Water Right Conditions Tracking Slip

Groundwater/Hydrology Section

FILE # # G-17124

ROUTED TO: WRS

TOWNSHIP/
RANGE-SECTION: T39S/R19E-15

CONDITIONS ATTACHED?: [X] yes [ ] no

REMARKS OR FURTHER INSTRUCTIONS:
Potential for Substantial Interference
see item C6.

Reviewer: Donn Miller

WATER RESOURCES DEPARTMENT

MEMO

February 18, 2010

TO: Application G- 17124

FROM: GW: Donn Miller
(Reviewer's Name)

SUBJECT: **Scenic Waterway Interference Evaluation**

_____YES
The source of appropriation is within or above a Scenic Waterway
__X__NO

_____YES
Use the Scenic Waterway condition (Condition 7J)
__X__NO

_____Per ORS 390.835, the Ground Water Section is **able** to calculate ground water interference with surface water that contributes to a Scenic Waterway. The calculated interference is distributed below.

__X__Per ORS 390.835, the Ground Water Section is **unable** to calculate ground water interference with surface water that contributes to a scenic waterway; **therefore, the Department is unable to find that there is a preponderance of evidence that the proposed use will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway.**

DISTRIBUTION OF INTERFERENCE

Calculate the percentage of consumptive use by month and fill in the table below. If interference cannot be calculated, per criteria in 390.835, do not fill in the table but check the "unable" option above, thus informing Water Rights that the Department is unable to make a Preponderance of Evidence finding.

Exercise of this permit is calculated to reduce monthly flows in _____Scenic Waterway by the following amounts expressed as a proportion of the consumptive use by which surface water flow is reduced.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO: Water Rights Section Date **2/18/2010**

FROM: Ground Water/Hydrology Section **Donn Miller**
Reviewer's Name

SUBJECT: Application G- **17124** Supersedes review of **1/15/2009**
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 ground water 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: **Burt and Reba Swingle** County: **Lake**

A1. Applicant(s) seek(s) **1.0** cfs from **one** well(s) in the **Goose and Summer Lakes** Basin, **Goose Lake** subbasin Quad Map: **Lakeview NW**

A2. Proposed use: **irrigation of 80 ac** 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	**To be built**	**1**	**See comments**	**1.0**	**39S/19E-15 NE NE**	**90'S, 360'W fr NE cor S 15**
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
1	**4838**	---	**E38**	---	**E350**	**0-125**	**0-350**	---	**130-350**	---	---	---

Use data from application for proposed wells.

A4. **Comments: The proposed aquifer entry on the application simply says below 130'. Nearby well logs report shallow water conditions.**

Only the well location, estimated SWL, and the well elevation have changed for purposes of this re-review. The estimated SWL is mine, being commensurate with the water level elevation estimate on the original well estimate.

The new proposed well location may be based on a misunderstanding. See comments in GW/SW section.

A5. ☐ **Provisions of the Goose and Summer Lakes** Basin rules relative to the development, classification and/or management of ground water hydraulically connected to surface water ☐ **are**, *or* ☒ **are not**, activated by this application. (Not all basin rules contain such provisions.)
Comments:

A6. ☐ **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
Name of administrative area:
Comments: **NA**

Application G-17124 continued Date 2/18/2010

B. GROUND WATER AVAILABILITY CONSIDERATIONS, OAR 690-310-130, 400-010, 410-0070

B1. **Based upon available data**, I have determined that ground water* 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 ground water 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 ground water 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 ground water resource; or

d. ☒ **will, if properly conditioned**, avoid injury to existing ground water rights or to the ground water resource:
   i. ☒ The permit should contain condition #(s) **7D, 7F**;
   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 ground water production from no deeper than _____ ft. below land surface;

b. ☐ **Condition** to allow ground water production from no shallower than _____ ft. below land surface;

c. ☐ **Condition** to allow ground water production only from the _____ ground water 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 Ground Water 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. **Ground water availability remarks: There is limited ground water data. Three state observation wells in the basin show rather stable water levels. Data for closer wells that have measuring and reporting conditions provide little new data. The ground water report and well information lead me to conclude that any ground water declines have been largely the cyclical response to the strength of precipitation.**

Ground water flow is to the southeast locally. Ultimately, discharge is to Goose Lake or tributaries.

It appears that irrigation of the valley floor with surface water also aids considerably to ground water recharge.

Water level tracking at the well by permit condition is reasonable. It's the most practical way to get data at the site.

See review of 1/9/2009 and associated materials for additional information.

Application G-17124 continued Date 2/18/2010

C. GROUND WATER/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**	☒	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: **There is nominal confinement per nearby well log entries which show shallow clay layers/lenses being interspersed with sand and other water producing layers/lenses. I conclude that lenses rather than layers occur in the materials reported in nearby wells. Water levels in wells are less than 50 feet but none flow. The water levels in the wells seem to reflect a subdued topography in which confinement is weak. Wells that develop materials that are deeper than the current set of wells (<400 feet total depth) may be strongly confined and capable of flowing at land surface.**

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	**Thomas Creek Trib to south**	**E4800**	**~4805**	**2600**	☒	☐	☐	☐	☒
1	2	**Cottonwood Creek**	**E4800**	**~4835**	**6000**	☒	☐	☐	☐	☒
1	3	**North Canal**	**E4800**	**~4837**	**650**	☐	☒	☐	☐	☒
1	4	**Thomas Creek Trib to north**	**E4800**	**~4808**	**1850**	☒	☐	☐	☐	☒
1	5	**Thomas Creek Trib to south**	**E4800**	**~4785**	**5400**	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: **Based on the proximity, head relationships and amenable geologic materials there is a strong case for connection with the tributaries of Thomas Creek to the south and north. Connection with Cottonwood Creek is possible, but less certain based upon the same features. Connection with the north canal is unlikely since the canal is probably perched above the ground water level at the proposed well.**

There is another unnamed tributary to Thomas Creek to the south that about one mile from the new proposed well location. That father south tributary was not cited in the original review.

Water Availability Basin the well(s) are located within: **Thomas Creek >Goose Lake @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	☐	☐	**none**	**none**	☐	**8.24-151**	☒	**0.27%**	☒
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

C3b. **690-09-040 (4):** Evaluation of stream impacts <u>by total appropriation</u> 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?
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: NA

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
1	**2**	**0.29%**	**0.39%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.01%**	**0.02%**	**0.04%**	**0.08%**	**0.14%**	**0.21%**
Well Q as CFS		**0**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	**0**
Interference CFS		**0.003**	**0.004**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.001**	**0.001**	**0.002**

Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NA		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
(A) = Total Interf.	**0.003**	**0.004**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.001**	**0.001**	**0.002**
(B) = 80 % Nat. Q	**16.7**	**38.7**	**76.6**	**151.0**	**111.0**	**41.7**	**13.1**	**8.24**	**8.98**	**10.40**	**14.50**	**19.1**
(C) = 1 % Nat. Q	**.167**	**.387**	**.766**	**1.51**	**1.11**	**.417**	**.131**	**.0824**	**.0898**	**.104**	**.145**	**.191**
(D) = (A) > (C)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
(E) = (A / B) x 100	**.02%**	**0.01%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.01%**	**0.01%**	**0.01%**

(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: **The basis is the possible hydraulic connection and the various reasonable parameters for conditions between the new proposed well and Cottonwood Creek. Based solely on the distance involved in this semi-confined environment, we know that the estimated impact will be very small**

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 ground water 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** **The ground water is shallow and flows in the general direction as surface water. The surface water heads near the site are close to that estimated for the well. The connection with surface water is certain in the big picture. The connection with the nearby tributary of Thomas Creek to the south is the important administratively for "the potential for substantial interference." Some additional on-the-ground information about that tributary may be all the difference between permit issuance and non-issuance. The topo map renders the tributary as a solid blue line, indicating perennial flow. That may be in conflict with actual observation but at this point it is the best available information. The applicant may wish to provide knowledgeable information that states otherwise. A follow-up with the watermaster on such information would be warranted.**

The connection with Cottonwood Creek is weak at best. In any event, it probably has no real impact on the evaluation for surface water impacts.

The north canal is near the proposed well site. The canal appears to be perched above the water level in the well. As such, any leakage cannot be increased by the proposed well use.

At the originally proposed well location, there was the potential for substantial interference with a Thomas Creek tributary to the south 1500 feet. That was based on the well being hydraulically connected with the tributary; the well being less than 1 mile from the tributary; and the requested flow being greater than 1% of several monthly water availability basin (WAB) flows at the 80% exceedance level. The new proposed well location is 2600 feet from the same tributary. The analysis is the same. There was talk of the new proposed well location being just over a mile from the tributary. That could have been beneficial for the applicant but that change didn't happen. I believe that some misunderstanding occurred such that a different tributary to the south was considered for greater distancing.

There may be a modest permitting path for the applicant to consider. By reducing the requested rate to 0.082 cfs, the potential for substantial interference goes away. The requested rate becomes less than 1% of the lowest monthly WAB flow. That is the situation at both the original and the new proposed well locations. I am aware that the new rate would be much less than the desired rate.

Sometimes a deep casing and sealing will be another way to get to permit issuance. I've reviewed all of the well reports in sections 10, 11, 14, and 15, looking for strong confined conditions that would lead to a conclusion of no hydraulic connection with local surface water. I found no such conditions. The well reports include some clay layers that are good for producing confinement. Those layers seem to be rather thin and not extensive since there are no flowing wells. A flowing well would be perfect to show that the aquifer and creek are not hydraulically connected. Perhaps favorable conditions occur at depth in this area but the wells aren't deep enough to tell. The applicant would need to explore for such favorable conditions.

References Used: **well logs, File G-17124, USGS WRIR 87-4058, WRD GW database**

Application G-17124 continued Date 2/18/2010

D. WELL CONSTRUCTION, OAR 690-200

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

D2. **THE WELL does not 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**:
- a. ☐ constitutes a health threat under Division 200 rules;
- b. ☐ commingles water from more than one ground water reservoir;
- c. ☐ permits the loss of artesian head;
- d. ☐ permits the de-watering of one or more ground water reservoirs;
- e. ☐ other: (specify) _____

D4. **THE WELL construction deficiency is described as follows:** _____

D5. **THE WELL**
- a. ☐ **was**, *or* ☐ **was not** constructed according to the standards in effect at the time of original construction or most recent modification.
- b. ☐ I don't know if it met standards at the time of construction.

D6. ☐ **Route to the Enforcement Section.** I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Enforcement Section and the Ground Water Section.

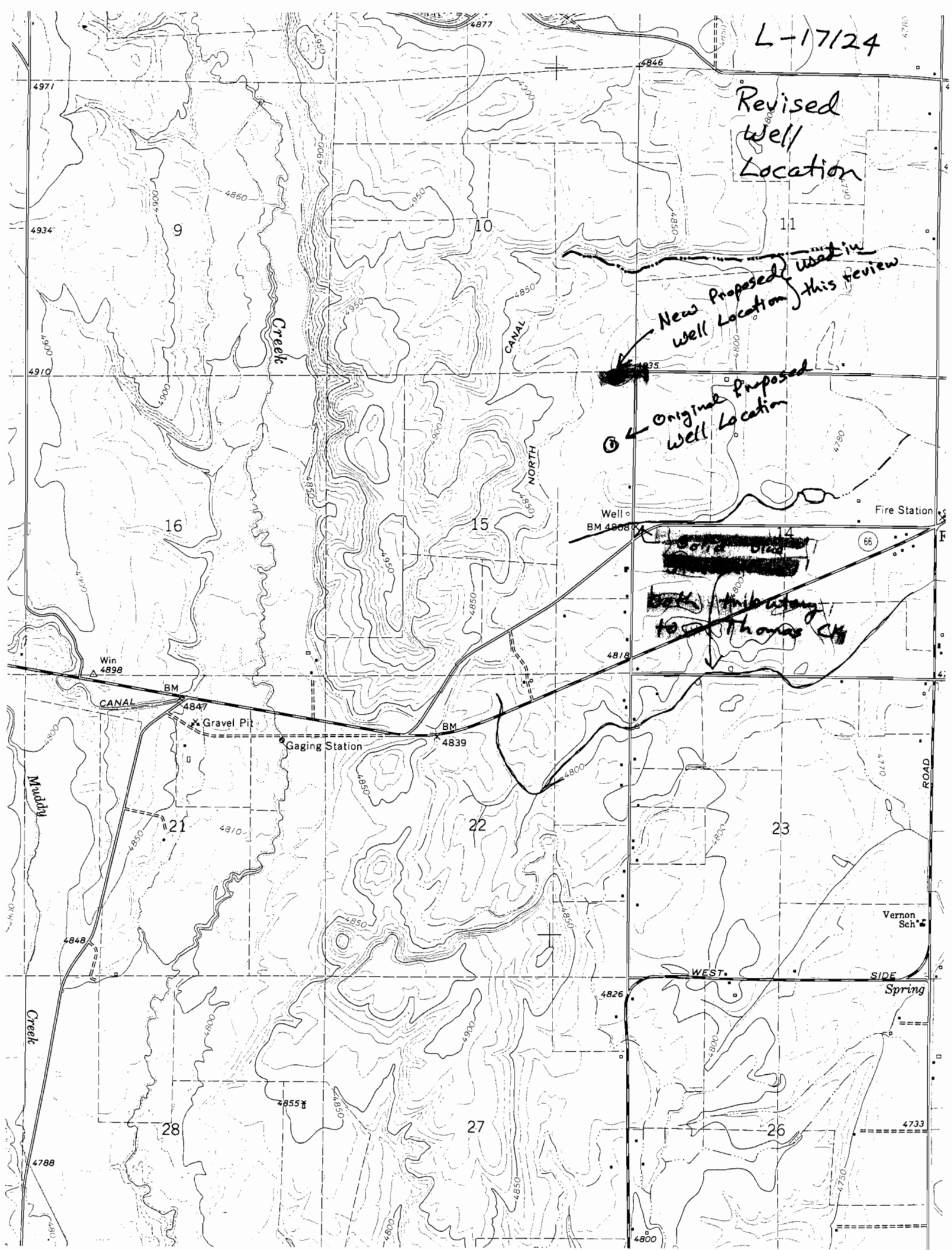
THIS SECTION TO BE COMPLETED BY ENFORCEMENT PERSONNEL

D7. ☐ Well construction deficiency has been corrected by the following actions: _____

_____ _____, 200____.

(Enforcement Section Signature)

D8. ☐ **Route to Water Rights Section (attach well reconstruction logs to this page).**


L-17124
Revised Well Location
New Proposed well location in this review
Original Proposed well location
Well
BM 4808
Fire Station
Win 4898
BM 4847
CANAL
Gravel Pit
Gaging Station
BM 4839
Muddy Creek
Creek
CANAL
NORTH
ROAD
Vernon Sch
WEST SIDE
Spring
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