



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

**APPROVED**  
**REPORT OF EXAMINATION**  
*To Appropriate Public Waters of the State of Washington*

PRIORITY DATE	APPLICATION NO.	PERMIT NO.	CERTIFICATE NO.
September 10, 1996	G1-27760		

NAME		
Richard, Velma, and Ricky Doty		
MAILING ADDRESS	CITY/STATE	ZIP CODE
640 B Buckhorn Road	Eastsound, WA	98245

**PUBLIC WATERS TO BE APPROPRIATED**

SOURCE		
2 wells		
TRIBUTARY OF (IF SURFACE WATERS)		
MAXIMUM CUBIC FEET PER SECOND (cfs)	MAXIMUM GALLONS PER MINUTE (gpm)	MAXIMUM ACRE FEET PER YEAR (ac-ft/yr)
	20	2

TYPE OF USE, PERIOD OF USE
Single Domestic Supply – continuously Irrigation of 8 acres – during irrigation season

**LOCATION OF DIVERSION**

APPROXIMATE LOCATION OF DIVERSION					
1643 feet east and 1300 feet north from the southwest corner of Section 7, and 1454 feet east and 1224 feet north from the southwest corner of Section 7					
LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP	RANGE	WRIA	COUNTY
SE1/4 SW1/4	7	37N	1W	2	San Juan
PARCEL NUMBER					
170731001000, 170731003000, 70731004000					

**LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED**

Commencing at the SW corner of Section 7 T37 North Range 01 West, Willamette Meridian, thence N 1° 47' 57" E 2009.84ft, thence S 87° 47' 03" E 1324.42ft to the true point of beginning. Thence S 1° 38' 30" W 877.05ft, thence S 88° 20' 57" E 546.01ft, thence N 1° 40' 36" E 479.66ft, thence S 88° 21' 54" E 114.52ft, thence N 18° 51' 02" W 266.41ft, thence N 44° 54' 37" W 165.28ft, thence N 68° 51' 01" W 102.69ft, thence N 88° 21' 54" W 350.77ft to the point of beginning.

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**DESCRIPTION OF WATER WORKS**

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Water will be withdrawn from two, 6-inch diameter wells. One well (AFG453) is 300 feet in depth and the second (BBF093) is approximately 500 feet in depth. Water will be sent to a storage facility consisting of 4 - 1,250-gallon tanks. From the storage tanks water will be routed as needed to the home, lawn, or garden.

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**DEVELOPMENT SCHEDULE**

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BEGIN PROJECT BY THIS DATE	COMPLETE PROJECT BY THIS DATE	WATER PUT TO FULL USE BY THIS DATE
Begun	August 1, 2012	August 1, 2014

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**PROVISIONS**

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**WELLS, WELL LOGS AND WELL CONSTRUCTION STANDARDS**

1. In accordance with WAC 173-160, wells shall not be located within certain minimum distances of potential sources of contamination. These minimum distances shall comply with local health regulations, as appropriate. In general, wells shall be located at least 100 feet from sources of contamination. Wells shall not be located within 1,000 feet of the boundary of a solid waste landfill.
2. All wells constructed in the state shall meet the construction requirements of WAC 173-160 titled "Minimum Standards for the Construction and Maintenance of Wells" and RCW 18.104 titled "Water Well Construction". Any well which is unusable, abandoned, or whose use has been permanently discontinued, or which is in such disrepair that its continued use is impractical or is an environmental, safety or public health hazard shall be decommissioned.
3. All wells shall be tagged with a Department of Ecology unique well identification number. If you have an existing well and it does not have a tag, please contact the well-drilling coordinator at the regional Department of Ecology office issuing this decision. This tag shall remain attached to the well. If you are required to submit water measuring reports, reference this tag number.
4. Installation and maintenance of an access port as described in WAC 173-160- 291(3) is required.

**MEASUREMENTS, MONITORING, METERING AND REPORTING**

5. An approved measuring device shall be installed and maintained for each of the sources authorized by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", WAC 173-173. <http://www.ecy.wa.gov/programs/wr/measuring/measuringhome.html>
6. Water use data shall be recorded annually and maintained by the property owner and shall be promptly submitted to the Department of Ecology upon request.
7. WAC 173-173 describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition the Department of Ecology for modifications to some of the requirements. Installation, operation and maintenance requirements are enclosed as a document titled "Water Measurement Device Installation and Operation Requirements." <http://www.ecy.wa.gov/programs/wr/measuring/measuringhome.html>

**SCHEDULE AND INSPECTIONS**

8. Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the project location, and to inspect at reasonable times, records of water use, wells, diversions, measuring devices and associated distribution systems for compliance with water law.
9. 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 and confirmed by a proof inspection. Elements of a proof inspection may include, as appropriate, the source, system instantaneous capacity, beneficial use, annual quantity, place of use, and satisfaction of provisions.

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. G1-27760, subject to existing rights and the provisions listed above.

You have a right to appeal this ORDER. To appeal this you must:

- File your appeal with the Pollution Control Hearings Board within 30 days of the "date of receipt" of this document. Filing means actual receipt by the Board during regular office hours.
- Serve your appeal on the Department of Ecology within 30 days of the "date of receipt" of this document. Service may be accomplished by any of the procedures identified in WAC 371-08-305(10). "Date of receipt" is defined at RCW 43.21B.001(2).

Be sure to do the following:

- Include a copy of this document that you are appealing with your Notice of Appeal.
- Serve and file your appeal in paper form; electronic copies are not accepted.

**1. To file your appeal with the Pollution Control Hearings Board**

Mail appeal to:

Deliver your appeal in person to:

The Pollution Control Hearings Board  
PO Box 40903  
Olympia, WA 98504-0903

OR

The Pollution Control Hearings Board  
4224 - 6th Ave SE Rowe Six, Bldg 2  
Lacey, WA 98503

**2. To serve your appeal on the Department of Ecology**

Mail appeal to:

Deliver your appeal in person to:

The Department of Ecology  
Appeals Coordinator  
P.O. Box 47608  
Olympia, WA 98504-7608

OR

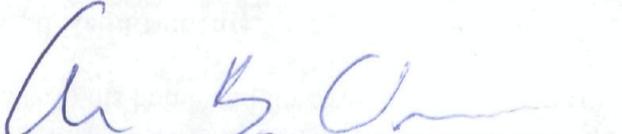
The Department of Ecology  
Appeals Coordinator  
300 Desmond Dr SE  
Lacey, WA 98503

**3. And send a copy of your appeal to:**

Andrew B. Dunn  
Department of Ecology  
3190 160<sup>th</sup> Ave 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 16<sup>th</sup> day of OCTOBER, 2009.



Andrew B. Dunn, LG, LHG  
Section Manager  
Water Resources Program  
Northwest Regional Office

## **BACKGROUND**

### **Project Description**

On September 10, 1996, Richard, Velma, and Ricky Doty applied to withdraw groundwater from 2 wells in the amount of 20 gallons per minute (gpm) for the purpose of domestic supply for two homes and irrigation of 8-9 acres of personal and commercial gardens.

The 10.81-acre property has subsequently been divided into 3 parcels. One parcel, Number 170731001000, is 5.34 acres and is owned by Ricky and Jeannie Doty. The other two parcels, Numbers 170731003000 and 170731004000 are 5.22 and 0.25 acres, respectively, are owned by Richard and Velma Doty. Based on the site visit and correspondence with the applicants, approximately 8 to 9 acres of the property is usable for gardening.

Currently Ricky Doty is using one of the proposed wells as a permit-exempt groundwater withdrawal supplying water to his home and for irrigation of a small commercial garden.

### **Legal Requirements for Application Processing**

Chapter 90.03 and 90.44 RCW authorize appropriation of public ground water for beneficial use and describe the process for obtaining water rights. Laws governing the water right permitting process are contained in RCW 90.03.250 through 90.03.340 and RCW 90.44.060.

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 Journal of the San Juan Islands* on September 28 and October 5, 2005. No protests were received by the Department of Ecology.
- **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 withdrawal rate is less than 2,250 gallons per minute.

## **INVESTIGATION**

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

- Information supplied with the application
- The USGS Eastsound (1977) and Mt. Constitution (1978) 7.5-minute Quadrangles
- Notes from site visits on October 22, 2008 and November 25, 2008
- Ecology's water rights database and records of existing water rights in the vicinity
- San Juan County online parcel viewer
- Geologic, hydrologic, and hydrogeologic reports pertinent to this investigation, referenced at the end of the investigator's report

### **Site Descriptions**

The Doty property is located on Orcas Island in the San Juan Archipelago off Washington's northwest coast. The island is part of San Juan County, Washington. The two proposed wells are located near and south of Buckhorn Road in the northeastern-most portion of the Island. See Attachment 1.

The proposed wells are located within the 5.34-acre property owned by Ricky and Jeannie Doty (parcel number 17073100100). The parcel is situated on a gentle to moderate southeast-facing slope. The home, wellheads, and irrigated area are located on a relatively flat portion of the parcel at an elevation of about 100 feet above mean sea level (MSL). Much of the Doty property is undeveloped and forested. See Figure 2.

### **Site Visit**

A site visit was performed on October 22, 2008, by Jay Cook of the Department of Ecology. A second visit occurred on November 25, 2008, with Jay Cook and John Rose of the Department of Ecology. The two visits were hosted by one of the applicants, Ricky Doty. During the visits, the general terrain and irrigated area were observed and photographed along with the homes, storage facilities, and subject wells. It was noted that both proposed wells have been constructed. One is operational and active (acting as an exempt withdrawal), and the second has not yet had a pump installed. GPS readings were obtained giving a latitude of north 48.7065 and a longitude of -122.8723

west for the active well, and north 48.7063 and a longitude of -122.8731 for the inactive well. The Department of Ecology well tag number for the active well is AFG453. The inactive well did not have a well tag. A well tag, number BBF093, along with the proper paperwork has been sent to the applicant.

At the time of the site visit, there were 2 occupied homes on the 10.81-acre property. Additionally there was a greenhouse and a small (less than one acre) commercial garden.

### **Water Rights Held by the Dotys**

The Dotys do not hold any state-issued water rights for this property. They have been using one of the proposed wells under the groundwater exemption, and have likely established a water right by virtue of this beneficial use. RCW 90.44.050, which contains the groundwater exemption, allows withdrawal of 5,000 gallons of water per day for domestic and industrial (commercial agriculture) uses without a permit from Department of Ecology.

### **Quantity Requested and Water Availability**

The application requests water from 2 wells at a rate of 20 gpm to serve 2 homes and irrigate 8-9 acres. During the site visit and from correspondence with the applicant, it is understood that one of the homes currently receives potable water from Eastsound Water Users Association (EWUA). The wells will now likely serve one single-family residence and be used for irrigation of a small commercial garden.

It is understood from the well report and the applicant that the active well is not capable of producing a continuous supply of water. Due to this, the well is operated on a timer allowing sufficient recovery between pumping cycles. Each day at 6 a.m. and 6 p.m. the active well's pump automatically turns on and pumps for 15 minutes, drawing the pumping water level down to near the pump intake at 180 feet below ground surface. Based on the calculated volume of the well and correspondence with the applicant, each pumping cycle produces about 200 gallons that is sent to the 5,000-gallon storage facility for later use. The well completely recovers between pumping cycles.

The second (inactive) well, at the time of its construction, was deemed a "dry hole" and considered not usable. Soon after construction, it was noticed that the well had filled with water. It has never been used and its production capability is unknown. The Doty's do plan to use the well in some capacity to be determined during the permit phase of the water right.

The applicant plans to continue using the active well in the same manner, withdrawing approximately 400 gallons per day. A pumping scheme for the second well will be determined by the productivity of the well. According to Mr. Doty the inactive well is 500 feet in depth and 6 inches in diameter with a static water level around 13 feet below ground surface (verified during the site visit). Its volume is nearly 700 gallons. If operated in a similar fashion – approximately half its volume pumped twice a day – it would produce about 700 gallons per day.

Based on the calculated well volumes and historic operation, the two wells will produce about 1,100 gallons per day or about 1.25 acre-feet per year.

The Dotys plan to commercially grow market vegetables (broccoli, cauliflower, lettuce, kale, chard, beets, etc.). The water duty for these vegetables if planted on the 8 to 9 irrigable acres is greater than the quantity the wells can produce. Thus, the annual quantity will be limited by the production capability of the sources. With the uncertain capacity of the wells, the annual quantity authorized in the permit should be set reasonably high to allow full use of the wells' capabilities under the permit.

Regarding the instantaneous quantity to be authorized, it is realistic that the two wells could be pumped simultaneously at a total rate of 20 gpm into the 5,000-gallon storage facility.

Considering the information above, it is recommended that the permit issue for 20 gpm and 2 afy. These quantities may be reduced prior to certification based on actual use.

### **General Hydrology and Physiography**

Water Resources Inventory Area 2 (WRIA 2, the San Juan Islands Watershed) makes up all of San Juan County, Washington. The WRIA is an archipelago composed of 175 named islands and has a total land area of 172 square miles. The three largest islands are Orcas, San Juan, and Lopez.

The San Juan Islands are composed of varying thicknesses of glacial deposits overlying bedrock. Many of the islands have erosion-resistant bedrock in their cores and along shorelines, which is responsible for the rockbound coasts that typify the San Juan Islands. Land surface elevations range from sea level to 2,409 feet at the summit of Mount Constitution on Orcas Island. Most of the valleys and lowland areas of the three large islands express a low, rolling topography characteristic of glacially deposited sediments (Russell et al, 1975).

All fresh water, surface and ground, on the San Juan Islands is derived from precipitation. Due to the rainshadow effect from the Olympic Mountains, precipitation varies across the county increasing in the northerly and easterly directions (PGG, 2002). Mean annual precipitation at low to moderate elevations ranges from about 26 inches in the south to about 35 inches in the northern part of the county. Precipitation increases at higher elevations, reaching about 48 inches at Mount Constitution on Orcas Island (Orr et al., 2002). The precipitation station at Olga on Orcas Island has recorded an average of 28.42 inches per year over the past 109 years, with most of the rainfall occurring between October and March (PGG, 2002). Precipitation at Eastsound, near the Doty property, averages 32 to 34 inches per yer (Orr et al., 2002).

Watersheds in WRIA 2 are generally less than 5 square miles in area. As a result, most streams in the WRIA are small and intermittent. There are a few perennial streams found on Orcas and San Juan Islands (PGG, 2002).

### **Regional Geologic Setting**

The geology of the San Juan Islands is very complex, consisting of a series of allochthonous terranes mostly of island arc and shallow marine origin of early Paleozoic to middle Cretaceous age which were accreted onto the North American continent probably prior to subsequent compressional faulting. During the late Cretaceous, imbricate thrust faulting created a series of sub-parallel nappes which generally divide each of the five identified terranes. This faulting also resulted in pervasive high-pressure metamorphism and the creation of intermittent tectonic zones along fault contacts. These units were then tilted to the southeast, probably during the Tertiary period. Subsequent advance and retreat of continental glaciers during the Quaternary Period deposited glacial materials onto the bedrock. The most recent glaciation to cover the Islands, the Fraser Glaciation (ending about 10,000 years ago), likely removed previous glacial deposits and left sequences of intermixed clay, silt, sand and gravel in low lying areas (Russell et al., 1975 and Brandon et al., 1988).

### **Local Geology**

The geology of the Buckhorn area in the northern portion of Orcas Island is characterized by outcropping bedrock and bedrock overlain by thin topsoil and weathered bedrock. The bedrock forms the edge of a bowl-shaped basin in the Eastsound area that reaches depths of 150 feet below sea level near its center with surface outcrops around the edges. Outcropping bedrock is found at several higher-elevation hills and mountains in the area. Bedrock is also found to outcrop near sea level at the northern and southern shorelines in the Eastsound area.

The Doty's active well is 6 inches in diameter and was drilled to a total depth of 300 feet. According to the driller's log, drilling encountered two feet of topsoil, clay to 15 feet, and sand and clay to 17 feet, sandstone bedrock from 17 feet to 40 feet, sandstone and conglomerate from 40 feet to 230 feet, and conglomerate from 230 feet to 300 feet. This sequence suggests the boring penetrated topsoil and thin glacial deposits, then encountered the Nanaimo Group, which is composed of Upper Cretaceous clastic sedimentary rock and is considered bedrock. The Washington Department of Natural Resources Geologic map (Schuster, 2005) shows the nearest Nanaimo outcrops to be the Haslam formation of marine sedimentary rocks overlying the Comox formation composed of near-shore sedimentary rocks. This correlates well with the driller's log showing sandstone overlying conglomerate. Please see geologic map on the following page.

No drilling information is available for the 500-foot inactive well, but it likely encountered a very similar sequence.

### **Local Hydrogeology**

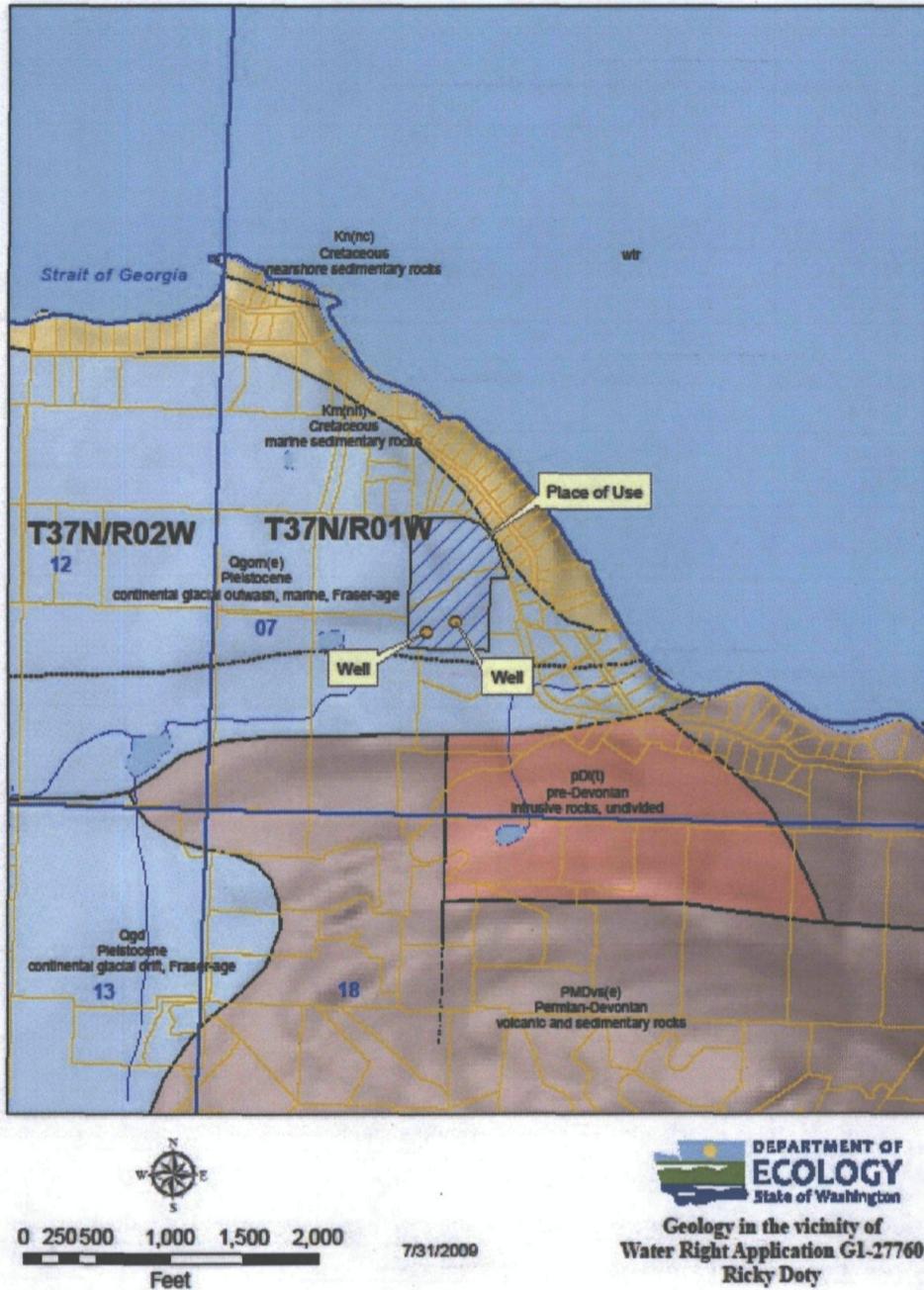
Ground water is present in both the glacial and bedrock units found on Orcas Island. The sedimentary bedrock deposits encountered in the Doty wells are well-indurated and, therefore, have very low primary permeability. Due to stresses associated with geologic folding and faulting, the units are fractured and have secondary permeability that often can supply water in small but exploitable quantities.

The wells proposed for use are situated at an elevation of about 100 feet above MSL. Drilling of the shallow well encountered mostly sedimentary bedrock to a total depth of 300 feet. The wells produce water from fractures directly intersecting the borings. Static water level in the active well at the time of drilling was measured to be about 10 feet below ground surface, or about 90 feet MSL. An air test was performed at the time of drilling. The boring log suggests the well can produce 150 gallons per day. Mr. Doty has used the active well daily since it was completed and plumbed. He suggests the well produces about 400 gallons of water per day and consistently returns to its normal static water level. During the November site visit at 11:40 a.m., approximately 5 hours after the pumping cycle, the static water level in the active well was 20.2 feet below ground surface, exhibiting substantial recovery in that time.

There is no well log for the inactive well. Static water level in the inactive well was about 13 feet below ground surface during the November site visit. Its production capability will be ascertained during the permit phase.

While there are not enough data to determine aquifer parameters and potential drawdown at distance, a reasonable determination can be made that the bedrock aquifer is capable of producing water at the proposed rates. Based on the geology and the constrained pumping scheme, it is inferred that the bedrock aquifer has a very low transmissivity and wells pumping from the aquifer will produce a small, steep radius of influence that may extend farther in the direction of fracturing.

Figure 1: Geologic map of Buckhorn area (from Washington Department of Natural Resources [2005]).



### Other Water Rights Near the Proposed Point of Withdrawal

Considering the relatively small quantity of water the wells are capable of producing daily and annually, it is very unlikely any existing water rights beyond a half-mile will be impaired by the proposed withdrawal. Thus, a ½-mile radius was chosen to investigate potential impairment of senior water rights. Note that a small amount of drawdown interference in a neighboring well does not constitute impairment; a well must be physically rendered unable to withdraw its full allocation of water to be considered impaired.

A map search of state-issued water rights and claims found 34 potential documented water rights within a half-mile of the active well (see Figure 2). Twenty-nine are ground water claims and 5 are state-issued certificates. Of the 29 claims, thirteen are short-form claims and are basically the equivalent of an exempt well, serving single domestic purposes with irrigation of a lawn and garden. The other 16 are long-form claims. Most of the long-form claims are for single domestic use and minor irrigation. Four of the long-form claims were submitted by a Mr. Knapp, claiming irrigation of the same 33 acres from several sources, one of which is surface water. Another, the Phelps claim, suggests irrigation of 4 acres. Six of the 29 claims are for surface diversions. Please note that the validity of a claim can only be evaluated in an adjudication in Superior Court.

Of the 5 state-issued rights, four authorize use of surface water for single domestic purposes, and one authorizes withdrawal of groundwater for single domestic uses.

Additionally, a search of Ecology's Well Log Database showed 12 additional permit-exempt wells within ½ mile of the Doty's wells. Of these, 7 are less than 60 feet in depth and tap a shallower aquifer that should not be affected by the proposed pumping. The nearest of the 5 deep exempt wells is about 1,200 feet from the Doty's wells.

No evaluation of the validity of the neighboring water rights is implied in this report, however, for purposes of the investigation, they were considered active and senior to this application.

Table 1: Nearby water rights and claims

Water Right Number	Name	Priority Date	State-issued, Short <sup>2</sup> or Long form claim	Instantaneous Quantity	Annual Quantity	Purpose(s) of Use
S1-20196CWRIS <sup>1</sup>	Mackey	June 29, 1972	State-issued	0.01 cfs	0.5 afy	Single domestic
S1-25645CWRIS	Bee and DeBoor	March 2, 1990	State-issued	0.001 cfs	0.5 afy	Single domestic
S1-24279CWRIS	Davenport	April 4, 1983	State-issued	0.002 cfs	0.5 afy	Single domestic
S1-24288CWRIS	Kooyman	April 8, 1983	State-issued	0.002 cfs	0.5 afy	Single domestic
G1-23013CWRIS	Merrill	Nov. 29, 1977	State-issued	1 gpm	1 afy	Single domestic
S1-014323CL <sup>1</sup>	Mackey	May 1967	Long	15 gpm	4.1 afy	Domestic
S1-008013CL	Christensen	Feb. 1965	Long	0.01 cfs	1 afy	Domestic
S1-120901CL	Smith	Sep. 1949	Long	10 gpm	1 afy	Domestic
S1-013503CL	Knapp	Jan. 1890	Long	150 gpm	30 afy	Domestic, irrigation, stockwatering
S1-121386CL	Pang	NA	Short	NA	NA	Irrigation
G1-155628CL <sup>1</sup>	Eckman	NA	Short	NA	NA	Domestic
G1-155629CL	Eckman	NA	Short	NA	NA	Domestic
G1-150302CL	Gabrielson	NA	Short	NA	NA	Domestic
G1-142705CL	McKinney	NA	Short	NA	NA	Domestic and minor irrigation
G1-101425CL	Tellefsen	NA	Short	NA	NA	Domestic and minor irrigation
G1-094301CL	Eckman	NA	Short	NA	NA	Domestic
G1-094302CL	Eckman	NA	Short	NA	NA	Domestic
G1-085447CL	Neth	NA	Short	NA	NA	Domestic
G1-071783CL	Hull	NA	Short	NA	NA	Domestic
G1-049759CL	Taylor	NA	Short	NA	NA	Domestic and minor irrigation
G1-119102CL	Mangels	NA	Short	NA	NA	Domestic and irrigation
G1-059926CL	Gudjell	NA	Short	NA	NA	Domestic
G1-019336CL	Jensen	Apr. 1935	Long	0.6 gpm	1 afy	Domestic
G1-012972CL	Phelps	October 1970	Long	10 gpm	16 afy	Domestic and irrigation
G1-012973CL	Phelps	1890	Long	2 gpm	3.2 afy	Domestic
G1-012974CL	Phelps	1890	Long	2 gpm	3.2 afy	Irrigation
G1-012975CL	Phelps	Sep. 1970	Long	0.5 gpm	0.8 afy	Irrigation
G1-013502CL	Knapp	January 1890	Long	150 gpm	30 afy	Domestic, irrigation, stockwatering
G1-013504CL	Knapp	January 1890	Long	150 gpm	30 afy	Domestic, irrigation, stockwatering
G1-013505CL	Knapp	January 1890	Long	150 gpm	30 afy	Domestic, irrigation, stockwatering
G1-009764CL	Myhr	Oct. 1967	Long	0.5 gpm	0.8 afy	Domestic
G1-160758CL	Mangels	August 1974	Long	15 gpm per structure	1 afy	Domestic
G1-140697CL	Hopper	July 1930	Long	10 gpm	1 afy	Domestic

<sup>1</sup>S and G denote surface water or groundwater source.

<sup>2</sup>Short-form claims typically are the rough equivalent of withdrawal under the groundwater exemption.

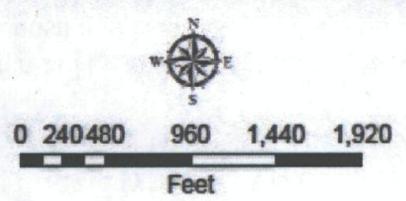
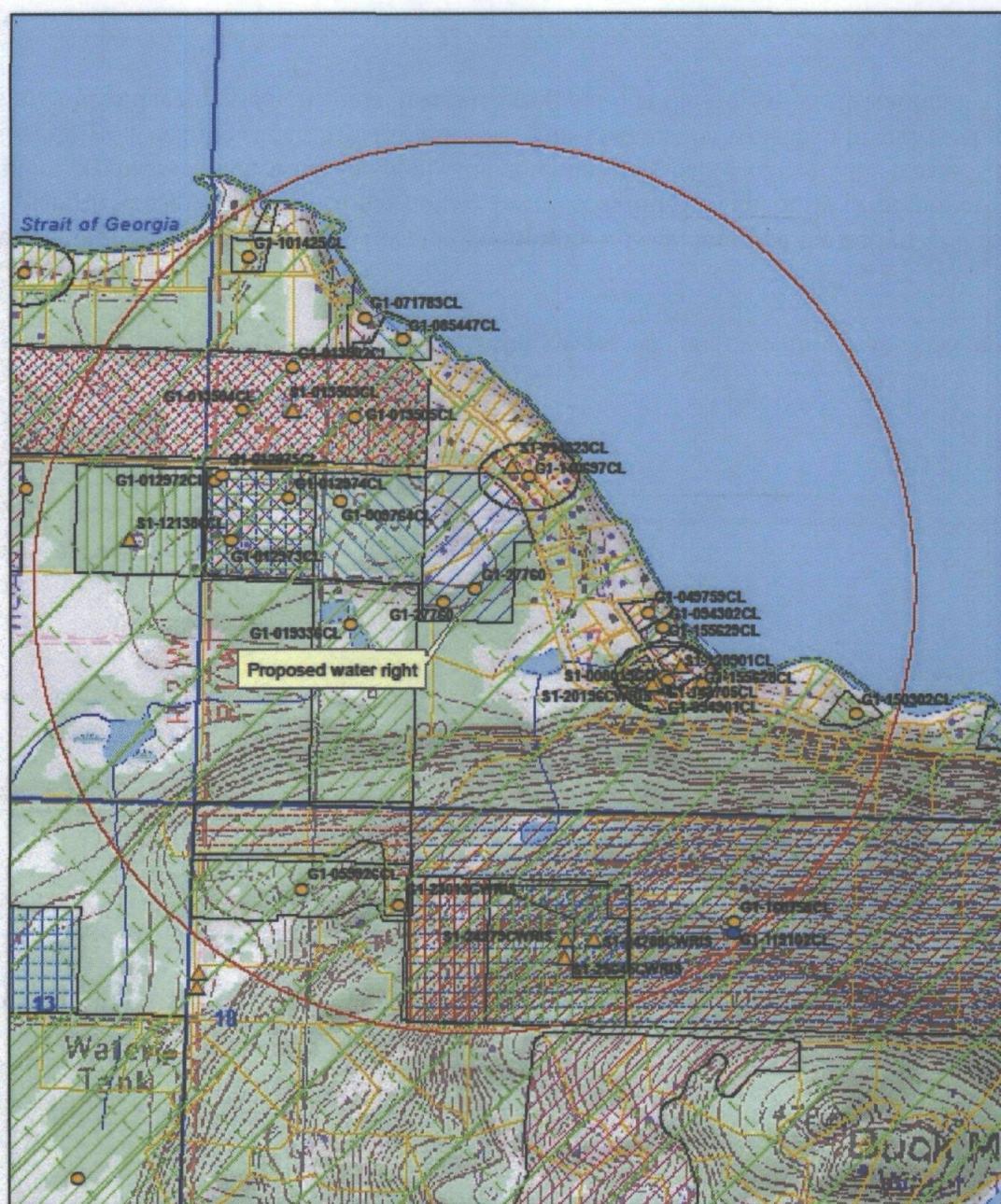
## Potential Effects on Neighboring Rights and Wells

The depth of the two Doty wells suggests no surface water rights will be impacted. Thus, this investigation focused on groundwater withdrawals. The potential for impacts to any wells by the Doty withdrawals will be influenced by the quantity pumped, the low transmissivity of the bedrock aquifer, and by the orientation and connectivity of fractures within the bedrock. No available information was found regarding fracture orientation at the site. Due to the very low transmissivity (productivity) of the bedrock aquifer, the wells will pump for short durations and have long periods of recovery, which will minimize propagation of the radius of influence.

A neighboring well within hydraulically connected fractures could be affected by the proposed pumping. At a distance of about 700 feet, the well used under the Hopper claim is nearest the Doty wells. Although there are no construction details of the well, its location suggests the well was constructed in a manner similar to the Doty wells – uncased in bedrock and relatively deep. Several other deep wells are present within 2,000 feet of the Doty wells. The active Doty well has been producing water since the year 2000 with no claims of impairment. A reasonable assumption is that continued use in a similar manner also will not impair neighboring wells.

A new, additional withdrawal from the currently-inactive well is proposed. Production from this well will also be limited by the low transmissivity of the bedrock aquifer. The short duration of the pumping cycles and the anticipated small, steep radius of influence along with the distance to neighboring wells suggest that no water rights will be significantly affected by the additional withdrawal.

Figure 2 – Map showing nearby water rights and topography



7/31/2009

**DEPARTMENT OF ECOLOGY**  
State of Washington  
Water rights within 1/2 mile of  
Water Right Application G1-27760  
Ricky Doty

## References

- Brandon, M.T., Cowan, D.S., and Vance, J.A., The Late Cretaceous San Juan Thrust System, San Juan Islands, Washington: Special Paper 221, The Geological Society of America, 81 p.
- 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 Island, San Juan County, Washington: Water-Resources Investigations Report 02-4114, United States Geological Survey, 114 p.
- Pacific Ground Water Group, 2002, WRIA 2 Phase 2 Basin Assessment: Prepared for WRIA 2 Planning Unit/San Juan County Department of Health and Community Services, 25 p.
- Russell, R.H., editor, 1975, Geology and Water Resources of the San Juan Islands, San Juan County, Washington: Water Supply Bulletin No. 46, Washington Department of Ecology Office of Technical Services, 171p.
- Schuster, J.E., 2005, Geologic Map of Washington State, Washington Department of Natural Resources, Washington Division of Geology and Earth Resources: Geologic Map GM-53.

## DETERMINATIONS

In accordance with RCW 90.03.290, determinations must be made on the following four criteria in order for an application for water rights 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**

#### Legal Availability

There are no regulatory closures or legal restrictions affecting water availability within the Eastsound basin.

#### Physical Availability

Based on historical pumping under the groundwater exemption, it is evident that the active well can produce water in exploitable quantities. The inactive well has not yet been used, thus its capability is unknown. Because the wells likely cannot produce enough water to supply the potentially irrigable acreage, the permit should issue for quantities that slightly exceed the capability of the wells. This ensures the wells can be used to their full capacity. The quantities may be reduced based on actual use (metering data) at the time of certification.

### **Impairment**

Activation of the second well could increase total withdrawal by 700 gallons per day or about 0.4 acre-feet per irrigation season. The closest neighboring well has not been impaired by the Doty's historical pumping under the groundwater exemption. Considering the relatively small increase in total pumping, impairment of this well or other neighboring wells at a greater distance is unlikely.

### **Beneficial Use**

Domestic and irrigation supply is considered to be a beneficial use under RCW 90.54.020(1). The rate of water authorized (20 gallons per minute and 2 afy) is reasonable for the proposed purpose of use.

### **Public Interest**

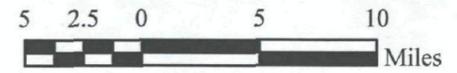
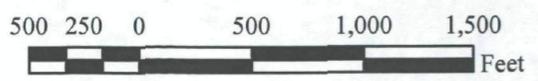
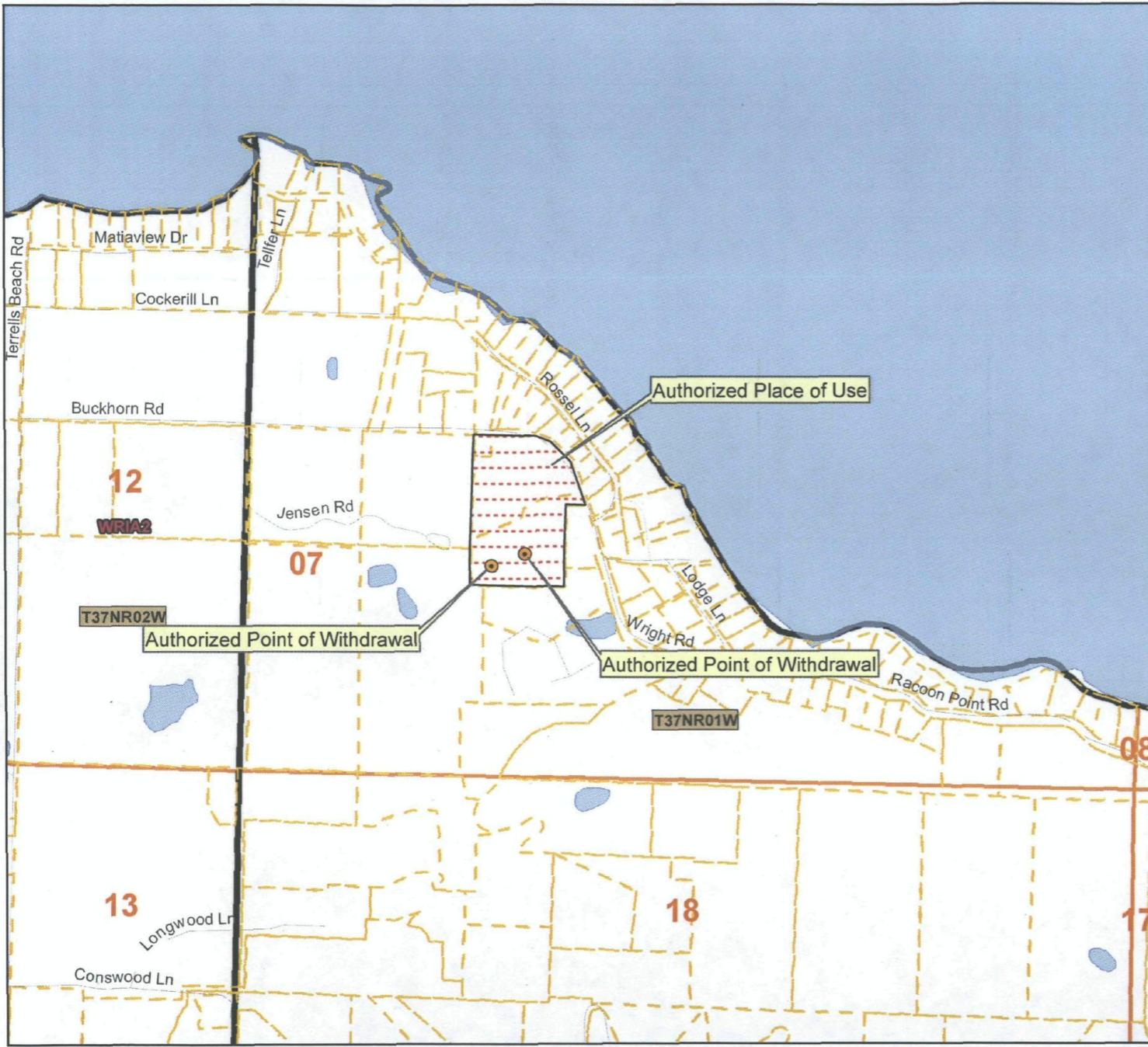
No potential detriment to the public interest could be identified during the investigation of this application.

### **Advisories**

The proposed withdrawal is from a bedrock aquifer with static water levels well above sea level. Current operation of the active well draws the water level in the well down to around 80 feet below sea level on a daily basis. The inactive well is 200 feet deeper and the pumping level will reach nearly 400 feet below sea level. With the reasonable assumption that the fractures in the bedrock aquifer are in continuity with seawater, small-scale upconing of seawater into the Doty wells is a concern.



Richard, Velma, & Ricky Doty  
 Permit Number G1-27760  
 Sec. 7, T 37N, R 01W W.M.  
 WRIA 2 - San Juan County



- Legend**
- County
  - WRIA
  - Highways
  - Townships
  - cities
  - Sections
  - Authorized Point of Withdrawal
  - 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