

WATER TRANSFER WORKING GROUP PROJECT DESCRIPTION

APPLICATION NO./COURT CLAIM NO. G4-35992		
APPLICANT NAME Kittitas County and Pat Deneen	CONTACT NAME Tyson Carlson	TELEPHONE NO. 509-895-5923
WATER RIGHT HOLDER'S NAME (if different) Pat Deneen		EMAIL tcarlson@aspectconsulting.com

DATE OF APPLICATION March 16, 2018	PRIORITY DATE Post 1905; mitigated by the G4-35739 and CG3-21798C@1
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WATER SOURCE: A well (BAN 899 or BAF 986)	CROP: N/A - Indoor Use Only
INSTANTANEOUS QUANTITY: 80 gpm	ANNUAL QUANTITY: Up to 0.31 ac-ft/yr per home (consumptive use TBD)
PERIOD OF USE: Continuous – year round	
PLACE OF USE: NE1/4 Section 3 T. 19 N., R. 14 E.W.M. and SW1/4 Section 27 T. 18 N., R. 18 E.W.M.	PURPOSE OF USE: Multiple domestic for up to 12 homes (Fowler Creek) and 2 homes near Ellensburg (Palomino Field Plat)
IRRIGATION METHOD: N/A	

CONSUMPTIVE USE CALCULATION: Total and consumptive use will be quantitatively determined at each home as part of this pilot project.
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NARRATIVE DESCRIPTION OF PROJECT:

Kittitas County and Pat Deneen are partnering on a pilot study to quantitatively determine the percent of consumptive use associated with indoor-only domestic use. The primary location of the pilot study is in the Fowler Creek basin (yellow zone), with additional data collected near Ellensburg (green zone). The results of the study will be used to determine the efficacy of alternative mitigation strategies in subbasins currently without suitable mitigation options (e.g., yellow and red zones).

Water will be withdrawn from an existing well (BAN 899 or BAF 986) located in the yellow zone near the pilot study (see attached well logs). Water will be conveyed from the well to the pilot study area where water will be metered before entering the home. Following indoor use, waste water will be discharged to a septic tank, clarified through a membrane filter, metered, and recharged via a drain field. The drain field will be designed to prevent evaporation and/or evapotranspiration by installing at depth (3 feet), placement of a 6 mm water proof barrier, weed control fabric, and rock garden at surface. Consumptive use will be calculated, and non-potable mitigation water will be discharged (and metered) by an individual and/or regional mitigation cistern to a drain field located in close proximity to Fowler Creek. Mitigation water will be supplied via truck by an existing Group A water system authorized under either CG3-21798C@1 (Evergreen Valley Water System) or G4-35739 (Palomino Field).

The pilot study will have no outdoor water use. Pilot homes will have no outside faucets. In addition, restrictive covenants will be placed on landscaping limiting all plantings to naturally occurring plants and/or xeriscape.

The pilot study will also be duplicated at the Palomino Field Plat development, located approximately two and a half miles northwest of Ellensburg, and will serve as a control to evaluate the difference in consumptive use associated with location, behavior, and expected occupancy of the development. It is expected the study will last up to 2+ years in duration. Throughout the study duration, data and draft analysis will be provided to basin stakeholders on an approximate monthly basis.

Water right permitting authority for the Fowler Creek portion of the project will occur under a new provisioned groundwater right permit. As a safeguard should the pilot study fail, the permit will be provisioned on bonding to fund necessary infrastructure upgrades, including a well (to be sited in the nearby green zone) and water conveyance pipeline from the well to the development. Following evaluation of the pilot study data, final mitigation would include either a mitigated groundwater source in Fowler Creek basin (if the pilot is successful), or within alluvial sediments along the Yakima River and/or within the Big Creek basin (if the pilot is not successful).

Aspect will be providing oversight of the pilot study during design, implementation, analysis, and reporting of the pilot study results.

PROPOSED USBR-ECOLOGY CONTRACT ASSIGNMENT RATIONALE

Use of the storage contract will be consistent with existing permit authority under CG3-21798C@1 or G4-35739.

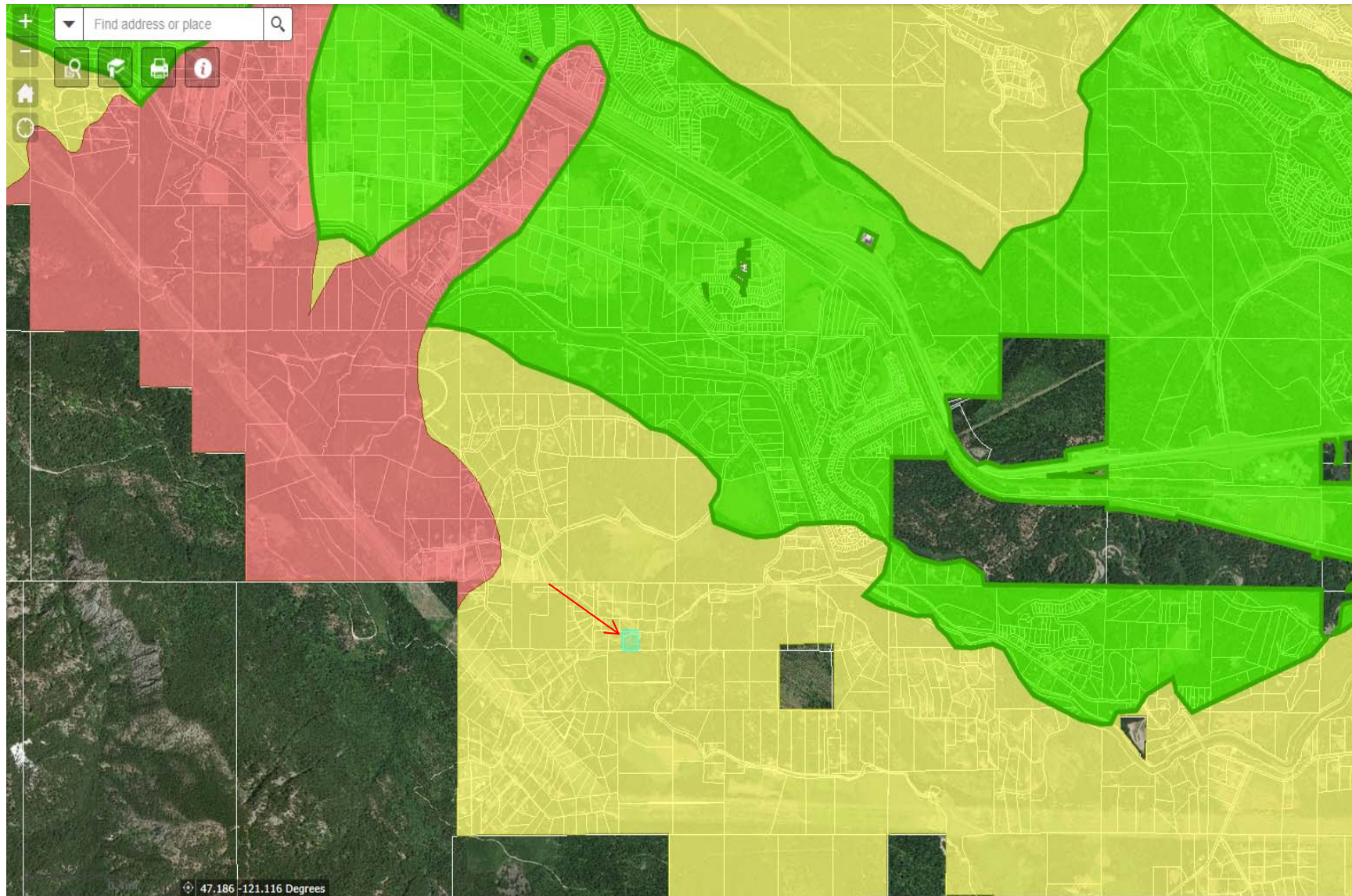
IMPACT ANALYSIS

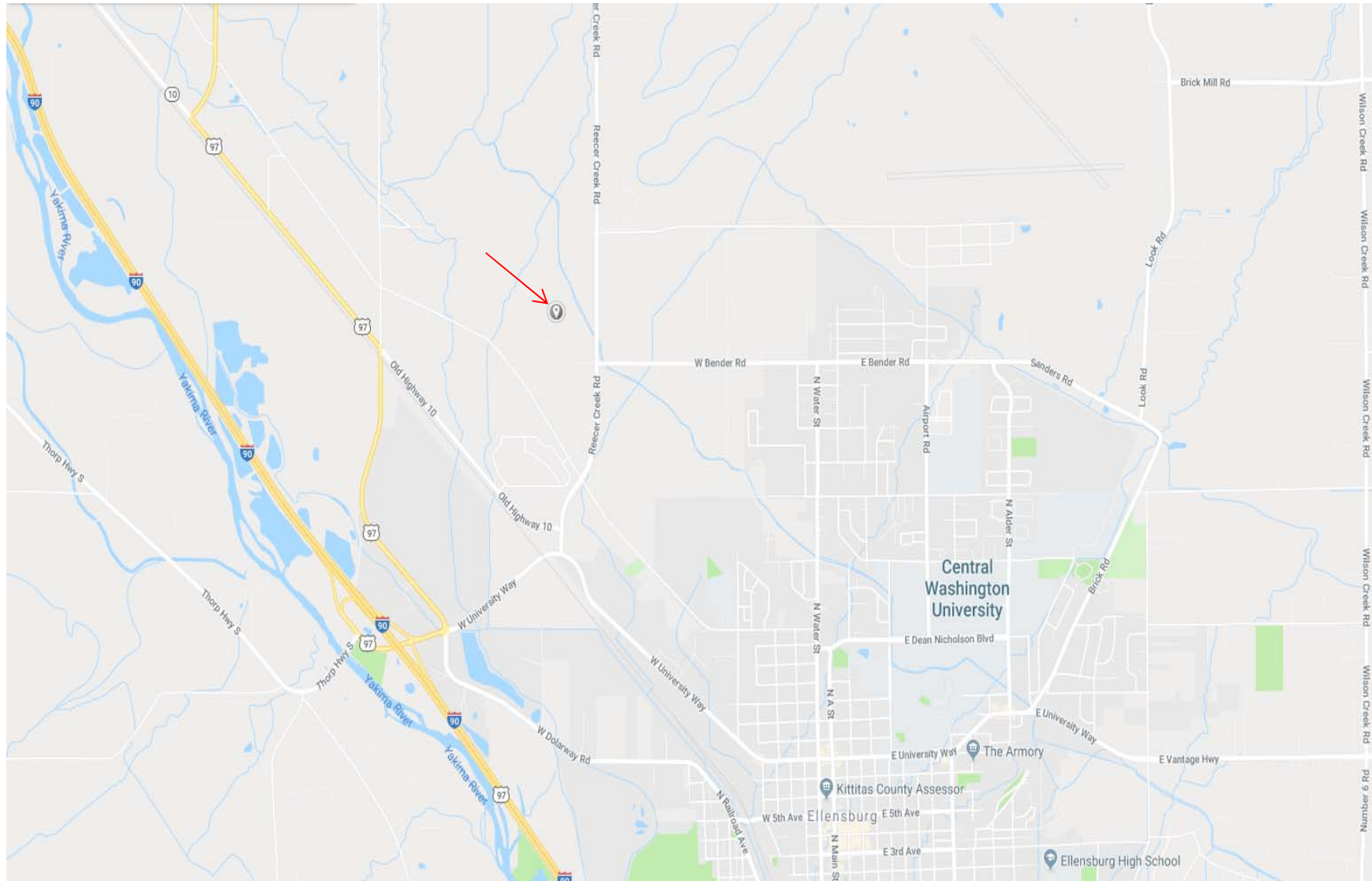
The proposed project will be water budget neutral with respect to TWSA in the Yakima River by using permit authority from an existing Group A Water System. However, water will be withdrawn from an existing well(s) completed in the unconsolidated overburden and/or bedrock in the Fowler Creek basin. Water withdrawn from the wells may otherwise discharge and support base flow in the lower reaches of Fowler Creek. Therefore, local impacts to Fowler Creek may occur.

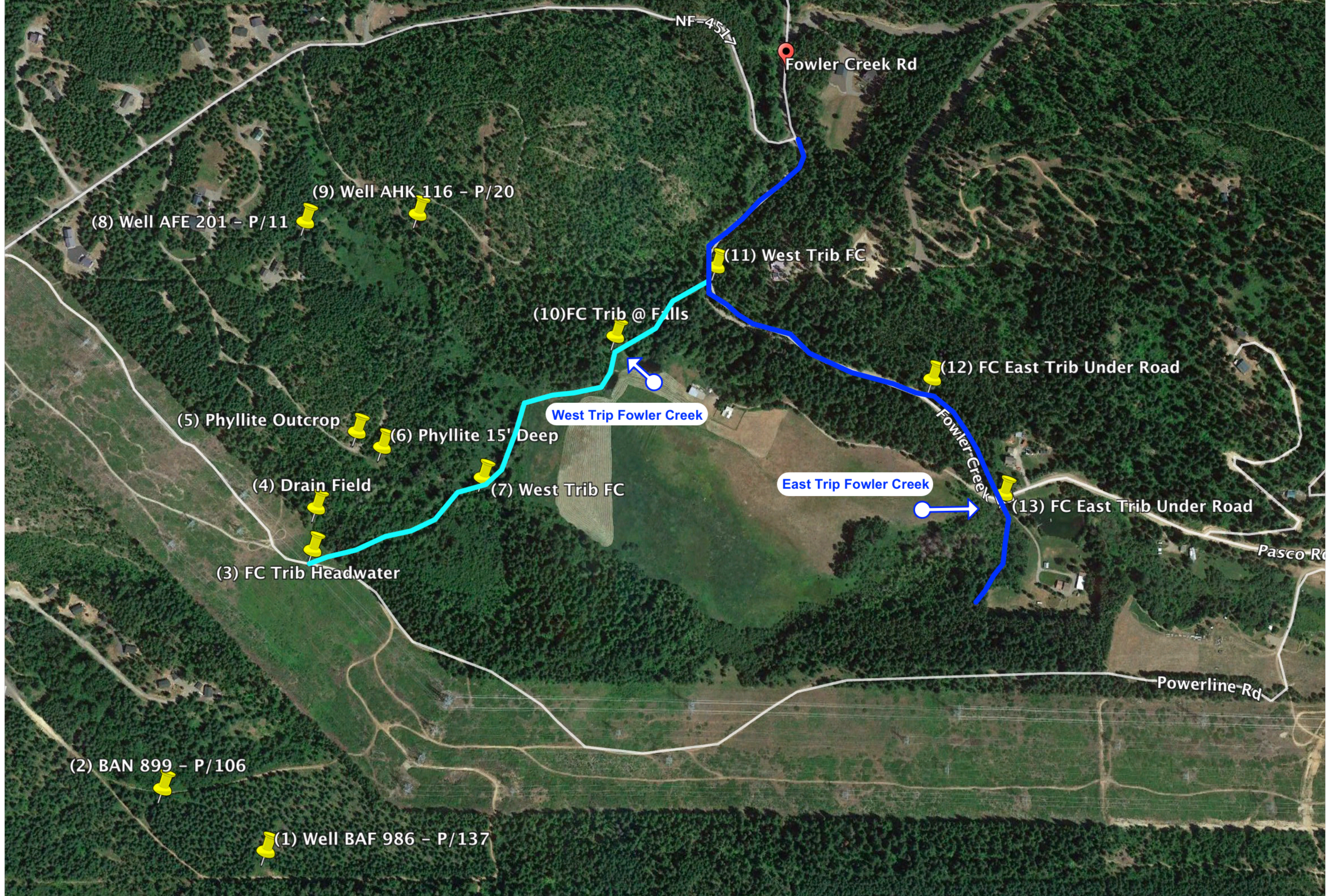
CONCLUSION

Consumptive use impact to lower Fowler Creek will be mitigated by discharging an equivalent amount of water to the pilot study drain field located in close proximity to Fowler Creek. Mitigation water will be provided via truck from an existing Group A water system. Based on final cistern placement, all surface water impacts will be mitigated in time, in place, and in kind with no surface water bypass reach. In addition, the discharge of nonconsumptive and mitigation water will likely provide some additional flow augmentation to higher reaches of Fowler Creek.

Additional coordination with stakeholders will be completed during final design to ensure agreement on well, cistern, and drain field siting, and that impacts to critical reaches are fully mitigated.



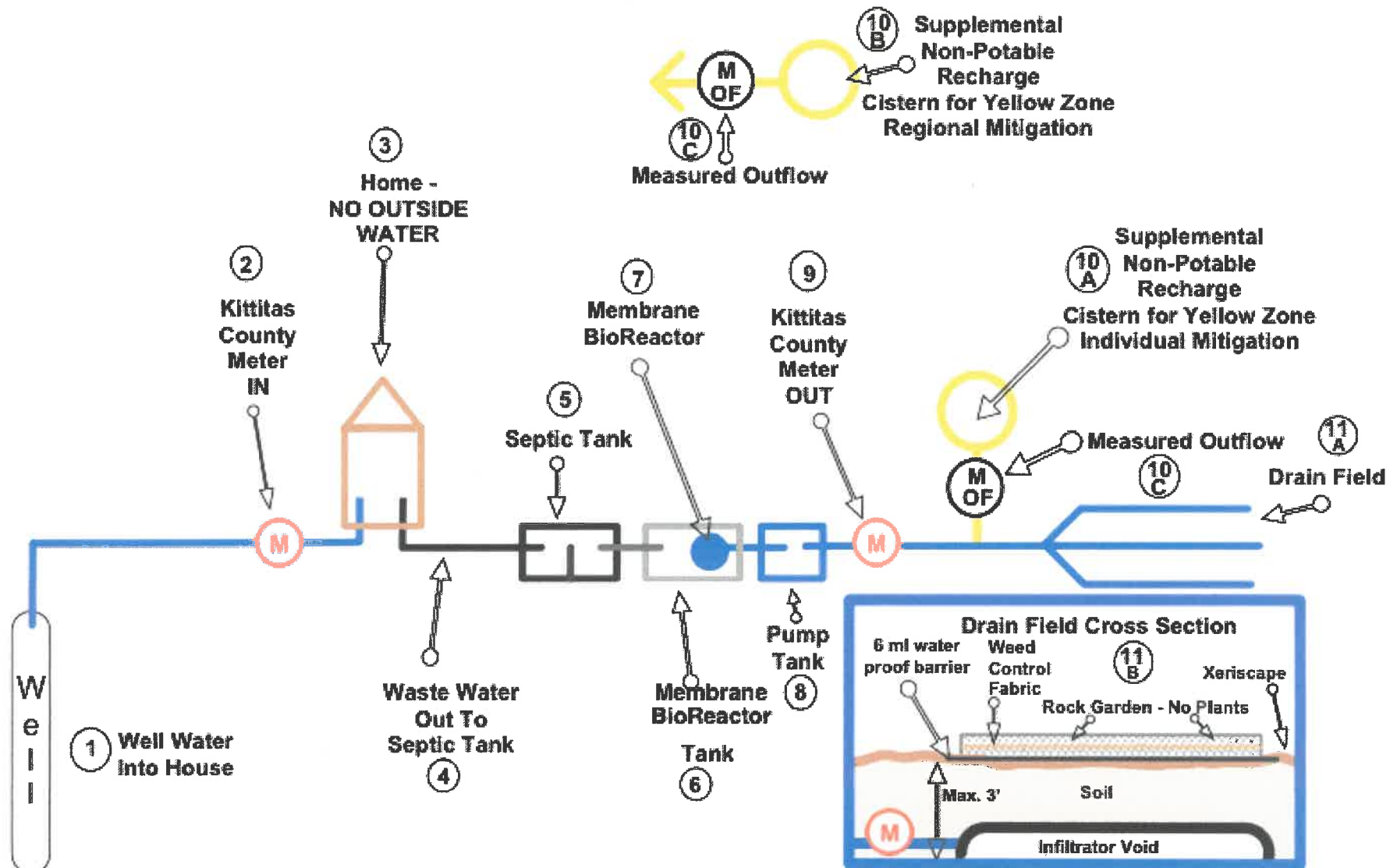




Pin #	Description	Latitude	Longitude
1	Well BAF 986	47.161450°	-121.079633°
2	Well BAN 899	47.162182°	-121.081487°
3	West Fowler Creek Headwaters	47.165029°	-121.079044°
4	Proposed Drain Fields	47.165548°	-121.078980°
5	Phyllite Outcrop	47.166480°	-121.078250°
6	Phyllite Depth 15 Feet	47.166295°	-121.077810°
7	West Trib of Fowler Creek	47.165920°	-121.076000°
8	Well AFE 201	47.169076°	-121.079222°
9	Well AHK 116	47.169175°	-121.077190°
10	West Trib of Fowler Creek	47.167674°	-121.073610°
11	Confluence West and East Tribs of Fowler Creek	47.168582°	-121.071792°
12	East Trib of Fowler Creek	47.167151°	-121.067829°
13	East Trib of Fowler Creek	47.165718°	-121.066549°

Comments
Well for Group B Water System
Well for Group B Water System
Headwaters of Fowler Creek
Drain Fields 200' from Headwaters
Visable Surface Phyllite
Phyllite Found at 15'
Point on West Trip of Fowler Creek
Phyllite Found at 11'
Phyllite Found at 20'
Point on West Trib of Fowler Creek
Conflunce West and East Tribs of Fowler Creek
Point on East Point of Fowler Creek
Point on East Point of Fowler Creek

Consumptive Use Elimination Pilot Program Diagram



2-27-18

KEY TO CONSUMPTIVE USE ELIMINATION DIAGRAM

1. **Water Into House:** The potable incoming water to the house will be provided from a well with a metered source at the wellhead. Wells may be individual, shared, or Group B water system.
2. **Kittitas County Meter IN:** This meter will be supplied by the Kittitas County Health Department to meter the incoming potable water and will be monitored through the County's telemetric metering system with data collected and correlated by the Kittitas County Health Department.
3. **Home – NO OUTSIDE WATER:** The Home will be constructed with no outside faucets or standpipes and through Covenants, Conditions, and Restrictions (CCR's) be limited to xeriscape landscaping only using natural occurring vegetation. Home will be fitted with low flow appliances, faucets and shower heads.
4. **Waste Water Out to Septic Tank:** Standard piping to septic tank.
5. **Septic Tank:** Standard two compartment septic tank sized appropriately for size of home.
6. **Membrane BioReactor Tank:** Standard one compartment pump tank sized appropriately for size of home.
7. **Membrane BioReactor:** An advanced treatment system that uses Membrane Technology to treat the grey water exiting the septic tank. The Membrane BioReactor treats the grey water to a clear and clean water state that can be metered by the Kittitas County Metering System.
8. **Pump Tank:** Single compartment tank sized appropriately for size of home and the system.
9. **Supplemental Non-Potable Recharge Cistern:**
 - A. Regional Cistern: Tank(s) sized appropriately for Regional Cistern system. Supplemental water will be pumped and metered from the Cistern into an infiltration field located at the head waters of Fowler Creek to replace the measured consumptive use as shown by the Kittitas County Health Department meters. 30 days prior to the first septic system being activated the cistern will be filled with water released into the infiltration field at the head water of Fowler Creek to pre-charge the return flow back into the aquifer to offset any timing issues that could arise from the water pumped from the well serving the home(s) prior to the home being occupied.
 - B. Individual Cistern: Single compartment tank sized appropriately for size of single home and the system. Supplemental water will be pumped and metered from the Cistern into the Pump Tank to replace the measured consumptive used as shown by the Kittitas County Health Department meters. 30 days prior to the system being activated the

cistern will be filled and used to pump water into the drain field to pre-charge the return flow back into the aquifer to offset any timing issues that could arise from the water pumped from the well once it begins to serve the home.

10. **Kittitas County Meter OUT:** This meter will be supplied by the Kittitas County Health Department to meter the outgoing non-potable water and will be monitored through the County's telemetric metering system with data collected and correlated by the Kittitas County Health Department. The Kittitas County Health Department will calculate the consumptive use, of which calculations will then be used to control the flow from the Supplemental Non-Potable Recharge Cistern. In addition, Kittitas County will report the data to the Department of Ecology and other stake holders.
11. **Drain Field:** A Washington Stated Department of Health approved method of disposal of the treated waste water to recharge the aquifer. This drain field will be designed in such a way to eliminate evaporation of the treated waste water and to eliminate the growth of plants and weeds as shown on the Drain Field Cross Section.

On the following page is the map of the Pilot Program area.



WATER WELL REPORT

Original & 1st copy - Ecology, 2nd copy - owner, 3rd copy - driller

Construction/Decommission ("x" in circle)

☒ Construction **300017**
☐ Decommission ORIGINAL INSTALLATION Notice
of Intent Number _____

PROPOSED USE: ☒ Domestic ☐ Industrial ☐ Municipal
☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other

TYPE OF WORK: Owner's number of well (if more than one)
☒ New well ☐ Reconditioned Method: ☐ Dug ☐ Bored ☒ Driven
☐ Deepened ☐ Cable ☒ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 6-5 1/2 inches, drilled 139 ft.
Depth of completed well 138 ft.

CONSTRUCTION DETAILS
Casing ☒ Welded 6 ***** " Diam. from +2 1/4 ft. to 138 ft.
Installed: ☐ Liner installed " Diam. from ft. to ft.
☐ Threaded " Diam. from ft. to ft.

Perforations: ☐ Yes ☒ No
Type of perforator used _____
SIZE of perfs _____ in. by _____ in. and no. of perfs from ft. to ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location _____
Manufacturer's Name _____
Type _____ Model No. _____
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel/Filter packed: ☐ Yes ☒ No ☐ Size of gravel/sand _____
Materials placed from ft. to ft.

Surface Seal: ☒ Yes ☐ No To what depth? 19 ft.
Material used in seal Bentonite
Did any strata contain unusable water? ☐ Yes ☒ No
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

PUMP: Manufacturer's Name _____
Type _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level 2679 ft.
Static level 38 1/2 ft. below top of well Date 05-21-08
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☒ No If yes, by whom? _____
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)
Time Water Level Time Water Level Time Water Level

Date of test _____
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Artesian flow _____ g.p.m. with stem seal at 137 ft. for 1 1/2 hrs.
Artesian flow _____ g.p.m. Date 05-21-08
Temperature of water _____ Was a chemical analysis made? ☐ Yes ☒ No

CURRENT

Notice of Intent No. W 254819

Unique Ecology Well ID Tag No. BAF 986

Water Right Permit No. _____

Property Owner Name Weihe, Daniel & Karin

Well Street Address FS Rd. 4517-117 Granite Crk. J

City Cle Elum County Kittitas

Location NE 1/4-1/4 SE 1/4 Sec 03 Twn 19 R 14 EWM or WWM ☒ check one

(Lat/Long) (s, t, r Lat Deg N 47 Lat Min/Sec 09.687

Still REQUIRED) Long Deg W 121 Long Min/Sec 04.778

Tax Parcel No. 19-14-03000-0071

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Brown clay, granite boulders	0	16
Brown silty clay, granite cobbles	16	33
Grayish brown silty clay, granite gravel, rocks	33	40
Orange silty clay	40	42
Brown silt, broken granite gravels, cobbles WB	42	73
Brown silt, fine sand w/ 15% gravel WB	73	110
Granite boulder	110	112
Tan clay	112	114
Brown silty granite gravel WB	114	119
Brown silt	119	126
Cemented broken granite gravel	126	130
Black decayed broken granite WB	130	132
Black sand, broken granite WB	132	134
Dk. brown / black silt	134	135
Brown siltstone	135	137
Gray phyllite	137	139

*****TUBEX (5 1/2" drivshoe)

RECEIVED

JUN 13 2008

DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

Start Date 05-20-08

Completed Date 05-21-08

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Engineer ☐ Trainee Name (Print) Brett Phythian

Driller/Engineer/Trainee Signature *Brett Phythian*

Driller or trainee License No. 1249

IF TRAINEE,
Driller's Licensed No. _____

Driller's Signature _____

Drilling Company Tumwater Drilling & Pump Inc. 509-548-5361

Address 9290 Hwy 2 / P.O. Box 777

City, State, Zip Dryden / Leavenworth, WA 98826

Contractor's
Registration No. TUMWADP 011 LZ

Date 05-22-2008

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
UNION GAP, WASHINGTON

NOTICE OF APPLICATION TO APPROPRIATE PUBLIC WATERS

TAKE NOTICE:

That on March 16, 2018, Schuler Deneen Family Ranch, LLC of Cle Elum, Washington, under amended Application No. G4-35992 applied to appropriate public waters, subject to existing rights, from two wells at a combined withdrawal rate of 80 gallons per minute, for the purpose of multiple domestic water supply.

That the sources of the proposed appropriation are located within the S1/2 of Section 3, Township 19 North, Range 14 East Willamette Meridian (W.M.) in Kittitas County, Washington. The proposed appropriation will be fully mitigated by existing water rights or those held in the State's Trust Water Rights Program.

Protests or objections to approval of this application must include a detailed statement of the basis for objections. All letters of protest will become public record. Cash shall not be accepted. Fees must be paid by check or money order and are nonrefundable. Protests must be accompanied by a \$50 recording fee payable to the **Department of Ecology, Cashiering Unit, PO Box 47611, Olympia WA 98504-7611**, within 30 days from:

(last date of publication to be entered above by the publisher)