETTE R > COLUMBIA R - AB PERIWINKLE CR AT GAGE 14174
WILLAMETTE BASIN
Water Availability as of 8/17/2017

Watershed ID #: 30200321 (Map)
Date: 8/17/2017

Exceedance Level: 80%
Time: 7:31 AM

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

### Water Availability Calculation

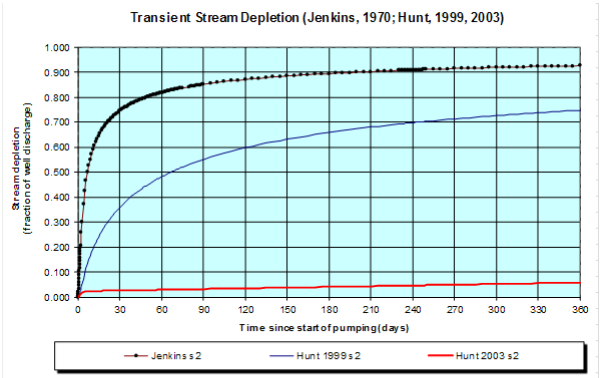
Monthly Streamflow in Cubic Feet per Second
Annual Volume at 50% Exceedance in Acre-Feet

| Month | Natural Stream Flow | Consumptive Uses and Storages | Expected Stream Flow | Reserved Stream Flow | Instream Flow Requirement | Net Water Available |
|---|---|---|---|---|---|---|
| JAN | 10,100.00 | 1,370.00 | 8,730.00 | 0.00 | 1,750.00 | 6,980.00 |
| FEB | 11,600.00 | 4,290.00 | 7,310.00 | 0.00 | 1,750.00 | 5,560.00 |
| MAR | 11,000.00 | 4,560.00 | 6,440.00 | 0.00 | 1,750.00 | 4,690.00 |
| APR | 9,760.00 | 4,260.00 | 5,500.00 | 0.00 | 1,750.00 | 3,750.00 |
| MAY | 8,430.00 | 2,540.00 | 5,890.00 | 0.00 | 1,750.00 | 4,140.00 |
| JUN | 5,360.00 | 855.00 | 4,500.00 | 0.00 | 1,750.00 | 2,750.00 |
| JUL | 3,270.00 | 661.00 | 2,610.00 | 0.00 | 1,750.00 | 859.00 |
| AUG | 2,560.00 | 601.00 | 1,960.00 | 0.00 | 1,750.00 | 209.00 |
| SEP | 2,540.00 | 517.00 | 2,020.00 | 0.00 | 1,750.00 | 273.00 |
| OCT | 2,860.00 | 269.00 | 2,590.00 | 0.00 | 1,750.00 | 841.00 |
| NOV | 4,170.00 | 354.00 | 3,820.00 | 0.00 | 1,750.00 | 2,070.00 |
| DEC | 8,150.00 | 379.00 | 7,770.00 | 0.00 | 1,750.00 | 6,020.00 |
| ANN | 7,460,000.00 | 1,240,000.00 | 6,230,000.00 | 0.00 | 1,270,000.00 | 4,960,000.00 |

Download Data ( Text - Formatted , Text - Tab Delimited , Excel )

26

# Section C: GW/SW Interaction




| Output for Stream Depletion, Scenerio 2 (s2): | | | | | | Time pump on (pumping duration) = 365 days | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Days | 30 | 60 | 90 | 120 | 150 | 180 | 210 | 240 | 270 | 300 | 330 | 360 |
| J SD | 74.4% | 81.7% | 85.0% | 87.0% | 88.4% | 89.4% | 90.2% | 90.8% | 91.3% | 91.8% | 92.2% | 92.5% |
| H SD 1999 | 35.8% | 48.1% | 55.0% | 59.7% | 63.1% | 65.8% | 67.9% | 69.7% | 71.2% | 72.5% | 73.7% | 74.7% |
| H SD 2003 | 2.57% | 2.87% | 3.16% | 3.46% | 3.75% | 4.04% | 4.33% | 4.63% | 4.92% | 5.21% | 5.50% | 5.80% |
| Qw, cfs | 0.250 | 0.250 | 0.250 | 0.250 | 0.250 | 0.250 | 0.250 | 0.250 | 0.250 | 0.250 | 0.250 | 0.250 |
| H SD 99, cfs | 0.090 | 0.120 | 0.138 | 0.149 | 0.158 | 0.164 | 0.170 | 0.174 | 0.178 | 0.181 | 0.184 | 0.187 |
| H SD 03, cfs | 0.006 | 0.007 | 0.008 | 0.009 | 0.009 | 0.010 | 0.011 | 0.012 | 0.012 | 0.013 | 0.014 | 0.014 |

| Parameters: | | Scenario 1 | Scenario 2 | Scenario 3 | Units |
|---|---|---|---|---|---|
| Net steady pumping rate of well | Qw | 0.25 | 0.25 | 0.25 | cfs |
| Time pump on (pumping duration) | tpon | 365 | 365 | 365 | days |
| Perpendicular from well to stream | a | 3100 | 3100 | 3100 | ft |

27

# Section D: Well Construction

- Review of Well Construction
- Protection of the aquifer from contamination and co-mingling

**D. WELL CONSTRUCTION, OAR 690-200**

D1. **Well #:** _____ **Logid:** _____

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

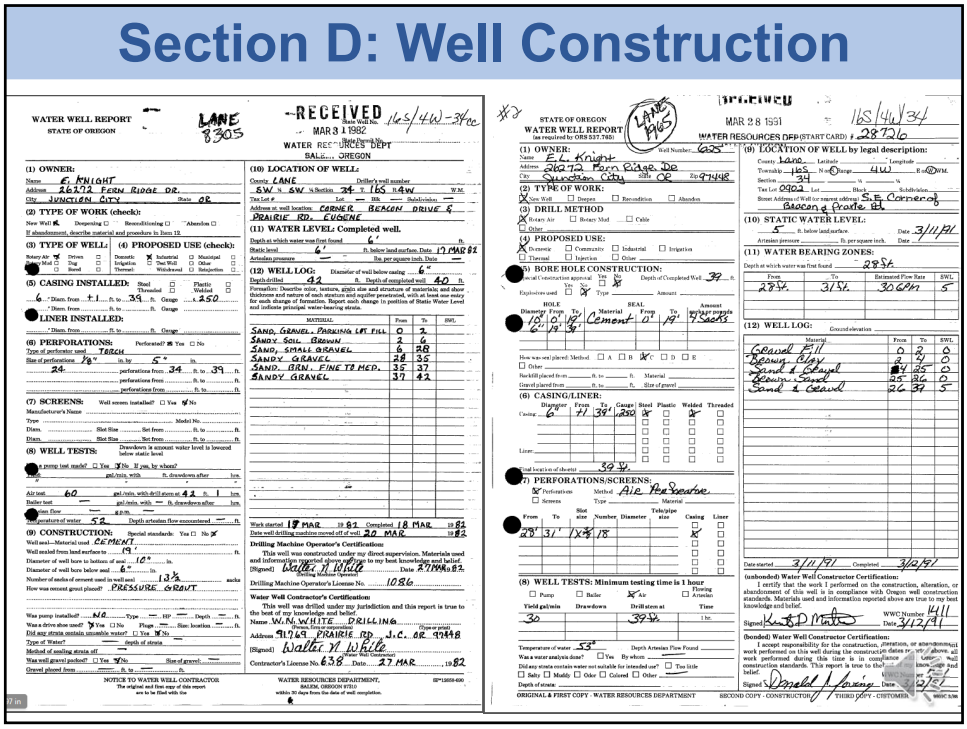
a. ☐ review of the well log;
b. ☐ field inspection by _____;
c. ☐ report of CWRE _____;
d. ☐ other: (specify) _____

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.**

28

# Section D: Well Construction



WATER WELL REPORT
STATE OF OREGON

LANE 8305

RECEIVED
MAR 3 1982
WATER RESOURCES DEPT
SALEM, OREGON

(1) OWNER: E. KNIGHT
Address: 26272 FERN RIDGE DR.
City: JUNCTION CITY State: OR

(2) TYPE OF WORK (check): New Well ☒

(3) TYPE OF WELL: Rotary Air ☒

(4) PROPOSED USE (check): Domestic ☒

(5) CASING INSTALLED: Steel ☐ Threaded ☐ Plastic ☐ Welded ☐
6 " Diam. from +1 ft. to 39 ft. Gauge .250
LINER INSTALLED:

(6) PERFORATIONS: Perforated? ☒ Yes ☐ No
Type of perforator used TORCH
Size of perforations 5/8" by 5" in.
24 perforations from 34 ft. to 39 ft.

(7) SCREENS: Well screen installed? ☐ Yes ☒ No

(8) WELL TESTS:
Air test 60 gal/min. with drill stem at 42 ft. 1 hrs.
Bailer test — gal/min. with — ft. drawdown after — hrs.
Flow test — g.p.m.
Temperature of water 52 Depth artesian flow encountered — ft.

(9) CONSTRUCTION: Special standards: Yes ☐ No ☒
Well seal—Material used CEMENT
Well sealed from land surface to 19'
Diameter of well bore to bottom of seal 10"
Diameter of well bore below seal 6"
Number of sacks of cement used in well seal 13½ sacks
How was cement grout placed? PRESSURE GROUT

Was pump installed? NA Type — HP —
Was a drive shoe used? ☒ Yes ☐ No
Did any strata contain unusable water? ☐ Yes ☒ No
Type of Water? — depth of strata —
Method of sealing strata off —
Was well gravel packed? ☐ Yes ☒ No
Gravel placed from — ft. to — ft.

(10) LOCATION OF WELL:
County LANE
SW ¼ SW ¼ Section 34 T. 16S R. 4W W.M.
Address of well location: CORNER BEACON DRIVE & PRAIRIE RD. EUGENE

(11) WATER LEVEL: Completed well.
Depth at which water was first found 6'
Static level 6' ft. below land surface. Date 19 MAR 82
Artesian pressure — lbs. per square inch. Date —

(12) WELL LOG: Diameter of well below casing 6"
Depth drilled 42 ft. Depth of completed well 40 ft.

| MATERIAL | From | To | SWL |
|---|---|---|---|
| SAND, GRAVEL, PARKING LOT FILL | 0 | 2 | |
| SANDY SOIL BROWN | 2 | 6 | |
| SAND, SMALL GRAVEL | 6 | 28 | |
| SANDY GRAVEL | 28 | 35 | |
| SAND, BRN., FINE TO MED. | 35 | 37 | |
| SANDY GRAVEL | 37 | 42 | |

Work started 18 MAR 19 82 Completed 18 MAR 19 82
Date well drilling machine moved off of well 20 MAR 19 82

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Walter N White (Drilling Machine Operator) Date 27 MAR 82
Drilling Machine Operator's License No. 1086

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name W. N. WHITE DRILLING (Person, firm or corporation) (Type or print)
Address 91769 PRAIRIE RD. J.C. OR 97448
[Signed] Walter N White (Water Well Contractor)
Contractor's License No. 638 Date 27 MAR 19 82

NOTICE TO WATER WELL CONTRACTOR: The original and first copy of this report are to be filed with the WATER RESOURCES DEPARTMENT, SALEM, OREGON 97310 within 30 days from the date of well completion.



STATE OF OREGON
WATER WELL REPORT
(as required by ORS 537.765)

LANE 8305

RECEIVED
MAR 28 1991
WATER RESOURCES DEPT
SALEM, OREGON

165/4W/34
WATER RESOURCES DEP (START CARD) # 28726

(1) OWNER: Name E. L. Knight
Address 26272 Fern Ridge Dr.
City Junction City State OR Zip 97448

(2) TYPE OF WORK: ☒ New Well

(3) DRILL METHOD: ☒ Rotary Air

(4) PROPOSED USE: ☒ Domestic

(5) BORE HOLE CONSTRUCTION:
Special Construction approval Yes ☐ No ☒ Depth of Completed Well 32 ft.
Explosives used Yes ☐ No ☒ Type — Amount —

| HOLE Diameter | From | To | SEAL Material | From | To | Amount sacks or pounds |
|---|---|---|---|---|---|---|
| 10" | 0 | 19' | Cement | 0 | 19' | 7 sacks |
| 6" | 19' | 32' | | | | |

How was seal placed: Method ☐ A ☐ B ☒ C ☐ D ☐ E Other
Backfill placed from — ft. to — ft. Material —
Gravel placed from — ft. to — ft. Size of gravel —

(6) CASING/LINER:

| | Diameter | From | To | Gauge | Steel | Plastic | Welded | Threaded |
|---|---|---|---|---|---|---|---|---|
| Casing | 6" | +1' | 32' | .250 | ☒ | ☐ | ☐ | ☒ |
| Liner | | | | | | | | |

Final location of shoe(s) 32'

(7) PERFORATIONS/SCREENS:
☒ Perforations ☐ Screens
Method AIR Hammer
Type — Material —

| From | To | Slot size | Number | Diameter | Tele/pipe size | Casing | Liner |
|---|---|---|---|---|---|---|---|
| 28' | 31' | 1/8" | 18 | | | ☒ | |

(8) WELL TESTS: Minimum testing time is 1 hour
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian
Yield gal/min 30 Drawdown — Drill stem at 32' Time 1 hr.
Temperature of water 53° Depth Artesian Flow Found —
Was a water analysis done? ☐ Yes By whom —
Did any strata contain water not suitable for intended use? ☐ Too little ☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other —
Depth of strata —

(9) LOCATION OF WELL by legal description:
County Lane Latitude — Longitude —
Township 16S N or S Range 4W E or W WM.
Section 34
Tax Lot 0902 Lot — Block — Subdivision —
Street Address of Well or nearest address S.E. Corner of Beacon & Prairie Rd.

(10) STATIC WATER LEVEL:
5 ft. below land surface. Date 3/11/91
Artesian pressure — lbs. per square inch. Date —

(11) WATER BEARING ZONES:
Depth at which water was first found 28'

| From | To | Estimated Flow Rate | SWL |
|---|---|---|---|
| 28' | 31' | 30 GPM | 5 |

(12) WELL LOG: Ground elevation —

| Material | From | To | SWL |
|---|---|---|---|
| Gravel Fill | 0 | 2 | 0 |
| Brown Clay | 2 | 4 | 0 |
| Sand & Gravel | 4 | 25 | 0 |
| Brown Sand | 25 | 26 | 0 |
| Sand & Gravel | 26 | 32 | 5 |

Date started 3/11/91 Completed 3/12/91

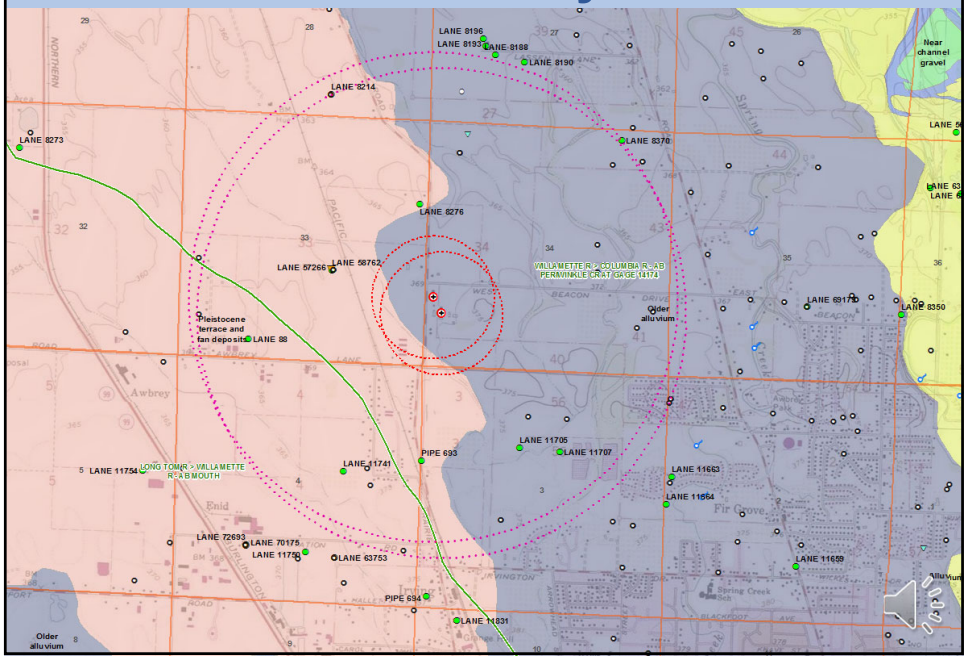
(unbonded) Water Well Constructor Certification:
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to my best knowledge and belief.
WWC Number 1411
Signed Kenneth D Mathis Date 3/12/91

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, 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 well construction standards. This report is true to the best of my knowledge and belief.
Signed Donald Mathis Date 3/27/91

ORIGINAL & FIRST COPY - WATER RESOURCES DEPARTMENT SECOND COPY - CONSTRUCTOR THIRD COPY - CUSTOMER

29

# Summary




30


Justin Iverson
Groundwater Section Manager
justin.t.iverson@water.oregon.gov
503-986-0933
STATE OF OREGON
WATER RESOURCES DEPARTMENT
WRD

31