File No. G1-28763
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DEPARTMENT OF ECOLOGY
State of Washington

State of Washington
REPORT OF EXAMINATION FOR WATER RIGHT APPLICATION
G1-28763

PRIORITY DATE
November 12, 2013

APPLICATION NUMBER
G1-28763

MAILING ADDRESS
Paul and Keri Halgren
3810 Laurel Court
Mount Vernon, WA 98274

SITE ADDRESS (IF DIFFERENT)
31812 19th Dr. NW
Stanwood, WA 98292

Quantity Authorized for Withdrawal or Diversion

DIVERSION RATE	UNITS	ANNUAL QUANTITY (AF/YR)
10	GPM	0.39

Purpose

PURPOSE	WITHDRAWAL OR DIVERSION RATE			ANNUAL QUANTITY (AF/YR)		PERIOD OF USE (mm/dd)
	ADDITIVE	NON-ADDITIVE	UNITS	ADDITIVE	NON-ADDITIVE	
Single Domestic Use	10		GPM	0.39		Continuous

Source Location

WATERBODY	TRIBUTARY TO	COUNTY	WATER RESOURCE INVENTORY AREA
Well		Snohomish	07

SOURCE FACILITY/DEVICE	PARCEL	TWN	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
Well (Well Tag # BAT248)	01075700000700	32N	04E	2	SE	48.284086N	-122.254642W

Datum: WGS84

Place of Use (See Map, Attachment 1)

PARCEL

01075700000700 (Lot 7 of Sun Peak Estates)

LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE

Parcel 01075700000700 (Lot 7 of Sun Peak Estates) located in Section 2, Township 32N, Range 4E, SE Quarter in Snohomish County.

(see **Attachment 2** for a full legal description)

Proposed Works

The system will consist of a well and water distribution system to one home.

Development Schedule

BEGIN PROJECT	COMPLETE PROJECT	PUT WATER TO FULL USE
Started	December 31, 2023	December 31, 2028

Measurement of Water Use

How often must water use be measured?	Monthly
How often must water use data be reported to the Department of Ecology (Ecology)?	Monthly during the first two years of water use, then Annually
What volume should be reported?	Total Annual Volume and each monthly volume
What rate should be reported?	Annual Peak Rate of Withdrawal (gpm)

Provisions

You have demonstrated to Ecology's satisfaction that when your proposed mitigation plan, as conditioned below, is implemented, the proposed withdrawal and use of groundwater from the well on your property will not impair senior water rights, including instream flow rights, or be detrimental to the public interest or welfare. Accordingly, Ecology **approves** the mitigation plan insofar as it relates to the well on your property, as documented in Exhibits B and C to Sundberg Homes, Inc., et al. *Request/Petition for Declaratory Order or alternatively, Approval of Mitigation Plan,* dated November 9, 2012, subject to the following conditions:

1. As the proponent of the mitigation plan insofar as it relates to the well on your property, you are responsible for the ongoing commitments of its implementation as long as you own the property. In the event that the property is sold or transferred, all obligations of this mitigation plan are binding on your successors in interest.

2. Your average water use shall not exceed 350 gallons of water per day in any month.

3. You may not use water from the well on your property to water a lawn or garden or for any similar outdoor use, including any other consumptive use, *provided* that you may use such water outside to wash a car or other vehicle, to wash a dog or other pet that lives in the house, or for other minor, non-consumptive uses of like kind. Except as otherwise provided in this paragraph, the well on your property must only supply the indoor plumbing system. Connection to the outdoor plumbing system, such as exterior faucets or hose bibs, by the well on your property is prohibited, except for a single faucet or hose bib within 25 feet of a driveway or garage entrance. The prohibition on connection to outdoor plumbing in this paragraph shall remain applicable unless and until another lawful approval is obtained for the withdrawal and use of water from the well on your property that allows you to use water from the well for outdoor watering and to connect the well to outdoor plumbing. This condition does not prohibit the use of stand-alone cisterns, rain barrels, or other rainwater catchment systems for outdoor water use or other consumptive use so long as they are solely supplied by captured rooftop rainwater or water that is trucked in from off-site, you provide at least 30 days advance written notice to Ecology of your intent to use such water before commencing such use, including a description of the type and design of the system you intend to use, and you obtain such approvals, if any, as may be legally required for such use. Ecology may monitor your compliance with the provisions in this paragraph through lawful on-site visits and aerial photography, and will investigate reports of non-compliance by third parties. You will provide Ecology with permission to enter Sun Peaks Estates for such purposes.

4. All water use shall be measured with a meter at the wellhead that meets the requirements of WAC 173-173-090 and WAC 173-173-100. The meter shall be installed, operated, and maintained in accordance with WAC 173-173-110 and WAC 173-173-120. During the first two years of water use, you shall deliver monthly water use reports to Ecology by the 15th day of the following month. After the first two years of water use, you shall deliver monthly water use reports to Ecology annually on October 31st of each year (for the period from October 1 of the preceding year through September 30 of the current year). If the property is sold or transferred, the new owner shall provide monthly water use reports to Ecology by the 15th day of the following month during the first two years of water use and thereafter shall deliver monthly water use reports to Ecology annually on October 31st of each year (for the period from October 1 of the preceding year through September 30 of the current year). If monthly or annual water use reporting demonstrates a potential violation of condition number 2 above and water use is not required to cease under condition numbers 8 or 9 below, Ecology shall require monthly reporting until it appears that water use has complied with condition number 2 above for at least 24 consecutive months. Compliance with this provision is subject to inspection by Ecology through lawful on-site visits.

5. Your on-site sewage disposal system shall be inspected at a frequency outlined in WAC 246-272A-0270. Copies of the inspection reports shall be provided to Ecology. You will provide Ecology with permission to enter Sun Peaks Estates for such purposes.

6. Your sewage disposal shall remain through on-site sewage disposal. If sewage from your property is exported through a sanitary sewer system, the use of water from your well shall cease until an alternative source of mitigation water is found and approved by Ecology.

7. Notice of the Sundberg Homes, Inc, et al. Request for Approval of Mitigation Plan shall be incorporated in your property title by recording this Report of Examination in the Snohomish County Auditor's Office. The notice shall include a copy of the Sundberg Homes, Inc, et al. Request for Approval of Mitigation Plan and this Report of Examination.

8. Non-compliance with any of these conditions may result in penalties or an administrative order to cease using water per RCW 90.03.600 and 90.03.605.

9. Pursuant to WAC 173-503-060(c), if monitoring of this mitigation plan shows the mitigation is not effective, Ecology approval of the mitigation plan shall be suspended and water use shall cease until Ecology approves a new or revised mitigation plan.

The mitigation plan approved for your permit, through this Report of Examination, authorizes only the withdrawal and use of water from the well located on your property, and, except as otherwise provided in condition 3 above, the mitigation plan conditions set forth in this letter apply only to the withdrawal and use of water from that well. All of the mitigation plan conditions set forth in this report shall remain applicable to the withdrawal and use of water from the well located on your property notwithstanding any sale or other transfer or conveyance of the property, unless and until another lawful approval is obtained for the withdrawal and use of water from that well.

Water Use Efficiency
The water right holder is required to maintain efficient water delivery systems and use of up-to-date water conservation practices consistent with RCW 90.03.005.

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 and find 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 or welfare.

Therefore, I ORDER approval of Application No. G1-28763, subject to existing rights and the provisions specified above.

Further, I ORDER that at the time a permit is issued to you under this approval, such permit shall supersede the Department of Ecology's May 1, 2013, letter to you approving your mitigation plan as documented in Exhibits B and C to Sundberg Homes, Inc., et al. *Request/Petition for Declaratory Order or alternatively, Approval of Mitigation Plan,* dated November 9, 2012, and the Department of Ecology's May 1, 2013, letter to you shall be rescinded.

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 **Pollution Control Hearings Board** 111 Israel RD SW STE 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

Signed at Bellevue, Washington, this 16 day of January, 2014.

Jacqueline Klug, Section Manager
Water Resources Program/NWRO
Department of Ecology

Investigator's Report
Application for Water Right – Paul and Keri Halgren
Water Right Control Number: G1-28763
Investigator: Jerry Liszak

BACKGROUND

The applicant's property is located in the Carpenter-Fisher sub-basin within the Lower Skagit Watershed, also known as Water Resource Inventory Area 3 (WRIA 3). WRIA 3 has an Instream Resources Protection Program rule (WAC 173-503) established in 2001 to protect senior water rights, maintain a healthy ecosystem, and provide limited amounts of water for future uses. Sun Peak Estates (Sun Peak) submitted proposed mitigation plans on behalf of seven landowners, including the applicant, which Washington Department of Ecology (Ecology) modified by allowing for $1/12^{th}$ acre lawn irrigation on each lot while accounting for septic return flow of water into the Fisher basin with water pumped from wells tapping water from an aquifer connected to the adjacent Stillaguamish basin. On May 1, 2013, Ecology approved the mitigation plan and issued seven approval orders to the affected parties owning lots within Sun Peak Estates, including the applicant, with certain conditions, including requiring all the wells to be completed in the deeper Sedimentary Aquifer. The Swinomish Indian Tribal Community (Tribe) appealed Ecology's approvals of the mitigation plans on May 28, 2013.

Subsequent to filing the appeal, the seven Sun Peak lot owners (including the applicant), the Tribe, and Ecology have negotiated a settlement resulting in a mitigation agreement by the parties. The mitigation agreement is implemented through the provisions to this water right set forth on pages 2 through 4 above.

To carry out the settlement, Ecology received a letter from the applicant on November 12, 2013, requesting Ecology to consider the proposed mitigation plan submitted by Sun Peak as an application for a water right permit. Ecology finds that the information in the proposed mitigation plan is sufficient to enable Ecology to consider it as a water right permit application under RCW 90.03.250. Further, Ecology finds that the proposed mitigation plan constitutes a proposed "resource management technique" that is designed to "[offset] the impact of the withdrawal of water proposed in the application for the water right . . . in the same water resource inventory area" under RCW 90.44.055.

Project Description

The applicant intends to withdraw groundwater from a well on its property for single domestic use. The system will consist of a well and water distribution system to the home.

Table 1

Summary of Application No. G1-28763

Attributes	*Proposed*
Applicant	Paul and Keri Halgren

Application Received	November 12, 2013
Instantaneous Quantity	10 gpm
Source	Well (Well Tag # BAT248)
Point of Withdrawal	SE ¼, Section 2, Township 32 North, Range 4 East, W.M.
Purpose of Use	Single Domestic
Period of Use	Continuous
Place of Use	The southeast quarter of Section 2, Township 32 North, Range 4 East of the Willamette Meridian. Located in Snohomish County, Parcel 01075700000700 (Lot 7 of Sun Peak Estates)

Legal Requirements for Application Processing
The following requirements must be met prior to processing a water right application:

- **Public Notice**

Notice of this application was published in the Everett Daily Herald on December 7, 2013, and December 14, 2013. No protests were received.

- **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.

(a) 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;
(b) It is a groundwater right application for more than 2,250 gallons per minute;
(c) It is an application that, in combination with other water right applications for the same project, collectively exceed the amounts above;
(d) 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);
(e) 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.

The requested water right is part of the Sun Peaks development on a 40-acre parcel comprised of 12 residential lots having individual wells for each home. Because the combined pumping of all

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

INVESTIGATION

Site Visit/Site Description

On August 3, 2012, John Rose, of Ecology, and Chuck Lindsay, Associated Earth Sciences, Inc., verified the well location, diameter, and Well Tag Number (BAT248). Depth to water measured from the top of the access port was 146.08 feet. Based on a LIDAR surface elevation of 660.24 feet and accounting for a 2.75 foot casing stickup, the static groundwater elevation was 516.91 feet.

Other Rights Appurtenant to the Place of Use

There are no existing water rights appurtenant to the proposed place of use.

Hydrogeology

The ground surface at Sun Peak and the immediate surrounding area is covered by a layer of low permeability glacial till sediments that are underlain at a relatively shallow depth by Chuckanut Formation bedrock. The glacial till sediments are a few tens of feet thick in the vicinity of the site and consist of varying amounts of clay, silt, sand, gravel, cobbles, and boulders. The glacial till is dense, has low permeability, and is considered to act as a confining unit. The Chuckanut Formation consists of alternating intervals of coarse grained sandstone and minor conglomerate and fine grained sandstone and siltstone. Fractured portions of the Chuckanut Formation are referred to as the Sedimentary Aquifer by the USGS (2009). The Sedimentary Aquifer underlies the Sun Peak properties. The aquifer is confined under Sun Peak site and in other areas where it is fully saturated and covered by glacial sediments. It is unconfined in other areas where it crops out. There are also fine grained bedrock intervals within the Sedimentary Aquifer which may produce localized confining conditions. See Attachment 3, *Hydrogeologic Assessment Sun Peaks Estates, Snohomish County*, prepared by Associated Earth Sciences, Inc, dated October 30, 2012.

Well log data indicate regional groundwater flow directions in the Sedimentary Aquifer is generally westerly trending beneath the Sun Peak site, although it is relatively flat and has northern and southern gradient components respectively north and south of the site. Well logs at different completion elevations also suggest there is a downward gradient component. The Sun Peak wells will tap ground water in the Sedimentary Aquifer at an elevation of roughly 500 feet.

Well Drilling

The 12 domestic wells drilled at Sun Peak range in depth from 42 feet to 425 feet and are completed within fractured, water-bearing sedimentary bedrock. The wells all appear to have encountered roughly 25 feet (Lot 11) to 80 feet (Lot 9) of relatively dense, low permeability glacial till overlying sedimentary bedrock. Nine of the onsite wells (Lots 3, 4, 5, 6, 7, 8, 9, 11, and 12) appear to intercept water bearing, fractured sandstone in the Sedimentary Aquifer at depths of greater than 140 feet below the ground surface.

The depths to ground water in eight of the wells ranged between approximately 145 feet (Lot 3) and 177 feet (Lot 12), which correspond to a rough elevation range of 502 feet to 517 feet. The wells on three lots (Lots 1, 2, and 10) appear to intercept localized shallow water-bearing fractures in the upper bedrock unit that begin at depths of roughly 40 to 60 feet. The depth to ground water measured in the shallow wells in August, 2012, ranged from less than 10 feet (Lot 2) to approximately 20 feet (Lot 10), which correspond to a range in elevation from roughly 641 feet to 622 feet. The shallow wells on lots 2 and 10 must be deepened to intercept water from the regional Sedimentary Aquifer at an elevation below 500 feet as a provision for obtaining a water right permit for those lots.

Yields from the onsite wells, as reported by the well drillers on the water well reports, range from approximately 1.5 gallons per minute (gpm) to 35 gpm. However most of these were determined from bailer tests which are not as accurate as pump tests. Yields from the wells completed in the deeper Sedimentary Aquifer are reported as an average of approximately 11 gpm.

Site Hydrogeology

Ecology reviewed the Sun Peaks Estates Mitigation Plan and Sun Peaks Hydrogeologic Assessment with all relevant hydrogeologic data and reports, including comments and information submitted by the Swinomish Indian Tribal Community. While Ecology agrees with the general concept of the mitigation plan, Ecology is modifying some assumptions in the Sun Peaks Estates mitigation plan to factor in information regarding the United States Geologic Survey (USGS) Groundwater Model, water well logs and other geologic reports. Ecology's analysis included information received from the Tribe and its reference to USGS model estimates of groundwater extraction and recharge percentage effects on the Fisher Creek Basin. This analysis indicates that if the wells on lots 2 and 10 of Sun Peak Estates are deepened to intercept the regional Sedimentary Aquifer, if outdoor water use from the wells is prohibited on the Sun Peak Estates lots as described in the provisions above, and if the other conditions set forth in the provisions above are satisfied, return flow from septic systems at the Sun Peaks lots to the Fisher Creek Basin would mitigate the use and withdrawals' groundwater extraction effects on the Fisher Creek Basin. These findings of fact apply to the applicant's proposed use and withdrawal of water.

Four Statutory Tests

This Report of Examination (ROE) evaluates the application based on the information presented above. To approve the application, Ecology must issue written findings of fact and determine that each of the following four requirements of RCW 90.03.290 has been satisfied:

1. The proposed appropriation would be put to a beneficial use;
2. Water is available for appropriation;
3. The proposed appropriation would not impair existing water rights; and
4. The proposed appropriation would not be detrimental to the public welfare.

Beneficial Use
The Water Resources Act of 1971 (RCW 90.54.020(1) defines beneficial uses of water. The application requests water for single domestic use. Single domestic use is explicitly listed as a beneficial use under RCW 90.54.020(1); therefore, the proposed use of water is a beneficial use.

Availability
For water to be available for appropriation, it must be both physically and legally available.

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;
- Groundwater 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.

The bailer testing performed on the proposed point of withdrawal showed that water is available from the applicants well completed within the Sedimentary Aquifer.

Legal Availability
To determine whether water to be 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.
- Ecology may deny an application for a new appropriation in a drainage 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.

Water in the Fisher Creek sub-basin is not legally available for new consumptive uses in the absence of approved mitigation measures. However, given that water will be added to the Fisher Creek sub-basin under the conditions of the mitigation plan, as modified by Ecology and agreed to by the Tribe and the applicant, there will be a net benefit to the Fisher Creek sub-basin. A significant proportion of the water will come from the Stillaguamish Basin which will be delivered into the Fisher Creek sub-basin via septic recharge. Water Resource Inventory Area (WRIA) 5 – Stillaguamish River basin has a reservation system for permit-exempt domestic wells (WAC 173-505-090) which accounts for water use at a rate of 350 gallons per day (gpd) and limits outdoor water use to the watering of 1/12 acre for domestic exempt wells. Reservation water is still available in the Stillaguamish River basin. The 350 gpd can be reduced to 175 gpd if the residence is served by an on-site septic system located within the same WRIA. However, in this situation the water will be transported into the adjacent WRIA. Therefore, the Stillaguamish domestic reservation shall be debited 350 gpd on approval of this water right. The maximum potential negative impact to groundwater/surface water in the Stillaguamish Basin is 350 gpd per well, which is equal to a maximum annual total of 0.39 acre-feet per year (ac-ft/yr). See Attachment 4, *Hydrogeologic Assessment and Mitigation Plan Sun Peaks Estates, Snohomish County*, prepared by Associated Earth Sciences, Inc., dated October 30, 2012.

Potential for Impairment

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).

This applicant's well is completed in the Sedimentary Aquifer and will withdraw water hydraulically connected to both the Stillaguamish Basin and the Fisher sub-basin. This will provide more groundwater recharge to the Fisher Creek sub-basin than withdrawn from it by virtue of septic return flows mentioned above as long as the applicant and the applicant's successors-in-interest comply with Ecology's modifications of the applicant's mitigation plan as

set forth in the provisions above and as agreed to by the Tribe and the applicant. This will ensure non-impairment of instream flows in the Skagit Basin.

RCW 90.44.055 provides for water resource management techniques to increase water supply via recharge of groundwater as a means of making water available or otherwise offsetting the impact of a withdrawal of groundwater proposed in an application for water right. The increase of groundwater recharge in the Fisher Creek sub-basin will ensure that there is no reduction in water flowing from the Fisher sub-basin into the Skagit Basin. There will also be no impairment in the Stillaguamish Basin since water will be debited 350 gpd from the Stillaguamish domestic reservation, as discussed above.

Public Welfare

There will be no detriment to the public interest or welfare, because water from the Stillaguamish Basin domestic reservation will be tapped and debited, and septic recharge in the Fisher Creek sub-basin will ensure that flows will not be reduced in the Skagit Basin. This will ensure that there will be no negative impacts on the public interest and welfare including instream values, and fish populations.

Consideration of Protests and Comments

In response to public notice of this application, the Department of Ecology received no protests regarding this application for groundwater.

CONCLUSIONS

The conclusions based on the above investigation are as follows:

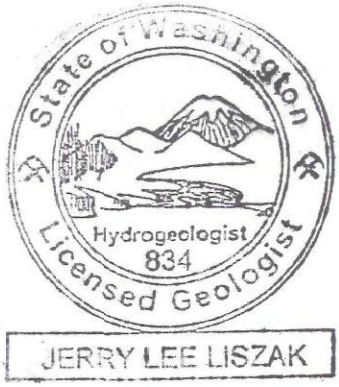
1. The proposed appropriation for single domestic use is a beneficial use of water;
2. The requested 10 gpm and 0.39 acre-feet per year is available for appropriation;
3. The new appropriation will not impair senior water rights; and
4. The new appropriation will not be detrimental to the public welfare.

RECOMMENDATION

Based on the information presented above, the authors recommend that the request to appropriate groundwater be approved in the amounts described, limited, and provisioned on page 2 through 4 of this report.

Report by: Jerry Liszak 1/15/2014

Jerry Liszak, L.G., L.HG. - Water Resources Program Date



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.

REFERENCES

AESI, 2012, *Hydrogeologic Assessment and Mitigation Plan Sun Peak Estates, Snohomish County, Washington,* Charles Lindsay, Associated Earth Scientists. Inc., October 30, 2012

EES, 2002. *Skagit River Basin; Return Flows to Aquifer- Exempt Wells.* Draft Memorandum, Dave Moldal, Economic and Engineering Services, Inc. Olympia, Washington. December 10, 2002

Johnson, K.H., and Savoca, M.E., 2010, *Numerical simulation of the groundwater-flow system in tributary subbasins and vicinity, lower Skagit River basin, Skagit and Snohomish Counties, Washington:* U.S. Geological Survey Scientific Investigations Report 2010-5184, 78 p.

Keta Waters, 2012, *Review of "Hydrogeologic Assessment. Sun Peak Estates. Snohomish County, Washington" prepared by Associated Earth Scientists. Inc., October 30, 2012.*

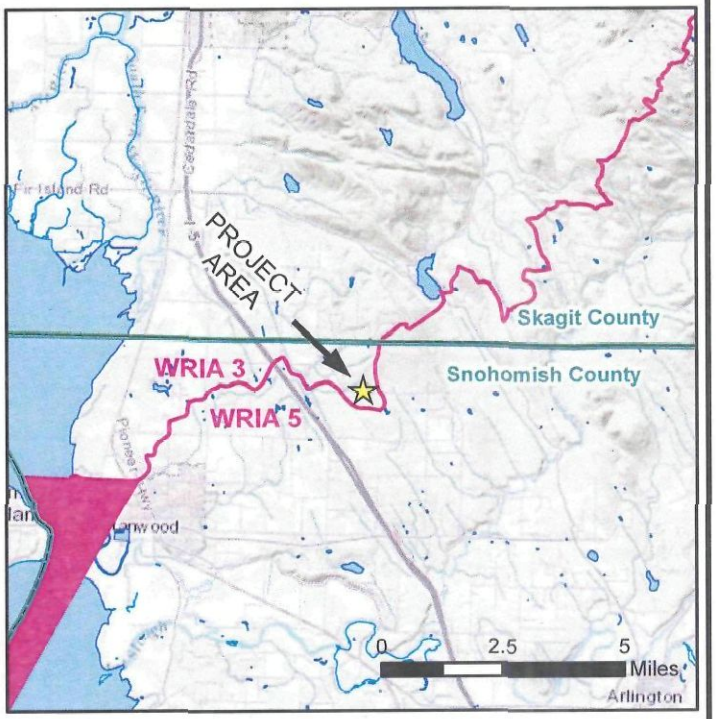
Memorandum, Joel Massmann, March 1, 2013

Liszak, J.L., April 23, 2013, *Sun Peak Estates Water Balance for 1/12th acre irrigation*

PGG, 2002. *City of Sequim 2001 Hydrologic Monitoring Report, Clallam County, Washington,* prepared by the Pacific Groundwater Group for City of Sequim, May 16, 2002.

Savoca, M.E., Johnson, K.H., Sumioka, S.S., Olsen, T.D., Fasser, E.T., and Huffinan, R.L., 2009, *Hydrogeologic framework, groundwater movement, and water budget in tributary subbasins and vicinity, lower Skagit River basin, Skagit and Snohomish Counties, Washington:* U.S. Geological Survey Scientific Investigations Report 2009-5270, 46 p.

Water Right Number G1-28763
Section 2 T32N R04E W.M.
WRIA 3 - Snohomish County



Legend

- Lot 7 of The Plat of Sun Peak Estates
- County Boundary
- Water Body
- Parcels
- Townships
- Sections
- WRIA

0 100 200 300 400 Feet

DEPARTMENT OF ECOLOGY State of Washington

Map Date: 1/15/2014

ATTACHMENT 1

Attachment 2

Lot 7 (Parcel 01075700000700)

Lot 7 of the Plat of Sun Peak Estates being a rural cluster sub division Township 32 North, Range 4 East, SW ¼ SE ¼ of section 2, Willamette Meridian, Auditor's File No. 200706065234 situated within Snohomish County, Washington. Described as follows:

Beginning at the S ¼ corner of Section 2, Township 32 North, Range 4 East, W.M., thence N 01°47'35" W along North-South center section line 687.25 ft, thence N 75°04'09" E 51.34 ft, thence S 73°11'35" E 49.96 ft, thence S 60°10'15" E 125.34 ft, thence S 55°04'08 E 63.08 ft, thence S 65°29'45" E 90.19 ft, thence N 81°30'06" E 131.95 ft, thence S 72°58'31" E 229.12 ft to the true point of beginning, thence S 0°58'28" E 169.00 ft, thence S 71°51'25" E 95.53 ft, thence along a curve to the left having a central angle of 48°11'23", a radius of 25 ft, and an arc length of 21.03 ft, thence along a curve to the right having a central angle of 104°08'55", a radius of 50 ft, and an arc length of 90.89 ft, thence N 4°52'33" E 323.27 ft, thence S 56°42'26 W 162.67 ft, thence S 85°11'22" W 78.86 ft to the true point of beginning.

October 30, 2012
Project No. EH110368A

Mr. Zachary J. Barborinas
15119 McLean Road
Mount Vernon, Washington 98273

Mr. Peter Ojala
Carson Law Group P.S.
3202 Hoyt Avenue
Everett, Washington 98201-4311

Subject: **FINAL REPORT**
Hydrogeologic Assessment and Mitigation Plan
Sun Peaks Estates
Snohomish County, Washington

INTRODUCTION AND BACKGROUND

This report summarizes the results of a hydrogeologic assessment completed by Associated Earth Sciences, Inc. (AESI) in support of a mitigation plan for selected lots in the Sun Peaks Estates, which is situated in the Fisher Creek subbasin of Skagit/Snohomish Counties. The general location of the Sun Peaks Estates is shown on the "Location Map," Figure 1. The layout of the site is shown on the Plat Map, Figure 2.

Sun Peaks Estates is roughly 40-acres of property that includes 12 residential lots located just north of 316th Street NW and approximately 1,300 feet east of English Grade Road in northwest Snohomish County. The ground surface of the property generally slopes downward to the southwest and ranges in elevation between roughly 600 feet and 680 feet above mean sea level. A small seasonal tributary to Fisher Creek bisects the site in an approximate east-west direction (Figure 2). All elevations referenced in this report are relative to mean sea level (datum NAVD88) unless otherwise noted.

The Sun Peaks Estates is comprised of 12 residential lots (Figure 2). However, a single home has been built on Lots 5 and 6; therefore, there are a total of 11 buildable lots at the site. Individual single-family domestic wells have been drilled on each of the original residential lots. There are currently occupied homes located on Lot 1, Lots 5/6, Lot 8, and Lot 12.

The Fisher-Carpenter Creek subbasins were closed in 2010 to the drilling of single-family domestic wells under the Skagit Instream Flow Rule amendments reservation system adopted by

the Washington State Department of Ecology (Ecology) in 2006, unless the well's potential impact to surface water flow in either Fisher Creek or Carpenter Creek is mitigated. The 2006 Skagit Instream Flow Rule amendments reservation system established the maximum total daily individual residential water use at 350 gallons per day (gpd) with outdoor water use being limited to the watering of an outdoor area not to exceed a total of ½acre. Of the 350 gpd total residential use, 175 gpd is assumed to be septic return flow, and the remaining 175 gpd is consumptive use.

Due to the closure of the Fisher Creek subbasin, the owners of seven of the Sun Peaks Estates lots (Lots 2, 3, 4, 7, 9, 10, and 11, Figure 2) are currently being denied the use of their wells for single-family residential purposes (domestic exempt) by Ecology under the assumption the wells intercept ground water that provides recharge to Fisher Creek and that their use results in a negative impact to and a diminishment of flow in the stream. These seven property owners are currently appellants (referred to herein as "appellants") in an appeal before the Pollution Control Hearings Board over the closure of the subbasin, and other related issues. The remaining wells on Lots 1, 5, 6, 8, and 12 were installed and put to beneficial use prior to 2010 and are not subject to the current subbasin closure.

The purpose of our services was to evaluate the hydrogeology of the Sun Peaks Estates area, evaluate potential impacts to source water, and to ascertain if the use of the appellants' wells will result in a negative impact to or a diminishment of a source or flow in Fisher Creek or if mitigation is an option.

GEOLOGIC AND HYDROGEOLOGIC SETTING

General

The U.S. Geological Survey (USGS) recently completed a comprehensive and detailed geologic/hydrogeologic evaluation of the lower Skagit River basin, including the Fisher and Carpenter Creek subbasins, for the Skagit County Public Works Department (Skagit County), Skagit County Public Utility District No. 1 (District), and Ecology. Details of the USGS study are presented in Scientific Investigations Report (SIR) 2009-5270 titled *Hydrogeologic Framework, Groundwater Movement, and Water Budget in Tributary Subbasins and Vicinity, Lower Skagit River Basin, Skagit and Snohomish Counties, Washington.* The USGS also developed a detailed numerical ground water flow model of a large portion of the lower Skagit River drainage, including Carpenter and Fisher Creek subbasins. Details of the USGS ground water flow model are presented in SIR 2010-5184 titled *Numerical Simulation of the Groundwater-Flow System in Tributary Subbasins and Vicinity, Lower Skagit River Basin, Skagit and Snohomish Counties, Washington.*

The following is a summary of the regional geologic/hydrogeologic setting of the area in the immediate vicinity of the Sun Peaks Estates, as presented in the above-referenced USGS reports. Pertinent geologic and hydrogeologic details of the area in the vicinity of the Sun Peaks Estates, including contours of ground water elevations in the bedrock aquifer that underlies the project site, are also shown on Figure 1. A generalized geologic cross section of the Sun Peaks Estates site, based on subsurface conditions presented on water well reports for the on-site wells and the in-field generated data, is presented on the "Geologic Cross Section A – A'," Figure 3.

- The ground surface at the Sun Peaks Estates and in the immediate surrounding area is covered by a layer of low-permeability glacial till sediments that are underlain at a relatively shallow depth by Chuckanut Formation bedrock.

- The glacial till sediments appear to be a few tens of feet thick in the vicinity of the site and generally consist of various amounts of clay, silt, sand, gravel, cobbles, and boulders. The till sediments are dense, have a low permeability, and are considered to act as a confining unit, not an aquifer, by the USGS (SIR 2009-5270).

- The Chuckanut Formation consists of alternating intervals of coarse-grained (sandstone and minor conglomerate) and fine-grained (mudstone, fine-grained sandstone, and siltstone) deposits. The USGS reports indicate that fractured/permeable portions of the Chuckanut Formation form a "Sedimentary Aquifer (OEc)."

- The Sedimentary Aquifer present within the fractured/permeable portions of the Chuckanut Formation deposits underlies the Sun Peaks Estates. The aquifer is unconfined where it crops out and can be confined in areas where it is fully saturated and covered by glacial sediments. Also fine-grained bedrock intervals within the Sedimentary Aquifer may produce local confined conditions.

- The USGS field-located 10 wells completed within the Sedimentary Aquifer located within roughly 3 miles of the Sun Peaks Estates site, determined their approximate ground surface elevations using Light Detection and Ranging (LiDAR) information, and field-measured depths to water in the wells on several occasions (SIR 2009-5270). Copies of water well reports for the 10 field-located USGS wells are included in Attachment A.

- The ground water elevation data obtained from the USGS wells was used to develop contours of ground water elevations in the Sedimentary Aquifer, as shown on Figure 1. The USGS regional ground water data indicates the following:

    i. The regional ground water flow direction in the Sedimentary Aquifer beneath the

Sun Peaks Estates site is to the south towards the Stillaguamish River basin (Figure 1).

ii. The depth to ground water in the USGS monitored wells ranged from approximately 24 feet to over 140 feet below the ground surface (Attachment A). All depths referenced in this report are relative to ground surface unless otherwise noted.

iii. Ground water in the Sedimentary Aquifer is at an elevation of roughly 500 feet above mean sea level beneath the Sun Peaks Estates (Figure 1, SIR 2009-5270).

Site-Specific Geology and Hydrogeology

The 12 domestic wells drilled at Sun Peaks Estates range in depth from 42 feet to 425 feet and are completed within fractured, water-bearing sedimentary bedrock. A representative of AESI and John Rose of Ecology field-located and measured the depths to ground water in 11 of the 12 on-site wells on August 3, 2012. They were unable to locate the well on Lot 10 during their August 3 site activities. The specific location of each wellhead was determined using a hand-held near-survey grade Trimble GeoXT GPS with a hurricane antenna provided by Ecology. The depths to water were measured using an Olympic well probe model 500. A representative of AESI returned to the site on August 8 and field-located the well on Lot 10. The depth to ground water in the Lot 10 well was measured using a Waterline well probe and the approximate location of the wellhead was determined using a hand-held Garmin GPS unit and a review of historical aerial photographs.

The ground surface elevation at each wellhead was determined from LiDAR elevation information (Snohomish County 2003 flight) and the field-generated GPS location data. The ground surface elevation, measured casing stickup, and depth to ground water data were used to estimate the elevation of ground water in each well. A summary of well construction, location, and water level details for the on-site wells is presented in Table 1. Copies of the water well reports for each well is included in Attachment A. The approximate location of each well at the Sun Peaks Estates site is shown on Figure 2.

The wells completed at the Sun Peaks Estates site all appear to have encountered roughly 25 feet (Lot 11) to 80 feet (Lot 9) of relatively dense, low-permeability glacial till overlying sedimentary bedrock (Attachment A, Figure 3). Ground water was not indicated as being encountered in the overlying glacial till sediments at the site by the water well drillers (Attachment A). The bedrock consists of a fine-grained upper sediment package that extended to depths of roughly 120 feet to 170 feet and was described as consisting of fine-grained sandstone, shale, and siltstone (Attachment A, Figure 3). The upper bedrock unit is underlain by what was typically described as gray coarse sandstone with minor layers of shale, siltstone,

and fine-grained sandstone, which is referred to as the lower bedrock unit for the purposes of this report (Attachment A, Figure 3). The on-site wells were constructed with 6-inch-diameter steel casing that was extended through the glacial till sediments and a minimum of 3 feet into the top of the underlying bedrock with the exception of the Lot 1 well, where the 6-inch casing only penetrated the bedrock approximately 1 foot (Attachment A). PVC liners (4.5- to 5.0-inch-diameter) were installed to the completion depths of the wells located on Lots 3 through 12 (Attachment A, Figure 3). The PVC liners were slotted to allow the entry of ground water through the open areas (Attachment A, Table 1). The wells installed on Lots 1 and 2 were completed as open-end casing without PVC liners.

Nine of the on-site wells (Lots 3, 4, 5, 6, 7, 8, 9, 11, and 12) appear to intercept water-bearing, fractured sandstone in the lower bedrock unit at depths of greater than 140 feet below the ground surface (Table 1, Figure 3). The depths to ground water in eight of the wells ranged between approximately 145 feet (Lot 3) and 177 feet (Lot 12), which correspond to a rough elevation range of 502 feet to 517 feet above mean sea level (Table 1, Figure 3). The ground water elevation measured in the well located on Lot 9 was approximately 580 feet above mean sea level (Table 1). With the exception of the Lot 9 well, the range of ground water elevations in the wells completed in the lower bedrock unit at the Sun Peaks Estates site correspond closely to the USGS estimated elevation of 500 feet for the Sedimentary Aquifer at the site (Figures 1 and 3, Table 1).

The wells on the remaining three lots (Lots 1, 2, and 10) appear to intercept localized shallow water-bearing fractures in the upper bedrock unit that begin at depths of roughly 40 to 60 feet (Table 1, Figure 3). The depth to ground water measured in the shallow wells in August 2012 ranged from less than 10 feet (Lot 2) to approximately 20 feet (Lot 10), which correspond to a range in elevation from roughly 641 feet to 622 feet above mean sea level (Table 1, Figure 3).

Yields from the on-site wells, as reported by the well drillers on the water well reports, range from approximately 1.5 gallons per minute (gpm) to 35 gpm and appear to be adequate for single-family domestic use (Attachment A). Reported yields for the three wells completed in the upper bedrock unit are an average of roughly 3.5 gpm. Yields from the wells completed in the lower bedrock unit are reported as an average of approximately 11 gpm (Attachment A).

Table 1
Summary of Well Location and Ground Water Elevation Data
Sun Peaks Estates - Snohomish County

Lot No.	Unique ID	Date	Owner	Time	Latitude[1]	Longitude[1]	Ground Elevation		Well Depth	Open Area	Casing Stickup	Depth to Water	Static Elevation[3]	Comments
							GPS[1]	LiDAR[2]						
1	BAT220	8/3/12	Yencich	15:25	48.282636	122.256164	639.99	647.08	48	46-48	1.17	15.42	632.83	House well - recent pumping
2	BAT494	8/3/12	Stonnell	15:15	48.282631	122.256028	642.45	648.06	42	41.5-42	1.33	8.67	640.72	
3	BAT493	8/3/12	Rosenberg	15:00	48.282621	122.255359	648.18	655.63	205	60-205	1.92	144.58	512.97	
4	BAT124	8/3/12	Barborinas	14:15	48.282557	122.253992	667.45	670.68	425	325-425	1.83	165.58	506.93	
5	BAT246	8/3/12	Burton	16:30	48.283683	122.253234	671.65	674.89	240	140-240	1.25	168.33	507.81	House well
6	BAT247	8/3/12	Burton	16:00	48.284099	122.254550	645.86	661.14	207	147-207	2.67	156.67	507.14	Irrigation well - recent pumping
7	BAT248	8/3/12	Halgren	17:30	48.284086	122.254642	671.43	660.24	226	155-226	2.75	146.08	516.91	
8	BAT229	8/3/12	Bennett	15:50	48.283866	122.255625	641.17	650.59	200	140-160	0.83	149.42	502.00	House well
9	BAT234	8/3/12	Bateman	15:35	48.283502	122.256587	644.02	650.33	200	140-200	1.50	72.50	579.33	
10	BAT466	8/8/12	Spane[4]	18:00	48.284228	122.258039	--	639.59	80	40-80	1.70	19.62	621.67	
11	BAT492	8/3/12	Sundberg	17:00	48.285272	122.255883	676.99	679.19	223	160-223	3.00	176.50	505.69	
12	BAT491	8/3/12	Givens	17:20	48.285245	122.255573	678.22	681.64	276	170-176	0.92	175.50	507.06	House well

Notes:
[1] Latitude, longitude, and elevation determined using Ecology GPS unit on August 3, 2012, NAVD88 datum.
[2] LiDAR data from NW Snohomish County 2003 flight, NAVD88 datum.
[3] Ground water elevations based on LiDAR ground surface elevations plus field-measured casing stickup.
[4] Location determined using a hand-held GPS unit and check using Google Earth aerial photographs.

DISCUSSION AND CONCLUSIONS

General

The regional USGS study and site-specific data indicate that Sun Peaks Estates is underlain by what the USGS refers to as the Sedimentary Aquifer which is located within fractured portions of the Chuckanut Formation bedrock at depths greater than approximately 140 feet. The Sedimentary Aquifer is separated from the ground surface at the site by several 10s of feet of dense, low-permeability glacial till and/or un-fractured low-permeability bedrock. The site-specific data does not indicate that there are water-bearing zones in the glacial till or that the Sedimentary Aquifer is in hydraulic continuity with surface waters in the immediate vicinity of the site. This lack of hydraulic continuity is further demonstrated by the seasonal nature of the tributary stream that flows through the Sun Peaks Estates site. AESI's on-site observations and discussions with local landowners indicates that the seasonal stream channel which bisects the Sun Peaks Estates is generally dry (no surface water or ground water discharge/seepage) between roughly July and October of each year. As discussed below, ground water in the Sedimentary Aquifer immediately beneath Sun Peaks Estates does not appear to be a source of water to Fisher Creek or the Fisher-Carpenter Creek subbasin.

Nine of the on-site wells (Lots 3, 4, 5, 6, 7, 8, 9, 11, and 12), including five of the appellant wells (Lots 3, 4, 7, 9, and 11), are completed at depths greater than 140 feet and appear to be intercepting water from the regional Sedimentary Aquifer. The water level elevations in eight of these wells correspond very well with the ground water elevations in the regional Sedimentary Aquifer system described by the USGS (Figure 1, Table 1). The water level in the well located on Lot 9 is approximately 60 feet higher in elevation than the water levels in the other eight wells (Figure 3). It is possible that ground water from a higher fracture zone in the bedrock is migrating down the outside of the 6-inch-diameter steel casing and influencing the ground water level in this well. However, it should be noted that the ground water in the well on Lot 9 is hydraulically separated from the ground surface by over 70 feet of low-permeability bedrock and glacial till (Figure 3).

The data presented in the USGS reports indicate that the regional ground water flow direction in the Sedimentary Aquifer beneath the Sun Peaks Estates is toward the south. Therefore, removing ground water from the five wells (Lots 3, 4, 7, 9, and 11) completed in the Sedimentary Aquifer beneath the Sun Peaks Estates site at the relatively low rate of 350 gpd per well could ultimately cause a potential decrease in ground water throughflow to the Stillaguamish River basin; however, these withdrawals would not have a negative impact on ground water quantity or flow direction in the Fisher Creek subbasin, or result in a diminishment of surface water flow in Fisher Creek. The Sedimentary Aquifer beneath Sun Peaks Estates is not a source of water to Fisher Creek or the Fisher-Carpenter Creek subbasin.

There are three shallow on-site wells (Lots 1, 2, and 10), including two appellant wells (Lots 2 and 10), that appear to be intercepting relatively shallow localized, water-bearing fracture zones within the upper portion of the Chuckanut Formation. The shallow fracture system appears to be hydraulically separated from the ground surface by a few 10s of feet of low-permeability glacial till sediments. Water level information for the three shallow wells indicate confined conditions with static water levels near and, in one well (Lot 1), seasonally above the ground surface. The direction of ground water flow in the shallow fracture system cannot be determined based on the limited available data. Although the shallow fracture system appears to be hydraulically separated from surface water sources in the immediate vicinity of Sun Peaks Estates, it cannot be determined if a portion of the ground water flowing through the upper fracture system ultimately provides recharge to Fisher Creek. Furthermore, it cannot be determined without further study if withdrawals from the three shallow wells would negatively impact ground water flow within the Fisher-Carpenter Creek subbasin or diminish surface water flow in Fisher Creek.

MITIGATION PLAN

No Negative Net Impact from Sun Peaks Estates Appellant Wells

Five of the seven appellant wells (Lots 3, 4, 7, 9, and 11) will withdraw water from the Stillaguamish River basin, and ultimately provide ground water recharge to the Fisher-Carpenter Creek subbasin by virtue of their septic systems and possible outdoor uses. As only two of the seven appellant wells (Lots 2 and 10) could potentially decrease ground water recharge in the Fisher-Carpenter Creek subbasin, with the remaining five wells adding water to the subbasin, there is no overall potential negative net impact to ground water recharge/surface water flow in the Fisher Creek subbasin from the combined use of the appellant wells at the Sun Peaks Estates. The concept of no negative impact to or diminishment of ground water flow/surface water recharge in the Fisher-Carpenter Creek subbasin from the combined use of the seven appellant wells is discussed in detail below.

Five of the seven appellants (owners of Lots 3, 4, 7, 9, and 11) have wells that are completed in the deep regionally extensive Sedimentary Aquifer. These wells are intercepting ground water that provides recharge to the Stillaguamish River basin and do not appear to have hydraulic continuity with the Fisher-Carpenter Creek subbasin. Water Resource Inventory Area (WRIA) 5 – Stillaguamish River basin reservation system for permit-exempt domestic wells (WAC 173-505-090) accounts for water use at a rate of 350 gpd and limits outdoor water use to the watering of 1/12 acre for domestic exempt wells, as more particularly stated in the rule. The 350 gpd can be reduced to 175 gpd if the residence is served by an on-site septic system located in the same WRIA, which is not the case for the appellant's properties at Sun Peaks Estates. Therefore, the maximum potential negative impact to ground water recharge/surface water in the Stillaguamish River basin is 350 gpd per well, which is equal to an annual total of approximately 0.39 acre-feet (ac-ft) per well or a maximum of 1.95 ac-ft for the five wells.

Unmitigated reservation water is still available in the Stillaguamish River basin. Debit water for the total potential impact of 1.95 ac-ft per year from the use of the wells on Lots 3, 4, 7, 9, and 11 needs be accounted for in the Stillaguamish River reservation.

As previously discussed, the Stillaguamish River basin reservation system assumes that of the 350 gpd removed from a well, 175 gpd is returned to the hydrogeologic system as septic return flow. Therefore, the five wells located on Lots 3, 4, 7, 9, and 11 will be providing a total of 875 gpd (0.98 ac-ft per year) of additional ground water recharge to the Fisher-Carpenter Creek subbasin that was obtained from the Stillaguamish River basin.

Two of the seven appellant wells (Lots 2 and 10) are completed in relatively shallow localized fracture zones with depths to static water that are less than roughly 50 feet. Due to their shallow completion depths and the relatively shallow depth to ground water, the use of these wells, without drilling them deeper, has a slight potential to negatively impact ground water recharge in the Fisher-Carpenter Creek subbasin and diminish surface water flow in Fisher Creek. The maximum potential impact to ground and/or surface water in the Fisher-Carpenter Creek subbasin from the use of these wells is 175 gpd per lot, which is a total of 0.39 ac-ft per year.

In summary, the use of the wells completed on Lots 3, 4, 7, 9, and 11 will result in the import of an additional 0.98 ac-ft per year of ground water recharge from the Stillaguamish River basin to the Fisher-Carpenter Creek subbasin. The use of the wells on Lots 2 and 10 could result in a decrease in ground water recharge in the Fisher-Carpenter Creek subbasin a maximum of 0.39 ac-ft per year. Therefore, the combined impact resulting from the use of the seven appellant wells is a net positive increase in ground water recharge to the Fisher-Carpenter Creek subbasin of 0.59 ac-ft per year. The importation of water from the Stillaguamish River basin from Lots 3, 4, 7, 9, and 11 totally offsets the maximum potential impact from the use of the wells located on Lots 2 and 10.

Accordingly, consistent with WAC 173-505-060(1)(c) requirements of monitoring and reporting, Lots 3, 4, 7, 9 and 11 will comply with the necessary and lawful conditions stated in WAC 173-505-090(2), and Lots 2 and 10 will also install a metering device consistent with Lots 3, 4, 7, 9 and 11, for reporting and monitoring. Pursuant to WAC 173-503-060(1)(c), for reporting and quality assurance/control, the Lots will report their metered use annually to Ecology, and agree to keep septic recharge on the properties or its equivalent quantities.

Contingent Alternative Mitigation Plan

If and only if the above mitigation plan is lawfully determined by Ecology to be inadequate, the following contingent alternative mitigation plan is proposed.

The potential negative impact to ground water recharge in the Fisher-Carpenter Creek subbasin due to the use of the shallow wells located on Lots 2 and 10, though already offset by a net positive impact from Sun Peak Estates as an entirety, could also be eliminated if the shallow wells on Lot 2 and 10 were deepened and completed within the Sedimentary Aquifer. Based upon the hydrogeological assessment, the use of the Lot 2 and 10 wells modified in this manner (deepened) would result in removing ground water from the Stillaguamish River basin and would not result in any negative impact to ground water recharge in the Fisher-Carpenter Creek subbasin or a diminishment of flow in Fisher Creek, offset or otherwise.

Therefore, a proposed contingent alternative mitigation plan is as follows:

1. Remove the PVC liners installed in the wells located on Lots 2 and 10.
2. Drill the wells to depths greater than roughly 140 feet.
3. Confirm that the static water level elevations in the deepened wells are in the range of approximately 500 to 520 feet indicating that the wells are intercepting the regional Sedimentary Aquifer.
4. Install a new PVC liner in each well that is slotted in a manner which allows water from the deep Sedimentary Aquifer to enter the well.
5. Each owner of the deepened wells on Lot 2 and 10, in addition to the owners of Lots 3, 4, 7, 9 and 11,will also comply with the necessary and lawful conditions stated in WAC 173-505-090(2).

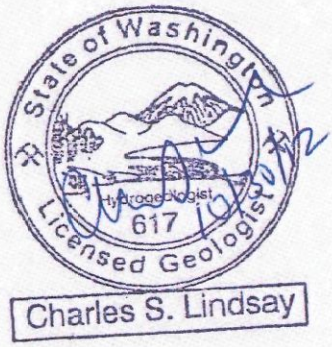
LIMITATIONS

We have prepared this report for the use of the identified seven appellants in regard to the use of single-family domestic wells at the Sun Peaks Estates in Snohomish County. The conclusions and interpretations presented in this report should not be construed as a warranty of the subsurface conditions. Our conclusions and recommendations are based on our review of the information described in this report and our interpretation of best available science at the time of this reports preparation. Our experience has shown that soil and ground water conditions can vary significantly over small distances.

Within the limitations of scope, schedule, and budget, AESI attempted to execute these services in accordance with generally accepted professional principles in the field of hydrogeology at the time this report was prepared. No warranty, express or implied, is made.

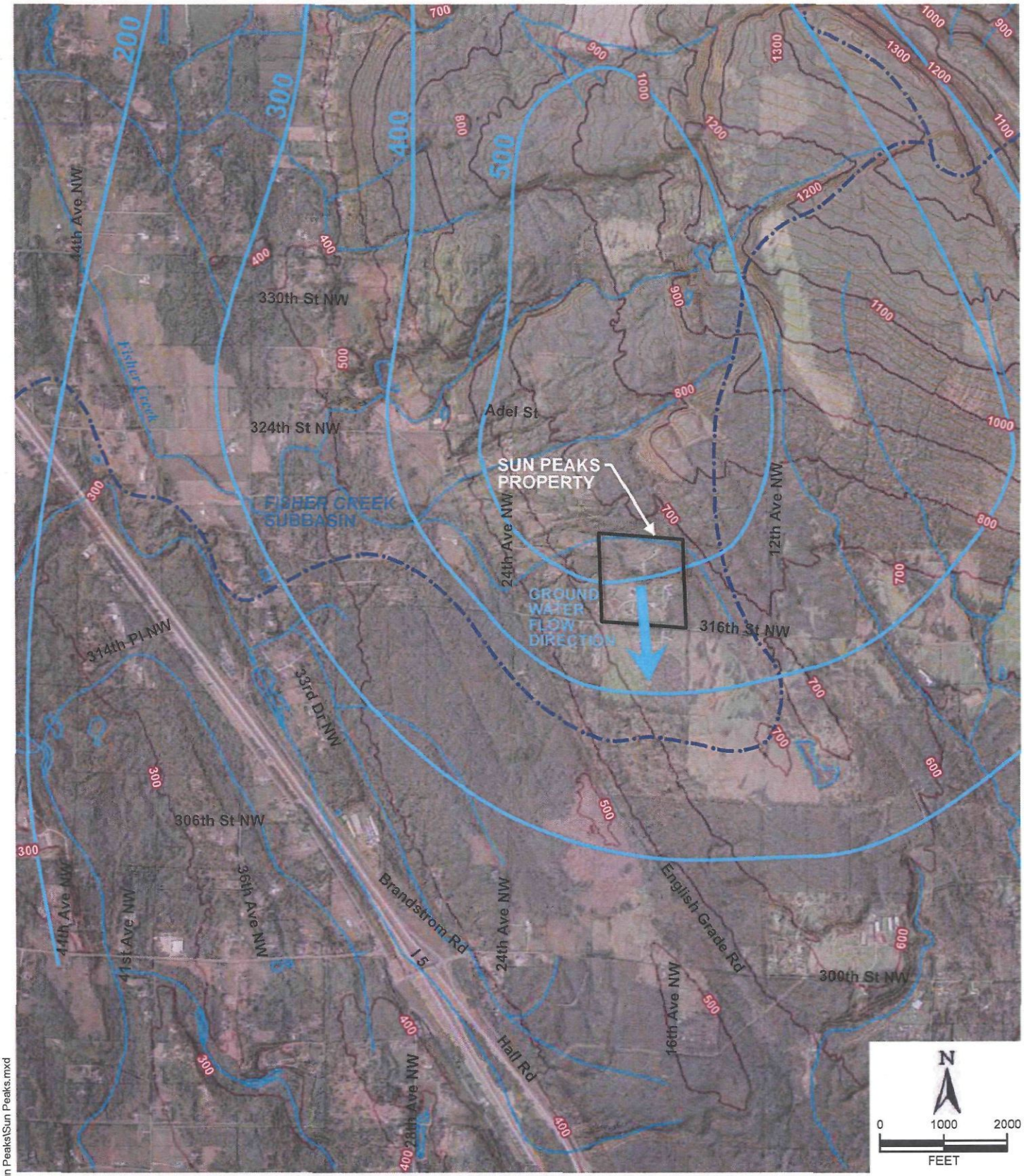
We have enjoyed working with you and are confident that these recommendations will aid in the successful completion of your project. If you should have any questions or require further assistance, please do not hesitate to call.

Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Everett, Washington



Charles S. Lindsay, L.G., L.E.G., L.Hg.
Senior Principal Geologist/Hydrogeologist

Attachments: Figure 1: Location Map
Figure 2: Plat Map
Figure 3: Geologic Cross Section A – A'
Attachment A: Water Well Reports



REFERENCE: USGS, SNOHOMISH COUNTY

NOTE: BLACK AND WHITE REPRODUCTION OF THIS COLOR ORIGINAL MAY REDUCE ITS EFFECTIVENESS AND LEAD TO INCORRECT INTERPRETATION.

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Associated Earth Sciences, Inc.

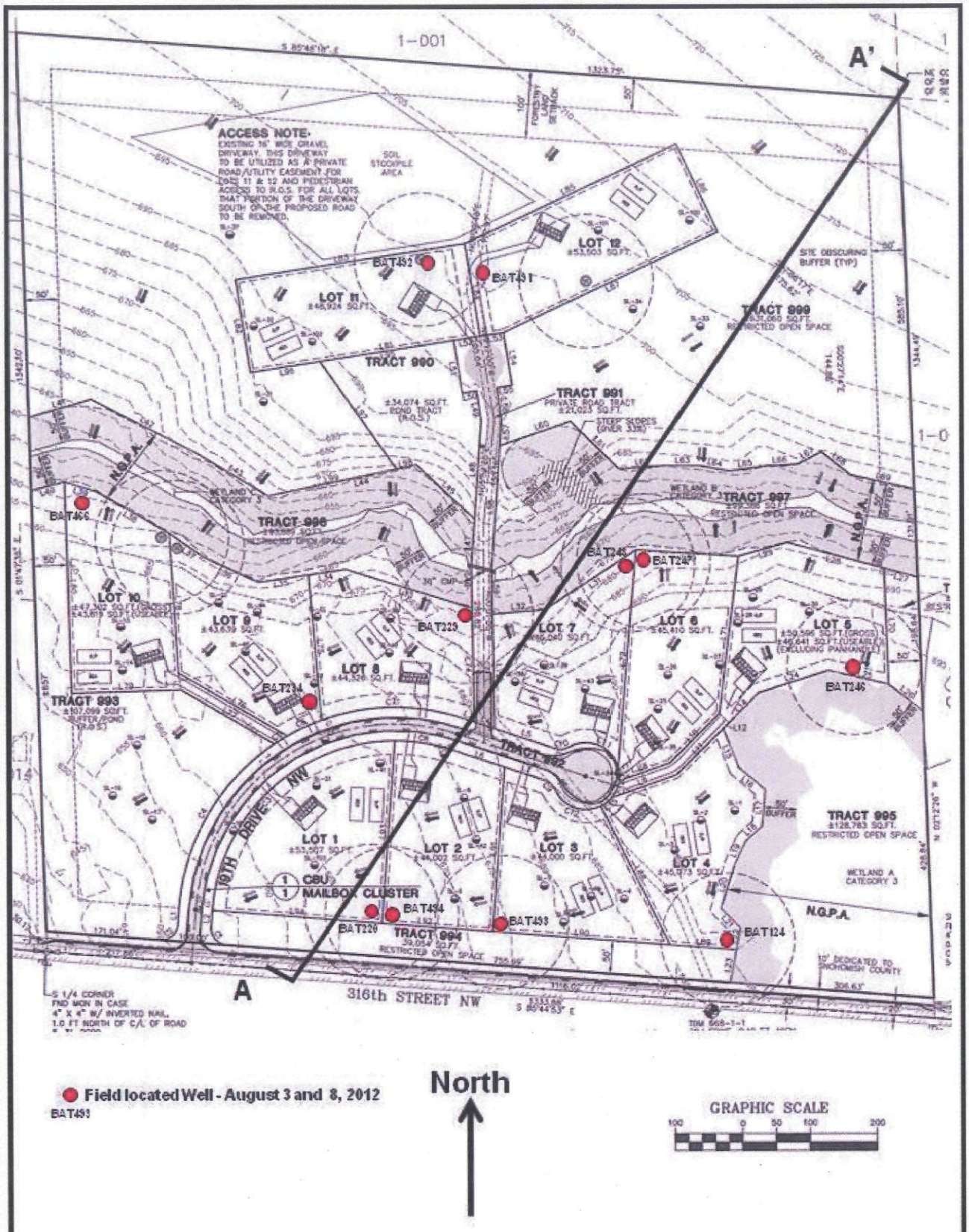
LOCATION MAP

SUN PEAKS ESTATES
SNOHOMISH COUNTY, WASHINGTON

FIGURE 1

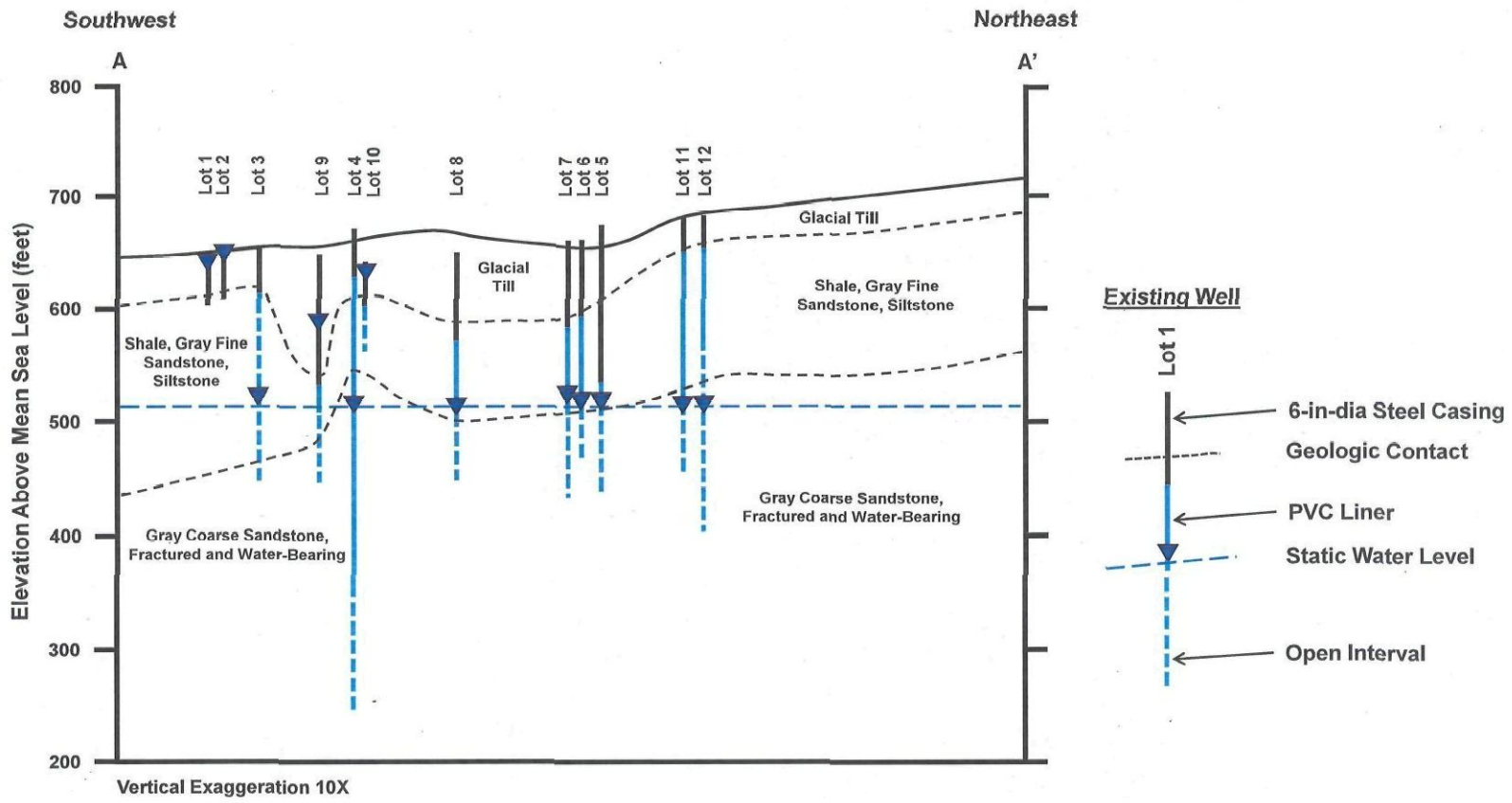
DATE 07/12

PROJ. NO. EH110368A



Reference: Cascade Surveying & Engineering, Inc. Sun Peaks Estates Drawing Dated 08/05

Associated Earth Sciences, Inc.	PLAT MAP SUN PEAKS ESTATES SNOHOMISH COUNTY, WASHINGTON	FIGURE 2 DATE 8/12 PROJ. NO. EH10368A



Associated Earth Sciences, Inc.	GEOLOGIC CROSS SECTION A – A' SUN PEAKS ESTATES SNOHOMISH COUNTY, WASHINGTON	FIGURE 3 DATE 8/12 PROJ. NO. EH110368A

ATTACHMENT A

Water Well Reports

Sun peaks

Yencich Lot 1

ECOLOGY

WATER WELL REPORT

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

Construction/Decommission ("x" in circle)

(x) Construction

( ) Decommission ORIGINAL INSTALLATION Notice of Intent Number ______

RECEIVED FEB 29 2008 Snohomish Health District

CURRENT Notice of Intent No. W252171

Unique Ecology Well ID Tag No. Bat 220

Water Right Permit No. ______

Property Owner Name Jim Yencich

Well Street Address 31629 19th Drive NW

City Stanwood County Snohomish Lot #1

Location SE 1/4-1/4 SE 1/4 Sec 2 Twn 32 R 4 (EWM) or WWM circle one

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Lat Min/Sec ____ Long Deg ____ Long Min/Sec ____

Tax Parcel No. 010757 000 0100

PROPOSED USE: [x] Domestic [ ] Industrial [ ] Municipal [ ] DeWater [ ] Irrigation [ ] Test Well [ ] Other ____

TYPE OF WORK: Owner's number of well (if more than one) ____

[x] New well [ ] Reconditioned [ ] Deepened — Method: [ ] Dug [ ] Bored [ ] Driven [x] Cable [ ] Rotary [ ] Jetted

DIMENSIONS: Diameter of well 6 inches, drilled 48 ft. Depth of completed well 48 ft.

CONSTRUCTION DETAILS

Casing Installed: [x] Welded 6" Diam. from 0 ft. to 46 ft.; [ ] Liner installed ___" Diam. from ___ ft. to ___ ft.; [ ] Threaded ___" Diam. from ___ ft. to ___ ft.

Perforations: [ ] Yes [x] No

Type of perforator used ____

SIZE of perfs ___ in. by ___ in. and no. of perfs ___ from ___ ft. to ___ ft.

Screens: [ ] Yes [x] No [ ] K-Pac Location ____

Manufacturer's Name ____

Type ____ Model No. ____

Diam. ___ Slot size ___ from ___ ft. to ___ ft.

Diam. ___ Slot size ___ from ___ ft. to ___ ft.

Gravel/Filter packed: [ ] Yes [x] No [ ] Size of gravel/sand ____

Materials placed from ___ ft. to ___ ft.

Surface Seal: [x] Yes [ ] No To what depth? 18 ft.

Material used in seal Bentonite chips

Did any strata contain unusable water? [ ] Yes [ ] No

Type of water? ____ Depth of strata ____

Method of sealing strata off ____

PUMP: Manufacturer's Name Goulds

Type: Sub H.P. 3/4

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.

Static level +1 ft. below top of well Date 2 28 08

Artesian pressure ____ lbs. per square inch Date ____

Artesian water is controlled by ____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? [x] Yes [ ] No If yes, by whom? David

Yield: 4 gal./min. with 44 ft. drawdown after 3 hrs.

Yield: ___ gal./min. with ___ ft. drawdown after ___ hrs.

Yield: ___ gal./min. with ___ ft. drawdown after ___ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ____

Bailer test 4 gal./min. with 20 ft. drawdown after 1 hrs.

Airtest ___ gal./min. with stem set at ___ ft. for ___ hrs.

Artesian flow ___ g.p.m. Date ____

Temperature of water ____ Was a chemical analysis made? [x] Yes [ ] No

CONSTRUCTION OR DECOMMISSION PROCEDURE

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

MATERIAL	FROM	TO
tan clay	0	2
tan conglomerate firm	2	16
Gray conglomerate	16	20
Gray silty sand clay	20	24
Gray silty sand with small gravel	24	33
Dark gray uniform clay with shale chips	33	45
Broken shale H2O clean	45	48

Start Date 1/14/08 Completed Date 2/14/08

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

[ ] Driller [ ] Engineer [ ] Trainee Name (Print) David Buttedge I

Driller/Engineer/Trainee Signature [signature]

Driller or trainee License No. 1294

IF TRAINEE, Driller's Licensed No. ____ Driller's Signature ____

Drilling Company A1 Drilling and Digging Inc

Address PO Box 1707

City, State, Zip Stanwood Wa 98292

Contractor's Registration No. A1DRIIND56CF Date 2 28 08

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) The Department of Ecology does NOT warrant the Data and/or Information on this Well Report.

Stanwell Lot 2

WATER WELL REPORT

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

DEPARTMENT OF ECOLOGY

Construction/Decommission ("x" in circle)

- (X) Construction
- ( ) Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

CURRENT Notice of Intent No. ~~TAC WW 068925~~

Unique ~~Ecology Well ID Tag No.~~ Bat 494

Water Right Permit No. _____

Property Owner Name Kevin Sandberg

Well Street Address Lot 2 19th Drive NW

City Stanwood County Snohomish

Location S ☒ 1/4-1/4 W ☒ 1/4 Sec 2 Twn 32 R 4 EWM or WWM (circle one)

Lat/Long (s, t, r Still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Long Deg _____ Long Min/Sec _____

Tax Parcel No. 010757 000 002 00

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

TYPE OF WORK: Owner's number of well (if more than one) _____

☒ New well ☐ Reconditioned ☐ Deepened *Method:* ☐ Dug ☐ Bored ☐ Driven ☒ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 6 inches, drilled 42 ft. Depth of completed well 42 ft.

CONSTRUCTION DETAILS

Casing Installed: ☒ Welded 6" Diam. from 0 ft. to 41½ ft.
☐ Liner installed _____" Diam. from _____ ft. to _____ ft.
☐ Threaded _____" Diam. from _____ ft. to _____ ft.

Perforations: ☐ Yes ☒ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☐ Yes ☒ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☒ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☒ Yes ☐ No To what depth? 18 ft.

Material used in seal Bentonite Chips

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name no

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level 6 ft. below top of well Date 2 22 10

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test 2 22 10

Bailer test 5 gal./min. with 30 ft. drawdown after 2 hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? ☒ Yes ☐ No

CONSTRUCTION OR DECOMMISSION PROCEDURE

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

MATERIAL	FROM	TO
Black Duff	0	2
tan conglormant Rock silt clay	2	12
Gray conglormant	12	33
Gray sand stone fine	33	41
Gray fracture sandstone fine	41	42

Start Date 2 13 10 Completed Date 2 23 10

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

☐ Driller ☐ Engineer ☐ Trainee Name (Print) David Duttweiler

Driller/Engineer/Trainee Signature _____

Driller or trainee License No. 1297

Drilling Company A2 Drilling and Pumping

Address 22813 60th Dr. NW

City, State, Zip Stanwood

Contractor's Registration No. A2DRIDG942BE Date 2 24 10

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report**

Rosenbors Lot3 W260422

WATER WELL REPORT

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

ECOLOGY

Construction/Decommission *("x" in circle)*

⊗ Construction

○ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* ________

CURRENT Notice of Intent No. W268922

Unique Ecology Well ID Tag No. Bat 493

Water Right Permit No. ________

Property Owner Name Kevin SundBerg

Well Street Address Lot 3 19th ave NW

City Stanwood County Snohomish

Location SE 1/4-1/4 NE 1/4 Sec 2 Twn 32 R 4 EWM (circle one: EWM or WWM)

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Lat Min/Sec ____ Long Deg ____ Long Min/Sec ____

Tax Parcel No. 010 757 000 003 00

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

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

DIMENSIONS: Diameter of well 6 inches, drilled 205 ft.
Depth of completed well 205 ft.

CONSTRUCTION DETAILS

Casing Installed: ☒ Welded 6" Diam. from +2 ft. to 43 ft.
☐ Liner installed 4.5" Diam. from -4 ft. to 205 ft.
☐ Threaded ____" Diam. from ____ ft. to ____ ft.

Perforations: ☒ Yes ☐ No
Type of perforator used saw
SIZE of perfs 3/16 in. by 4 in. and no. of perfs 200 from 160 ft. to 205

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

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

Surface Seal: ☒ Yes ☐ No To what depth? 18 ft.
Material used in seal Bentinoite chips
Did any strata contain unusable water? ☐ Yes ☒ No
Type of water? ____ Depth of strata ____
Method of sealing strata off ____

PUMP: Manufacturer's Name no
Type: ____ H.P. ____

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.
Static level 61 ft. below top of well Date 12910
Artesian pressure ____ lbs. per square inch Date ____
Artesian water is controlled by ____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☒ No If yes, by whom? ____
Yield: 180 gal./min. with 140 ft. drawdown after 1 hrs. ← Bai ltest
Yield: 90 gal./min. with 70 ft. drawdown after 1 hrs.
Yield: 90 gal./min. with 70 ft. drawdown after 1 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

3.25 - 10

5.000

Date of test ____
Bailer test 1.5 gal./min. with 144 ft. drawdown after 3 hrs.
Airtest ____ gal./min. with stem set at ____ ft. for ____ hrs.
Artesian flow ____ g.p.m. Date 12910
Temperature of water ____ Was a chemical analysis made? ☒ Yes ☐ No

CONSTRUCTION OR DECOMMISSION PROCEDURE

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

MATERIAL	FROM	TO
Black Duff silty	0	2
conglormant Rock silt clay	2	14
Gray conglormant	14	36
Gray Fine sandstone	36	130
Hard Pan Gray	130	150
Gray Fine sandstone	150	203
Light Brown shale	203	205

Start Date 1 19 10 Completed Date 1/31/10

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

☐ Driller ☐ Engineer ☐ Trainee Name (Print) David Gutridge
Driller/Engineer/Trainee Signature [signature]
Driller or trainee License No. 1247

If TRAINEE,
Driller's Licensed No. ____
Driller's Signature ____

Drilling Company A1 Drilling and Digging
Address POPOV 120)
City, State, Zip Stanwood
Contractor's Registration No. A1 D11D1942RE Date 2 24 10

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Barbarinos 360-757-7353 Lot 4 p.1

WATER WELL REPORT

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

Construction/Decommission ("x" in circle)

[X] Construction

[ ] Decommission *ORIGINAL INSTALLATION*

Notice of Intent Number _____

PROPOSED USE: [X] Domestic [ ] Industrial [ ] Municipal [ ] DeWater [ ] Irrigation [ ] Test Well [ ] Other _____

TYPE OF WORK: Owner's number of well (if more than one) _____

[X] New well [ ] Reconditioned Method: [ ] Dug [ ] Bored [ ] Driven [ ] Deepened [ ] Cable [X] Rotary [ ] Jetted

DIMENSIONS: Diameter of well 6 inches, drilled 425 ft.

Depth of completed well 425 ft.

CONSTRUCTION DETAILS

Casing [X] Welded 6 " Diam. from 0 ft. to 43 ft.

Installed: [X] Liner installed 4.5 " Diam. from 5 ft. to 425 ft.

[ ] Threaded _____ " Diam. From _____ ft. to _____ ft.

Perforations: [X] Yes [ ] No

Type of perforator used SKILLSAW

SIZE of perfs 1/8 in. by 6 in. and no. of perfs _____ from 325 ft. to 425 ft.

Screens: [ ] Yes [X] No [ ] K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/filter packed: [ ] Yes [X] No Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: [X] Yes [ ] No To what depth? 18 ft.

Material used to seal BENTONITE

Did any strata contain unusable water? [ ] Yes [X] No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level 169 ft. below top of well Date 10/24/07

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? [ ] Yes [ ] No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer Test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airlift 35 gal./min. with stem set at 425 ft. for 1 hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? [ ] Yes [ ] No

CURRENT

Notice of Intent No. WE07375

Unique Ecology Well ID Tag No. BAT 124

Water Right Permit No. _____

Property Owner Name SUNDBERG HOMES

Well Street Address LOT 4 19TH DRIVE NW

City STANWOOD County SNOHOMISH

Location SE 1/4-1/4 SE 1/4 Sec 2 Twn 32 R 4 EWM [X] Check One or WWM [ ]

(s, t, r Still REQUIRED)

Lat/Long Lat Deg _____ Lat Min/Sec _____

Long Deg _____ Long Min/Sec _____

Tax Parcel No. (Required) 010757-000-004-00

CONSTRUCTION OR DECOMMISSION PROCEDURE

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

MATERIAL	FROM	TO
BROWN CLAY AND GRAVEL	0	4
GRAVEL SAND AND BROWN SILT	4	21
BROWN CLAY AND GRAVEL	21	24
GRAVEL SAND AND BROWN SILT	24	30
GREY CLAY SILT SAND AND GRAVEL	30	36
BLACK SHALE	36	48
BROWN SILTSTONE	48	130
GREY SANDSTONE	130	210
BROWN SILTSONE	210	235
GREY SANDSTONE	235	425

Start Date 10/22/07 Completed Date 10/24/07

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

[X] Driller [ ] Engineer [ ] Trainee Name (print) RALPH RIGGLES

Driller/Engineer/Trainee Signature _____

Driller or trainee License No. 2043

Drilling Company DAHLMAN PUMP & WELL DRILLING INC

Address P O BOX 422

City, State, Zip BURLINGTON . WA . 98233

Contractor's Registration No. DAHLMPW123LC Date 10/24/07

IF TRAINEE: Driller's License No: _____

Driller's Signature: _____

317277

Birdsong Lot 5 : 32-4E-24

WATER WELL REPORT

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

Construction/Decommission ("x" in circle)

(x) Construction

( ) Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

CURRENT

Notice of Intent No. W268571

Unique Ecology Well ID Tag No. BAT246

Water Right Permit No. _____

Property Owner Name Sunberg Home

Well Street Address Lot 5, 31720 19th Dr NW

City Stanwood County Snohomish

Location SE 1/4-1/4 NE 1/4 Sec 2 Twn 32 R 4 (EWM or WWM) circle one

Lat/Long (s, t, r Still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. 010757 000005 00

PROPOSED USE: (x) Domestic ( ) Industrial ( ) Municipal ( ) DeWater ( ) Irrigation ( ) Test Well ( ) Other _____

TYPE OF WORK: Owner's number of well (if more than one) _____

(x) New well ( ) Reconditioned Method: ( ) Dug ( ) Bored ( ) Driven ( ) Deepened (x) Cable ( ) Rotary ( ) Jetted

DIMENSIONS: Diameter of well 6 inches, drilled 240 ft. Depth of completed well 240 ft.

CONSTRUCTION DETAILS

Casing Installed: (x) Welded 6" Diam. from +1 ft. to 241 ft.

(x) Liner installed 4½" Diam. from -6 ft. to 240 ft.

( ) Threaded _____" Diam. from _____ ft. to _____ ft.

Perforations: (x) Yes ( ) No

Type of perforator used saw

SIZE of perfs 3/16 in. by 4 in. and no. of perfs 100 from 140 ft. to 240 ft.

Screens: ( ) Yes (x) No ( ) K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ( ) Yes (x) No ( ) Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: (x) Yes ( ) No To what depth? 20 ft.

Material used in seal Bentinoite chips

Did any strata contain unusable water? ( ) Yes (x) No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name Gould

Type: SUB H.P. ½

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level 175 ft. below top of well Date 9.25.08

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

WELL TESTS: *Drawdown is amount water level is lowered below static level*

Was a pump test made? (x) Yes ( ) No If yes, by whom? David

Yield: 5 gal./min. with 30 ft. drawdown after 1 hrs.

Yield: 3 gal./min. with 30 ft. drawdown after 2 hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test 5 gal./min. with 45 ft. drawdown after 30 min

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? (x) Yes ( ) No

CONSTRUCTION OR DECOMMISSION PROCEDURE

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

MATERIAL	FROM	TO
tan top silty sand	0	3
tan silty sand fine	3	17
Gray firm silty gravel	17	32
Grey coarse silty sand	32	67
tan shale	67	98
Gray fine sandstone	98	175
Grey medium sandstone H2O 190	175	198
Fine gray sandstone	198	240
Flow rate 36 gpm		

RECEIVED

OCT 17 2008

DEPT. OF ECOLOGY

Start Date 9 10 08 Completed Date 9 25 08

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

( ) Driller ( ) Engineer ( ) Trainee Name (Print) David Gutierrez

Driller/Engineer/Trainee Signature _____

Driller or trainee License No. 1297

Drilling Company A1 Drilling and Digging Inc

Address 22913 60th Drive

City, State, Zip Stanwood

Contractor's Registration No. A1 DRIDI942QE Date 10 10 08

IF TRAINEE, Driller's Licensed No. _____ Driller's Signature _____

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

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Bri...

32-4E-2H

WATER WELL REPORT

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

Construction/Decommission ("x" in circle)
☒ Construction
O Decommission ORIGINAL INSTALLATION Notice of Intent Number ______

CURRENT
Notice of Intent No. W252168
Unique Ecology Well ID Tag No. Bat 257
Water Right Permit No. ______
Property Owner Name SunPeak Est
Well Street Address lot 6, 31826 19th Drive NW
City Stanwood County Snohomish
Location SE 1/4-1/4 NE 1/4 Sec 2 Twn 32 R 4 EWM (circle one) or WWM
Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Lat Min/Sec ____ Long Deg ____ Long Min/Sec ____
Tax Parcel No. 32040200400300

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

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

DIMENSIONS: Diameter of well 6 inches, drilled 207 ft.
Depth of completed well 207 ft.

CONSTRUCTION DETAILS
Casing Installed: ☒ Welded 6" Diam. from 0 ft. to 69 ft.
☒ Liner installed 4½" Diam. from -5 ft. to 207 ft.
☐ Threaded " Diam. from ____ ft. to ____ ft.

Perforations: ☒ Yes ☐ No
Type of perforator used Saw
SIZE of perfs 3/16 in. by 4 in. and no. of perfs 80 from 147 ft. to 207 ft.

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

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

Surface Seal: ☒ Yes ☐ No To what depth? 21 ft.
Material used in seal Bentonite chips
Did any strata contain unusable water? ☐ Yes ☒ No
Type of water? ______ Depth of strata ______
Method of sealing strata off ______

PUMP: Manufacturer's Name Gould
Type: SUB H.P. 1

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.
Static level 150 ft. below top of well Date 12208
Artesian pressure ____ lbs. per square inch Date ____
Artesian water is controlled by ______ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? ☒ Yes ☐ No If yes, by whom? David
Yield: 6 gal./min. with 40 ft. drawdown after 2.5 hrs.
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test 12308
Bailer test 10 gal./min. with 45 ft. drawdown after 1 hrs.
Airtest ____ gal./min. with stem set at ____ ft. for ____ hrs.
Artesian flow ____ g.p.m. Date ____
Temperature of water ____ Was a chemical analysis made? ☒ Yes ☐ No

CONSTRUCTION OR DECOMMISSION PROCEDURE

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

MATERIAL	FROM	TO
ZM	+2	
tan top soil sandy	0	3
tan conglormato	3	15
Gray conglormato	15	55
Gray fine sandston	55	65
medium Gray sandstone	65	87
fine Gray sandstone	87	140
soft Shale Gray	140	145
Gray Shale #20	145	185
Gray sandstone	185	207
Well produce 6GPM		
lot 5 35' West		
Produce 1.5GPM		
well test 2.5 hr at 6GPM		
lot 5 Drop 36"		

RECEIVED
DEC 15 2008
DEPT. OF ECOLOGY

Start Date 9 10 08 Completed Date 121208

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

☐ Driller ☐ Engineer ☐ Trainee Name (Print) David Ratledge
Driller/Engineer/Trainee Signature [signature]
Driller or trainee License No. 1297

Drilling Company A1 Drilling and Digging
Address PO Box 1207
City, State, Zip Stanwood

IF TRAINEE,
Driller's Licensed No. ______
Driller's Signature ______

Contractor's Registration No. A1DIID1942RD Date 121208

Ecology is an Equal Opportunity Employer.

 The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.

Hatsren Lot 7

WATER WELL REPORT

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

Construction/Decommission ("x" in circle)

(x) Construction

( ) Decommission ORIGINAL INSTALLATION Notice of Intent Number _____

CURRENT

Notice of Intent No. W252180

Unique Ecology Well ID Tag No. Bat 248

Water Right Permit No. _____

Property Owner Name Sunpeaks Estates

Well Street Address Lot 7 Sunpeaks 31812, 19th Drive

City Stanwood County Snohomish

Location SE 1/4-1/4 NE 1/4 Sec. 2 Twn 32 R 4 (EWM or WWM) circle one

Lat/Long (s, t, r Still REQUIRED) Lat Deg _____ Lat Min/Sec _____

Long Deg _____ Long Min/Sec _____

Tax Parcel No. 320403 004 00300

PROPOSED USE: (x) Domestic ( ) Industrial ( ) Municipal ( ) DeWater ( ) Irrigation ( ) Test Well ( ) Other _____

TYPE OF WORK: Owner's number of well (if more than one) _____

(x) New well ( ) Reconditioned Method: ( ) Dug ( ) Bored ( ) Driven ( ) Deepened (x) Cable ( ) Rotary ( ) Jetted

DIMENSIONS: Diameter of well 6 inches, drilled 226 ft. Depth of completed well 126 ft.

CONSTRUCTION DETAILS

Casing Installed: (x) Welded 6" Diam. from 0 ft. to 78 ft.

( ) Liner installed 5" Diam. from 77 ft. to 226 ft.

( ) Threaded ___" Diam. from ___ ft. to ___ ft.

Perforations: (x) Yes ( ) No

Type of perforator used saw

SIZE of perfs 3/16 in. by 4 in. and no. of perfs 120 from 155 ft. to 226 ft.

Screens: ( ) Yes (x) No ( ) K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ( ) Yes (x) No ( ) Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: (x) Yes ( ) No To what depth? 20 ft.

Material used in seal Bentonite chips

Did any strata contain unusable water? ( ) Yes ( ) No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name NO

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level 155 ft. below top of well Date 10 7 08

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ( ) Yes (x) No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test 10 6 08

Bailer test 12 gal./min. with 70 ft. drawdown after 20 Min hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? (x) Yes ( ) No

CONSTRUCTION OR DECOMMISSION PROCEDURE

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

MATERIAL	FROM	TO
tan topsoil sandy	0	3
tan till	3	14
Gray till	15	35
Gray silty sand coarse	35	75
Gray fine sandstone	75	150
Gray coarse sandstone	150	160
Gray fine sandstone	160	204
Gray shale H2O	204	207
Gray sand stone	207	226
Pump set at 207'		
at 1 GPM to slow		
Gray floating silt		
recover at 1.5 GPM		

Start Date 10 10 8 Completed Date 10 7 08

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

( ) Driller ( ) Engineer ( ) Trainee Name (Print) David Ortega

Driller/Engineer/Trainee Signature _____

Driller or trainee License No. 1207

Drilling Company A1 Drilling and Digging

Address 22813 60th Dr. NW

City, State, Zip Stanwood WA

If TRAINEE,

Driller's Licensed No. _____

Driller's Signature _____

Contractor's Registration No. A1 DriD1942RE Date 10 07 08

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ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

303141 Bennett Lot 8 32-4E-2H

WATER WELL REPORT

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

ECOLOGY

Construction/Decommission ("x" in circle)
☒ Construction
O Decommission ORIGINAL INSTALLATION Notice of Intent Number ______

CURRENT
Notice of Intent No. W252181
Unique Ecology Well ID Tag No. Bat 229
Water Right Permit No. ______
Property Owner Name Russ Bennett
Well Street Address 31720 19th Dr NW
City Stanwood County Snohomish
Location SE1/4-1/4 NE1/4 Sec 2 Twn 32 R 4 (EWM) or WWM circle one
Lat/Long (s, t, r Still REQUIRED) Lat Deg ______ Lat Min/Sec ______ Long Deg ______ Long Min/Sec ______
Tax Parcel No. 01075700000800

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

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

DIMENSIONS: Diameter of well 6 inches, drilled 200 ft. Depth of completed well 200 ft.

CONSTRUCTION DETAILS
Casing Installed: ☒ Welded 6" Diam. from 0 ft. to 80 ft.
☒ Liner installed 5" Diam. from 20 ft. to 200 ft.
☐ Threaded ___" Diam. from ___ ft. to ___ ft.

Perforations: ☒ Yes ☐ No
Type of perforator used saw
SIZE of perfs 1/8 in. by 4 in. and no. of perfs 160 from 140 ft. to 200 ft.

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

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

Surface Seal: ☒ Yes ☐ No To what depth? 20 ft.
Material used in seal Bentonite chips
Did any strata contain unusable water? ☐ Yes ☒ No
Type of water? ______ Depth of strata ______
Method of sealing strata off ______

PUMP: Manufacturer's Name Gould
Type: SUB H.P. 1/2

WATER LEVELS: Land-surface elevation above mean sea level ______ ft.
Static level 148 ft. below top of well Date 62508
Artesian pressure ______ lbs. per square inch Date ______
Artesian water is controlled by ______ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? ☒ Yes ☐ No If yes, by whom? David
Yield: 5.5 gal./min. with 40 ft. drawdown after 22 hrs.
Yield: ______ gal./min. with ______ ft. drawdown after ______ hrs.
Yield: 2 gal./min. with 5 ft. drawdown after 4½ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
11:50	148	420	153	430	150

Date of test 63008
Bailer test 5 gal./min. with 40 ft. drawdown after 22 min.
Airtest ______ gal./min. with stem set at ______ ft. for ______ hrs.
Artesian flow ______ g.p.m. Date ______
Temperature of water ______ Was a chemical analysis made? ☒ Yes ☐ No

CONSTRUCTION OR DECOMMISSION PROCEDURE

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

MATERIAL	FROM	TO
giant tan topsandy	0	2
tan clay	2	10
tan till	10	14
Gray conglormant (till)	14	20
cemented corse sand	20	67
tan soft shale	67	86
Gray sandstone fine	76	155
Gray corse sandstone H2O 2.5 GPM	155	167
Gray fine sandstone	167	200
well flow rate 2 GPM		

RECEIVED
JUL 22 2008
DEPT. OF ECOLOGY

Start Date 6 20 08 Completed Date 62908

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

☐ Driller ☐ Engineer ☐ Trainee Name (Print) David Rutledge
Driller/Engineer/Trainee Signature [signature]
Driller or trainee License No. 1297

If TRAINEE,
Driller's Licensed No. ______
Driller's Signature ______

Drilling Company AJ Drilling and Digging Inc
Address 22813 60th Drive NW
City, State, Zip Stanwood
Contractor's Registration No. AJ DRIDIGGC Date 7 608

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 The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.

306767

Baterror 32-46-12ff

WATER WELL REPORT

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

ECOLOGY

Construction/Decommission ("x" in circle)

(X) Construction

O Decommission *ORIGINAL INSTALLATION Notice of Intent Number* ______

CURRENT
Notice of Intent No. W252182

Unique Ecology Well ID Tag No. BAA 234

Water Right Permit No. ______ Lot 9

Property Owner Name Jim Spane

Well Street Address Lot 9 31632 19th DR NW

City Stanwood County Snohomish

Location SE 1/4-1/4 NE 1/4 Sec 12 Twn 32 R 4 (EWM) or WWM circle one

Lat/Long (s, t, r Still REQUIRED) Lat Deg ____ Lat Min/Sec ____ Long Deg ____ Long Min/Sec ____

Tax Parcel No. 01075700000900

PROPOSED USE: [X] Domestic [ ] Industrial [ ] Municipal [ ] DeWater [ ] Irrigation [ ] Test Well [ ] Other ______

TYPE OF WORK: Owner's number of well (if more than one) ______
[X] New well [ ] Reconditioned [ ] Deepened *Method:* [ ] Dug [ ] Bored [ ] Driven [X] Cable [ ] Rotary [ ] Jetted

DIMENSIONS: Diameter of well 6 inches, drilled 200 ft.
Depth of completed well 200 ft.

CONSTRUCTION DETAILS
Casing Installed: [X] Welded 6" Diam. from 0 ft. to 117 ft.
[X] Liner installed 4.5" Diam. from -20 ft. to 200 ft.
[ ] Threaded ____" Diam. from ____ ft. to ____ ft.

Perforations: [X] Yes [ ] No
Type of perforator used Slotted Pipe
SIZE of perfs 3/16 in. by 7 in. and no. of perfs 12 from 140 ft. to 200

Screens: [ ] Yes [X] No [ ] K-Pac Location ______
Manufacturer's Name ______
Type ______ Model No. ______
Diam. ____ Slot size ____ from ____ ft. to ____ ft.
Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel/Filter packed: [ ] Yes [X] No [ ] Size of gravel/sand ______
Materials placed from ____ ft. to ____ ft.

Surface Seal: [X] Yes [ ] No To what depth? 18 ft.
Material used in seal Bentinite chips
Did any strata contain unusable water? [ ] Yes [ ] No
Type of water? ______ Depth of strata ______
Method of sealing strata off ______

PUMP: Manufacturer's Name Gould
Type: SUB H.P. 1/2

WATER LEVELS: Land-surface elevation above mean sea level ____ ft.
Static level (140) ft. below top of well Date 72408
Artesian pressure ____ lbs. per square inch Date ____
Artesian water is controlled by ______ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? [X] Yes [ ] No *If yes, by whom?* David
Yield: 3 gal./min. with 22 ft. drawdown after 4 hrs.
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
1100	162	1105	158	1200	150

Date of test 73008
Bailer test 5 gal./min. with 60 ft. drawdown after 1 hrs.
Airtest ____ gal./min. with stem set at ____ ft. for ____ hrs.
Artesian flow ____ g.p.m. Date ____
Temperature of water ____ *Was a chemical analysis made?* [X] Yes [ ] No

CONSTRUCTION OR DECOMMISSION PROCEDURE

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

MATERIAL	FROM	TO
Black topsoil	0	3
tan till conglomerate	3	14
Gray silty sand	14	70
Gray fine silt	70	80
Gray shale	80	120
Sand stone fine	120	170
Corse Gray sandstone	170	180
Fine Gray sandstone	180	200
H2O 170 fine 5GPM		
cloudy and terBID		
3GPM filterable		
Bail and Pump 2 weeks		
no change		

RECEIVED
AUG 05 2008
DEPT. OF ECOLOGY

Start Date 63108 Completed Date 73108

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

[X] Driller [ ] Engineer [ ] Trainee Name (Print) David Rutledge
Driller/Engineer/Trainee Signature ______
Driller or trainee License No. 1247

IF TRAINEE,
Driller's Licensed No. ______
Driller's Signature ______

Drilling Company A1 Drilling and Digging Inc
Address PO Box 1207
City, State, Zip Stanwood
Contractor's Registration No. A1DrlDd056cE Date 73108

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warrant the Data and/or Information on this Well Report.**

337795

Spare Lot 10

WATER WELL REPORT

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

Construction/Decommission ("x" in circle)

(X) Construction

( ) Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

CURRENT

Notice of Intent No. W268583

Unique Ecology Well ID Tag No. BCT 466

Water Right Permit No. 10410

Property Owner Name Jim Spane

Well Street Address 31628 19th Dr NW

City Stanwood County Snohomish

Location SE 1/4-1/4 NE 1/4 Sec 2 Twn 32 R 4 (E/W or WM) circle one

Lat/Long (s, t, r Still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. 010757 000 01000

PROPOSED USE: (X) Domestic ( ) Industrial ( ) Municipal ( ) DeWater ( ) Irrigation ( ) Test Well ( ) Other _____

TYPE OF WORK: Owner's number of well (if more than one) _____

(X) New well ( ) Reconditioned Method: ( ) Dug ( ) Bored ( ) Driven ( ) Deepened (X) Cable ( ) Rotary ( ) Jetted

DIMENSIONS: Diameter of well 6 inches, drilled 80 ft. Depth of completed well 80 ft.

CONSTRUCTION DETAILS

Casing Installed: (X) Welded 6" Diam. from 0 ft. to 40 ft.

(X) Liner installed -5" Diam. from -8 ft. to 80 ft.

( ) Threaded _____ Diam. from _____ ft. to _____ ft.

Perforations: (X) Yes ( ) No

Type of perforator used saw

SIZE of perfs 24 in. by 4 in. and no. of perfs 40 from 40 ft. to 80 ft.

Screens: ( ) Yes (X) No ( ) K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ( ) Yes (X) No ( ) Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: (X) Yes ( ) No To what depth? 18 ft.

Material used in seal Bentonite chips

Did any strata contain unusable water? ( ) Yes ( ) No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name Goulds

Type: SUB H.P. 1/2

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level 22 ft. below top of well Date 3 2909

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? (X) Yes ( ) No If yes, by whom? _____

Yield: 1.5 gal./min. with 50 ft. drawdown after 24 hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? (X) Yes ( ) No

CONSTRUCTION OR DECOMMISSION PROCEDURE

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

MATERIAL	FROM	TO
tan topsoil	0	2
light tan consolidated (hard)	2	18
Gray hard	18	34
Gray sandstone fine	34	36
Gray coarse sandstone	36	44
Gray sandstone	44	80

RECEIVED

APR 29 2009

Dept of Ecology

WR-NWRO

Pump test 2160 gallon in a 24 hr Period

Start Date 3 10 09 Completed Date 3 24 09

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

( ) Driller ( ) Engineer ( ) Trainee Name (Print) David Gutierrez

Driller/Engineer/Trainee Signature _____

Driller or trainee License No. 1297

Drilling Company AJ Drilling and Digging Inc

Address PO Box 1207

City, State, Zip Stanwood Wa.

Contractor's Registration No. AJDRIDI940QD Date 4 1909

IF TRAINEE,

Driller's Licensed No. _____

Driller's Signature _____

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or information on this Well Report.**

Sunders Lot 11

WATER WELL REPORT

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

ECOLOGY

Construction/Decommission ("x" in circle)

Construction

Decommission *ORIGINAL INSTALLATION Notice of Intent Number* ______

CURRENT Notice of Intent No. W1268920

Unique Ecology Well ID Tag No. Bat 492

Water Right Permit No. ______

Property Owner Name Kevin SondBerg

Well Street Address Lot 11 19th Drive NW

City Stanwood County Snohomish

Location SE 1/4-1/4 NE 1/4 Sec 2 Twn 32 R 4 EWM (circle one) or WWM

Lat/Long (s, t, r Still REQUIRED) Lat Deg ______ Lat Min/Sec ______ Long Deg ______ Long Min/Sec ______

Tax Parcel No. 010457 000-011-00

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

TYPE OF WORK: Owner's number of well (if more than one) ______

☒ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☐ Driven ☐ Deepened ☑ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 6 inches, drilled 223 ft.

Depth of completed well 223+2

CONSTRUCTION DETAILS

Casing Installed: ☒ Welded 6" Diam. from +2 ft. to 30 ft. ☐ Liner installed 4½" Diam. from −3 ft. to 223 ft. ☐ Threaded ______" Diam. from ______ ft. to ______ ft.

Perforations: ☑ Yes ☐ No

Type of perforator used Saw

SIZE of perfs 3/16 in. by 5 in. and no. of perfs 101 from 160 ft. to 223

Screens: ☐ Yes ☑ No ☐ K-Pac Location ______

Manufacturer's Name ______

Type ______ Model No. ______

Diam. ______ Slot size ______ from ______ ft. to ______ ft.

Diam. ______ Slot size ______ from ______ ft. to ______ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand ______

Materials placed from ______ ft. to ______ ft.

Surface Seal: ☑ Yes ☐ No To what depth? 19 ft.

Material used in seal Bentinoite chips

Did any strata contain unusable water? ☐ Yes ☑ No

Type of water? ______ Depth of strata ______

Method of sealing strata off ______

PUMP: Manufacturer's Name NO

Type: ______ H.P. ______

WATER LEVELS: Land-surface elevation above mean sea level [illegible] ft.

Static level 175 ft. below top of well Date ______

Artesian pressure ______ lbs. per square inch Date ______

Artesian water is controlled by ______ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☐ Yes ☒ No Bailed If yes, by whom? David

Yield: 8 gal./min. with 35 ft. drawdown after 1 hrs.

Yield: 8 gal./min. with 25 ft. drawdown after 1 hrs.

Yield: ______ gal./min. with ______ ft. drawdown after ______ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Date of test ______

Bailer test 8 gal./min. with 35 ft. drawdown after 1 hrs.

Airtest ______ gal./min. with stem set at ______ ft. for ______ hrs.

Artesian flow ______ g.p.m. Date ______

Temperature of water ______ Was a chemical analysis made? ☒ Yes ☐ No

CONSTRUCTION OR DECOMMISSION PROCEDURE

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

MATERIAL	FROM	TO
Dark Broon TopSoil	0	½
Light tan sand silt Rocks	½	5
tan conglomerate firm	5	25
fine gray sandstone	25	40
corse gray sandstone	40	42
fine gray sandstone	42	130
tan corse	130	150
fine gray	150	180
corse gray	180	185
fine gray	185	223
1 18 2010		
1 hour inBetweet Bail test		
1 19 2010		
[illegible]		
flow rate 8 to 8+ [illegible] GPM		
recharg rate [illegible]		
after 300 gallions		

Start Date 1 18 2010 Completed Date 1 20 2010

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

Driller ☐ Engineer ☐ Trainee Name (Print) David Rutledge

Driller/Engineer/Trainee Signature [signature]

Driller or trainee License No. 1247

If TRAINEE, Driller's Licensed No. ______ Driller's Signature ______

Drilling Company A1 Drilling and Digging Inc

Address PO Box 1207

City, State, Zip Stanwood

Contractor's Registration No. A1DriD1942RE Date 1 20 2010

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

371709

Gilkey Lot 12

30-4E-25

WATER WELL REPORT

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

Construction/Decommission ("x" in circle)

(X) Construction

( ) Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

CURRENT

Notice of Intent No. W268921

Unique Ecology Well ID Tag No. BAT491

Water Right Permit No. _____

Property Owner Name Kevin Sund Berg

Well Street Address lot 12 19th Drive NW

City Stanwood County Snohomish

Location SE 1/4-1/4 NE 1/4 Sec 2 Twn 32 R 4 (E or W WM) circle one

Lat/Long (s, t, r Still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. 107570001200

PROPOSED USE: (X) Domestic ( ) Industrial ( ) Municipal ( ) DeWater ( ) Irrigation ( ) Test Well ( ) Other _____

TYPE OF WORK: Owner's number of well (if more than one) _____

(X) New well ( ) Reconditioned Method: ( ) Dug ( ) Bored ( ) Driven ( ) Deepened (X) Cable ( ) Rotary ( ) Jetted

DIMENSIONS: Diameter of well 6 inches, drilled 276 ft. Depth of completed well 276 ft.

CONSTRUCTION DETAILS

Casing Installed: (X) Welded 6" Diam. from +1 ft. to 30 ft. ( ) Liner installed 4½" Diam. from 10 ft. to 276 ft. ( ) Threaded _____" Diam. from _____ ft. to _____ ft.

Perforations: (X) Yes ( ) No

Type of perforator used saws

SIZE of perfs 3/16 in. by 4 in. and no. of perfs 100 from 170 ft. to 176

Screens: ( ) Yes (X) No ( ) K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ( ) Yes (X) No ( ) Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: (X) Yes ( ) No To what depth? 19 ft.

Material used in seal Bentinaite

Did any strata contain unusable water? ( ) Yes (X) No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name NO

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level 170 ft. below top of well Date 1 8 2010

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ( ) Yes (X) No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test 1 8 2008

Bailer test 10 gal./min. with 176 ft. drawdown after 17 min.

Airest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? (X) Yes ( ) No

CONSTRUCTION OR DECOMMISSION PROCEDURE

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

MATERIAL	FROM	TO
Blk. V. Top Soil	0	6
tan conglomeratic firm	6	26
fine gray sandstone	26	76
coarse gray sandstone	76	86
fine gray sandstone	86	170
coarse gray sandstone	170	176
fine gray sandstone	17	276

RECEIVED DEPARTMENT OF ECOLOGY

RECEIVED MAY 25 2010

JAN 26 2010 WATER RESOURCES PROGRAM NWRO

Dept of Ecology WR.NWRO RECEIVED

Dept of Ecology WR.NWRO

well produce 16gpm during construction from 48 hours

4 hour Bail test at 16gpm Every 10 min. recover overnight 276-170

Start Date 12 28 09 Completed Date 1 8 2010

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

( ) Driller ( ) Engineer ( ) Trainee Name (Print) David Rutledge

Driller/Engineer/Trainee Signature _____

Driller or trainee License No. 1297

Drilling Company AJ Drilling and Logging Inc

Address 22813 60th Drive NW

City, State, Zip Stanwood Wa. 98292

Contractor's Registration No. AJDRIDI942RE Date 1 12 2010

IF TRAINEE,

Driller's Licensed No. _____

Driller's Signature _____

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

21252 Tyee Rd.

WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name Don Neff Address 1944 Tyee Rd. -- Conway Hill Mt. Vernon

LOCATION OF WELL: County Skagit SE¼ NW¼ Sec. 27 T. 33N. R. 4 W.M.

...ding and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

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

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 338 ft. Depth of completed well 338 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from +2 ft. to 123 ft.
Threaded ☐ ..... " Diam. from ..... ft. to ..... ft.
Welded ☒ ..... " Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☒
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal Puddeling Clay
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name Beckley
Type: Gamma HP 1

(8) WATER LEVELS: Land-surface elevation above mean sea level .... (247 MSL) ft.
Static level 85 ft. below top of well Date 7/6/81
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test 2 gal./min. with ..... ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Sandy topsoil	0	4
Tan clay & gravel	4	15
Gray clay & gravel	15	80
Brown clay & peat	80	94
Gray gravel, clay, sand, & seepage / clamshells	94	125
Gray sandstone	125	130
Brown siltstone & scattered clamshells	130	210
Gray sandstone - Water (?) 1.5 gpm	210	235
Brown siltstone	235	245
Gray fine sandstone	245	290
Coal	290	291
Brown siltstone	291	311
Coal	312	312
Brown siltstone	312	316
Gray ~~sandy~~ siltstone	316	

33/4E - 27 H1

RECEIVED
MAY 12 1987

Work started 7/6 19 81 Completed 7/6 19 81

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Hayes Well Drilling & Pumps, Inc.
(Person, firm, or corporation) (Type or print)

Address 1413 Colony Rd. Bow

[Signed] Steve Hayes
(Well Driller)

License No. 762 Date 12/15 19 86

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

27A01

File Original and First Copy with Department of Ecology
Second Copy - Owner's Copy
Third Copy - Driller's copy

WATER WELL REPORT
STATE OF WASHINGTON

Notice of Intent W151526
UNIQUE WELL I.D. # ABD271
Water Right Permit No.

(1) OWNER: Name Monte Ruble Address 21614 Tyee Rd. MtVernon, WA 98274

(2) LOCATION OF WELL: County Skagit NE 1/4 NE 1/4 Sec 27 T. 33 N.,R 4E W.M.
STREET ADDRESS OF WELL (or nearest address) same
TAX PARCEL NO. 33/4E-27A1

(3) PROPOSED USE: [X] Domestic [ ] Industrial [ ] Municipal [ ] Irrigation [ ] Test Well [ ] Other [ ] DeWater

(4) TYPE OF WORK: Owner's number of well (if more than one)
[X] New Well Method: [ ] Dug [ ] Bored [ ] Deepened [ ] Cable [ ] Driven [ ] Reconditioned [ ] Rotary [ ] Jetted [ ] Decommission

(5) DIMENSIONS: Diameter of well 6 inches. Drilled 340 feet. Depth of completed well 340 ft.

(6) CONSTRUCTION DETAILS:
Casing installed:
[X] Welded 6 " Diam. from +2 ft. to 58 ft.
[X] Liner installed 4 " Diam. from 40 ft. to 340 ft.
[ ] Threaded " Diam. from ft. to ft.

Perforations: [X] Yes [ ] No
Type of perforator used drill
SIZE of perforations 1/4 in. by 1/4 in.
4 perforations from 110 ft. to 111 ft.
4 perforations from 270 ft. to 271 ft.
perforations from ft. to ft.

Screens: [X] Yes [ ] No [ ] K-Pac Location
Manufacturer's Name monoflex
Type pvc Model No.
Diam. 4 Slot size 20 from 310 ft. to 320 ft.
Diam. Slot size from ft. to ft.

Gravel/Filter packed: [ ] Yes [X] No [ ] Size of gravel/sand
Material placed from ft. to ft.

Surface seal: [X] Yes [ ] No To what depth? 18 ft.
Material used in seal bentonite
Did any strata contain unusable water? [ ] Yes [X] No
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ft.
(457 MSL)
Static level 63 ft. below top of well Date 10/31/2002
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? [X] Yes [ ] No If yes, by whom? Aquatech
Yield: 9.6 gal./min. with 167 ft. drawdown after 5 hrs.
Yield: 9.6 gal./min. with 72 ft. drawdown after 5 hrs.
Yield: 3 gal./min. with 0 ft. drawdown after 4 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
0	269	1	265.5	2	261
3	259.5	4	257.1	5	254.9
10	244.4	15	233.6	30	204.2

Date of test 11/07/2002
Bailer test gal./min. with ft. drawdown after hrs.
Airtest 3 gal./min. with stem set at 335 ft. for 1 hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analyses made? [ ] Yes [ ] No

(10) WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTION:
Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. Indicate all water encountered.

MATERIAL	FROM	TO
topsoil	0	1
brown sandy clay	1	20
gray sandy clay	20	40
brown soft siltstone	40	51
gray sandstone	51	64
brown siltstone	64	75
gray sandstone	75	110
gray sandstone water 1/2gpm	110	111
gray sandstone	111	124
brown siltstone soft	124	134
gray sandstone	134	151
brown siltstone soft	151	160
gray sandstone	160	210
brown siltstone soft	210	216
gray sandstone	216	269
gray course sandstone water 1gpm	269	270
gray course sandstone	270	298
gray course sandstone water	298	299
gray course sandstone	299	321
gray sandstone	321	
shale trap 109		
shale trap 160		
Located in compliance with sec 12-48 supplied by information supplied by owner.		
02211		

RECEIVED
NOV 14 2002
DEPT OF ECOLOG

Work Started 10/02/2002 . 19 Completed 10/28/2002 . 19

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

Type or Print Name Brannon Hopke License No. 1825
(Licensed Driller/Engineer)
Trainee Name License No.
Drilling Company Aquatech Well Drilling & Pumps Inc
(Signed) (Licensed Driller/Engineer) License No. 1825
Address 2722 Butler Crk Rd SedroWoolley Wa 98284
Contractor's Registration No. AQUATWD040K4 Date 11/08/2002 . 19

(USE ADDITIONAL SHEETS IF NECESSARY)

Ecology is an Equal Opportunity and Affirmative Action employer. For special accommodation needs, contact the Water Resources Program at (360) 407-6600. The TDD number is (360) 407-6006.

03 R01
275 SMSL ~~32/4-3 R1~~

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. ____

~~Water Right Permit No.~~ 32/45-3R1

(1) OWNER: Name ____ Address ____

(2) LOCATION OF WELL: County ____ SW ¼ SE ¼ Sec. 3 T. 32 N., R. 4 W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) 2914 ____

(3) PROPOSED USE: ☑ Domestic ☐ Irrigation ☐ DeWater Industrial ☐ Test Well ☐ Municipal ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (If more than one) ____
Abandoned ☐ New well ☑ Deepened ☐ Reconditioned ☐ Method: Dug ☐ Cable ☐ Rotary ☑ Bored ☐ Driven ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 300 feet. Depth of completed well 300 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6" Diam. from 0 ft. to 18 ft.
Welded ☑ Liner installed ☐ Threaded ☐ 4½" Diam. from 20 ft. to 300 ft.
____" Diam. from ____ ft. to ____ ft.

Perforations: Yes ☑ No ☐
Type of perforator used ____
SIZE of perforations ¼ in. by 5 in.
____ perforations from 240 ft. to 300 ft.
____ perforations from ____ ft. to ____ ft.
____ perforations from ____ ft. to ____ ft.

Screens: Yes ☐ No ☑
Manufacturer's Name ____
Type ____ Model No. ____
Diam. ____ Slot size ____ from ____ ft. to ____ ft.
Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel packed: Yes ☐ No ☑ Size of gravel ____
Gravel placed from ____ ft. to ____ ft.

Surface seal: Yes ☑ No ☐ To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☑
Type of water? ____ Depth of strata ____
Method of sealing strata off ____

(7) PUMP: Manufacturer's Name ____
Type: ____ H.P. ____

(8) WATER LEVELS: Land-surface elevation above mean sea level ____ ft. (275 MSL)
Static level ____ ft. below top of well Date ____
Artesian pressure ____ lbs. per square inch Date ____
Artesian water is controlled by ____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☑ If yes, by whom? ____
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ____
Bailer test ____ gal./min. with ____ ft. drawdown after ____ hrs.
Airtest ____ gal./min. with stem set at ____ ft. for 1 hrs.
Artesian flow ____ g.p.m. Date ____
Temperature of water ____ Was a chemical analysis made? Yes ☑ No ☐

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Top soil	0	1
Brown clay & gravel	1	[illegible]
Brown sandstone	[illegible]	[illegible]
Gray sandstone	[illegible]	[illegible]
Shale dark brown	[illegible]	[illegible]
Gray sandstone	185	240
Shale dark brown	240	245
Gray sandstone	245	[illegible]
Water bearing sandstone	[illegible]	300

Work started ____, 19__. Completed ____, 19__.

WELL CONSTRUCTOR CERTIFICATION:

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

NAME ____ (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)
Address ____
(Signed) ____ License No. ____
(WELL DRILLER)
Contractor's Registration No. ____ Date ____, 19__

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20 (10/87) -1329-

03691
380 MSL C36 32/4E/3 G

WATER WELL REPORT
STATE OF WASHINGTON

State Card No. 076561
Water Right Permit No.

(1) OWNER: Name NICHOLSON, BILL Address 1019 WARREN STREET MOUNT VERNON, WA 98273-

(2) LOCATION OF WELL: County SNOHOMISH SW 1/4 NE 1/4 Sec 3 T 32 N., R 4E WM
(2a) STREET ADDRESS OF WELL (or nearest address) 3205 324TH STREET N.W.

(3) PROPOSED USE: DOMESTIC

(4) TYPE OF WORK: Owner's Number of well (If more than one) 1
NEW WELL Method: ROTARY

(5) DIMENSIONS: Diameter of well 6 inches
Drilled 260 ft. Depth of completed well 260 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Dia. from +3 ft. to 87 ft.
WELDED 4 " Dia. from 260 ft. to 60 ft.
" Dia. from ft. to ft.

Perforations: YES
Type of perforator used SKILL SAW
SIZE of perforations 1/8 in. by 6 in.
80 perforations from 240 ft. to 260 ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: NO
Manufacturer's Name
Type Model No.
Diam. slot size from ft. to ft.
Diam. slot size from ft. to ft.

Gravel packed: NO Size of gravel
Gravel placed from ft. to ft.

Surface seal: YES To what depth? 18 ft.
Material used in seal PUDDELING CLAY
Did any strata contain unusable water? NO
Type of water? Depth of strata ft.
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type H.P.

(8) WATER LEVELS: Land-surface elevation
(380 MSL) above mean sea level ... ft.
Static level 15 ft. below top of well Date 03/04/91
Artesian Pressure lbs. per square inch Date
Artesian water controlled by

(9) WELL TESTS: Drawdown is amount water level is lowered below static level.
Was a pump test made? NO If yes, by whom?
Yield: gal./min with ft. drawdown after hrs.

Recovery data
Time Water Level Time Water Level Time Water Level

Date of test / /
Bailer test gal/min. ft. drawdown after hrs.
Air test 12 gal/min. w/ stem set at 255 ft. for 1.5 hrs.
Artesian Flow g.p.m. Date
Temperature of water Was a chemical analysis made? NO

(10) WELL LOG 32/4E-3G1

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change in formation.

MATERIAL	FROM	TO
TOPSOIL	0	3
TAN CLAY	3	12
GRAY CLAY - SEEPAGE	12	15
GRAY GRAVEL & SOME CLAY	15	40
GRAY GRAVEL & CLAY	40	44
GRAY CLAY	44	49
TAN CLAY & SCATRD. GRAV.	49	58
GREEN SAND & CLAY	58	62
GRAY GREEN SANDSTONE	78	87
GRAY SANDSTONE	87	103
GRAY SANDSTONE & CLAM SHELLS	103	132
GRAY SANDSTONE	132	150
GRAY SANDSTONE	150	178
GRAY SILTSTONE	178	204
GRAY BROWN SANDSTONE	204	207
GRAY BROWN SILTSTONE CLAM SHELLS	207	212
GRAY SANDSTONE	212	252
GRAY SANDSTONE & WATER	252	254
GRAY HARD SANDSTONE	254	

Work started 02/28/91 Completed 03/04/91

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

NAME HAYES DRILLING, INC.
(Person, firm, or corporation) (Type or print)

ADDRESS 556 ERSHIG RD. BOW, WA

(SIGNED) [signature] License No. 1825

Contractor's
Registration No. HAYESDI106J5 Date 03/14/91

1331

CKH OD Inventoried well

MAR 28 1991
DEPT. OF ECOLOGY

(See CKHOD notebooks for more info.)

The Department of Ecology does NOT Warrant the Data and/or the Information on this Well Report

03 A21   03A01 295 MSL

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

481750 1221623 **STATE OF WASHINGTON**

Application No. ....
Permit No. ....

(1) OWNER: Name Wind Mesa ... Address 3-112 ...

LOCATION OF WELL: County ... NE ¼ NE ¼ Sec. 3 T. 32 N., R. 4 E W.M.

...ng and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

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

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 420 ft. Depth of completed well 420 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from +3 ft. to 420 ft.
Threaded ☐ ...." Diam. from .... ft. to .... ft.
Welded ☒ ...." Diam. from .... ft. to .... ft.

Perforations: Yes ☐ No ☒
Type of perforator used ....
SIZE of perforations .... in. by .... in.
.... perforations from .... ft. to .... ft.
.... perforations from .... ft. to .... ft.
.... perforations from .... ft. to .... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name ....
Type .... Model No. ....
Diam. .... Slot size .... from .... ft. to .... ft.
Diam. .... Slot size .... from .... ft. to .... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: ....
Gravel placed from .... ft. to .... ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal BENTONITE
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? .... Depth of strata ....
Method of sealing strata off ....

(7) PUMP: Manufacturer's Name N/A
Type: .... H.P. ....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
(295 MSL)
Static level 190 ft. below top of well Date 6-23-88
Artesian pressure .... lbs. per square inch Date ....
Artesian water is controlled by .... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? ....
Yield: .... gal./min. with .... ft. drawdown after .... hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

...ate of test ....
Bailer test 25 gal./min. with 230 ft. drawdown after 1 hrs.
Artesian flow .... g.p.m. Date ....
Temperature of water .... Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG: 32/4E-3A1

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Topsoil	0	3
Tan Sandy Loam	3	7
Tan Silty Gravel	7	12
Blue Hard Pan	12	25
Tan & Gray Sandstone	25	37
Hard Gray Sandstone & Water	37	420

32/4E-03A01 #044 (margin, handwritten)

RECEIVED JUN 29 1988 DEPARTMENT OF ECOLOGY NORTHWEST REGION

Work started 6-23, 1988. Completed ....

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Camano Well Drilling (Person, firm, or corporation) (Type or print)

Address P.O. Box 432

[Signed] ... (Well Driller)

License No. 0611 Date 6-24, 1988

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
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02/01 02L01 605 MSL

WATER WELL REPORT

481720 122154l **STATE OF WASHINGTON**

Application No. ....

Permit No. ....

(1) OWNER: Name [illegible] Address [illegible]

LOCATION OF WELL: County [illegible] — NE ¼ SW ¼ Sec 2 T 32 N., R [illegible] W.M.

[Bear]ing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

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

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 145 ft. Depth of completed well 145 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6" Diam. from +2 ft. to 80 ft.
Threaded ☐ ....." Diam. from ..... ft. to ..... ft.
Welded ☐ ....." Diam. from ..... ft. to ..... ft.

Perforations: Yes ☐ No ☒
Type of perforator used ....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name ....
Type .... Model No. ....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: ....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal BENTONITE
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? .... Depth of strata ....
Method of sealing strata off ....

(7) PUMP: Manufacturer's Name [illegible]
Type: [illegible] H.P. ....

(8) WATER LEVELS: Land-surface elevation above mean sea level..... 605 MSL ft.
Static level [illegible] ft. below top of well Date [illegible]
Artesian pressure ..... lbs. per square inch Date ....
Artesian water is controlled by .... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ *If yes, by whom?* ....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ....
Bailer test [illegible] gal./min. with [illegible] ft. drawdown after 1 hrs.
Artesian flow .... g.p.m. Date ....
Temperature of water [illegible] Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG: 32/4E-2L

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
TOP SOIL	0	1
SANDY [illegible]	1	15
SANDSTONE	15	145

Work started [illegible], 19[illegible]. Completed [illegible], 19[illegible]

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME [illegible] DRILLING
(Person, firm, or corporation) (Type or print)

Address [illegible]

NOV 18 1985
DEPARTMENT OF ECOLOGY

[Signed] [illegible]
(Well Driller)

License No. [illegible] Date [illegible], 19[illegible]

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

34-2-21
338 SMSL

~~33/04 34 B~~

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

Garth Lawritsen

WATER WELL REPORT 21643 21657

STATE OF WASHINGTON

Application No

Permit No. 029160

1) OWNER: Name Tom Meyer Address 2387 Starling rd Mt Vernon

(2) LOCATION OF WELL: County Skagit - SE¼ SE¼ Sec. 34 T. 33 N., R. 4 W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

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

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 420 ft. Depth of completed well 420 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6" Diam. from 0 ft. to 45 ft.
Threaded ☐ ." Diam. from ft. to ft.
Welded ☑ ." Diam. from ft. to ft.

Perforations: Yes ☐ No ☑
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☑
Manufacturer's Name
Type Model No
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☑ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☑ No ☐ To what depth? 20 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☑
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name Sta-rite
Type: Sub HP 1½

(8) WATER LEVELS: Land-surface elevation above mean sea level ft.
Static level (338 SMSL) 18' ft. below top of well Date 7-26
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☑ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☑

(10) WELL LOG: 33/4E-34R1

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Top soil	0	2
Brown sandy clay	2	20
Gray silty clay	20	40
Sandstone	40	420

RECEIVED
OCT 12 1989
DEPARTMENT OF ECOLOGY
NORTHWEST REGION

Work started July 6, 19 89 Completed July 12, 19 89

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Anderson Drilling Co.
(Person, firm, or corporation) (Type or print)

Address 7412-204th NE Ave

[Signed] Paul Anderson
(Well Driller)

License No. 1367 Date July 12, 19 89

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

34 F101
279 MSL

File Original and First Copy with Department of Ecology
Second Copy - Owner's Copy
Third Copy - Driller's copy

100724

WATER WELL REPORT

STATE OF WASHINGTON

Notice of Intent W135810
UNIQUE WELL I.D. # AFP952
Water Right Permit No. 33-4E-34P

(1) OWNER: Name John & Micheale Yengich Address 23734 Fremali Lane, Mt.Vernon, WA 98274

(2) LOCATION OF WELL: County Skagit SE 1/4 SW 1/4 Sec 34 T 33 N.,R 4E W.M.

(2a) STREET ADDRESS OF WELL (or nearest address) same

TAX PARCEL NO.

(3) PROPOSED USE: [X] Domestic [ ] Industrial [ ] Municipal [ ] Irrigation [ ] Test Well [ ] Other [ ] DeWater

(4) TYPE OF WORK: Owner's number of well (if more than one)
[X] New Well [ ] Deepened [ ] Reconditioned [ ] Decommission
Method: [ ] Dug [ ] Bored [ ] Cable [ ] Driven [X] Rotary [ ] Jetted

(5) DIMENSIONS: Diameter of well 6 inches
Drilled 500 feet Depth of completed well 500 ft

(6) CONSTRUCTION DETAILS:
Casing Installed:
[X] Welded 6 " Diam from +2 ft to 64 ft
[X] Liner installed 4 " Diam from -10 ft to 500 ft
[X] Threaded " Diam. from ft. to ft

Perforations: [ ] Yes [X] No
Type of perforator used
SIZE of perforations in by in
perforations from ft to ft
perforations from ft to ft
perforations from ft to ft

Screens: [X] Yes [ ] No [ ] K-Pac Location
Manufacturer's Name Monoflex
Type s.s. Model No
Diam 4 Slot size 20 from 250 ft to 260 ft
Diam 4 Slot size 20 from 450 ft to 460 ft

Gravel/Filter packed: [ ] Yes [X] No [ ] Size of gravel/sand
Material placed from ft to ft

Surface seal: [ ] Yes [X] No To what depth? ft
Material used in seal
Did any strata contain unusable water? [ ] Yes [X] No
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type H P

(8) WATER LEVELS: Land-surface elevation above mean sea level ft
(379 MSL)
Static level 194' ft below top of well Date 07/26/2001
Artesian pressure lbs per square inch Date
Artesian water is controlled by (Cap, valve, etc)

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

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal./min with ft drawdown after hrs
Airtest 1/4 gal./min. with stem set at 500 ft. for 1 hrs
Artesian flow g.p.m Date
Temperature of water Was a chemical analyses made? [ ] Yes [X] No

(10) WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTION:
Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. Indicate all water encountered

MATERIAL	FROM	TO
topsoil	0	2
brown clay gravel	2	15
gray clay gravel	15	26
granite boulder	26	27
gray gravel clay	27	44
brown clay gravel	44	51
gray clay gravel	51	62
gray sandstone	62	70
gray sandstone shells	70	79
gray sandstone	79	90
brown siltstone	90	95
gray sandstone	95	123
brown sandstone shells	123	131
gray sandstone	131	134
brown siltstone	134	135
gray sandstone	135	170
brown siltstone shells	170	174
gray sandstone	174	211
brown siltstone	211	221
brown fine sandstone	221	227
gray fine sandstone	227	248
gray fine sandstone .25gpm	248	252
brown silt stone	252	255
brown sandstone	255	265
gray fine sandstone	265	279
brown fine sandstone shells	279	280
brown fine sandstone siltstone layers	280	301
black basalt	301	302
brown siltstone layered basalt	302	314
gray fine sandstone	314	393
gray course sandstone shells	393	407
gray fine siltstone	407	421
black basalt	421	427

Continued on next page

Work Started 07/18/2001, 19 Completed 07/21/2001, 19

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

Type or Print Name Wayne Logsdon (Licensed Driller/Engineer) License No 2146
Trainee Name Wayne Logsdon License No
Drilling Company Aquatech Well Drilling & Pumps Inc.
(Signed) Wayne Logsdon (Licensed Driller/Engineer) License No 2146
Address 2722 butler Crk Rd SedroWoolley Wa 98284
Contractor's Registration No AQUATWD040K4 Date 08/23/2001, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

100724

34P01

34 K01
351 MSL 21596 Starbird 33/4E/3 K (55)
8

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

Michael DeBuff

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No 076053

Water Right Permit No.

(1) OWNER: Name JACK SPRAGUE Address 2368 STARBIRD RD

(2) LOCATION OF WELL: County SKAGIT NW ¼ SE ¼ Sec. 3 34 T. 33 N., R. 4 W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address)

(3) PROPOSED USE: [X] Domestic [ ] Irrigation [ ] DeWater Industrial [ ] Test Well [ ] Municipal [ ] Other [ ]

(4) TYPE OF WORK: Owner's number of well (if more than one)

Abandoned [ ] New well [X] Deepened [ ] Reconditioned [ ] Method: Dug [ ] Cable [ ] Rotary [X] Bored [ ] Driven [ ] Jetted [ ]

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 362 feet. Depth of completed well 362 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from +2 ft. to 82 ft.
Welded [X] " Diam. from ___ ft. to ___ ft.
Liner installed [ ]
Threaded [ ] " Diam. from ___ ft. to ___ ft.

Perforations: Yes [ ] No [X]
Type of perforator used
SIZE of perforations ___ in. by ___ in.
___ perforations from ___ ft. to ___ ft.
___ perforations from ___ ft. to ___ ft.
___ perforations from ___ ft. to ___ ft.

Screens: Yes [ ] No [X]
Manufacturer's Name
Type ___ Model No.
Diam. ___ Slot size ___ from ___ ft. to ___ ft.
Diam. ___ Slot size ___ from ___ ft. to ___ ft.

Gravel packed: Yes [ ] No [X] Size of gravel
Gravel placed from ___ ft. to ___ ft.

Surface seal: Yes [X] No [ ] To what depth? 18 ft.
Material used in seal BENTONITE
Did any strata contain unusable water? Yes [ ] No [X]
Type of water? ___ Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name GRUNDFOS
Type: SUB H.P. 1½

(8) WATER LEVELS: Land-surface elevation above mean sea level ___ ft. (351 MSL)
Static level 60 ft. below top of well Date 8-17-90
Artesian pressure ___ lbs. per square inch Date
Artesian water is controlled by ___ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes [ ] No [X] If yes, by whom?
Yield: ___ gal./min. with ___ ft. drawdown after ___ hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test

Bailer test ___ gal./min. with ___ ft. drawdown after ___ hrs.
Airtest 3½ gal./min. with stem set at 340 ft. for 1 hrs.
Artesian flow ___ g.p.m. Date
Temperature of water ___ Was a chemical analysis made? Yes [ ] No [X]

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
TOPSOIL	0	2
TAN SANDY CLAY	2	10
HARDPAN	10	20
SOFT SANDSTONE	20	82
SANDSTONE	82	362

RECEIVED
AUG 20 1990
DEPT. OF ECOLOGY

33/4-34K01

Work started 8-14-90, 19__. Completed 8-17, 1990

WELL CONSTRUCTOR CERTIFICATION:

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

NAME CAMANO WELL DRILLING (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address PO Box 437 - STANWOOD WA

(Signed) Joseph Evans (WELL DRILLER) License No. 0611

Contractor's Registration No. CAMANWD146P2 Date 8-17, 1990

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20 (10/87) -1329-

27 MSL
177 MSL

33-4E-27M

M0655

Please print, sign and return to the Department of Ecology

RECEIVED
APR 12 2005
DEPT OF ECOLOGY

33/4 E-27M1

Water Well Report

Original – Ecology, 1st copy – owner, 2nd copy – driller

STATE OF WASHINGTON DEPARTMENT OF ECOLOGY

Construction/Decommission

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

Current Notice of Intent No. W167054
Unique Ecology Well ID Tag No. AGK787
Water Right Permit No.
Property Owner Name DENISE JANTZ
Well Street Address 22644 ROSE Rd.
City MT. VERNON County SKAGIT
Location NW 1/4-1/4 SW 1/4 Sec 27 Twn 33 R 4 (EWM or WWM) ☐ circle one
Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____
Long Deg _____ Long Min/Sec _____
Tax Parcel No. P118081

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

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

DIMENSIONS: Diameter of well 6 inches, drilled 504 ft.
Depth of completed well 504 ft.

CONSTRUCTION DETAILS
Casing ☒ Welded 6" Diam. from +2 ft. to 160 ft.
Installed: ☒ Liner installed 4½" Diam. from -4 ft. to 504 ft.
☐ Threaded _____" Diam. from _____ ft. to _____ ft.

Perforations: ☒ Yes ☐ No PVC LINER
Type of perforator used SKILL SAW
SIZE of perfs ⅛ in. by ¾ in. and no. of perfs 300 from 404 ft. to 504 ft.

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

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

Surface Seal: ☒ Yes ☐ No To what depth? 18 ft.
Material used in seal BENTONITE
Did any strata contain unusable water? ☐ Yes ☒ No
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

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

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.
Static level 177 MSL 168 ft. below top of well Date 4/10/05
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (cap, valve, etc.)

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

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Airtest 5 gal./min. with stem set at 500 ft. for 1 hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? ☒ Yes ☐ No

CONSTRUCTION OR DECOMMISSION PROCEDURE

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

MATERIAL	FROM	TO
TOP SOIL	0	1
TAN HARD PAN	1	9
GREY HARD PAN	9	82
GREY CLAY W/GRAVEL	82	86
GREY SAND/GRAVEL-CLAY	86	97
GREY SILT	97	94
SAND WOOD SOME WATER	94	98
SAND CLAY WOOD WATER	98	104
GREY CLAY	104	106
GREY SAND W/CLAY	106	119
SILTY TAN CLAY W/WATER	119	136
SANDY GREY CLAY	136	143
GREY SAND	143	146
GREY CLAY	146	148
GREY SAND	148	153
GREEN CLAY	153	155
TAN SAND STONE	155	156
GREY SAND STONE	156	380
TAN SILT STONE	380	383
SAND STONE	383	384
SILT STONE & COAL	384	386
SILT STONE	386	410
COAL	410	415
SILT STONE	415	442
GREY SAND STONE	442	455
SILT STONE	455	457
COAL	457	459
SILT STONE	459	470
SAND STONE W/WATER	470	504

Start Date 3-6-05 Completed Date 4-10-05

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

Driller/Engineer/Trainee Name (Print) JOSEPH NUNES
Driller/Engineer/Trainee Signature Joseph Nunes
Driller or trainee License No. 6611

Drilling Company CAMANO WELL DRILLING
Address P.O Box 432
City, State, Zip STANWOOD WA 98292
Contractor's Registration No. CAMANWD1416R2 Date 4-10-05

IF TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Ecology is an Equal Opportunity Employer. ECY 050-1-20 (Rev 2/03)

10M 27-4-1

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report