STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

DRAFT *REPORT OF EXAMINATION*

To Appropriate Public Waters of the State of Washington

PRIORITY DATE	APPLICATION NO.	PERMIT NO.	CERTIFICATE NO.
September 1, 2010	S1-28670		

NAME
Smith Trust
Allen and Sara Smith Trustees

ADDRESS/STREET	CITY/STATE	ZIP CODE
Site address: 883 Victorian Valley Dr. Mailing address: P.O. Box 459	Orcas, WA	98280

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Unnamed pond

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND (cfs)	MAXIMUM GALLONS PER MINUTE (gpm)	MAXIMUM ACRE FEET PER YEAR (ac-ft/yr)
0.1	45	1.1

TYPE OF USE, PERIOD OF USE, QUANTITIES
Domestic use, 0.2 acre-feet
Irrigation of 1 acre for garden and landscape plants, during irrigation season, 0.9 acre-feet per year

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL
Pond diversion is located 1787 ft South and 2624 ft West from the NE corner of Sect 15

Within Township 36 North, Range 2 West, W. M. in San Juan County, Washington.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP	RANGE	WRIA	COUNTY
SW1/4 NE1/4	15	36 N	2W	2	San Juan

PARCEL NUMBERS	Latitude	Longitude	
For Point of Diversion: 261512002000	48.6114	-122.9337	

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

That part of Section 15, Township 36 N Range 02W W.M. defined as follows: From the North East corner of said section thence N 88° 24´ 58˝ W 2,431 ft to the Northwest Corner of the Northwest ¼ of the Northeast ¼ of said section, thence S 1° 33´ 06˝ W 748.9 ft to the point of beginning. Thence N 1° 23´ 55˝ E 20.7 ft, thence S 87° 49´ 19˝ E 43 ft, thence on a curve to the right with a radius of 40 ft and a central angle of 122° 49´ 09˝, thence S 48° 03´ 13˝ E 138.35 ft, thence S 66° 12´ 37˝ E 242.55 ft, thence S 2° 02´ 09˝ W 448.56ft, thence S 88° 05´ 25˝E 29.2ft, thence S 2° 01´ 35˝ W 26.4 ft to the northerly boundary of the private road. Thence Westerly following the northern boundary of the private road 348.42 ft, thence N 0° 09´ 08˝ E 106.37ft, thence N43° 40´ W 428.34 ft, thence N25° 49´ 13˝ E 343.83ft, thence S88° 34´ 40˝ E 50.62ft to the point of beginning.

Parcel Number for Place of Use: 261551002000

Attachment 1 shows the location of the authorized place of use and point of diversion.

DESCRIPTION OF PROPOSED WORKS

The Smith Trust irrigation system consists of a spring fed pond which will provide water for domestic in-house use and irrigation of ½ acre vegetable garden, and another ½ acre for landscape irrigation. The property is located in Victorian Valley about one mile northeast of the Orcas Island ferry landing on the east side of West Sound.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE	COMPLETE PROJECT BY THIS DATE	WATER PUT TO FULL USE BY THIS DATE
August 1, 2012	October 1, 2022	October 1, 2025

PROVISIONS

- An approved measuring device shall be installed and maintained in accordance with the rule "Requirements for Measuring and Reporting Water Use", WAC 173-173.
    - Water use data shall be recorded annually and maintained by the property owner for a minimum of five years, and shall be promptly submitted to the Department of Ecology upon request.
    - WAC 173-173 describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modifications to some of the requirements. Installation, operation and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements".
    - Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.
- A certificate of water right will issue for only that quantity of water that has been diverted and applied to actual beneficial use. Such quantity applied to actual beneficial use shall not exceed the quantity specified in this report of exam and will be calculated based on the best information available to Ecology, including metering data and/or water duty analysis.
- PROOF OF APPROPRIATION: The water right holder shall file the notice of Proof of Appropriation of water (under which the certificate of water right is issued) when the permanent distribution system has been constructed and the quantity of water required by the project has been put to full beneficial use. The certificate will reflect the extent of the project perfected within the limitations of the permit. Elements of a proof inspection may include, as appropriate, the source(s), system instantaneous capacity, beneficial use(s), annual quantity, place of use, and satisfaction of provisions.
- A certificate of water right will not be issued until a final investigation is made

FINDINGS OF FACT AND ORDER

Upon reviewing the investigator's report, I find all facts relevant and material to the subject application have been thoroughly investigated. Furthermore, I concur with the investigator that water is available from the source in question, the purpose of use is beneficial, there will be no impairment of existing rights, and there will be no detriment to the public interest.

Therefore, I ORDER approval of Application No. S1-28670, subject to existing rights and the provisions listed above.

You have a right to appeal this action to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this document. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal, you must do the following within 30 days of the date of receipt of this document:

- File your appeal and a copy of this document with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this document on Ecology in paper form - by mail or in person. (See addresses below.) Email is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503 Pollution Control Hearings Board 1111 Israel Road SW Suite 301 Tumwater, WA 98501	Department of Ecology Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608 Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903

Please also send a copy of your appeal to:

Jacqueline Klug
Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue WA 98008

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov . To find laws and agency rules visit the Washington State Legislature Website: http://www1.leg.wa.gov/CodeReviser .

Signed at Bellevue, Washington, this _____ day of _____, 2011.

_____

Jacqueline Klug
Section Manager
Northwest Regional Office
Water Resources Program

INVESTIGATOR'S REPORT

BACKGROUND

Description and Purpose of the Project

The Smith Trust water right application for appropriation of waters from a pond for 0.1 cfs for irrigation was received September 1, 2010. The water source is a spring fed pond with no outlet or overflow. The publication for the source is SW¼ NE¼ Section 15, T.36N., R.2W.

There is currently no diversion or irrigation equipment installed. Dan Drahn of Boundary Water Inc. prepared a report of the proposed irrigation project for the Smiths. The report describes the system to withdraw water for irrigation and domestic use. Details of the system are described in Water System Details section later in this report.

Legal Requirements for Application Processing

Chapter 90.03 RCW authorizes the appropriation of public water for beneficial use and describes the process for obtaining water rights. Laws governing the water right permitting process are contained in RCW 90.03.250 through 90.03.340.

The following legal requirements must be met prior to processing a water right application:

- **Public Notice**
  Public notice of the application was published in *The Islands' Sounder* on December 22 and December 29, 2010. There were no written protests during the statutory 30-day protest period.

- **State Environmental Policy Act (SEPA)**
  The subject water right application is categorically exempt under SEPA WAC 197-11-305 and WAC 197-11-800(4) because the instantaneous quantity is less than the one cubic foot per second threshold.

INVESTIGATION

In considering this application, my investigation included, but was not limited to, research and/or review of:

- Brandon, M. T., Cowan, D.S., and Vance, J.A. 1988, The Late Cretaceous San Juan Thrust System, San Juan Islands, Washington, The Geological Society of America Special Paper 221, 81 page.
- Orr, L.A., Bauer, H.H. and Wayenberg, J.A. 2002, Estimates of Ground-Water Recharge from Precipitation to Glacial-Deposit and Bedrock Aquifers on Lopez, San Juan, Orcas, and Shaw Islands, San Juan County, Washington, U.S. Geological Survey Water-Resources Investigations Report 02-4114, 114 pages.
- Department of Ecology (1975): Water Supply Bulletin No. 46, Geology and Water Resources of the San Juan Islands.
- Washington State University, (1985 and 1992): State of Washington Irrigation Guide.
- Drahn, Dan, February 2, 2011, Smith Surface Water Right Permit Applications, Orcas Island, Boundary Water Inc. Memo.
- USGS Shaw Island, Wash. 7.5 minute topographic map
- Water well reports for Orcas Island
- Notes and GPS data from my site visit on March 23, 2011
- Records of existing water rights in the vicinity

Geographic Setting of the Place of Use and Point of Diversion

The Smith Trust property is located in the south portion of the west half of Orcas Island, east of West Sound and 1 mile northeast of the Orcas Island ferry terminal (Attachment 1). The property is located on Victorian Valley Drive near the intersection of Orchard Drive. Generally the area consists of hummocky hilly terrain with Mt. Woolard to the northeast having an elevation of 1,192 feet. The mountains and hills are heavily forested and much of the lowlands have been cleared for crops or pasture.

Geological Background of the San Juan Islands

The San Juan Islands expose a thick and regionally extensive sequence of Late Cretaceous thrust faults and nappes, referred to as the San Juan thrust system. A nappe is a fold in which the axial plane is horizontal or sub-horizontal. Nappes of the thrust system contain a diverse group of rocks ranging from early Paleozoic to middle Cretaceous in age. Based on stratigraphy, metamorphism, and geochemistry, five terranes have been identified within and peripheral to the thrust system. A terrane is a fault-bounded package composed of one or more related rock units and characterized by a distinctive geologic history. These terranes were widely separated from each other until Late Jurassic. (1) the Haro terrane, an Upper Triassic arc-volcanic sequence; (2) the Turtleback terrane, a Paleozoic arc-plutonic and volcanic unit; (3) the Deadman Bay terrane, a Permian to Lower Jurassic oceanic-island sequence containing Tethyan-fusulinid limestones; (4) the Garrison terrane, a Permo-Triassic, high-pressure metamorphic unit; and (5) the Decatur terrane, a Middle to Upper Jurassic ophiolite and superimposed arc-volcanic sequence. Thick Jura-Cretaceous clastic units are linked to these older San Juan terranes and to Wrangellia, either as directly overlapping units or by the presence of clastic material derived from the terranes. The voluminous amount of clastic material in the overlying Jura-Cretaceous units suggests a large, sub-aerially exposed source region, presumably part of continental America.

Wrangellia is a large allochthonous terrane that underlies most of Vancouver Island and parts of Alaska. On Vancouver Island it is characterized as a coherent Paleozoic to Lower Jurassic stratigraphic sequence, dominantly volcanic. The thrust system straddles the southeastern edge of the Wrangellia terrane of Vancouver Island, contains important information on the accretionary history of Wrangellia and other, related, far-traveled terranes.

The former topography of the San Juan Islands has been greatly modified by glaciation, but the erosion beneath the glaciers was no doubt guided to a considerable extent by valleys and by the fracture zones and fault zones that were already in existence. It is probable that a fault of considerable magnitude occupies each of the major channels.

Orcas Island Geohydrology

Orcas Island has an aerial extent of about 57 square miles and consists of three distinct areas. A fault of small horizontal displacement follows East Sound and divides Orcas Island into two almost equal parts. From evidence occurring on the north shore of Orcas Island the fault is post-Cretaceous in age, and the eastern side moved southward and upward with respect to the western side. This has created the mountainous east and west portions of the island. The northern narrow area connecting the east and west portions north of East Sound and south of President Channel forms the third area. The northern area consists predominantly of unconsolidated Quaternary deposits. The east and west portions of the island are predominantly composed of bedrock with areas covered by Quaternary gravels of limited thickness. The Quaternary sediments are thin and discontinuous and bedrock commonly sticks up through them on the east and west portions and are not very conducive to providing ground water. Exceptions are Quaternary deposits in the West Beach area and some areas near West Sound. The other area of Quaternary deposits is along the shoreline on the southeast tip of the island.

The geology in the vicinity of the site consists of bedrock of the Deadman Bay terrane, of the San Juan Thrust System. Water Supply Bulletin No. 46 mapped rocks within this terrane as Orcas Formation, consisting of Permian to Lower Jurassic oceanic-island sequence containing limestone and ribbon chert of the Orcas Formation, and Deadman Bay basaltic volcanics. The bedrock in the immediate area of the applicant’s property is overlain by a veneer of Pleistocene glacial deposits. Ponds and shallow wells are completed in the glacial deposits whereas deeper wells in the area are completed within the bedrock. Fractures within the bedrock supply water to the bedrock wells.

Mean annual precipitation in the area is from 32 to less than 34 inches per year. Recharge to the ground water system on Orcas Island occurs from percolation of precipitation. Recharge in the area varies from approximately 1 to 1.5 inch per year (USGS, 2002). The basin drains the area southwest of Mt. Wollard and discharges into West Sound near Orcas. There is considerable natural storage in the marshes that occupy the basin.

Site Visit

On March 23, 2011, I met with Allen Smith who gave me a tour of the pond, planned point of diversion, and the areas to be irrigated.

Water System Details

The Smith Trust water system will divert water from a small constructed spring fed pond. Presently there is no diversion works. Dan Drahn of Boundary Water Inc. prepared a report of the proposed system for the Smith Trust. The plan is to extend a gravel trench from the pond and install an intake and pump house adjacent to the pond. One inch diameter water line will be installed to deliver water to the house for irrigation of ½ acre garden and ½ acre landscaping. Water may also be used in-house as back-up for their well.

Other Water Rights in the Vicinity

The Department of Ecology Water Right Tracking System (WRTS) database was queried to determine the number of existing water rights within one-half mile of the point of diversion (Figure 1). An arbitrarily, yet conservatively chosen area of one-half mile is used to define “close proximity”. This value is justified experimentally based on current and historical pump test data that show negligible drawdown, and therefore unlikely impairment to wells or surface water diversions, induced by groundwater withdrawal from wells at a distance of 1000 feet in most cases. Since this is a surface water diversion proposal there should be no effect on ground water withdrawals.

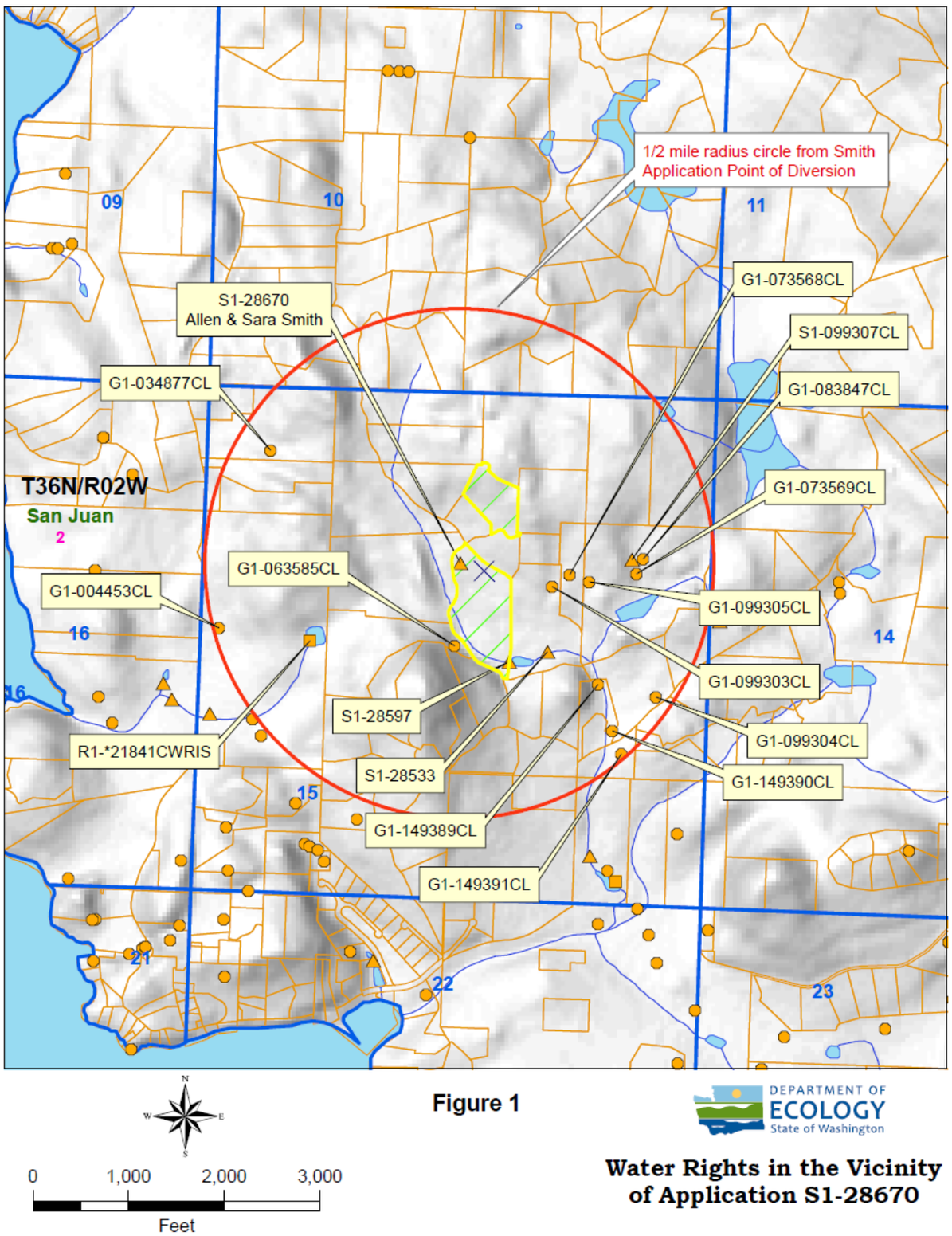


Figure 1

Water Rights in the Vicinity of Application S1-28670

Figure 1 shows all water rights, including claims, within the half-mile radius. Claims are designated with a CL at the end of the claim number. There are eleven ground water claims and one surface water claim within the half mile radius. A water right claim is a statement of the beneficial use of water that occurred prior to the adoption of the water right codes and is not authorized by a state-issued permit or certificate. The Department of Ecology cannot verify the validity of these claims, as water right claims can only be confirmed in an adjudication by the Washington State Superior Court. Many of the claims represent use under the ground water exemption (RCW 90.44.050) for single domestic use.

Two surface water right permits and one reservoir certificate were found to be located within the one-half mile radius. The water rights are summarized in Table 1 below:

Table 1 Existing Water Rights in the vicinity of Water Right Application S1-28670

Water Right	Priority Date	¼¼ Section of T.36N, R.2W	Qi	Qa (afy)	Purpose of Use
S1-28597P	10/03/2008	NW¼ SE¼ S.15	0.1	14.3	IR
S1-28533P	01/28/2008	NW¼ NE¼ S.15	0.1	11.8	IR
R1-*21841C	10/02/1969	SE¼ SW¼ NW¼ S.15 & NE¼ NW¼ SW¼ S.15	0	7.2	FR, IR, ST, WL

DS=Single Domestic, FR=Fire Protection, IR=Irrigation, ST=Stock Watering, RE=Recreation, WL=Wildlife Refuge

Water right permit S1-28597P is also owned by the Smith Trust, and permit S1-28533P is owned by the Metta Foundation, the Smith's adjacent neighbor. Both withdraw water from the same "Victorian Valley Lake" pond which straddles the two properties. The spring fed constructed pond of this application is not connected to the "Victorian Valley Lake" pond or to any stream.

Ecology's well log database shows forty water wells within one-half mile of the point of diversion. Some of the wells belong to the claimed water rights mentioned above. The remainders fall under the ground water exemption.

FINDINGS

Under state law the following four criteria must be met for an application to be approved:

- Water must be available
- There must be no impairment of existing rights
- The water use must be beneficial
- The water use must not be detrimental to the public interest

Water Availability

There are no regulatory closures or restrictions affecting water availability on Orcas Island, therefore I find water is legally available for this appropriation. The instantaneous quantity of 0.1 cfs is physically available for appropriation from the pond.

The annual quantity of water for appropriation was calculated using Crop Irrigation Requirement (CIR) data from the State of Washington Irrigation Guide (WAIG) 1985 and 1992. Crop Irrigation Requirements below were based on the Olga rain gage on Orcas Island. This gave inches of irrigation water needed above average rainfall for each crop observed for this location. However the CIR formula does not take into account the loss in conveyance from seepage, evaporation and surface runoff. Consequently, Irrigation Efficiency percentages were used from Ecology Water Resources Guidance 1210. Adjusting the Crop Irrigation Requirements (CIR) by the efficiencies for each irrigation method, the Total Irrigation Requirement (TIR) for the one acre is approximately 0.9 acre-feet per year. The formula used to account for this is:

TIR = # acres x CIR / CONV / EFF%

Where: *TIR = total irrigation requirement in acre-feet per year*

 # acres = area irrigated in acres

CIR = crop irrigation requirement needed above precipitation

CONV = conversion factor to change units (12, inches to feet)

EFF% = application efficiency of irrigation system

0.5 acre vegetable garden using hand line sprinklers:

TIR= (0.5 acre garden) (*6.0 *inches)/ (12in/ft)/(75%)=0.3 acre feet*

*This is an average CIR for assorted vegetable garden

0.5 acre landscape plants using hand line sprinklers:

TIR= (0.5 acre turf) (16.61* inches)/ (12in/ft)/(75%)=0.9 acre feet*

*CIR and TIR here represent turf requirements

*TIR= (0.9 acre feet for turf) (70%** for landscape plants) =0.6 acre feet*

**Irrigation Water Management Society (http://www.iwms.org/seattle_area.asp) estimates that the amount of water needed for landscape plant irrigation is approximately 70% of that required for turf.

Combined results:
0.5 acre vegetable garden requires 0.3 acre-feet per year
0.5 acre landscape plants requires 0.6 acre feet per year
Total irrigation requirement for garden plus landscape plants: 0.9 acre-feet per year.

Single domestic in-house use requires approximately 0.2 acre-feet per year

Total water requirement for all uses: 0.3 + 0.6 + 0.2 = 1.1 acre-feet per year.

Impairment Considerations

The spring fed constructed pond is not connected to the "Victorian Valley Lake" pond or to any stream. The nearest surface water rights, permit S1-28597P is also owned by the Smith Trust, and permit S1-28533P is owned by the Metta Foundation. Both withdraw water from a larger pond that is fed by a stream. Although this water use proposal is junior the other surface water rights in the area, there should be no impairment due to its spring fed nature. Ground water wells and claims in the area should not be impaired either. Thus there will be no impact or impairment to water rights, claims or wells.

Steve Boessow, Department of Fish and Wildlife, had no objection to the other two mentioned water rights because he believed any water released downstream would likely only benefit the non-fish bearing waters downstream to the next pond. He is even less concerned about this application since it is an isolated pond not connected to a stream.

Beneficial Use

Irrigation and domestic supply are considered to be beneficial under RCW 90.54.020(1).

Public Interest Considerations

No potential for detriment to the public interest could be identified during the investigation of this application.

Consideration of Protests and Comments

No protests were filed against this application.

RECOMMENDATIONS

Based on the above investigation and findings, I recommend the request for a surface water permit be approved in the quantities and within the limitations listed below and subject to the provisions on page 2.

Purpose of Use and Authorized Quantities

The amount of water recommended is a maximum limit and the water user may only use that amount of water within the specified limit that is reasonable and beneficial:

- 0.1 cfs (45 gpm)
- 0.9 acre-feet per year for irrigation
- 0.2 acre-feet for in-house domestic use

Point of Diversion

SW¼ NE¼ Section 15, Township 36 North, Range 2 West, W.M.

Place of Use

As described and as shown in Attachment 1.

CONCLUSIONS

In accordance with chapter 90.03 RCW, I conclude there is water available from the source in question, the purpose of use is beneficial, there will be no impairment of existing rights, and there will be no detriment to the public interest.

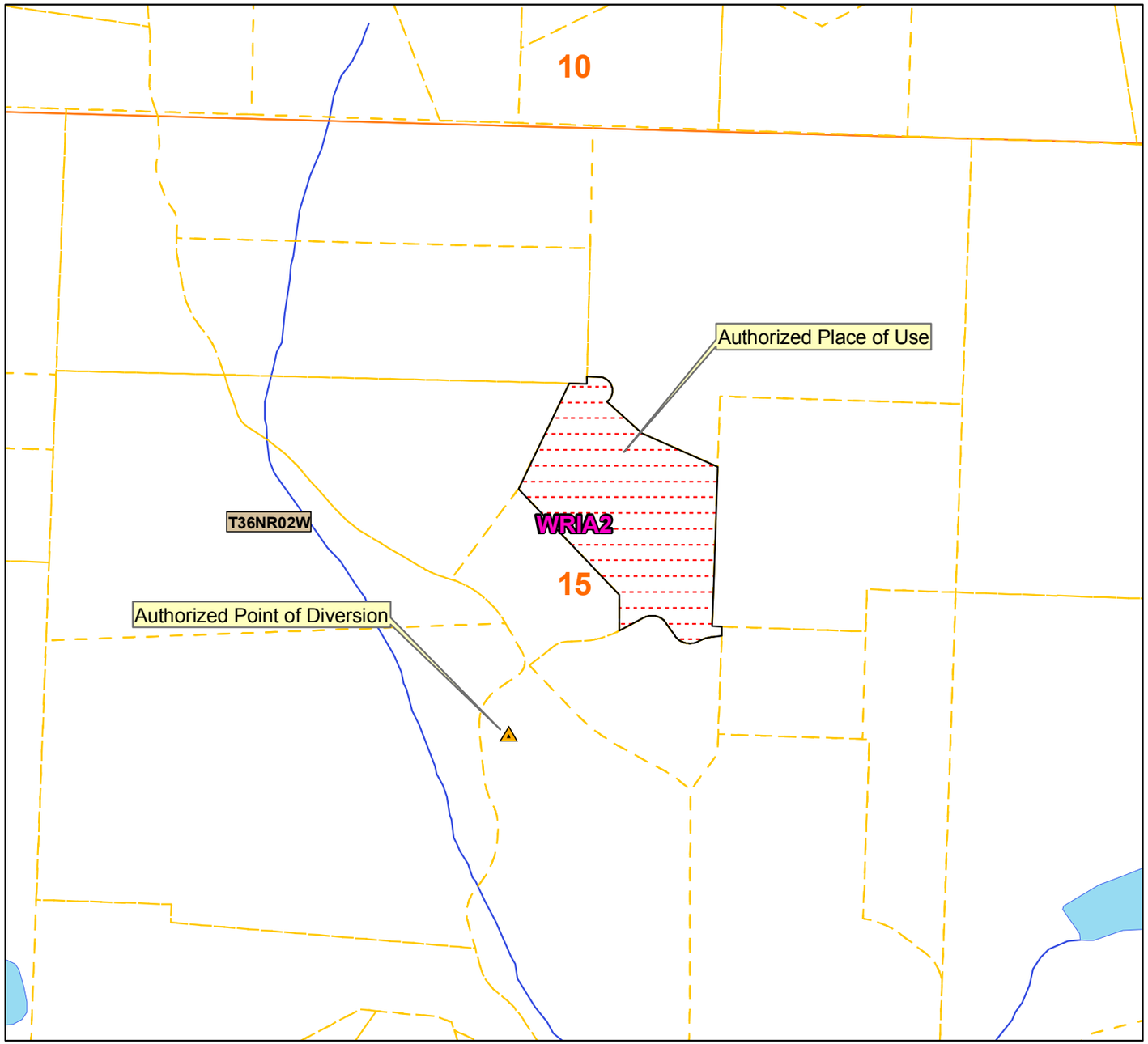
Report by: _____ _____, 2011
Jerry L. Liszak, LG, LHG Date
Water Resources Program

_____
Licensed Geologist/Hydrogeologist No. 834

If you need this publication in an alternate format, please call the Water Resources Program at (425) 649-7000. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

Allen & Sara Smith
Water Right Number S1-28670
Sec.15, T 36N, R 02W W.M.
WRIA 2 - San Juan County

DEPARTMENT OF ECOLOGY
State of Washington



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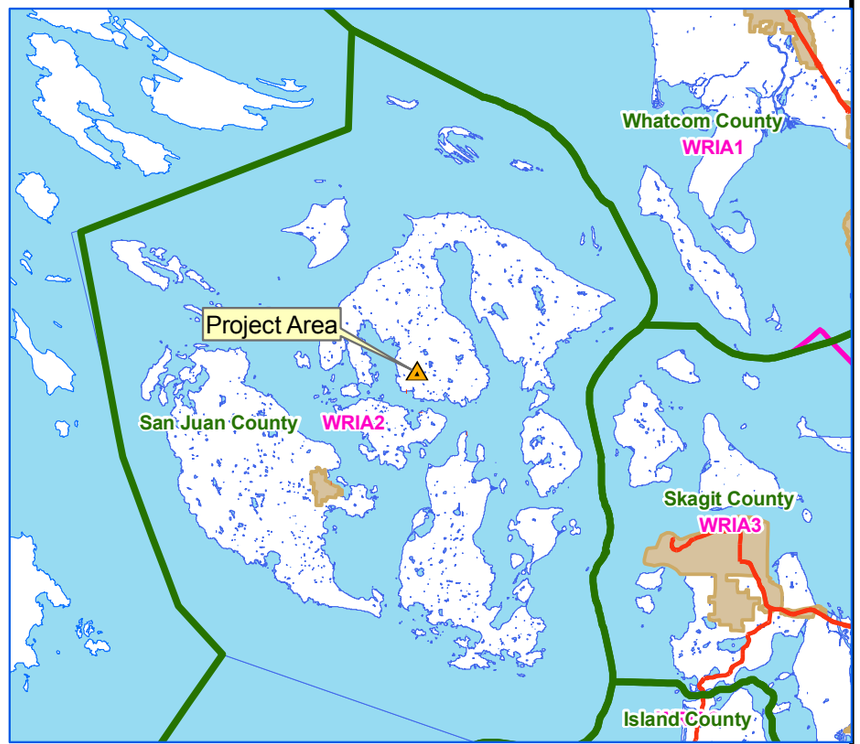

5 2.5 0 5 10 Miles

Legend

- County
- WRIA
- Highways
- Townships
- cities
- Sections
- Authorized Point of Diversion
- Authorized Place of Use

Place of use and point(s) of diversion/withdrawal are as defined on the cover sheet under the headings, 'LOCATION OF DIVERSION/WITHDRAWAL' and 'LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED.'

Attachment 1