Groundwater Transfer Review Summary Form

Transfer/PA # T- _ **14251** _

GW Reviewer _ Dennis Orlowski_ **Date Review Completed:** _ **December 22, 2023** _

Summary of Same Source Review:

☐ The proposed change in point of appropriation is not within the same aquifer as per OAR 690-380-2110(2).

Summary of Injury Review:

☐ The proposed transfer will result in another, existing water right not receiving previously available water to which it is legally entitled or result in significant interference with a surface water source as per 690-380-0100(3).

Summary of GW-SW Transfer Similarity Review:

☐ The proposed SW-GW transfer doesn't meet the definition of "similarly" as per OAR 690-380-2130.

This is only a summary. Documentation is attached and should be read thoroughly to understand the basis for determinations.

Ground Water Review Form:

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OREGON
WATER RESOURCES
DEPARTMENT

☒ **Water Right Transfer**
☐ **Permit Amendment**
☐ **GR Modification**
☐ **Other**

Application: T-<u>14251</u>   Applicant Name: <u>Willamette Tree Wholesale Inc.</u>

Proposed Changes: ☒ POA   ☒ APOA   ☐ SW→GW   ☐ RA
☐ USE   ☐ POU   ☐ OTHER

Reviewer(s): <u>Dennis Orlowski</u>   Date of Review: <u>12/22/2023</u>

Date Reviewed by GW Mgr. and Returned to WRSD: <u>12/22/2023</u>

The information provided in the application is insufficient to evaluate whether the proposed transfer may be approved because:

☐ The water well reports provided with the application do not correspond to the water rights affected by the transfer.

☐ The application does not include water well reports or a description of the well construction details sufficient to establish the ground water body developed or proposed to be developed.

☐ Other _____

- -

Basic description of the changes proposed in this transfer: <u>This proposed changes relates to</u> **certificate 40295** (primary irrigation of 58.0 acres, single authorized POA (MARI 4898)) <u>and</u> **certificate 50713** <u>(primary irrigation of 113.0 acres, supplemental 41.0 acres, two authorized POA (MARI 4880 and MARI 4897)). The POA and POU locations are in the French Prairie region about 3-4 miles due north of the Salem-Keizer area. MARI 4880 is also the authorized POA for irrigation claim GR 3046.</u>

This application proposes the following changes:

Certificate 40295: change POA to three existing wells (MARI 4897, MARI 70766, MARI 4888) for irrigation of a 30.6 acre portion of the authorized POU.

Certificate 50713: add two APOA (existing wells MARI 4888, MARI 70766) for irrigation of an 84.1 acre portion of the authorized POU.

Note: concurrently-submitted application T-14252 is related to this application; T-14252 is a proposed modification to GR 3046 (irrigation of 138.2 acres, maximum pumping rate 1.2254 cfs (550 gpm)) to change its authorized POA MARI 4880 to two new POA, MARI 70766 and MARI 4888, for irrigation of a 40.0 acre portion of the POU registered under GR 3046.

1. Will the proposed POA develop the same aquifer (source) as the existing authorized POA?
    ☒ Yes   ☐ No   Comments: <u>All authorized and proposed POA range in depth from 140 to 257 feet deep, and obtain groundwater from confined sand and gravel deposits of the Willamette Aquifer system (Gannett and Caldwell, 1998; Conlon and others, 2005).</u>

2. a) Is there more than one source developed under the right (e.g., basalt and alluvium)?
    ☐ Yes   ☒ No <u>   </u>

    b) If yes, estimate the portion of the right supplied by each of the sources and describe any limitations that will need to be placed on the proposed change (rate, duty, etc.): <u>N/A</u>

3. a) Will this proposed change, at its maximum allowed rate of use, likely result in an increase in interference with **another ground water right**?
    ☒ Yes   ☐ No   Comments: **Certificate 40295 (yes)**<u>: relative to the authorized POA location (MARI 4898), the locations for two of the three proposed POA (MARI 4897, MARI 70766) 4888) are relatively nearer by about 2300 feet to MARI 4199, a domestic use well. Therefore the proposed change will likely result in an increase in interference with MARI 4199.</u>

    Certificate 50713 (no)<u>: relative to the authorized POA locations (MARI 4880, MARI 4897), the locations for the two proposed APOA (MARI 4888, MARI 70766) are not appreciably relatively nearer to any known groundwater right.</u>

    b) If yes, would this proposed change, at its maximum allowed rate of use, likely result in another groundwater right not receiving the water to which it is legally entitled?

    ☐ Yes   ☒ No   If yes, explain: **Certificate 40295**<u>: none of the area's wells fully penetrate the alluvial aquifer system in this area, estimated to be about 500-700 feet thick (Gannett and Caldwell, 1998), and thus are not subject to injury determinations (the nearest potentially-affected well MARI 4199 is only 147 feet deep, and other nearby wells MARI 4227 and MARI 4222 are even shallower at 85 and 86 feet deep, respectively).</u>

    <u>Nonetheless, a Theis distance-drawdown analysis was completed to estimate the net additional drawdown at the MARI 4199 location potentially caused by the proposed use (i.e., increased pumping specifically at the MARI 70766 and MARI 4897 locations). The results of the Theis analysis, using very conservative operational parameters (24/7 pumping for 160 days), indicate that perhaps ~2 to 10 feet of additional drawdown might be experienced in MARI 4199; despite its relatively-shallow depth, this amount of additional drawdown should be able to be accommodated in MARI 4199 and other similarly-completed (and not fully penetrating) wells. Furthermore, performance of wells in this area indicate a very prolific Willamette Aquifer system that should help mitigate any potential well interference effects not identified in this review (e.g., notably high specific capacity value and reported well yield for nearby MARI 58798).</u>

4. a) Will this proposed change, at its maximum allowed rate of use, likely result in an increase in interference with **another surface water source**?
    ☐ Yes   ☒ No   Comments: <u>All authorized and proposed POA locations range from ~1.2 to 1.5 miles to the nearest perennial stream reach (Patterson Creek). Although proposed POA MARI 70766 (nearest) is about 2100 ft nearer to this stream relative to authorized POA MARI 4880 (farthest), the large overall distances suggest that it is not likely the proposed use will result in an increase in interference with this surface water source.</u>

b) If yes, at its maximum allowed rate of use, what is the expected change in degree of interference with any **surface water sources** resulting from the proposed change?

Stream: _____   ☐ Minimal   ☐ Significant

Stream: _____   ☐ Minimal   ☐ Significant

Provide context for minimal/significant impact: N/A

5. For SW-GW transfers, will the proposed change in point of diversion affect the surface water source similarly (as per OAR 690-380-2130) to the authorized point of diversion specified in the water use subject to transfer?

☐ Yes   ☐ No   Comments: N/A

6. What conditions or other changes in the application are necessary to address any potential issues identified above: None

7. Any additional comments: None

References

Application file: T-14251; Groundwater Reviews: T-14252, T-12558, T-12416, T-12360, T-12361,G-18430

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.

Theis, C.V., 1935, The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using groundwater storage, American Geophysical Union Transactions, vol. 16, p. 519-524.
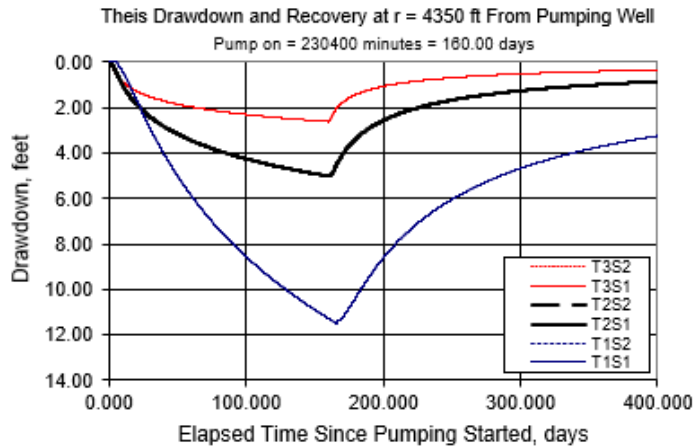
Application T-14251 Willamette Tree Wholesale
Certificate 40295   T6S, R3W, S13

Application T-14251 Willamette Tree Wholesale
Certificate 50713   T6S, R2W, S13; T6S, R3W, S13 & 14
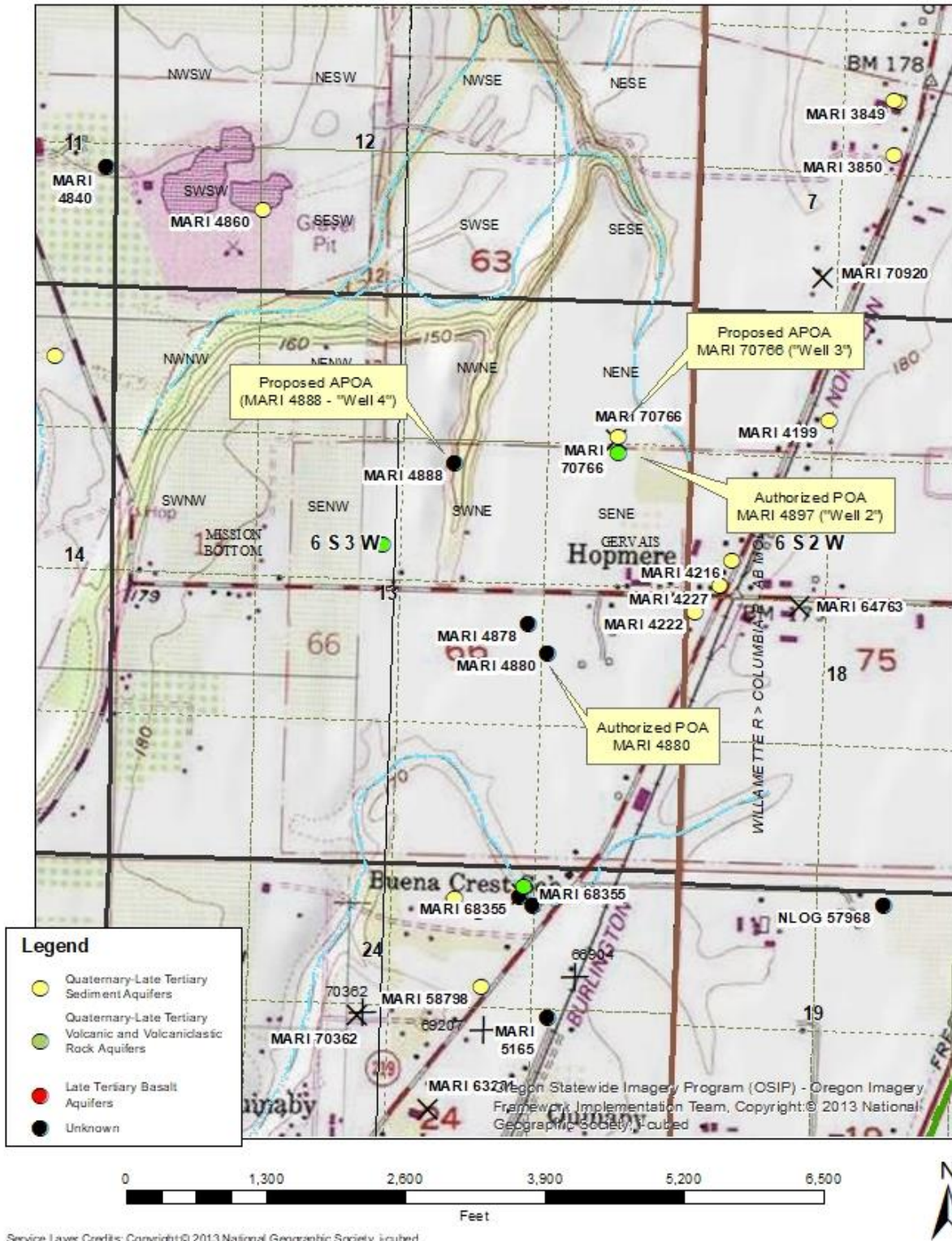
Theis Analysis: authorized POA (MARI 4898) to MARI 4199

Theis Time-Drawdown Worksheet v.5.00
Calculates Theis nonequilibrium drawdown and recovery at any arbitrary radial distance, r, from a pumping well for 3 different T values and
radial distance, r, from a pumping well for 3 different T values and 2 different S values.
Written by Karl C. Wozniak September 1992. Last modified December 17, 2019

Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units	
Total pumping time	t		160		d	
Radial distance from pumped well:	r		4350		ft	**Q conversions**
Pumping rate	Q		1.2254		cfs	549.96 gpm
Hydraulic conductivity	K	25	100	250	ft/day	1.23 cfs
Aquifer thickness	b		50		ft	73.52 cfm
Storativity	S_1		0.005			105,874.56 cfd
	S_2		0.005			2.43 af/d
Transmissivity Conversions	T_f2pd	1250	5000	12500	ft2/day	
	T_ft2pm	0.868056	3.472222	8.680556	ft2/min	**Recalculate**
	T_gpdpft	9350	37400	93500	gpd/ft	

Use the Recalculate button if recalculation is set to manual

Theis Drawdown and Recovery at r = 4350 ft From Pumping Well
Pump on = 230400 minutes = 160.00 days

Theis Analysis: proposed POA (MARI 70766) to MARI 4199

Theis Time-Drawdown Worksheet v.5.00
Calculates Theis nonequilibrium drawdown and recovery at any arbitrary radial distance, r, from a pumping well for 3 different T values and
radial distance, r, from a pumping well for 3 different T values and 2 different S values.
Written by Karl C. Wozniak September 1992. Last modified December 17, 2019

Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units	
Total pumping time	t		160		d	
Radial distance from pumped well:	r		2050		ft	**Q conversions**
Pumping rate	Q		1.2254		cfs	549.96 gpm
Hydraulic conductivity	K	25	100	250	ft/day	1.23 cfs
Aquifer thickness	b		50		ft	73.52 cfm
Storativity	S_1		0.005			105,874.56 cfd
	S_2		0.005			2.43 af/d
Transmissivity Conversions	T_f2pd	1250	5000	12500	ft2/day	
	T_ft2pm	0.868056	3.472222	8.680556	ft2/min	**Recalculate**
	T_gpdpft	9350	37400	93500	gpd/ft	

Use the Recalculate button if recalculation is set to manual

Theis Drawdown and Recovery at r = 2050 ft From Pumping Well
Pump on = 230400 minutes = 160.00 days

Version: 20210204