

File NR G1-28600
WR Doc ID 4555719

State of Washington REPORT OF EXAMINATION FOR WATER RIGHT APPLICATION

| | |
|-----------------------------------|---------------------------------------|
| PRIORITY DATE 12/1/2008 | WATER RIGHT NUMBER G1-28600 |
|-----------------------------------|---------------------------------------|

| | |
|---|------------------------------------|
| MAILING ADDRESS Fletcher Family Ventures, LLC 5698 Mutiny Bay Road Freeland, WA 98249 | SITE ADDRESS (IF DIFFERENT) |
|---|------------------------------------|

Quantity Authorized for Withdrawal or Diversion

| | | |
|--|---------------------|---|
| WITHDRAWAL OR DIVERSION RATE 200 | UNITS GPM | ANNUAL QUANTITY (AF/YR) 186.5 |
|--|---------------------|---|

Purpose

| PURPOSE | WITHDRAWAL OR DIVERSION RATE | | | ANNUAL QUANTITY (AF/YR) | | PERIOD OF USE (mm/dd) |
|-------------------|------------------------------|--------------|-------|-------------------------|--------------|--------------------------|
| | ADDITIVE | NON-ADDITIVE | UNITS | ADDITIVE | NON-ADDITIVE | |
| Domestic multiple | 200 | | GPM | 10.5 | | 01/01 - 12/31 |
| Irrigation | | 200 | GPM | 176 | | 05/01 - 09/30 |

| IRRIGATED ACRES | | PUBLIC WATER SYSTEM INFORMATION | |
|-----------------|--------------|---------------------------------|-------------|
| ADDITIVE | NON-ADDITIVE | WATER SYSTEM ID | CONNECTIONS |
| 100 | | | 32 |

Source Location

| COUNTY | WATERBODY | TRIBUTARY TO | WATER RESOURCE INVENTORY AREA |
|--------|-------------|--------------|-------------------------------|
| Island | Groundwater | | 6-Island |

| SOURCE FACILITY/DEVICE | PARCEL | WELL TAG | TWN | RNG | SEC | QQ Q | LATITUDE | LONGITUDE |
|---|-----------------|----------|-----|-----|-----|-------|----------|-----------|
| Well | R22909-101-4610 | ALT269 | 29N | 02E | 9 | SE SE | 48.0088 | -122.5513 |
| 213 feet west and 566 feet north of the SE corner of Section 9 Datum: NAD83/WGS84 | | | | | | | | |

Place of Use (See Attachments 1 and 2)

Attachment 1 shows location of authorized place of use and point of withdrawal

Attachment 2 provides the legal description on which water is to be used

Proposed Works

An existing well, 160 feet deep with an 8-inch casing and a 15 HP pump in the well, providing water to an irrigation system and residential development. Existing well house separate from well, which houses 3-80 gallon pressure tanks, and electrical control system in place. 6-inch diameter mainline with 40,000 gallon tank and a 2.3 acre pond for irrigation water storage to a drip irrigation system. Booster pump of 40-50 HP to be installed for 6-inch diameter mainline to supply additional pressure for distribution for the multiple domestic supply with 1 ½ inch water supply lines planned to be installed to each house.

Development Schedule

| BEGIN PROJECT | COMPLETE PROJECT | PUT WATER TO FULL USE |
|---------------|------------------|-----------------------|
| Started | June 1, 2032 | June 1, 2035 |

Measurement of Water Use

| | |
|---|--|
| How often must water use be measured? | Weekly |
| How often must water use data be reported to Ecology? | Upon Request by Ecology |
| What volume should be reported? | Total Annual Volume for each use: multiple domestic and irrigation |
| What rate should be reported? | Annual Peak Rate of Withdrawal (gpm) |

Provisions

Wells, Well Logs and Well Construction Standards

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.

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.

Installation and maintenance of an access port as described in WAC 173-160- 291(3) is required.

Measurements, Monitoring, Metering and Reporting

An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", WAC 173-173.

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.

Your Right To Appeal

You have a right to appeal this Order to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Order. 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 the Order.

File your appeal and a copy of this Order 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 Order on Ecology in paper form - by mail or in person. (See addresses below.) E-mail 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 | Department of Ecology Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608 |
| Pollution Control Hearings Board 1111 Israel RD SW Ste 301 Tumwater, WA 98501 | Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903 |

- Please send a copy of your appeal to:

Jacqueline Klug, Section Manager
Water Resources Program
Northwest Regional Office
3190 160th Avenue SE
Bellevue WA 98008-5452

Signed at Bellevue, Washington, this 1st day of August, 2011.



Jacqueline Klug, Section Manager

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>.

Water Level Measurements

In order to maintain a sustainable supply of water and ensure that your water source is not impaired by future withdrawals, static water levels should be measured and recorded monthly using a consistent methodology. Static water level is defined as the water level in a well when no pumping is occurring and the water level has fully recovered from previous pumping. Static water level data should include the following elements:

Unique Well ID Number

Measurement date and time

Measurement method (air line, electric tape, pressure transducer, etc.)

Measurement accuracy (to nearest foot, tenth of foot, etc.)

Description of the measuring point (top of casing, sounding tube, etc.)

Measuring point elevation above or below land surface to the nearest 0.1 foot

Land surface elevation at the well head to the nearest foot.

Static water level below measuring point to the nearest 0.1 foot.

Department of Health Requirements

Prior to any new construction or alterations of a public water supply system, the State Board of Health rules require public water supply owners to obtain written approval from the Office of Drinking Water of the Washington State Department of Health. Please contact the Office of Drinking Water at Northwest Drinking Water Operations, 20435 72nd Avenue S, Suite 200, K17-12, Kent, WA 98032-2358, (253) 396-6750.

Water Use Efficiency

Use of water under this authorization shall be contingent upon the water right holder's maintenance of efficient water delivery systems and use of up-to-date water conservation practices consistent with established regulation requirements and facility capabilities.

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.

Schedule and Inspections

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.

Findings of Facts

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; that there will be no impairment of existing rights; that the purpose(s) of use are beneficial; and that there will be no detriment to the public interest.

Therefore, I ORDER approval of Application No. G1-28600, subject to existing rights and the provisions specified above.

INVESTIGATOR'S REPORT

Application for Water Right -- Fletcher Family Ventures LLC

Water Right Control Number G1-28600

Jerry Liszak, Department of Ecology Contact

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BACKGROUND

Cost Reimbursement

This application is being processed under a cost reimbursement agreement between the applicant and the Department of Ecology. This report has been prepared by HDR Engineering under a contract and Work Assignment with the Department of Ecology (Ecology).

An application to appropriate public ground water was submitted to Ecology on December 1, 2008 by Fletcher Family Ventures, LLC (FFV) of Freeland, WA, for 300 gpm for irrigation of 100 acres of farmland and multiple domestic supply for 100 homes. The application was accepted by the Ecology Northwest Regional Office and was assigned as Ground Water Application G1-28600.

GeoEngineers completed a Phase I review that is documented in a letter report to Ecology dated December 18, 2009. FFV has requested that Ecology complete the Phase II review and processing of the water right under the cost reimbursement program using an independent consultant on contract to Ecology. In addition, GeoEngineers conducted an aquifer test for Fletcher for this project and has documented this in a January 5, 2011 report entitled *Hydrogeologic Analysis of Well Testing*.

HDR Engineering was selected by Ecology to perform the Phase II services, and the Work Assignment for this project was signed by Ecology on January 3, 2011.

Description and Purpose of Proposed Application

Table 1. Application Summary

| Attributes | Summary |
|-------------------------------|---|
| Name | Fletcher Family Ventures, LLC |
| Priority Date | December 1, 2008 |
| Instantaneous Quantity | 300 gpm |
| Annual Quantity | None specified |
| Purpose of Use | Irrigation and multiple domestic supply |
| Period of Use | During irrigation season for irrigation and year-round for multiple domestic supply |
| Place of Use | Multiple parcels within Sections 9, 10, 15, and 16, T29N, R2E |

Table 2. Proposed Sources of Withdrawal or Diversion

| Source Name | Parcel | WellTag | Twn | Rng | Sec | QQ Q | Latitude | Longitude |
|-------------|-----------------|---------|-----|-----|-----|-------|----------|-----------|
| Well | R22909-197-4610 | ALT269 | 29N | 02E | 9 | SE SE | | |

Legal Requirements for Approval of Appropriation of Water

Chapters 90.03 and 90.44 RCW authorize 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 and RCW 90.44.050. 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

This report serves as the written findings of fact concerning all things investigated regarding Water Right Application Number G1-28600.

Public Notice

RCW 90.03.280 requires that notice of a water right application be published once a week, for two consecutive weeks, in a newspaper of general circulation in the area where the water is to be stored, diverted and used. Notice of this application was published in the Whidbey Examiner on March 31, 2010 and April 7, 2010.

Consultation with the Department of Fish and Wildlife

The Department must give notice to the Department of Fish and Wildlife of applications to divert, withdraw or store water (RCW 77.57.020). This application is for ground water which has no connection with any surface water source, and the Department of Fish and Wildlife has not provided any comments on this application.

State Environmental Policy Act (SEPA)

A water right application is subject to a SEPA threshold determination (i.e., an evaluation whether there are likely to be significant adverse environmental impacts) if any one of the following conditions are met.

- It is a surface water right application for more than 1 cubic feet per second, unless that project is for agricultural irrigation, in which case the threshold is increased to 50 cubic feet per second, so long as that irrigation project will not receive public subsidies;
- It is a groundwater right application for more than 2,250 gallons per minute;
- It is an application that, in combination with other water right applications for the same project, collectively exceed the amounts above;
- It is a part of a larger proposal that is subject to SEPA for other reasons (e.g., the need to obtain other permits that are not exempt from SEPA);
- It is part of a series of exempt actions that, together, trigger the need to do a threshold determination, as defined under WAC 197-11-305.

Because this application does not meet any of these conditions, it is categorically exempt from SEPA and a threshold determination is not required.

INVESTIGATION

Site Visit and Existing Reports

On March 11, 2011, Jerry Louthain of HDR conducted a site visit with the applicant's representative, Mr. Ken Petry, who explained the details of the proposed project. The existing production well proposed for this water use, the proposed land to be irrigated, and the area where the proposed housing development is planned were all observed. The production well had been drilled and was the subject of the pumping test performed by GeoEngineers.

The following reports were reviewed as part of this investigation:

- Phase 1 Report by GeoEngineers dated December 18, 2009
- Report by Sound Planning Services dated August 8, 2010 to determine the allowable residential development within the FFV property
- *Hydrogeologic Analysis of Well Testing* by GeoEngineers dated January 5, 2011

The following is a summary of the content of each of these reports:

Phase 1 Report

- The project site area is near the community of Freeland on Whidbey Island.
- The proposed point of withdrawal is identified as Well 1. (shown on Attachment 1 of ROE)
- The proposed place of use is made up of a number of contiguous parcels.
- The Ecology well log database and Island County hydrologic database were each queried and no known wells were found within 1,500 feet of the FFV well.
- There are no significant streams within 1-mile of the FFV well.
- The source area was determined to have a 1-mile radius and no senior water right applications were found within the source area.
- Table 1 shows six senior water right applications outside of the source area, with the nearest proposed point of withdrawal being 1.4 miles away.
- Since there are no other senior water right applications within the source area, the FFV application can be processed by itself under Phase 2 Cost Reimbursement.

Sound Planning Services Report

- This report was prepared to determine the allowable residential development within the FFV property made up of seven contiguous parcels described in the report for a total of 175.73 acres.
- Tables in the report show the seven parcels of land with the zoning, acreage, and the number of allowable residential units for each parcel.
- The total allowable number of residential units at the present zoning is 23.
- The total allowable number of residential units with a rezoning of the largest parcel is 32.
- Additional residential units could be possible if certain activities specified in the report are done.

Well Testing Report

- The pump test was performed on December 8-10, 2010, with the step-rate test beginning on December 8 and consisting of five 15-minute steps at pumping rates from 100 to 265 gpm.
- The static water level at the start of the test was 22.6 feet below the top of the well casing (BTC).
- The well pump is 132 feet BTC.
- An observation well 77 feet deep and approximately ½ mile northeast of the Fletcher well was monitored during the pump test.
- The step-rate test was followed by a 24-hour constant-rate test at an average of 203 gallons per minute (gpm), which began at 8:30 AM on December 9.

- The maximum pumping rate during the 24-hour test was 300 gpm after 20 minutes of pumping, and was reduced to 195 gpm after 400 minutes due to excessive drawdown.
- Water level at the end of the 24-hour test was 127 feet BTC, which was a drawdown of 104.4 feet.
- Water level in the pumped well recovered to 72.1 feet BTC within 5 minutes after pump shut-down, and 42.7 feet BTC after 245 minutes.
- Water levels, tidal stage and barometric pressure were all recorded for monitoring any water level effects in the observation well from pumping the Fletcher well.
- The water level in the observation well varied with some lag time with the change in tidal water levels.
- There was no apparent interference drawdown in the observation well during the step-rate test or the 24- hour constant rate pumping test.

Proposed Use and Basis of Water Demand

FFV filed this application for use of ground water to supply water for irrigation of up to 100 acres of farmland and for multiple domestic supply for up to 100 homes. At the time of the site visit on March 11, 2011, the production well had been drilled and some piping for irrigation had been installed. The place of use is shown on Attachment 1.

Multiple Domestic Supply

The FFV's current plans for the multiple domestic supply is for a maximum of 32 homes on about 64 acres of the total of 175 acres for the entire property. The Sound Planning Services letter report dated August 8, 2010 identifies the allowable residential development within the FFV property. This report stated a maximum of 32 residential lots can be developed on the property. The remainder of the property that is not developed will be used for agriculture (open space). The applicant's intention is to slowly develop the residential property as the housing market improves. A 20-year time frame is planned for full development of the residential portion of the property.

Ecology's typical water allocation for a multiple domestic supply development for a rural area in this vicinity is a maximum of 300 gallons per day, which is equivalent to 1/3 acre-foot per household. For a 32-lot development the total allocation for multiple domestic supply is 10.5 acre feet per year (afy).

Irrigation

The applicant's intention is to develop 100 acres of the property for irrigation, with blueberries being the primary crop that is being planned for at this time. With the 64 acres planned for multiple domestic housing and the 100 acres for irrigation, the remaining 11 acres will be in roads, ponds, barns, well house and other facilities.

The applicant also plans to develop the irrigated acreage over time, with an initial 5 acres of blueberries planned for the first year, and then to increase the number of acres of blueberries each year over a 5-year period, provided that the berries prove to be a successful venture.

The Crop Irrigation Requirement (CIR) is the irrigation water requirement that is needed by a specific crop. The State of Washington Irrigation Guide includes information on the CIR estimates for various irrigated crops at numerous locations throughout the State. The nearest station to the Fletcher property is Coupeville. Blueberries are not included in the listing of irrigated crops, so the CIR for raspberries will be used as an approximation. The total CIR for raspberries for the Coupeville Station from the Irrigation Guide is 19.05 inches.

Irrigation systems vary in their efficiencies of getting the water from the source to the crop due to conveyance losses such as seepage, evaporation, spillage, wind drift, and surface runoff. An efficiency factor must therefore be applied to the CIR to account for the on-farm irrigation system losses. Dividing the CIR by the efficiency factor results in the Total Irrigation Requirement (TIR), which is the amount of water that needs to be appropriated so that the CIR actually reaches the crop. The Washington Irrigation Guide recommends an efficiency factor of 60-75% for sprinkler irrigation and 85-90% for trickle irrigation systems. Fletcher plans to use drip irrigation for his blueberries, so using an efficiency factor of 90% results in a TIR for blueberries of 21.2 inches. (The water will be delivered from the wellhead to the sprinklers via a pipeline, so there are no conveyance losses.) Based on using 21.2 inches for irrigation, the TIR for irrigation of 100 acres of blueberries is 176 acre-feet per year.

Other Rights Appurtenant to the Place of Use

There are no other water rights appurtenant to the identified place of use for this application.

Hydrogeologic Setting

General

The project site lies near the center of Whidbey Island, centrally located between two sea water bodies, Mutiny Bay and Holmes Harbor. The site is located within the Island Water Resource Inventory Area (WRIA 6), which includes Whidbey and Camano Islands. The Island County Water Resource Management Plan (2005) established 33 Sub Basins based on estimated groundwater flow divides. It was assumed that groundwater withdrawals in one Sub Basin would have “little, if any effect” on the other Sub Basins. The project site for the application lies mostly in Sub Basin 26 near the intersection of Sub Basins, 17, 25 and 26. The hydrogeology of the general project area has been reported by previous investigators and is summarized in the December 18, 2009 Phase I report by GeoEngineers.

The Whidbey Island Aquifer was designated in 1982 as a Sole Source Aquifer as authorized by Section 1424(e) of the Federal Safe Drinking Water Act of 1974. The EPA determined that Whidbey Island “has an aquifer which is the sole or principal drinking water source for the area and which, if contaminated, would create a significant hazard to public health...” (Public Law 93-523, 42 USC 300 et. seq)1.

Wells Located near Fletcher Well

In addition to the search of the Island County hydrogeologic database performed by GeoEngineers and summarized in Drawdown Interference below, additional searches were performed as a part of this investigation.

The following table is the result of a search using Ecology’s new Water Resources Webmap for existing water right records (excluding claims) within a ½ mile radius of the FFV Well.

Table 3. Water Right Records within a ½-mile from the FFV Production Well

| | | | | | | | | | | |
|---------------|------------------------------|------------|--------|---|---|---|-------|-------|------------|--------|
| G1-24538CWRIS | LEHMAN WALTER C | 08/24/1994 | Active | Y | Y | N | ... | ... | G1-24538 C | Cert |
| G1-23693CWRIS | Del Bay Inc | 09/25/1990 | Active | Y | N | N | ... | ... | G1-23693 C | Cert |
| G1-22510CWRIS | LEHMAN WALTER C | 08/04/1975 | Active | Y | N | N | ... | ... | G1-22510 C | Cert |
| G1-00705CWRIS | GREVE DONALD A | 10/13/1998 | Active | Y | N | N | 08343 | 08172 | G1-00705 C | Cert |
| G1-07797C | Freeland Water Dist | 09/20/1995 | Active | Y | Y | N | 07797 | 07499 | 05925 | Cert |
| G1-08316CWRIS | MILLER W C | 05/22/1982 | Active | Y | N | N | 08316 | 05953 | 04323 | Cert |
| G1-05594CWRIS | WESTON W E / G P | 05/05/1990 | Active | Y | N | N | 05594 | 05201 | 05970 | Cert |
| G1-05789CWRIS | LINDAHL C B / R R | 12/12/1990 | Active | Y | N | N | 05789 | 05460 | 03872 | Cert |
| G1-05974CWRIS | GABELEIN E A | 05-13-1991 | Active | Y | N | N | 05974 | 05691 | 04697 | Cert |
| G1-06052CWRIS | BUHIZ L T | 09/11/1991 | Active | Y | N | N | 06052 | 05697 | 04090 | Cert |
| G1-06232CWRIS | CONSTANS A M | 03/26/1992 | Active | Y | N | N | 06232 | 05846 | 04248 | Cert |
| G1-27463 | Freeland Water & Sewer Dist | 05/04/1994 | Active | Y | Y | N | ... | ... | ... | Prnt |
| G1-28600 | Fletcher Family Ventures LLC | 12/01/2008 | Active | Y | N | N | ... | ... | ... | NewApp |
| G1-28039 | Freeland Water Dist | 05/10/1999 | Active | Y | N | N | ... | ... | ... | NewApp |

This format for retrieval of Ecology's water right records also has the capability to show the approximate location of these individual water right records point of withdrawal/diversion and place of use, as well as to retrieve the available water right files from each of these records. There were however, no well logs available through this records search process. Ecology's well log database was also searched to obtain locations of available well log data in this vicinity. From these two record searches there are several water rights, and wells within ½ mile of the Fletcher FFV Well, with the nearest wells being approximately ¼ mile away.

Surface Water

Streams on Whidbey Island are characterized by relatively small coastal drainage basins and are generally groundwater-fed, with input from runoff during the wet seasons. The closest lake or flowing stream are unnamed and over two miles from the project location.

Geology and Hydrogeology

Information in this section is from the GeoEngineers Phase 1 report dated December 18, 2009. The geology in the vicinity of the project was generally formed as the result of erosion and depositional events during multiple glaciations. The last glaciation occurred during the Ice Age approximately 15,000 years ago, known locally as the Vashon Stade of the Fraser Glaciation. The geologic history of Island County resulted in complex layering of sedimentary deposits (stratigraphy). The typical sequence for Island County, from youngest to oldest (top to bottom), is Vashon recessional outwash, Vashon till and Vashon advance outwash, underlain by older glacial and non-glacial deposits. The geologic stratigraphy is further discussed below.

As part of the investigation of subsurface conditions, GeoEngineers downloaded Ecology Water Well Reports (well logs) in the general vicinity of the of the Fletcher application from Ecology's Well Log Viewer website. Additionally, well information from Island County's Hydrogeologic Database was downloaded for a ½-mile radius search area. The County database includes information on resource protection wells and abandoned wells. Most of the wells in the County's database originate from the United States Geological Survey (USGS) Water Supply Bulletin No. 25 (Anderson, 1968). There are no known wells within 1,500 feet of the FFV Well according to the County database.

GeoEngineers also reviewed well logs of nearby wells and hydrogeologic information regarding the site vicinity, including Water Supply Bulletin 25 (Anderson, 1968) and Sumioka and Bauer (2003). The following information was compiled from these sources to describe the hydrogeology in the area.

- Wells in the vicinity are generally screened in the aquifer located at or below sea level, referred to as the Sea-Level Aquifer. The Sea-Level Aquifer is encountered near sea level, between 30 and 150 feet below ground surface (bgs). The Sea-Level Aquifer is unconfined to semi-confined.
- Vicinity wells completed in the Sea Level Aquifer generally are of relatively moderate capacity (5 to 150 gallons per minute [gpm]). Freeland Water and Sewer District Wells located approximately 7,500 feet to the east have been pumped at rates greater than 150 gpm.
- Groundwater level elevations reported in the Island County database in wells within 2,000 feet of the Fletcher Well range from Elevation 23 to 50 feet above MSL. The Fletcher Well has an estimated groundwater level elevation of 15 feet based on a ground surface elevation of 45 feet. This information was considered not precise enough to develop a detailed potentiometric surface map. However, groundwater flow within the Sea Level Aquifer likely is influenced by topography and it is

assumed that groundwater flows in a southwesterly direction locally toward Mutiny Bay, which is located approximately 1,200 feet south of the well.

Well Construction

The Ecology Water Well Report shows that the FFV Well is 8 inches in diameter and 160 feet deep with a stainless-steel wire-wound well screen, set from 135 to 160 feet. The static water level was 30 feet below the top of the well at the time of construction on September 28, 2007. The site elevation is approximately 47 feet mean sea level (MSL). The FFV well has a permanent pump installed at a depth of approximately 132 feet.

An observation well was selected that is located at 5486 Cameron Road, south of the intersection of Cameron Road and State Route (SR) 525, and is approximately ½ mile northeast of the FFV Well. See Figure 2 in the January 5, 2011 report for the location of the FFV Well and the observation well.

There is no well log available for the observation well. The observation well is approximately 77 feet deep and the ground surface elevation is also approximately 47 feet MSL.

Aquifer Pumping Tests

The following information was taken from the GeoEngineers January 5, 2011 report. A pump test was performed on the Fletcher Well on December 8 to 10, 2010, entitled *Hydrogeological Analysis Fletcher Family Ventures Well-Freeland Whidbey Island, Washington*. The following is a summary of the contents of this report.

Step-Rate Aquifer Pumping Test

A step-rate pumping test consisting of five 15-minute steps at rates of 100, 130, 172, 216, and 265 gpm was conducted in the FFV Well on December 8, 2010. The well was progressively pumped at rates of 100, 130, 172, 216 and 265 gpm. The maximum drawdown during this step-rate test was 92 feet

Constant-Rate Aquifer Pumping Test

The pre-test static water level was at 22.60 feet below the top of the well casing. The pump was turned on at approximately 830AM on December 9 at an initial rate of 292 gpm. After several adjustments in the pumping rate, it was finally reduced to 195 gpm at 400 minutes, where it remained for the remainder of the 24-hour test. The average pumping rate for the 24-hour test was 203 gpm based on the totalizing meter.

At the end of 24 hours of pumping, the water level was at 127.0 feet below the top of the casing. The total drawdown was 104.4 feet, resulting in a 24-hour (1,443 minutes) specific capacity of 1.9 gpm/ft of drawdown. The pumping water level of 127.0 feet below the top of casing is approximately 5 feet above the pump intake. Recovery water-level data are shown in the GeoEngineers January 5 report.

The water data measured in the observation well, along with tidal elevations and relative barometric pressure data, can be seen on Figure 7 in the GeoEngineers report. During the 24-hour test the water levels followed the distinct diurnal pattern of tidal fluctuations. The water levels did not appear to be influenced by barometric pressure changes. There was no apparent drawdown attributable to the constant-rate pumping test.

Water Quality Sampling and Results

Samples of the groundwater pumped from the FFV Well were obtained at 1 hour, 12 hours and 24 hours during the constant-rate test. All three samples were submitted to AMTest Laboratories, in Kirkland,

Washington, for analyses of chloride, conductivity and hardness. The 24-hour sample was also analyzed for a suite of inorganic compounds that are typically requested for drinking water sources.

The results of the analyses were taken from the GeoEngineers report. These results indicate that the groundwater is of good quality with low concentrations of inorganic compounds below the Federal Maximum Contaminant Level drinking water standard. Manganese was an exception and it was detected at 0.13 mg/l (secondary MCL is 0.05 mg/l).

Potential for Salt Water Intrusion

The GeoEngineers (2011) report indicates that the potential for salt water intrusion is low. This is because the ground water levels in the area are at about elevation 25 feet and areas with ground water levels above about 8 feet have a low risk of saltwater intrusion. Chloride levels were 12 mg/l, which is very low. The location of the well is over 2,000 feet from the coast and there is minimal pumping in the area.

Summary Of Pumping Test Analysis

In their January 5, 2011 report GeoEngineers provided an analysis of the results of the pumping test on the FFV Well and the effects on the observation well. In summary, GeoEngineers made the following conclusions:

- The aquifer used by the FFV Well is an unconfined aquifer.
- The calculated transmissivity value of the aquifer is 4,500 gpd/ft.
- The long-term recommended pumping rate is 150 gpm.
- No drawdown was recorded in the observation well during pumping and it is unlikely that ground water pumping will interfere with other wells.
- The potential for salt-water intrusion is low.

Well Rating

Based on the resulting drawdowns from the step rate and constant rate pump tests, GeoEngineers has recommended a rating of 150 gpm for continuous long-term pumping for 24 hours or more and higher pumping rates of up to 200 gpm on a short-term basis (24 hours or less).

Potential Impacts Of Production

The following is a summary of the results of the analysis of pumping test data for the potential impacts of the proposed production from the FFV Well that GeoEngineers developed and described in their January 5, 2011 report.

Saltwater Intrusion

The unconfined aquifer used by the FFV Well correlates with a pre-Vashon formation that is known in other parts of the Puget Sound as the Sea-Level Aquifer. Pumping from this aquifer can contribute to the problem of saltwater intrusion, especially from locations that are near the Puget Sound coastline.

Saltwater intrusion occurs in a coastal aquifer that is hydraulically connected to a body of seawater when the aquifer is over-pumped. Normally, a positive head or potentiometric level maintained in the aquifer that is more than a few feet above MSL is sufficient to prevent saltwater intrusion. The groundwater head of approximately Elevation 25 feet MSL observed in the FFV Well is relatively high for Whidbey Island. Areas in Island County with static water levels greater than Elevation 8.4 feet MSL are considered low risk for saltwater intrusion. The relatively high static water level elevation, the inland

location at approximately 2,000 feet from the shoreline, and the low chloride concentrations observed during the pumping test indicate a minimal risk for saltwater intrusion.

Drawdown interference

No drawdown was observed at the observation well located approximately 2,575 feet northeast of the FFV Well. Based on a search of the Island County hydrogeologic database, there are a few wells located directly north of the FFV Well that are between 2,000 and 2,500 feet away that could be in the same aquifer. Another well (AGA812) used by Del Bay Water System was drilled to 254 feet, with no screen depth information available, is located approximately 2,275 feet to the west-northwest near the intersection of South Mutiny Bay Road and East Timber Lane. There are also several relatively shallow wells at distances greater than 1,700 feet that are likely completed in perched aquifer zones that are not hydraulically connected to the FFV Well source aquifer. These wells are not expected to be impaired by the pumping of the FFV Well at the recommended rate of 150 gpm.

Conclusions from the GeoEngineers' January 5, 2011 Report

1. Observations of drawdown made during the pumping test were not significantly affected by tidal or barometric variations and corrections of the data were not conducted.
2. Though several flow-rate adjustments occurred during the constant-rate test, the pumping and observation well data provided quality information on aquifer response and thus allowed for the projection of long-term pumping water levels and interference drawdown.
3. The aquifer transmissivity was estimated at between 2,400 and 5,400 gpd/ft based on all data. The aquifer storativity could not be calculated because of the lack of drawdown in the observation well located approximately 2,575 feet to the northeast. The absence of discernible drawdown in the observation well indicates that the aquifer storativity is greater than 0.01, and is estimated to be approximately 0.05.
4. The FFV Well was rated for long-term continuous pumping at 150 gpm and for 1-day or less pumping events at a maximum instantaneous rate of 200 gpm.
5. The results from chemical analyses of the groundwater sampling showed that the concentrations of indicator parameters for saltwater intrusion, chloride and conductivity, remained low and relatively stable throughout the 24-hour pumping test.
6. The chloride concentration of 12 mg/L and the conductivity of 320 micromhos/cm indicates a low risk of saltwater intrusion.
7. The water has a hardness of 140 mg/L, which is considered hard on the relative scale.
8. The water may have to be treated for manganese, a secondary contaminant that does not represent a health threat but can cause discoloration and objectionable staining of bathroom fittings, if the well is to be a source for a community drinking water system.
9. Potential interference drawdown is estimated to be insignificant in the wells nearest to the FFV Well that are completed in the Sea Level Aquifer. No impairment of other known wells is expected.

Water Availability

For water to be available for appropriation, it must be both physically and legally available. From the discussion above, it is determined that approval of this application meets both the criteria for physical availability and legal availability described below.

Physical Availability

For water to be physically available for appropriation there must be ground or surface water present in quantities and quality and on a sufficiently frequent basis to provide a reasonably reliable source for the requested beneficial use or uses. In addition, the following factors are considered:

- Volume of water represented by senior water rights, including federal or tribal reserved rights or claims;
- Water right claims registered under Chapter 90.14 RCW
- Ground water uses established in accordance with Chapter 90.44 RCW, including those that are exempt from the requirement to obtain a permit; and
- Potential riparian water rights, including non-diversionary stock water.
- Lack of data indicating water usage can also be a consideration in determining water availability, if the department cannot ascertain the extent to which existing rights are consistently utilized and cannot affirmatively find that water is available for further appropriation.

Legal Availability

To determine whether water is legally available for appropriation, the following factors are considered:

- Regional water management plans – which may specifically close certain water bodies to further appropriation.
- Existing rights – which may already appropriate physically available water.
- Fisheries and other instream uses (e.g., recreation and navigation). Instream needs, including instream and base flows set by regulation. Water is not available for out of stream uses where further reducing the flow level of surface water would be detrimental to existing fishery resources.
- The Department may deny an application for a new appropriation in drainages where adjudicated rights exceed the average low flow supply, even if the prior rights are not presently being exercised. Water would not become available for appropriation until existing rights are relinquished for non-use by state proceedings.

Impairment Considerations

Impairment is an adverse impact on the physical availability of water for a beneficial use that is entitled to protection. A water right application may not be approved if it would:

- Interrupt or interfere with the availability of water to an adequately constructed groundwater withdrawal facility of an existing right. An adequately constructed groundwater withdrawal facility is one that (a) is constructed in compliance with well construction requirements and (b) fully penetrates the saturated zone of an aquifer or withdraws water from a reasonable and feasible pumping lift.
- Interrupt or interfere with the availability of water at the authorized point of diversion of a surface water right. A surface water right conditioned with instream flows may be impaired if a proposed use or change would cause the flow of the stream to fall to or below the instream flow more frequently or for a longer duration than was previously the case.
- Interrupt or interfere with the flow of water allocated by rule, water rights, or court decree to instream flows. Degrade the water quality of the source to the point that the water is unsuitable for beneficial use by existing users (e.g., via sea water intrusion).

Impairment, Qualifying Ground Water Withdrawal Facilities, and Well Interference

Qualifying ground water withdrawal facilities are defined as those wells which in the opinion of the Department are adequately constructed. An adequately constructed well is one that (a) is constructed in compliance with well construction requirements; (b) fully penetrates the saturated thickness of an aquifer or withdraws water from a reasonable and feasible pumping lift (WAC 173-150); (c) the withdrawal facilities must be able to accommodate a reasonable variation in seasonal pumping water levels; and (d) the withdrawal facilities including pumping facilities must be properly sized to the ability of the aquifer to produce water.

Well interference may occur when several wells penetrate and withdraw ground water from the same aquifer. Each pumping well creates a drawdown cone. When several wells pump from the same aquifer, well density, aquifer characteristics, and pumping demand may result in individual drawdown cones that intersect and form a composite drawdown cone. At any point in an aquifer, the composite drawdown caused by pumping wells will be greatly influenced by the transmissivity (T) of the aquifer. In aquifers with high Ts, composite drawdown will generally be much less than in aquifers with similar properties but with low Ts. Transmissivity is related to hydraulic conductivity (K) and the saturated thickness (b) of an aquifer by the relationship $T=Kb$.

An aquifer's hydraulic conductivity (K) is derived from the physical properties of both the fluid and geologic materials that form an aquifer. Once formed, an aquifer's saturated thickness (b) becomes important in evaluating its transmissivity. For regions of similar K in an aquifer, a large saturated thickness will result in a much higher T than a small saturated thickness. As a result, regions of similar K in an aquifer with a large saturated thickness will experience less composite drawdown or well interference than with a small saturated thickness.

Some conditions, however, will increase or steepen composite drawdown in an aquifer. For instance, where characteristics (such as very fine, clay-rich, or poorly sorted sediments) of an unconfined aquifer cause significant drawdown relative to the saturated thickness, the composite drawdown will increase as saturated thickness is reduced and T becomes smaller. Additionally, in regions where negative or no-flow boundaries occur, such as near the edges of a valley fill aquifer where it is bounded by bedrock, composite drawdown will be steeper than in the central part (generally the greatest thickness region) of the aquifer. Consequently, it is commonly understood that the greatest composite drawdown or well interference is more likely to occur in regions of low transmissivities, thin saturated thicknesses and near negative or no-flow boundaries than in regions of high transmissivities, large saturated thicknesses, and away from negative or no-flow boundaries.

From the review of the information provided in the GeoEngineers Phase 1 report, and the Well Testing Report, the Ecology WebMap database, and the Ecology Well Log database, it does not appear that there would be any impairment of existing water rights in the vicinity. The lack of any noticeable drawdown in the observation well during the extreme condition of 24 hours of continuous pumping at an average rate of 200 gpm as compared to the expected operational use of the FFV Well by intermittent pumping at the recommended rate of 150 to 200 gpm demonstrates that there would not be an impairment of existing water rights.

Beneficial Use

The use of water for multiple domestic and irrigation purposes are each defined in statute as beneficial uses of water (RCW 90.54.020(1)). The stated purpose of use for the FFV well qualifies as a beneficial use.

Public Interest Considerations

There were no protests filed or objections made to the approval of this application and approval of this application for irrigation and multiple domestic supply is not considered to be detrimental to the public interest.

Consideration of Protests and Comments

No protests were filed against this application.

Conclusions

In conclusion, approval of this application for the recommended quantities meets the following four criteria that must be met for a water right 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

RECOMMENDATIONS

Based on the above investigation and conclusions, I recommend that this request for a water right be approved in the amounts and within the limitations listed below and subject to the provisions listed above.

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:

200 gpm

10.5 acre-feet per year for multiple domestic supply

176 acre-feet per year for irrigation of 100 acres

Point of Withdrawal: SE $\frac{1}{4}$, SE $\frac{1}{4}$, Section 9, Township 29 North, Range 2E.W.M.

Place of Use: As referenced on Page 1 of this Report of Examination and described in Attachment 2.

Report by:

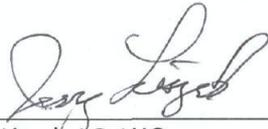

Jerry Louthain, P.E.
HDR Engineering Inc.

Date

7/27/11

Licensed Engineer 11771

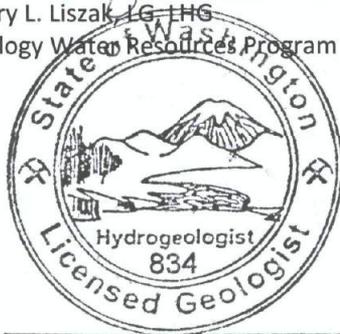
Reviewed by:



Date

8/1/11

Jerry L. Liszak, LG, LHG
Ecology Water Resources Program



JERRY LEE LISZAK

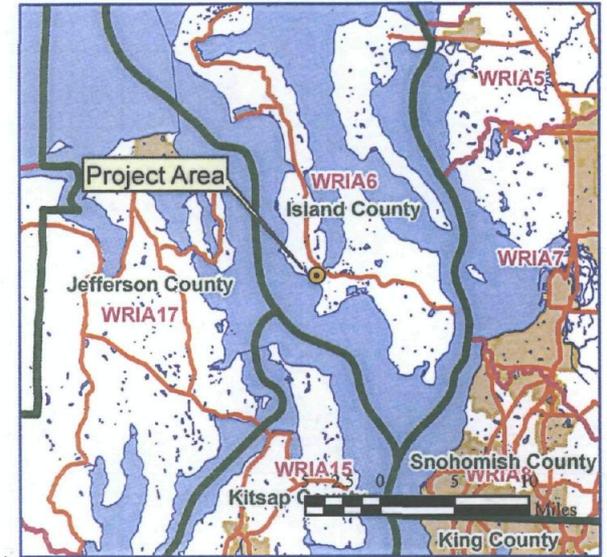
Licensed Geologist/Hydrogeologist 834

LIST OF ATTACHMENTS

- Attachment 1 – Location of Authorized Place of Use and Point of Withdrawal
- Attachment 2 – Legal Description on which Water is to be Used

If you need this publication in an alternate format, please call Water Resources Program at (360) 407-6600. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

Fletcher Family Ventures LLC
 Water Right Number G1-28600
 Sec. 9 T 29N R 02E W.M.
 WRIA6 - Island County

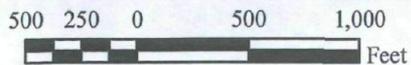
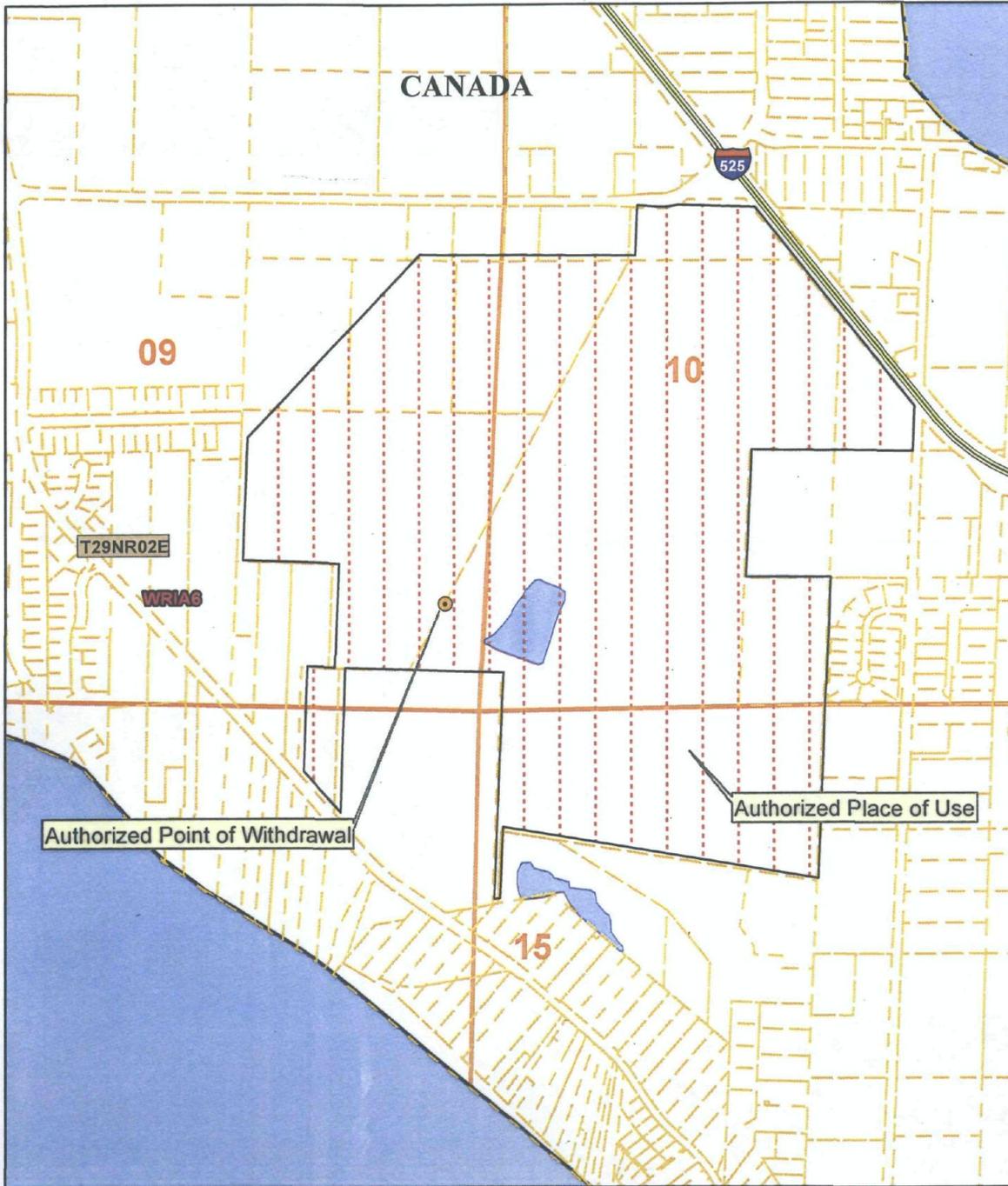


Legend

- WRIA
- Highways
- Townships
- Sections
- cities
- Parcels2007
- Major Water Bodies
- Marsh/wetland
- Authorized Point of Withdrawal
- Seasonal Place of Use
- Certificated 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 2

Consolidated Legal Description for Water Right Application G1-28600

Beginning on the Section line that separates Section 9 and 10, T 29N R02E, W.M. situated in Island County Washington 2355.1ft north of the SW corner of Section 10, said Point of Beginning being 279.6ft south of the southern margin of Honeymoon Bay Road, thence S 89° 48' 15" E 654ft, thence N 02° 14' 54" E 277.3ft, thence S 86° 00' 13"E 76.1ft, thence S 87° 46' 01"E 57.9ft, thence N84° 42' 45" E 51.5ft, thence N 74° 42' 31" E 51.5ft, thence N 62° 43' 25" E 71.6ft, thence N 89° 44' 49" E 297.6ft, thence S 39° 02' 37" E 1390.9ft, thence S 02° 16' 06" W 233.1ft, thence N 89° 50' 47" W 843.4ft, thence S 02° 36' 11" W 665.9ft, thence S 89° 58' 02" E 442ft, thence S 02° 24' 43" W 1577.1ft, thence N 80° 48' 06" W 1688.2ft, thence N 02° 25' 47" E 818.6ft, thence N 88° 34' 15" W 862.3ft, thence S 01° 59' 57" W 752.46 ft, thence N 42° 04' 47" W 285.4ft, thence N 02° 00' 05" E 547.5ft, thence S 87° 59' 56"E 143.1ft, thence N 02° 00' 08" E 540.3ft, thence N 87° 59' 56"W 499.3ft, thence N 02° 04' 10" E 607.8 ft, thence N 43° 21' 38" E 1319.6ft, thence N89° 48' 40" E 468.4ft more or less to the Point of Beginning.