

Groundwater Transfer Review Summary Form

Transfer/PA # T- 14912

GW Reviewer Dennis Orlowski Date Review Completed: September 11, 2026

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 Water Level Decline Condition Review:

☐ Water levels at the original point(s) of appropriation have exceeded the allowed decline threshold defined by conditions in the originating water right.

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.



Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, Oregon 97301-1271
(503) 986-0900
www.wrd.state.or.us

Ground Water Review Form:

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

Application: T-14912

Applicant Name: Strata Land Holdings LLC

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

Reviewer(s): Dennis Orlowski

Date of Review: September 11, 2026

Date Reviewed by GW Mgr. and Returned to WRSD: September 11, 2026

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 _____

1. Basic description of the changes proposed in this transfer: This transfer application pertains to certificate 96085, which is for nursery operations on 20.0 acres in Clackamas County, using groundwater obtained from a single authorized POA, CLAC 5484 ("Well 1").

This application proposes a temporary transfer (for 5 years) in which: (1) the authorized POA is changed to existing well CLAC 5617 ("Well 6") and (2) the POU is changed to a different nearby 20-acre parcel.

Note: in 2020 most of the authorized 20-acre POU (an estimated 18.77 acres according to Clackamas County tax records) was converted to a solar panel farm. This aspect of the proposed change is discussed more in item 9 of this review.

2. Will the proposed POA develop the same aquifer (source) as the existing authorized POA?
☒ Yes ☐ No Comments: The POA/POU are located within the specially-designated portion of the Sandy-Boring Groundwater Limited Area (GWLA) in which groundwater from the deep Troutdale aquifer is classified only for exempt uses (OAR 690-502-0170) (the deep Troutdale aquifer is considered by OWRD to correspond to the USGS' Troutdale Sandstone Aquifer (TSA) and other water-bearing formations below Confining Unit 1 (CU1) (Swanson and others, 1993). However, the application date for permit G-11025 /certificate 96085 (9/30/1987) pre-dated enactment of OAR 690-502-0170 (10/4/1991), and thus the relevant water rights were/are instead subject to the rules in effect when originally issued.

Authorized POA CLAC 5484 is 400 feet deep and obtains groundwater from the deep Troutdale aquifer system. Proposed POA CLAC 5617 is deeper at 485 feet, but with its ground surface elevation about 20 feet lower than at CLAC 5484. Additionally, the only available contemporaneous static water-level measurements for both wells in April 1989 showed an approximate 43 foot head difference, with CLAC 5617 the deeper of the two; this difference is likely attributable to (1) the deeper completion *elevation* of CLAC 5617 (i.e., falling head with depth typical of this system) and (2) the much greater open interval present in CLAC 5617. These two factors suggest that CLAC 5617 might also obtain groundwater from water-bearing units below the TSA (e.g., perhaps from coarser portions of CU2), although that is difficult to determine with existing limited information. Nonetheless, those units are still considered by OWRD to comprise the deep Troutdale aquifer system. Thus the proposed POA obtains groundwater from the same source as the authorized POA.

3. a) Is the existing authorized POA subject to a water level decline condition?
☐ Yes ☒ No Comments: Certificate 96085 does not contain either water-level decline conditions or a requirement to establish a reference level by which those conditions could be assessed.

b) If yes, for each POA identify the reference level, most recent spring-high water level, and whether an applicable permit decline condition has been exceeded: N/A
4. a) Is there more than one source developed under the right (e.g., basalt and alluvium)?
☐ Yes ☒ No Comments: See response to item 2.

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.): N/A
5. 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: There are several existing irrigation wells in the area that will likely experience an increase in interference due to the proposed use. There are also domestic use wells nearby, but existing well records indicate that most, if not all, are completed in the shallow Troutdale Aquifer which is hydraulically isolated from wells in the deep Troutdale Aquifer, and thus not susceptible to undue interference (e.g., CLAC 5538, CLAC 5580, CLAC 17981, CLAC 5613).

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: The nearest well known to be associated with a senior water right and most likely susceptible to interference by this proposed use is CLAC 5573. CLAC 5573 is the authorized POA for certificates 52851 and 64992, both of which are senior to certificate 96085.

CLAC 5573 is located approximately 2000 feet from proposed POA CLAC 5617, which is about 3200 nearer than authorized POA CLAC 5484. It appears that CLAC 5573 fully penetrates, or nearly so, the deep Troutdale aquifer; the bottom of CLAC 5573 is at about elevation 190 ft msl, whereas USGS geologic maps place the bottom of the deep Troutdale aquifer (equivalent to the TSA) at approximately the same elevation (~180 ft msl, +/- perhaps 20 feet) (Swanson and others, 1993; OLC, 2016).

The Theis distance-drawdown analytical equation was used to evaluate interference at CLAC 5573 due to pumping at the proposed POA (CLAC 5617) location (Theis, 1940). Using aquifer parameters derived from local pumping test results and very conservative operational parameters (pumping 24/7/365 at 0.56 cfs (~250 gpm)), the additional net drawdown expected at CLAC 5573 (compared to similar pumping of CLAC 5484) ranges from approximately 2 to 4 feet (see attached Theis analytical results). Recent measurements in CLAC 5573 indicate there is about 40 feet of available drawdown in CLAC 5573 before the pumping water level reaches the perforated section of the well. Thus this amount of additional interference (2-4 feet), derived using very conservative operational parameters, is not likely to result in CLAC 5573 or other similarly-located groundwater rights from receiving the water to which they are legally entitled.

Note: despite this conclusion, recently-declining water levels in CLAC 5573 are concerning. As shown on the attached hydrograph for CLAC 5573 (Jan-April data only), groundwater levels were relatively stable from about 1990 through 2022, trending within a roughly 10-foot range over that period. However, since spring 2022, levels in CLAC 5573 have declined almost 12 feet, below the previously-established range; this decline could be largely due to recent drought conditions, similar to drought-related declines shown in CLAC 5573 in the 1980s. Because groundwater levels did not fully recover from that earlier drought period, similar long-term or permanent declines are anticipated after the current drought period.

6. 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: The elevation of the nearest perennial reach of the North Fork Deep Creek is at ~480-520 ft msl, which above the deep Troutdale aquifer in this area and thus not likely to be hydraulically connected (USGS-NHD 2014).

Tickle Creek to the south is more deeply incised into the sedimentary deposits, with nearby stream elevations ranging from ~340-420 ft msl. It is likely that at least some upper portions of the deep Troutdale aquifer system are hydraulically connected to Tickle Creek, and thus the proposed use will likely result in an increase in interference with that stream.

- 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: Tickle Creek ☒ Minimal ☐ Significant

Stream: _____ ☐ Minimal ☐ Significant

Provide context for minimal/significant impact: Relative to authorized POA CLAC 5484, proposed POA CLAC 5617 is about 1200 feet nearer to Tickle Creek. However, at the proposed maximum allowed rate of use (0.56 cfs), it is unlikely that the relative nearness of CLAC 5617 will result in a significant increase in interference with Tickle Creek.

7. 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

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

9. Any additional comments: information used for this review indicated that most of the authorized 20-acre POU (~18.77 acres) was converted from irrigated nursery land to a solar panel farm in 2020. The timing of solar farm construction is evident from historical aerial imagery, and was confirmed by notations made in Clackamas County tax records for the authorized POU parcels (e.g., “4.22 acres” and “14.55 acres” “no longer in use – solar – effective to year 2020”).

Recent field observations by the OWRD watermaster conducted for their review of this application also revealed that solar panel construction necessitated the removal of the CLAC 5484 wellhouse and critical components (namely the pump); these changes rendered CLAC 5484 unusable as the sole authorized source of water for certificate 96085 (see related watermaster review for photo documentation).

Because these changes occurred in 2020 and this application T-14912 was submitted to OWRD on July 30, 2026, **water was not beneficially used within the past 5 years, as required for certificate 96085 under Oregon water law** (despite the certificate being issued in 2023, *albeit on the basis of a 1993 Claim of Beneficial Use*). Because the authorized and proposed POU are within a state Groundwater Limited Area that is undergoing accelerated groundwater level declines, the non-use aspect of this application should be given special consideration by TACS.

References

Application T-14912, certificate 96085 file.

Application T-13802 groundwater technical review.

Pumping test analytical results: CLAC 5619, CLAC 78512.

Oregon Lidar Consortium (OLC), 2016, OLC metro 2014 lidar project, Oregon Department of Geology & Mineral Industries, Portland, OR, November 30.

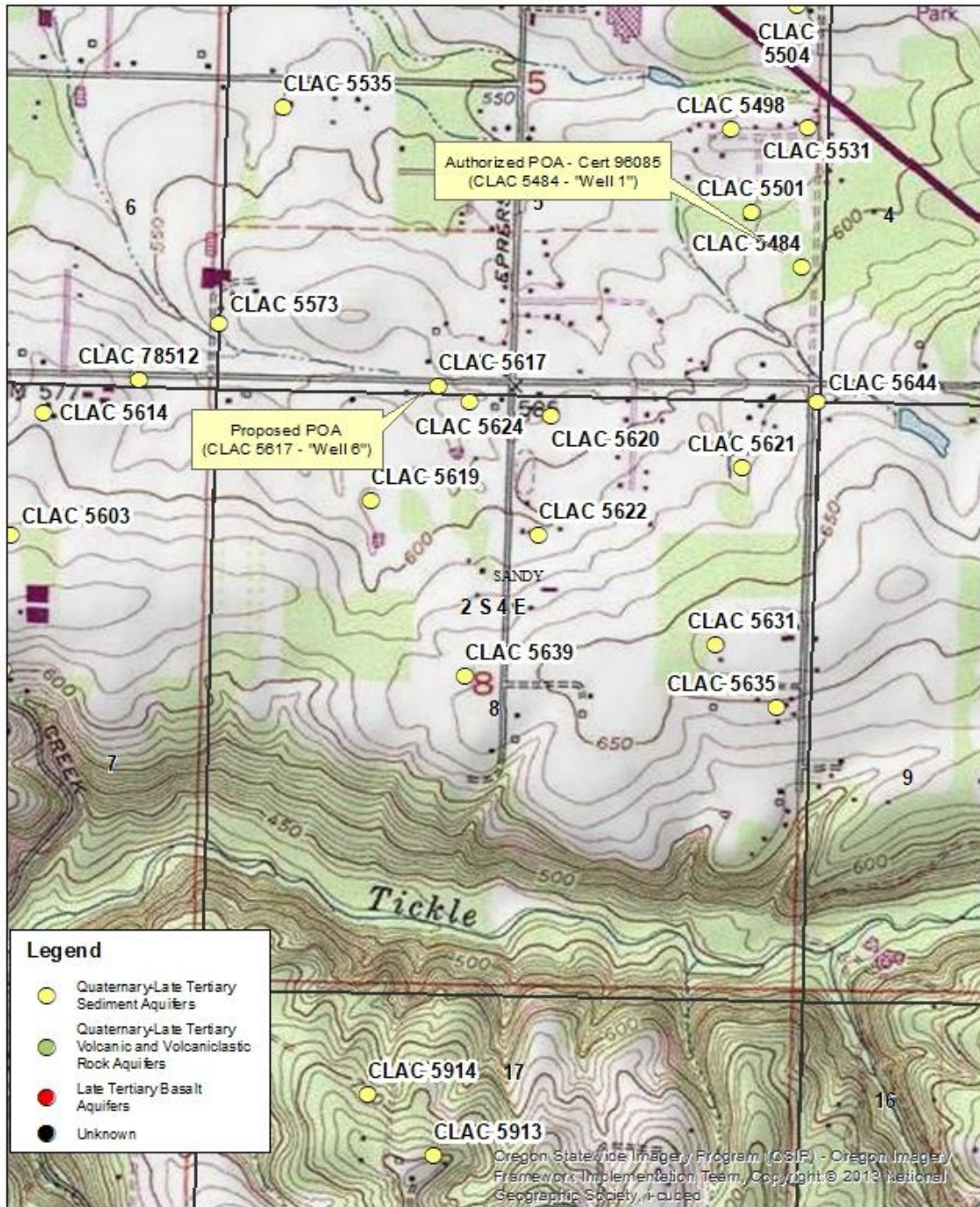
Swanson, R. D., McFarland, W. D., Gonthier, J. B., and Wilkinson, J. M., 1993, A description of hydrogeologic units in the Portland Basin, Oregon and Washington, Water-Resources Investigations Report 90-4196, 56 p.: U. S. Geological Survey, Reston, VA.

Theis, C.V., 1940, The source of water derived from wells: Essential factors controlling the response of an aquifer to development: Civil Engineering, Vol. 10, p. 277–280.

United States Geological Survey, 2014, National Hydrography Dataset (NHD), 1:24,000, U. S. Department of the Interior, Reston, VA.

Location Map

Application T-14912 Strata Land Holdings LLC
T2S, R4E, Sections 5, 8



Service Layer Credits: Copyright © 2013 National Geographic Society, i-cubed

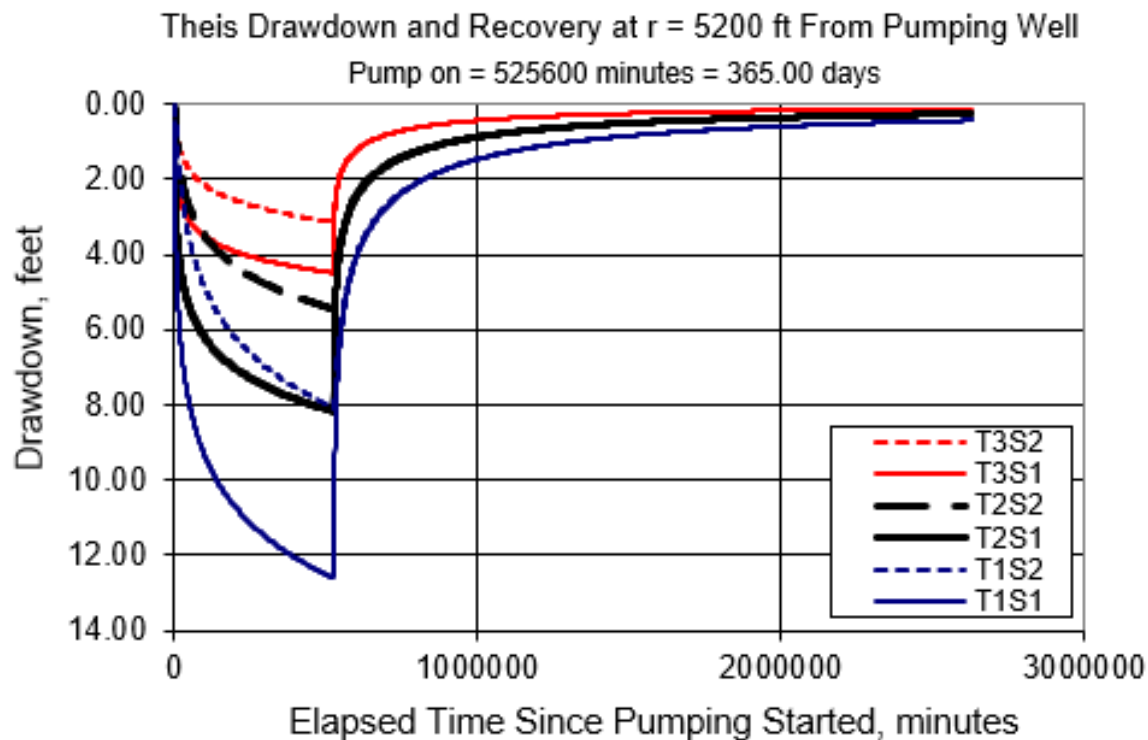
Theis distance-drawdown/interference estimate: existing POA (CLAC 5484) to CLAC 5573**Theis Time-Drawdown Worksheet** v.5.00

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		365		d	
Radial distance from pumped well:	r		5200		ft	Q conversions
Pumping rate	Q		0.56		cfs	251.33 gpm
Hydraulic conductivity	K	15	25	50	ft/day	0.56 cfs
Aquifer thickness	b		130		ft	33.60 cfm
Storativity	S 1		0.0001			48,384.00 cfd
	S 2		0.001			1.11 af/d
Transmissivity Conversions	T f2pd	1950	3250	6500	ft ² /day	Recalculate
	T ft2pm	1.3541667	2.2569444	4.5138889	ft ² /min	
	T gpd/ft	14586	24310	48620	gpd/ft	

Use the Recalculate button if recalculation is set to



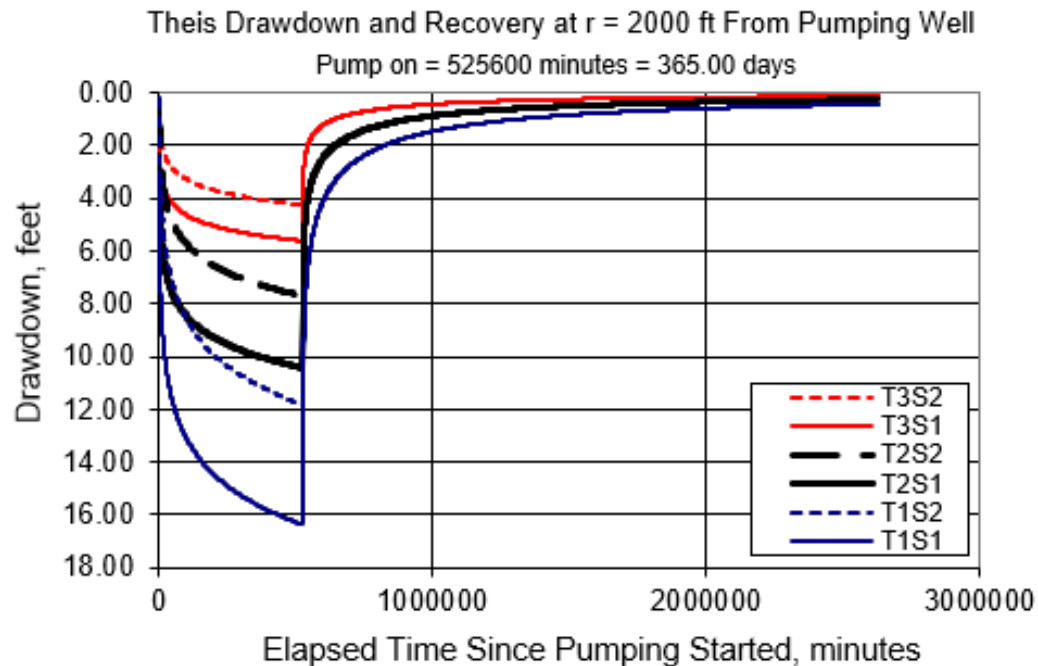
Theis distance-drawdown/interference estimate: prop. POA (CLAC 5617) to CLAC 5573**Theis Time-Drawdown Worksheet** v.5.00

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		365		d	
Radial distance from pumped well:	r		2000		ft	Q conversions
Pumping rate	Q		0.56		cfs	251.33 gpm
Hydraulic conductivity	K	15	25	50	ft/day	0.56 cfs
Aquifer thickness	b		130		ft	33.60 cfm
Storativity	S_1		0.0001			48,384.00 cfd
	S_2		0.001			1.11 af/d
Transmissivity Conversions	T_f2pd	1950	3250	6500	ft ² /day	
	T_f2pm	1.3541667	2.2569444	4.5138889	ft ² /min	
	T_gpdft	14586	24310	48620	gpd/ft	

Use the Recalculate button if recalculation is set to



CLAC 5573 hydrograph showing recent accelerated groundwater level declines