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Memorandum

Client: Washington State Department of Ecology

Project: Fisher/Carpenter/Nookachamps Basin Water System Evaluation

Project File: DOE 410.056.06.602 **Project Manager:** Jim Bucknell

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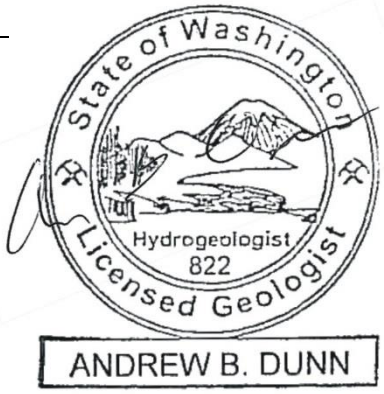

Purpose of Memo

This technical memorandum describes the hydrogeology of the Lake McMurray area with focus on the interaction of surface water and groundwater near the boundary between Water Resource Inventory Area (WRIA) 3 – Skagit to the north and WRIA 5 – Stillaguamish to the south. Field work for this study by RH2 Engineering, Inc., (RH2) was carried out between June 18, 2013, and September 24, 2013. After September 24, 2013, the Washington State Department of Ecology (Ecology) took over monitoring activities.

The study area is located in southern Skagit County along State Route 9 approximately 9 miles southeast of Mount Vernon, Washington (**Figure 1**). A preliminary memorandum was provided to Ecology in October 2013. Ecology shared the preliminary memorandum with representatives from the Swinomish Indian Tribal Community. Ecology and RH2 were provided with a memorandum dated February 3, 2014, prepared by Mr. Joel Massmann, Ph.D., P.E., for the Swinomish Indian Tribal Community, critiquing RH2's preliminary memorandum. After reviewing the Massmann memorandum, RH2 reviewed additional well logs on the west side of Lake McMurray. This additional review has caused RH2 to amend the conceptual model of how groundwater moves from the aquifer into either Lake McMurray (WRIA 3) or the wetland area forming the headwaters of a tributary to the Pilchuck Creek (WRIA 5).

This revised memorandum contains the appropriate information from the preliminary memorandum, but includes additional information such as a longer period of water level data, additional well logs on the western side of the lake, additional figures, and a revised conceptual model and analysis of pumping impact on surface water.

Elevation Control

Light Detection and Ranging (LiDAR) bare earth data obtained from the Puget Sound LiDAR Consortium (http://pugetsoundlidar.ess.washington.edu/index.html) was used to determine the elevation of ground surface at the southern well sites and estimate the elevation at the State Route 9 wetland monitoring location. The datum used to create the LiDAR data is the National American Vertical Datum of 1988 (NAVD88). Elevation of ground surface at the western well sites was estimated using Google Earth. No site-specific surveys were performed.

A sign on the Lake McMurray staff gage, located at the Washington Department of Fish and Wildlife (WDFW) boat launch, identifies that the top of the gage is at elevation 230 feet (**Figure 2**). However, this elevation is not the same as the NAVD88 elevation. In this memo, direct readings from this staff gage are identified as staff gage height. For comparison with groundwater levels, the lake stage readings have been converted into NAVD88 elevation. Page (2010) provides a correlation between the staff gage reading and NAVD88. The correlation is as follows: the stage reading, plus 220 feet, plus 3.76 feet equals the elevation in NAVD88.

Geology, Hydrogeology, and Hydrology

Dragovich and DeOme (2006) have done the most recent surficial geologic mapping of the south Lake McMurray area. Prior to this, both surficial and subsurface geologic mapping had been performed by Rongey (1971), Grimstad (1971), and Hart Crowser and Associates (1983) as part of site-specific studies.

Geology and Hydrogeology

The valley containing Lake McMurray and continuing to the south-southeast is bounded on either side and below by bedrock. The bedrock at this location is referred to as the "Rocks of Bulson Creek", which are Oligocene to Eocene age sedimentary rocks consisting primarily of sandstone with interbeds of siltstone, pebbly sandstone, coal, shale, and rare lenses of conglomerate. The rocks dip to the southwest at angles ranging from 7 to 75 degrees. The normal right-lateral strike-slip McMurray Fault, which is a splay of the Darrington-Devils Mountain Fault Zone, runs parallel to the strike of the Rocks of Bulson Creek and east of the axis of the valley (Dragovich and DeOme, 2006).

Dragovich and DeOme (2006) have mapped unconsolidated deposits from the Fraser Glaciation (both the Vashon Stade and Everson Interstade) as well as more recent peat deposits within the valley and bounded on each side by the bedrock. The valley bottom is generally mapped as glaciolacustrine deposits or peat. The deposits mapped adjacent to Lake McMurray include both glacial till and glaciolacustrine deposits. Glaciolacustrine deposits consist of clay, silt, silty sand, sand, and diamict with scattered dropstone (Dragovich and DeOme, 2006). Glacial till is composed of a mixture of clay, silt, sand, and gravel (diamicton) with disseminated cobbles and boulders (Dragovich and DeOme, 2006). Glaciolacustrine and glacial till deposits are fine-grained in nature and typically represent

barriers to groundwater flow or aquitards. Dragovich and DeOme's (2006) A-A' cross section runs through the study area. On that cross section, the sand and gravel aquifer is identified as being Vashon Advance Outwash that is underlain by either bedrock or glaciolacustrine deposits, interfingers with glaciolacustrine deposits, and is overlain by Vashon glacial till and younger glaciolacustrine and outwash units of the Everson Interstade. All investigators identify that the main aquifer tapped by the Tatoosh Water Company (Tatoosh) and other productive wells is glaciofluvial in origin consisting of either gravel or sand and gravel. RH2 agrees with this interpretation. Five cross sections were created using the southern water well reports for wells identified on **Figure 2**. Those cross sections are **Figures 3** through **7**. In these cross sections, sediments were lumped into either the coarse-grained sand and gravel that forms the aquifer, or deposits that contain some fine-grained material such as clay and silt, which are identified on the cross sections as the clay and gravel unit.

To create the cross sections, well logs were obtained from Ecology's water well log database and older hydrogeologic reports (**Appendix A**). Information contained on the well logs was used to cross reference the wells with particular parcels using parcel numbers, addresses, and the owner's name (**Appendix B**). Permission was requested from property owners to gain access to their property to accurately locate the well and measure the depth to water. Twelve property owners on the south side of the lake voluntarily provided RH2 access to measure depth to water in their wells as part of this study (**Appendix B**).

After the locations of the wells were determined as accurately as possible, ground surface elevation of the wells was obtained from LiDAR data. The sediment penetrated, as recorded on the water well log reports, was analyzed and compared between wells to allow for creation of the cross sections in **Figures 3** through **7**.

Cross Section A-A' runs generally southwest to northeast on the southeast end of Lake McMurray (**Figures 2** and **3**). The cross section shows that all wells from Martin through Koejche likely tap the sand and gravel aquifer. Northeast of the Koejche well, clay and gravel lies directly on bedrock and the sand and gravel aquifer is absent. Groundwater elevations are all similar and are higher than ground surface in the lowland north of the Koejche Well.

Cross Section B-B' runs generally southwest to northeast farther southeast from the lake than cross section A-A' (**Figures 2** and **4**). This cross section includes the Tatoosh Wells, the State Route 9 wetland, and the Camp Brotherhood Well. In this cross section, groundwater levels are consistent for the Tatoosh Wells and Cal Buck Construction Well, but rise to the northeast. As with A-A', the potentiometric surface is above ground surface at both the Camp Brotherhood Well and near the valley at the State Route 9 wetland.

Cross Section C-C' runs northwest to southeast along the southwest shore of Lake McMurray and extends down to the Tatoosh Wells (**Figures 2** and **5**). The potentiometric surface is relatively flat over the entire section. The northwestern extent of the aquifer is identified at the Erickson No. 3 well. Most domestic wells tap only the upper portion of the aquifer.

Cross Section D-D' runs northwest to southeast along the northeast shore of Lake McMurray and extends down to the Camp Brotherhood Well (**Figures 2** and **6**). The northern wells along this section encountered clay and gravel overlying bedrock with no

sand and gravel aquifer present. The sand and gravel aquifer is only present in the wells near the southern extent of the section. The variation in water level in the wells completed within the sand and gravel aquifer is related to the projection of those wells onto the cross section.

Cross Section E-E' runs southeast to northwest from the Tatoosh Wells into Lake McMurray (**Figure 2** and **7**). The Koejche Well represents the northeastern extent of the sand and gravel aquifer since Well TH-3 did not encounter the aquifer just a little farther to the northwest. The potentiometric surface elevation is consistent along this cross section. The potentiometric surface is higher than ground surface north of the Koejche Well and is also higher than the Lake McMurray water level.

From the cross sections, it can be generally stated that finer-grained deposits often occur adjacent to the bedrock and overlying the sand and gravel aquifer.

A review of ground surface and groundwater elevation shows that the State Route 9 wetland complex and, generally, the valley floor is lower in elevation than the potentiometric surface for the sand and gravel aquifer. As mentioned previously, if there was no confining layer, water from the sand and gravel aquifer would discharge into the wetland until the water level in the aquifer was the same as the water level in the wetland. Since this is not the case there must be an aquitard separating the aquifer from the wetland. The Camp Brotherhood Well penetrated 15 feet and Well TH-2 penetrated 20 feet of a glacial till-like material before encountering the sand and gravel aquifer (**Appendix A**). Both of these wells are located within the valley bottom, and it is assumed that the aquitard underlying the entire wetland is between 15 and 20 feet thick and is composed of sediment that is similar in nature to glacial till.

Lake McMurray Hydrology

Lake McMurray has a surface area of approximately 160 acres and is up to 52 feet deep (Wolcott, 1973) with a mean depth of 29 feet (First, 2002). **Figure 8** shows a bathymetric map of the lake taken from Walcott (1973). Lake Creek is the outlet of Lake McMurray on the north end of the lake. Lake Creek flows to the north into Big Lake approximately 3.5 miles downstream. If the water surface elevation is considered to be 231.65 feet NAVD88 (average of all measurements available), then the open water at the deepest portion of the lake would occur from an NAVD88 elevation of 231.65 to 179.65 feet.

Surface Water Divide

The surface water divide between the watershed for Lake McMurray and that of the State Route 9 wetlands, which are tributary to Pilchuck Creek, is a very low topographic divide just south of the lake (**Figure 2**). Reports have been made that when the water level in Lake McMurray is high, there can be surface water flow from the lake to the south (First, 2002). This was discussed with long-time resident, Mr. Glenn Kensmoe, (personal communication, August 22, 2013) and he indicated that he has never seen the lake flow to the south. So, monitoring would have to be performed during periods of high lake water level to settle this matter.

Throughout the study period, water was observed to be flowing south through the culvert under State Route 9. Continuous surface water flow was never observed during the RH2 portion of the study period flowing between Lake McMurray and the State Route 9 wetland.

However, lake discharge to the south would only be anticipated in the winter months, when the lake is at its highest water level, and RH2's study did not cover that time period.

Historic Surface Water Level Monitoring

Skagit County Public Works undertook a surface water monitoring effort on Lake McMurray from 2002 into 2005 related to concerns about elevated lake levels and beaver dam construction. Measurements were made sporadically over the 4-year period with the highest lake level recorded equal to 9.00 feet staff gage height (232.76 feet NAVD88 elevation) on November 20, 2003, and the lowest lake level recorded equal to 6.96 feet staff gage height (230.72 feet NAVD88 elevation) on August 20, 2004. The lake level shows a typical annual fluctuation with the highest water levels occurring in the winter and the lowest lake levels occurring in the summer or early fall (**Figure 9** and **Appendix C**).

During this monitoring, there was also monitoring of a water body which appears to be the State Route 9 wetland. The water level for this gage was similar to the lake level and fluctuated over a range of 230.26 feet to 231.92 feet elevation (NAVD88) during the period monitored.

Equipment Utilized and Monitoring Setup

Ecology's Water Resources Program provided three non-vented pressure transducer data loggers (Micro-Diver model DI602.20m) and one non-vented pressure transducer data logger designed to measure barometric pressure fluctuations (Baro-Diver model DI500) for use during this study. Since these are non-vented pressure transducers, the data collected by the pressure transducer data logger recording the barometric pressure is subtracted from the pressure measurements taken in water to accurately calculate the actual height of the water surface above the transducer. Each pressure transducer data logger was synchronized with the same clock time and was programmed to take a measurement every 15 minutes starting on the hour. The location of each measurement site is described in the following sections and shown on **Figure 2**.

Lake McMurray

An existing Skagit County Public Works staff gage was utilized for monitoring of the water level in Lake McMurray. This staff gage is located near the fence adjacent to the Washington State Department of Fish and Wildlife (WDFW) boat launch on the south end of the lake (Lat 48.31297, Lon -122.22072) (**Figure 10**). On the staff gage, it indicates that the top of the gage, which correlates to a stage of 10.0 is at elevation 230 feet. So, 220 feet is added to the raw gage measurement to determine the staff gage height with respect to the attached sign. As was mentioned previously, a correction factor needs to be applied to the staff gage height to determine the elevation with respect to NAVD88.

A 2-inch-diameter, acrylonitrile butadiene styrene (ABS), Schedule 40 pipe with an end cap was perforated and attached to the bottom portion of the staff gage. The pressure transducer data logger was suspended from a locking well cap with stainless steel wire rope so that it would hang slightly above the bottom of the pipe. This stilling well setup allows for the data logger to record the lake water level almost continuously while allowing for easy correlation with the attached staff gage.

State Route 9 Wetland

As has been noted by previous investigators, there appears to be a beaver dam or debris partially blocking water flow through the culvert running under State Route 9. This causes the water level to be elevated on the upstream (north) side of the road as compared with the water level on the downstream (south) side of the road crossing. Since RH2 was looking for connection with Lake McMurray, a pressure transducer data logger was installed in a portion of the wetland (Lat 48.30843, Lon -122.21538 on the upstream side of the culvert). The monitoring point for this site involved driving a T-bar fence post into the bottom of the wetland and affixing a staff gage and stilling well of similar construction to the lake stilling well. A photo of the wetland staff gage installation is shown in **Figure 11**. The gage numbers have been approximately correlated with elevation of the roadway, based on the LiDAR data, in that 0 feet on the gage is assumed to be equal to 228.39 feet NAVD88 elevation.

Tatoosh Water Company Well No. 1

An access port on the top of Well No. 1 was utilized for manual measurement of the static water level using a water level probe and also for insertion of the non-vented pressure transducer data logger. The pressure transducer data logger was placed at a depth of approximately 25 feet below the top of the access port, which was approximately 8 feet below the static water level as measured at the time of installation. Minimal submergence was needed given the extremely high specific capacity of the well at the time of completion at 705 gallons per minute per foot (gpm/ft) drawdown. This well is located within a vault surrounded by a locked fence (Lat 48.30794, Lon -122.21695).

Barometric Pressure Logger

In order to allow for accurate correction of the data obtained from the non-vented pressure transducers, a barometric pressure logger was placed within the Tatoosh Well No. 1 vault (Lat 48.30794, Lon -122.21695). The vault contains a vent that allows for the free exchange of air and accurate measurement of barometric pressure. The barometric pressure logger was located within 0.4 miles of the other three pressure transducer data loggers, which is much less than the suggested maximum of 9.3 miles (15 kilometers) as suggested by the manufacturer, Schlumberger (**Figure 2**).

Precipitation

To obtain precipitation data over the course of the study an existing nearby weather station was used. The closest station available was located on the northwest shore of Big Lake approximately 6 miles north of the project area. The weather station is identified as KWAMTVER2 on the website www.wunderground.com. Daily precipitation data was downloaded and used in this study to compare with the water level fluctuations (**Figure 12**).

Water Level Fluctuation Summary

The pressure transducer data loggers were installed in the surface water bodies and in Tatoosh Well No. 1 on June 18, 2013, and the collection of data by RH2 ceased on September 24, 2013. Subsequent to that, Ecology took over data monitoring activities and provided RH2 with additional data through approximately February 2014, when the data loggers stopped recording. **Figure 12** contains the water level elevation of each monitoring

point over the observation period. While RH2 was performing the data collection, each monitoring site was visited on a monthly basis and the data was downloaded from the data loggers at that time. Manual measurements were made at the time of installation and during each site visit for correlation (**Appendix D**). Minor corrections to the data logger data were made to better match the data to the manual observations.

The Lake McMurray water level was increasing as monitoring began and continued to increase until approximately July 4th when the water level started to decline until precipitation events in early September caused the lake level to stabilize and even rise slightly. In late September 2013, the lake level began to rise with the onset of the fall precipitation. Through the winter months the lake level rose in response to precipitation events. The highest lake water level elevation (NAVD88) measured was 232.67 feet on January 13, 2014, while the lowest was 230.60 feet on September 4, 2013 (**Figure 12**). The lake water level elevation observed during the study period was similar to the range of the historic water level measurements provided by Skagit County Public Works, although the low water level was slightly lower (0.12 feet) than had been historically observed (**Figure 9**).

The State Route 9 wetland water level generally fell over much of the study period. There were periods where the water level appears to have risen in response to precipitation events, but there are other instances when the level rose for no apparent reason. There might still be beaver activity in this area that is influencing water levels to some extent, or localized precipitation events might have occurred that were not captured at the precipitation station monitored. The highest wetland water level elevation (NAVD88) measured was 231.00 feet on June 20, 2013, while the lowest was 230.45 feet on September 22, 2013 (**Figure 12**). The wetland water level elevation observed during the study period fell within the range of historic water level measurements provided by Skagit County Public Works (**Figure 9**).

The elevation of water in Lake McMurray and the State Route 9 Wetland was similar from roughly August through the end of September 2013, although the elevation of the water in the wetland was always less than the lake level during the study period. The surface water bodies were more susceptible to fluctuations brought about by precipitation events than was the groundwater (**Figure 12**).

The Tatoosh Well No. 1 data shows a decline in water level from June 2013 through most of September 2013. The fluctuations that lower the water level by approximately 2.5 feet or 0.2 feet are related to pumping of the well at 930 gpm or interference drawdown caused by pumping of the Tatoosh Well No. 2 at 870 gpm, respectively. The groundwater monitoring showed a falling water level over the duration of monitoring. The static and pumping water level decline was approximately 0.034 feet per day in July, 0.026 feet per day in August, and 0.015 feet per day in September. The reduction in the rate of decline suggests that the groundwater level in the aquifer gets closer and closer to the elevation of the water body that the aquifer is discharging into as the dry season progresses. The groundwater level continued to decline until the end of October 2013, when the water level began to rise.

Analysis of the water level fluctuations in Tatoosh Well No. 1 show that the water level responds to not only Well No. 1 pumping, but also to Well No. 2 pumping (**Figure 13**). The measured interference drawdown was compared to the anticipated drawdown using the aquifer properties identified by previous investigators (**Table 1**).

Table 1. Past Calculated Transmissivity and Storage Coefficient

Reference	Transmissivity (gpd/ft)	Storage Coefficient (ft/ft)
Grimstad, 1971	340,000	0.0039
Hart Crowser, 1983	600,000	0.005

gpd = gallons per day

Mr. Steve Aslanian (Tatoosh Water Company) confirmed that Tatoosh Well No. 2 typically pumps for 18 minutes when it operates at a rate of 870 gpm. After this period of pumping there is approximately 0.2 feet of interference drawdown measured in Tatoosh Well No. 1, which is 680 feet away. Using the Theis equation, the transmissivity and storage coefficient were altered until they predicted a drawdown of 0.2 feet at a distance of 680 feet. Transmissivity between the values identified by the previous investigators required that the storage coefficient be closer to 0.002. Storage coefficients within the range identified here suggest a confined aquifer, which is supported by most of the water well reports.

Analysis of water temperature as measured by the pressure transducer data loggers was performed. Groundwater temperature in Tatoosh Well No. 1 rose constantly from 8.7 to 9.1 degrees Celsius over the study period and did not show any changes in water temperature that could be correlated to precipitation events or changes in air temperature. The air temperature recorded by the barometric pressure logger and the water temperature measured in Lake McMurray and the State Route 9 wetland all showed similar patterns to one another. These patterns consisted of rapid and daily fluctuations with an overall range of approximately 6 degrees Celsius. However, the accuracy of the temperature for these monitoring sites is suspect due to the shallow depth of submergence and potential for the water within the data logger housing to become heated differently than the overall water body. Therefore, water temperature data was not used when attempting to determine connection between ground and surface water.

Synoptic Water Level Elevation Measurements

On August 22, 2013, static groundwater water level measurements were made in 13 wells in the study area (southern wells) along with surface water level measurements of Lake McMurray and the State Route 9 wetland. The elevation of water at each point was calculated (**Appendix B** and **D**).

The elevation of the water surface of Lake McMurray and the State Route 9 wetland were very similar on the day of the water level measurements.

Contouring of the groundwater potentiometric surface from this data provides a snapshot of groundwater elevation across the aquifer. **Figure 14** shows the calculated water level elevations and interpretation of the water levels with respect to creation of the potentiometric surface map.

The Hirdler and Camp Brotherhood wells are the only wells completed in the sand and gravel aquifer that show water level elevations above 240 feet. These wells suggest that there is flow to the west-southwest in this portion of the aquifer. All of the other wells completed in the sand and gravel aquifer have water levels within a range of 2.5 feet from 237.4 to 239.9 feet elevation with no definitive flow direction that could be determined. Conceptually,

the flat potentiometric surface is like a subsurface lake and it is assumed that seasonal water level fluctuations will be similar across the entire sand and gravel aquifer.

The elevation of groundwater in the wells tapping the bedrock were both near 247 feet, or approximately 16.5 feet higher than the lake water level and 7 feet higher than the water in the sand and gravel aquifer. Water produced from the bedrock Tainor Well was reported to be very high in mineral content and of very poor quality. So, it is unlikely that the bedrock represents the primary reservoir that is supplying water to the sand and gravel aquifer since the water quality in the sand and gravel aquifer is generally considered to be good.

The sediment described on the water well logs suggests that the sand and gravel aquifer is surrounded by fine-grained aquitards both laterally and vertically. The very flat potentiometric surface combined with the high transmissivity support that the aquifer is not directly connected to the lake or wetland. If there was direct connection, the groundwater would quickly discharge from the aquifer and stabilize at the level of the connected surface water body. Recharge to the aquifer is from direct infiltration of precipitation and likely also from infiltration into the aquifer along the top of the contact between the bedrock and unconsolidated sediments. Discharge is to wells and to surface water bodies (likely both Lake McMurray and the State Route 9 Wetland) through the aquitards.

Inclusion of Western Well Data

Subsequent to the preliminary memorandum, 12 additional water well logs were reviewed for wells located along the western edge of Lake McMurray (**Figure 15**). The location of these wells was determined through the use of well site addresses (both current and historic) and parcel numbers. Approximate groundwater level elevation was calculated using Google Earth to calculate the ground surface elevation and subtract the depth to water obtained from the water well report. This method is much less accurate than for the southern wells since the western wells were not field located, a less accurate elevation estimate is used, water levels were measured at the time the well was drilled as opposed to on the same day, and there was no correction made for casing stickup. Groundwater elevation in these wells generally also appeared to be above the lake elevation and most often fell in the range of 230 to 240 feet (**Figure 16**). Based on this information, it is suspected that the wells all tap the same sand and gravel aquifer, the aquifer water level is above the lake level, and that the thickness and transmissivity of the aquifer varies spatially.

With the western wells appearing to tap the same sand and gravel aquifer tapped at the south end of the lake, it was reasonable to conclude that the aquifer likely extends under Lake McMurray. The Jonson Well tapped a 1-foot-thick sand and gravel aquifer before penetrating bedrock. The Dragovich and DeOme (2006) geologic map shows that bedrock forms the ridge to the north of the Jonson Well and also forms the linear ridge on the eastern side of the lake, including the peninsula that juts out into the lake, roughly lining up with the ridge north of the Jonson Well (**Figure 16**). The Lake McMurray Resort and McHaven, Inc., wells penetrate aquitard material before encountering bedrock suggesting that the sand and gravel aquifer might not underlie the southeastern corner of the lake. **Figure 17** shows RH2's interpretation of the maximum extent of the sand and gravel aquifer, which is tapped by the Tatoosh Water Company Wells, beneath Lake McMurray.

The depth to the top of the sand and gravel aquifer in each well is shown on **Figure 17** in addition to the elevation of the lake bottom. As can be seen, the top of the sand and gravel aquifer appears to drop toward the lake. If the top of the sand and gravel aquifer was equal to its elevation at the shoreline (approximately 150 feet) under the entire lake, this would put the average separation between the top of the aquifer and the bottom of the lake at approximately 60 feet. This assumption is likely conservative toward assuming connection with the lake since the elevation of the top of the sand and gravel is dropping steeply moving toward the lakeshore, which suggests it might continue to do that farther east.

Aquifer Discharge Calculations

Due to the geology of the area and the conceptual model of the hydrogeology of the sand and gravel aquifer and surrounding aquitards, it is possible to calculate the relative impact of pumping from this aquifer on surface water bodies. The assumptions for these calculations are laid out as follows.

General Assumptions

1. The aquifer water level measured at Tatoosh Well No. 1 is considered to be consistent across the entire sand and gravel aquifer.
2. The extent of the sand and gravel is as shown on **Figure 17**.
3. The clay and gravel sediments that form the aquitards have the same vertical hydraulic conductivity whether underlying the wetland or Lake McMurray.
4. Continuous pumping from the aquifer will lead to a reduction in aquifer discharge that is proportionate to the natural discharge to the lake and wetland.
5. Vertical seepage is how water moves from the sand and gravel aquifer to both the lake and the wetland.
6. Impacts will be calculated for the late summer when the wetland and lake water levels are the closest. This assumption is conservative and likely overestimates the discharge from the sand and gravel aquifer to the lake than if the average lake and wetland water level elevations were used.

Assumptions Related to Discharge to the State Route 9 Wetland

1. The average elevation of water in the wetland complex is represented by the elevation at the monitoring location.
2. The area of the valley floor that is below the potentiometric surface and within a reasonable distance of the Tatoosh Wells is 50 acres in size and is shown on **Figure 14**. The extent of the valley floor to include was truncated at a distance approximately equal to the distance from the Tatoosh Wells to the lake.
3. The thickness of the aquitard separating the sand and gravel aquifer from the wetland complex is on average 17.5 feet.

Assumptions Related to Discharge to Lake McMurray

1. The elevation of water in Lake McMurray is accurately represented by the measurements at the monitoring location.

2. The sand and gravel aquifer underlies 95 acres of the lake.
3. The thickness of the aquitard separating the sand and gravel aquifer from the lake is on average 60 feet.

Darcy Solution

Based on the assumptions above, it is possible to determine the percentage of natural groundwater discharge, and impact from continuous pumping, from the sand and gravel aquifer into either Lake McMurray and WRIA 3, or into the State Route 9 wetland complex and WRIA 5.

Since this investigation explores the relative pumping impact attributable to the lake and wetland, and due to the assumptions above, the area underlying each feature as well as the vertical thickness of the aquitard separating the aquifer from each feature are the controlling factors. An arbitrary vertical hydraulic conductivity was chosen and no attempt was made to try to correlate the calculated discharge with measured surface water flow.

The Darcy Equation is used for both the groundwater discharge to the wetland and Lake McMurray.

$$Q = KA(dh/dl)$$

Where,

Q = Discharge in cubic feet per second
K = Vertical hydraulic conductivity of the aquitard (arbitrarily chosen to be 0.05 feet per day)
A = Discharge area
dh/dl = gradient (head difference divided by the flow length through the aquitard)

Table 2. Variables Used in the Calculations

Variable	**Lake**	**Wetland**	Notes
K	0.05 feet per day	0.05 feet per day	Same for both, so value does not matter.
A	95 acres	50 acres	Aquifer underlying two hydrologic features.
A	4,138,200 square feet	2,178,000 square feet	
dh	7.66 feet	7.73 feet	Difference between aquifer water level and surface water level elevation.
dl	60 feet	17.5 feet	Thickness of the fine-grained material between the sand and gravel aquifer and the open surface water.

Lake:

Q = 0.05 feet/day * 4,138,200 square feet * (7.66 feet/60 feet)
Q = 26,416 cubic feet/day
Q = 137 gpm

Wetland:

Q = 0.05 feet/day * 2,178,000 square feet * (7.73 feet/17.5 feet)
Q = 48,103 cubic feet/day
Q = 250 gpm

Total discharge to both sources is 387 gpm, which suggests that 35 percent of the discharge is to Lake McMurray in WRIA 3 while 65 percent of the discharge is to the WRIA 5 wetland complex.

CONCLUSIONS

There is a prolific sand and gravel aquifer located in the vicinity of the west and south side of Lake McMurray. This aquifer is hydraulically connected to surface water bodies in both WRIA 3 and 5. However, connection is not direct but is instead through aquitard material that bounds the aquifer both laterally and vertically. The elevation of groundwater in the sand and gravel aquifer is approximately 8 feet higher than the water level elevation in either Lake McMurray, or the State Route 9 wetland.

Contouring of groundwater levels measured on August 22, 2013, suggests that there is flow into the aquifer from the eastern side near Camp Brotherhood but the potentiometric surface is essentially flat over the remainder of the aquifer. The very high transmissivity of the aquifer, as identified by previous investigators, was confirmed with interference drawdown calculations based on data collected from the pressure transducer data loggers. The high transmissivity helps to support that the groundwater is pooled in the aquifer by surrounding aquitards and the groundwater level will change in a uniform pattern across the aquifer.

It is assumed that continuous pumping from the Tatoosh Wells will lead to an overall lowering of the potentiometric surface within the sand and gravel aquifer, which in turn will lead to a proportional reduction in aquifer discharge to the surface water bodies. Calculations made suggest that the proportion of natural discharge to the State Route 9 Wetland within WRIA 5 is approximately 65 percent of the natural aquifer discharge while approximately 35 percent of the natural aquifer discharge is to Lake McMurray. Continuous pumping of a well tapping the sand and gravel aquifer will result in a proportional reduction in discharge from the sand and gravel aquifer into both the wetland and lake.

If water from the Tatoosh Water Company, which is produced from Tatoosh Well Nos. 1 and 2, was to be pumped directly into Lake McMurray, the pumping of 100 gpm would only increase the rate of water entering Lake McMurray by 65 gpm due to the reduction in natural discharge that would be brought about by pumping of the Tatoosh Water Company wells.

REFERENCES

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Figure 2 – Wells, Monitoring Locations, and Cross Sections
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Figure 5 – Cross Section C-C'
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Figure 12 – Water Levels and Precipitation Over the Course of the Study
Figure 13 – Tatoosh Well No. 1 Water Level Compared to Tatoosh Water Company Well Starts
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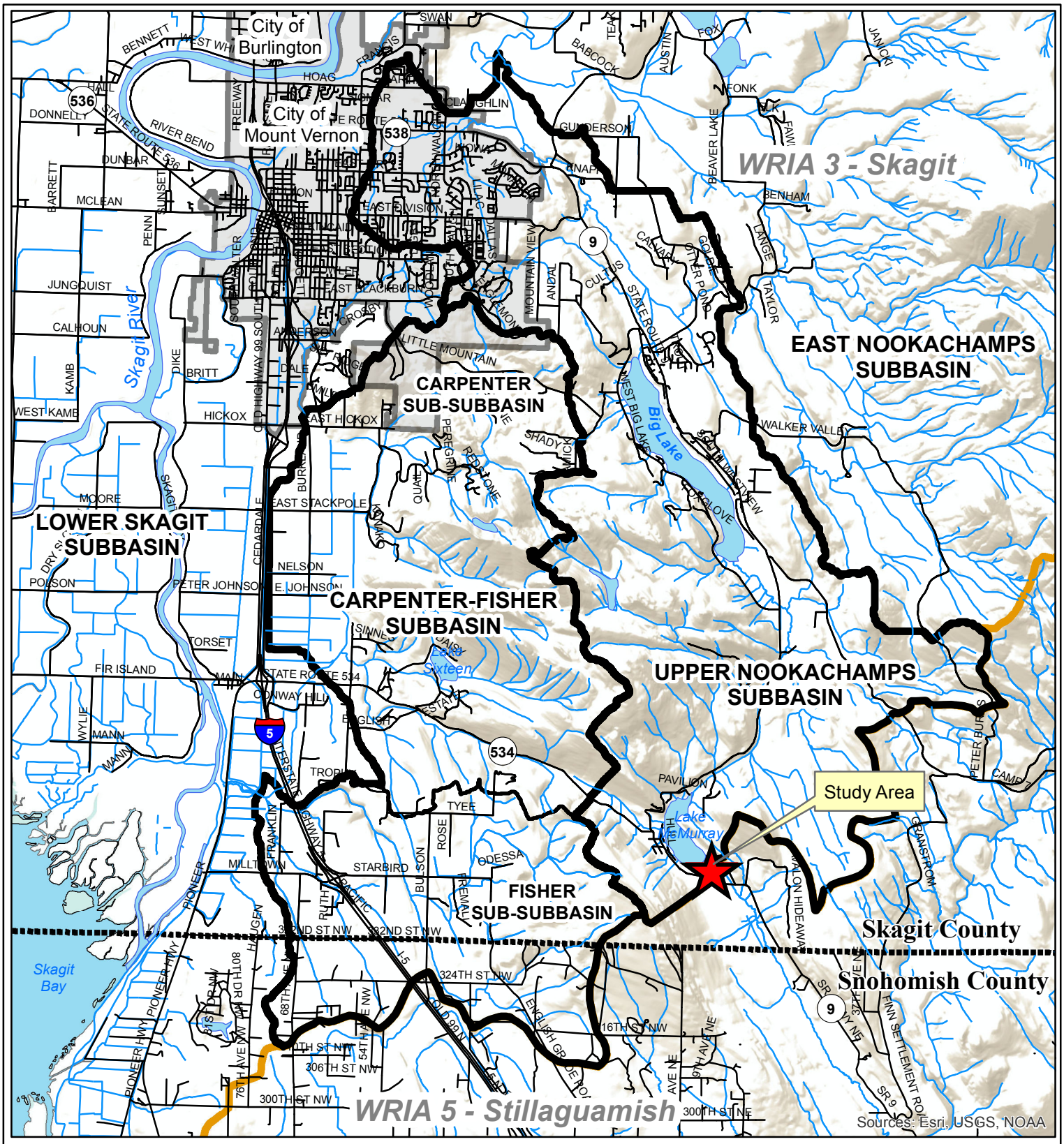
APPENDICES

Appendix A – Water Well Reports
Appendix B – Well Information
Appendix C – Historic Lake and Wetland Water Level Measurements (Skagit County Public Works)
Appendix D – Manual Water Level Measurements

Figures



Legend

- Roads
- Waterbodies
- Creeks
- Subbasin Boundary
- City Limits
- County
- WRIA

0 0.5 1 2 3 4 Miles

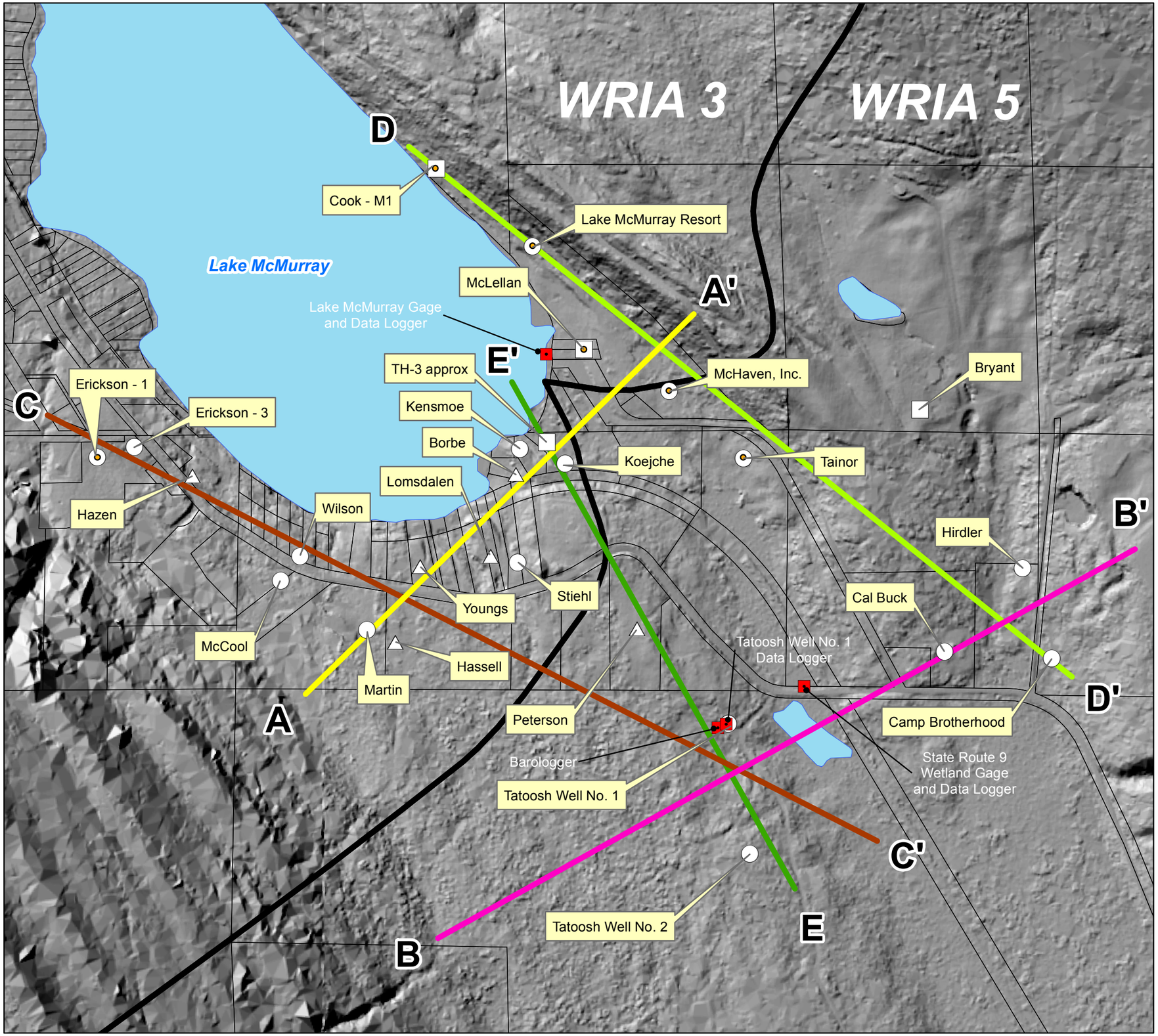
N

Figure 1 - Study Area

RH2 ENGINEERS PLANNERS SCIENTISTS

J:\Data\DOE\410-056\06\GIS\06 - Skagit Mitigation\06-602 Lake McMurray Hydrogeology\GIS\Maps\Fiugre 1 - Study Area.mxd September 30, 2013 - ABD

Figure 2.
Wells, Monitoring Locations, and Cross Sections



Legend

- Bedrock Wells
- Data Logger
- Located Wells
- Parcel Address Located Wells
- Grimstad, 1971 Wells
- Section A-A'
- Section B-B'
- Section C-C'
- Section D-D'
- Section E-E'
- Water Bodies
- Parcels

N

0 300 600 1,200 1,800 2,400 Feet

Data Sources
Aerial Imagery: World Imagery basemap (ESRI)
Hillshade: Supermosaic (Puget Sound Lidar Consortium)
Parcels: Skagit County
Elevation in NGVD88
Well names from water well logs, not necessarily current owner.

RH2 ENGINEERS PLANNERS SCIENTISTS

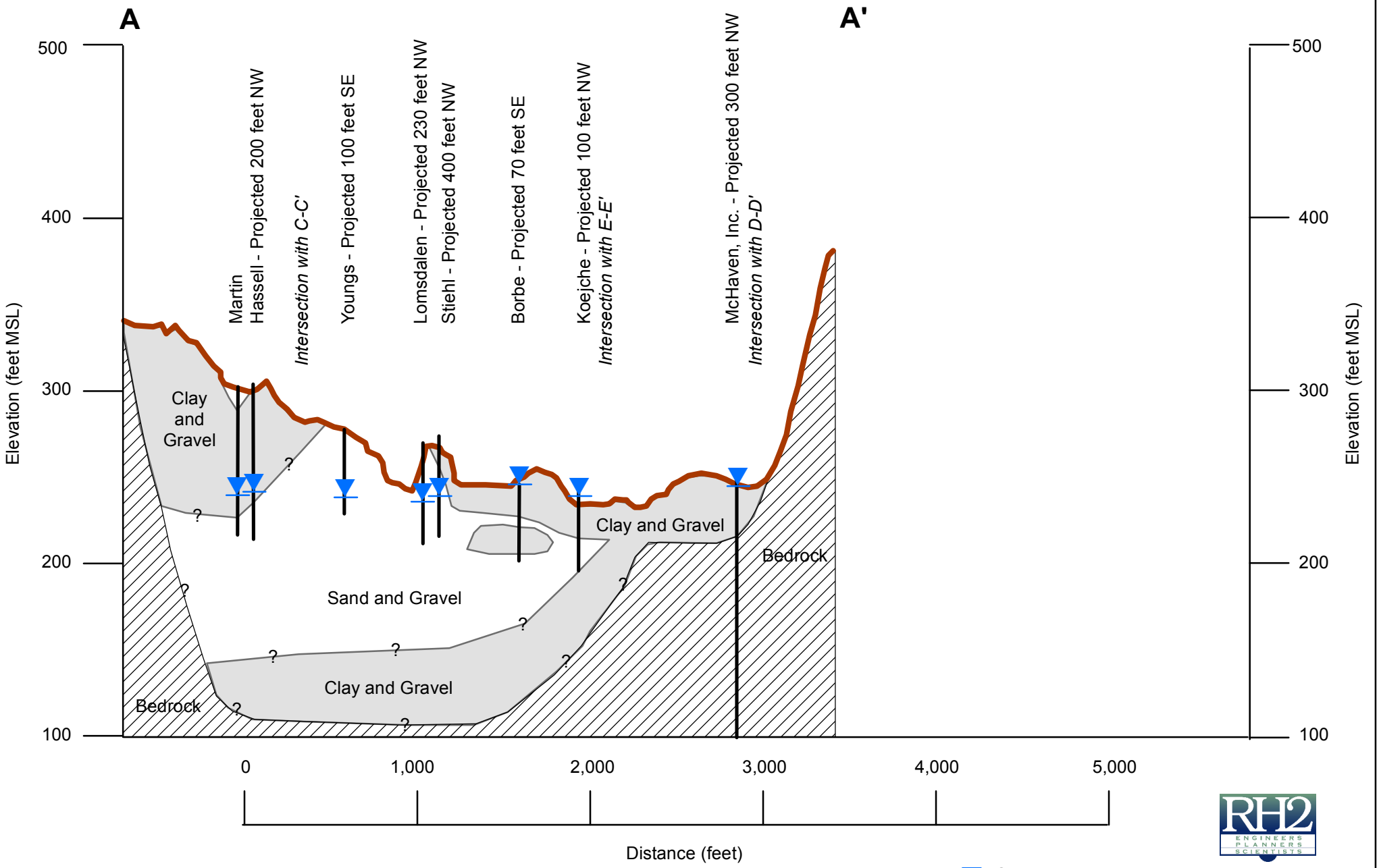


Figure 3. Cross Section A-A'

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September 13, 2013 - ABD

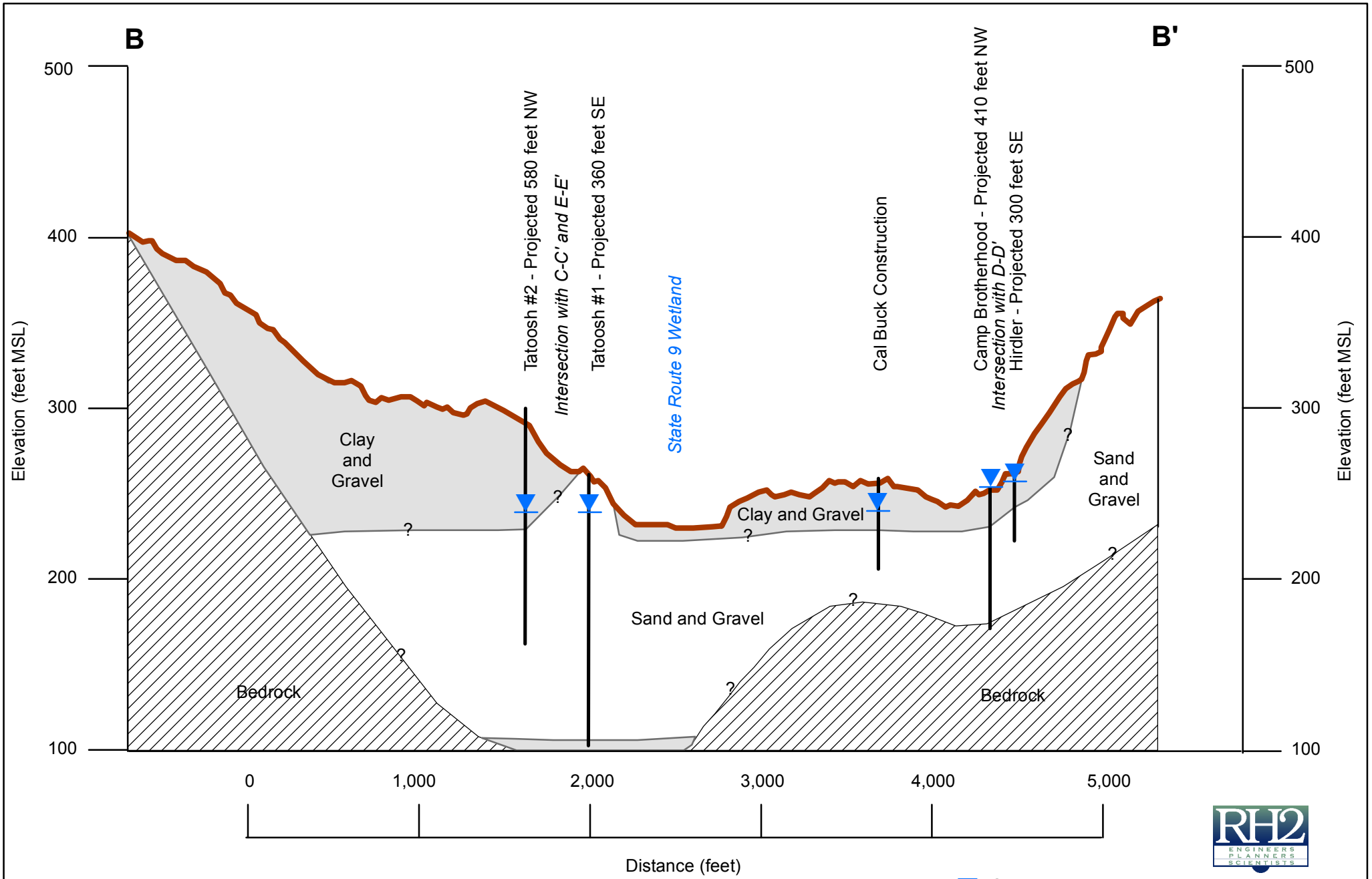

Figure 4. Cross Section B-B'

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September 13, 2013 - ABD

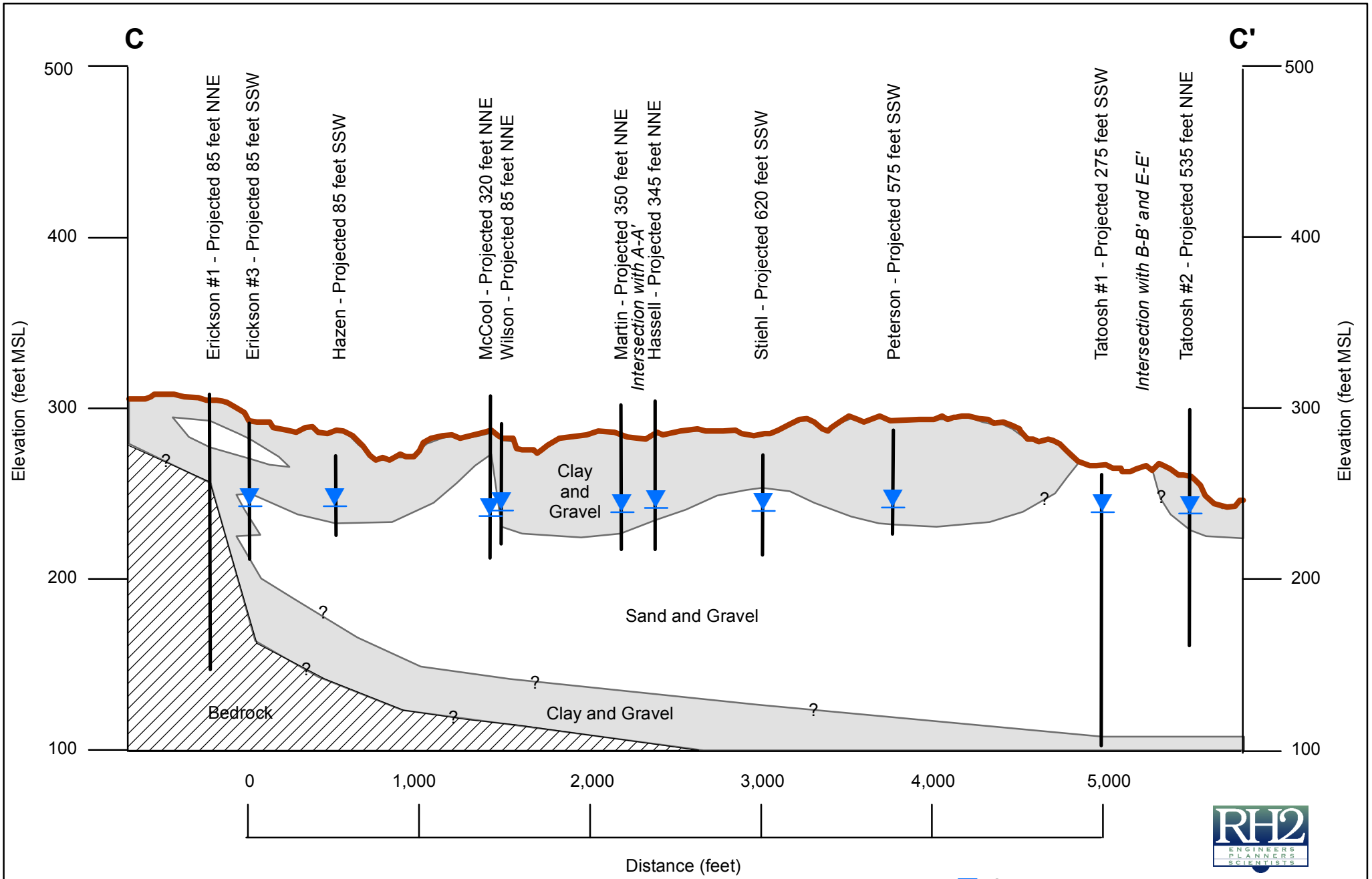

Figure 5. Cross Section C-C'

J:\Data\DOE\410-056\06 - Skagit Mitigation\06-602 Lake McMurray Hydrogeology\GIS\Maps\Cross Section C.mxd

September 13, 2013 - ABD

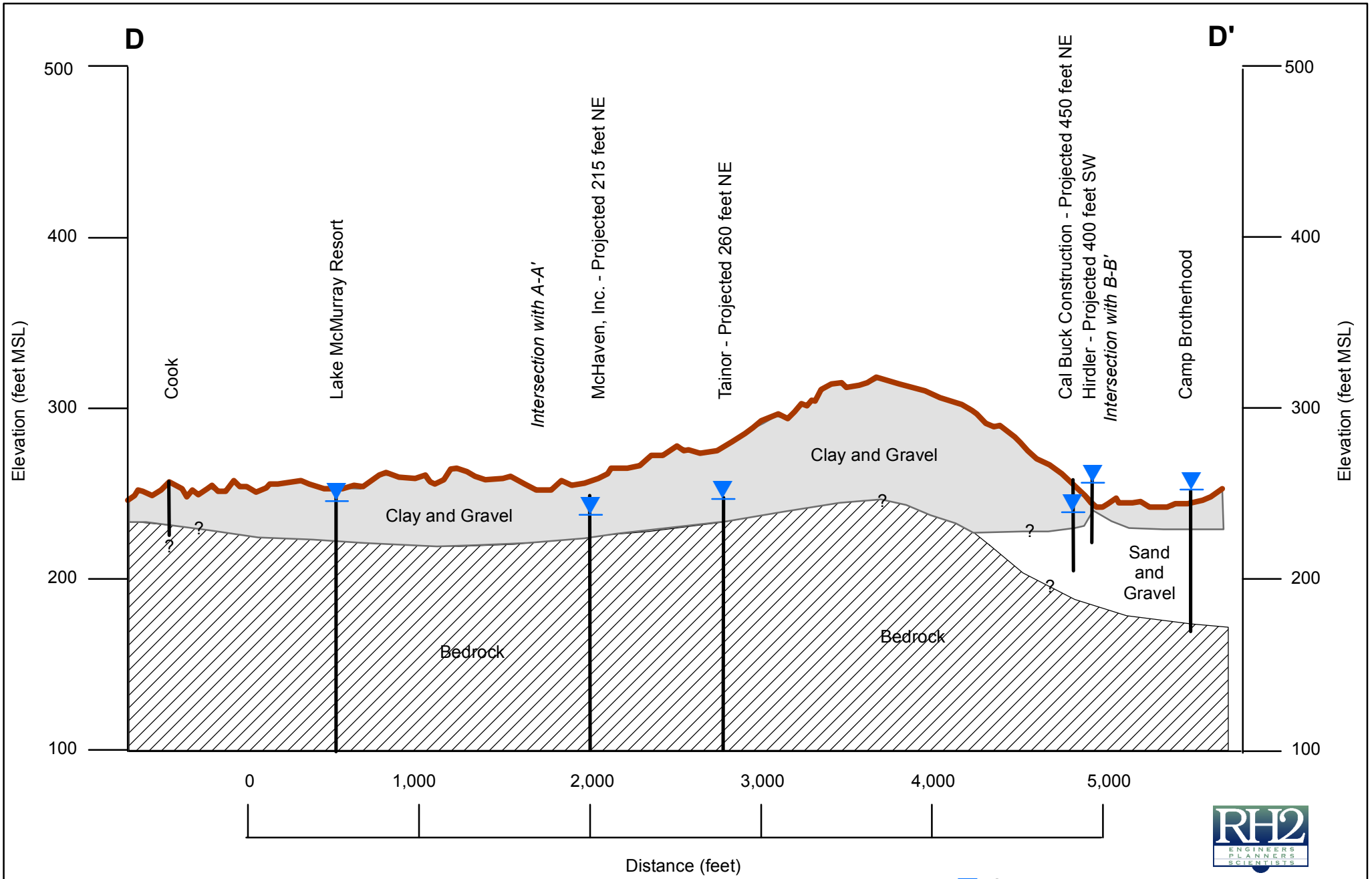

Figure 6. Cross Section D-D'

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September 13, 2013 - ABD

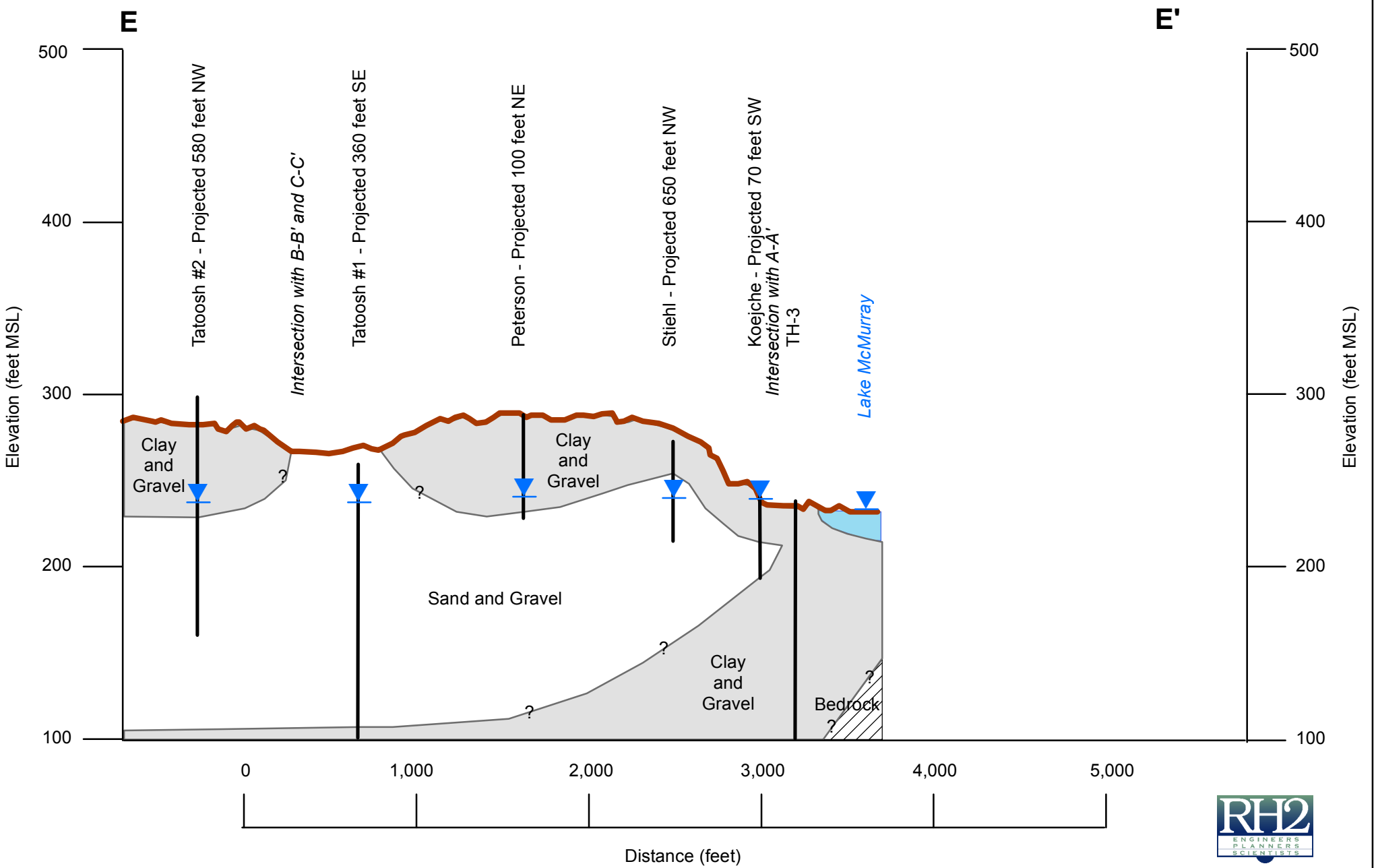

Figure 7. Cross Section E-E'

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September 13, 2013 - ABD

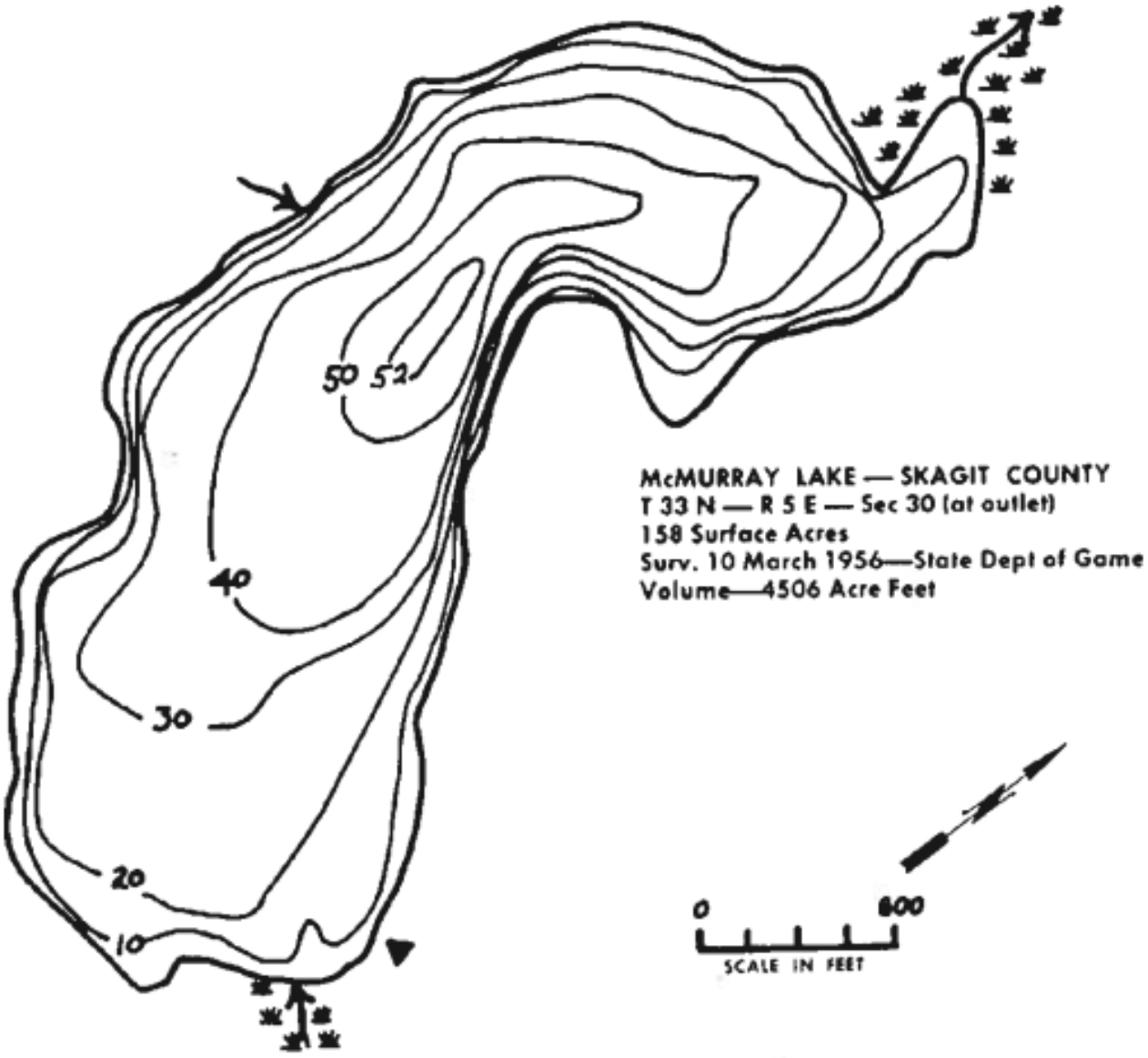


Figure 8. Lake McMurray Bathymetry (Wolcott, 1973)
Depth in Feet

Figure 9. Historic Lake and Wetland Water Levels (Skagit County Public Works)

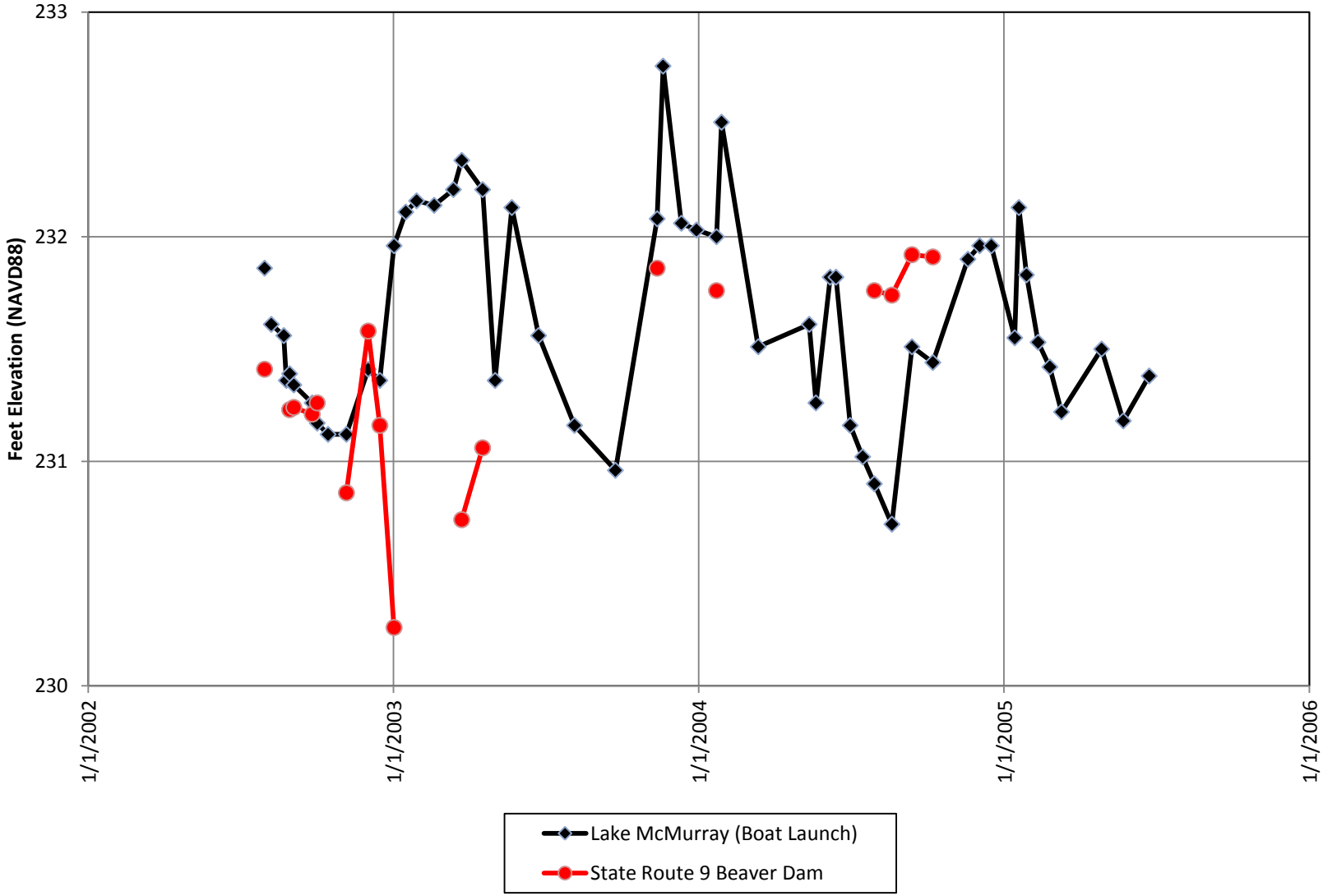


Figure 10. Photo of Lake McMurray Staff Gage and Data Logger Housing.
Logger housing secured behind staff gage by zip ties. Photo taken on July 23, 2013.

Figure 11. Photo of State Route 9 Staff Gage and Data Logger Housing.
Logger housing and locking cap visible behind staff gage. Photo taken on July 23, 2013.

Figure 12. Water Levels and Precipitation Over the Course of the Study

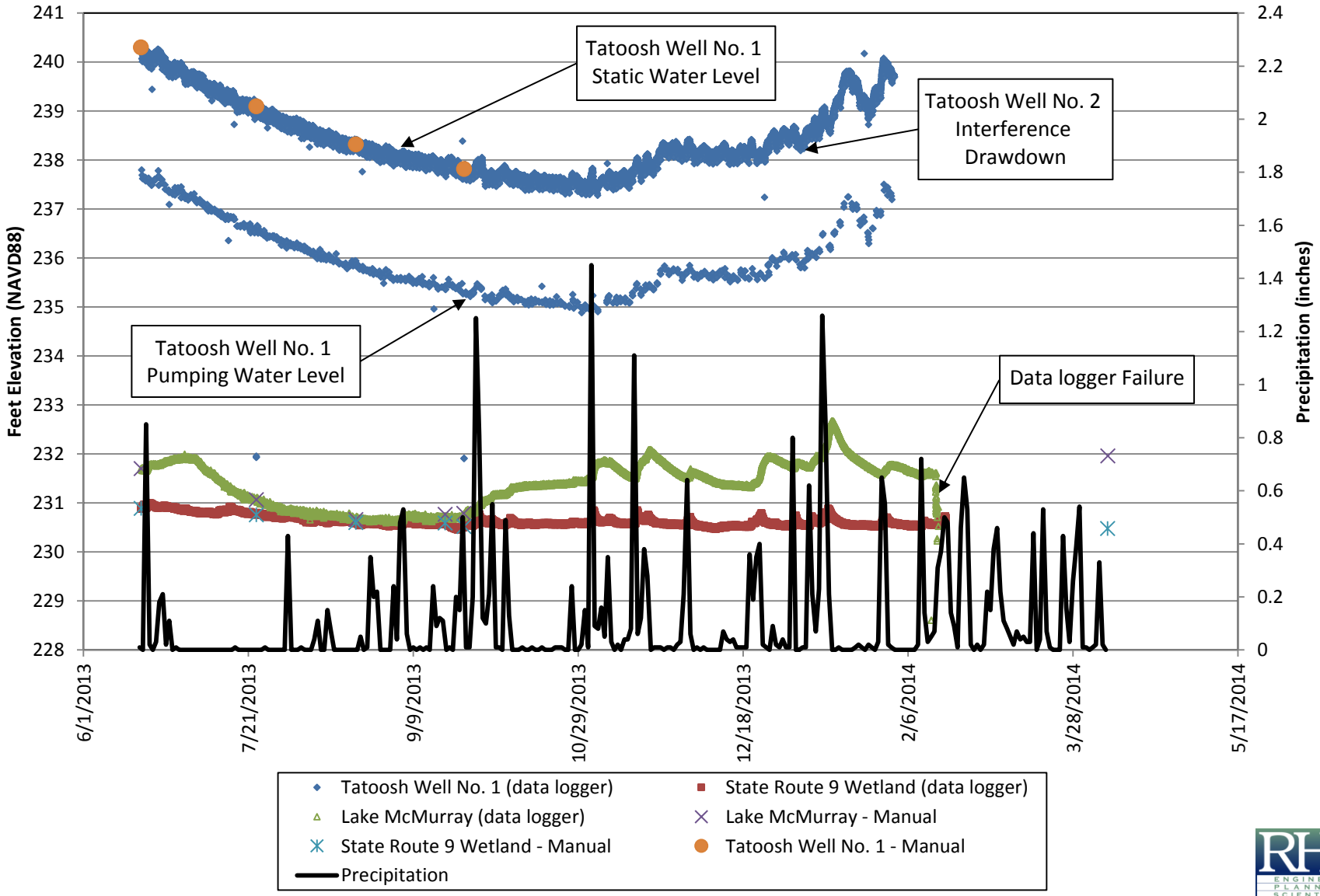


Figure 13. Tatoosh Well No. 1 Water Level Compared to Tatoosh Water Company Well Starts

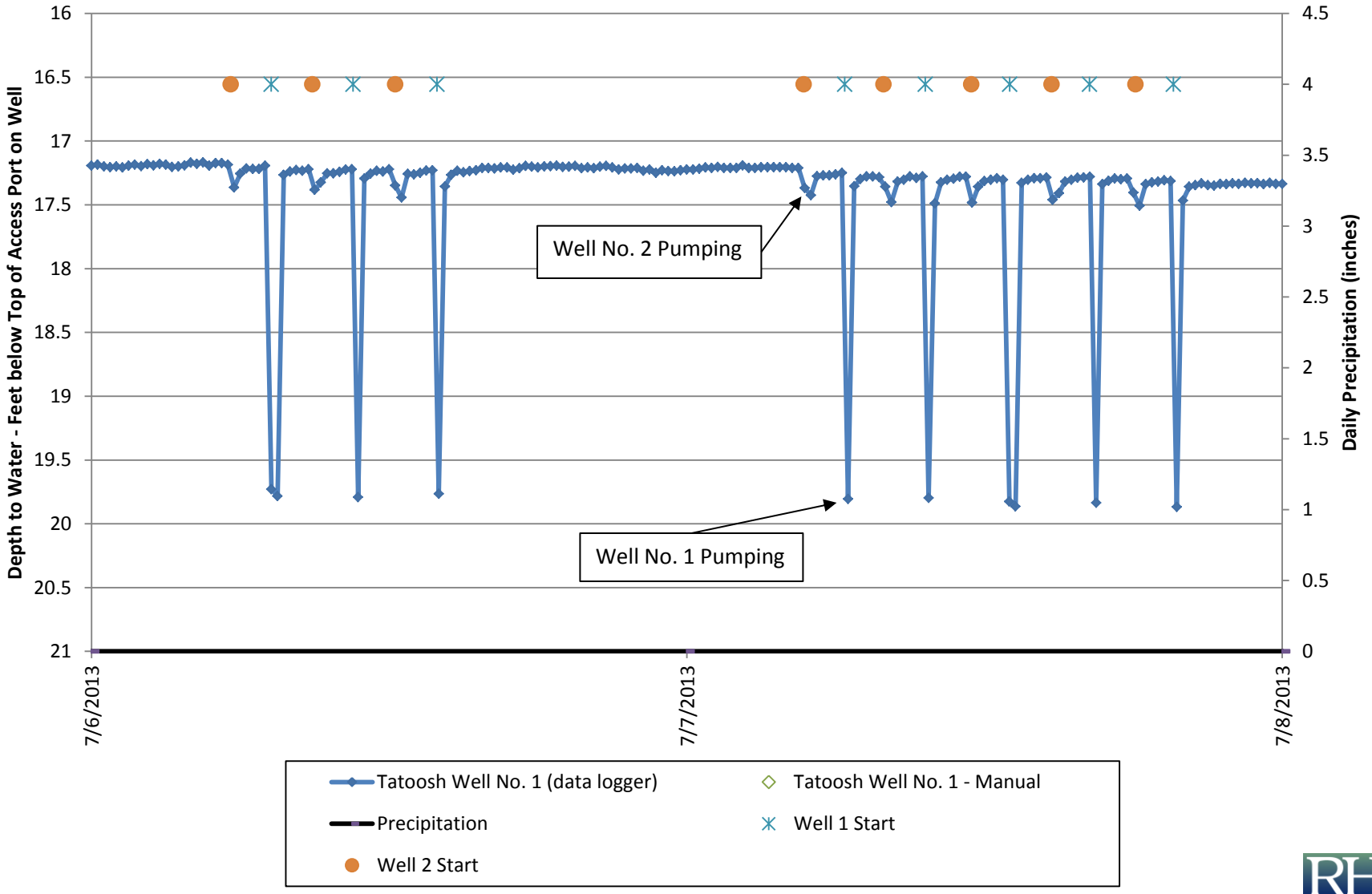


Figure 14.
Water Level Elevations and Potentiometric Surface
August 22, 2013

WRIA 3

WRIA 5

Lake McMurray

Lake McMurray Gage and Data Logger

Cook - M1

Lake McMurray Resort

247.3

McLellan

230.7

TH-3

Kensmoe

236.4

Borbe

Erickson - 1

Erickson - 3

237.4

Hazen

Lomsdalen

Wilson

238.6

238.7

Stiehl

Youngs

238.1

McCool

239.0

Martin

Hassell

Peterson

McHaven, Inc.

Bryant

Tainor

247.1

239.9

Koejche

Hirdler

256.0

260

245 +

250

240

Cal Buck

239.2

Camp Brotherhood

Tatoosh Well No. 1 Data Logger

238.3

230.6

Barologger

Tatoosh Well No. 1

State Route 9 Wetland Gage and Data Logger

Tatoosh Well No. 2

Legend

- Bedrock Wells
- Data Logger
- Located Wells
- Parcel Address Located Wells
- Grimstad (1971) Wells
- Potentiometric Contours
- Approximate Sand and Gravel Aquifer Extent
- Approximate Wetland Discharge Area
- Water Bodies
- Parcels
- WRIA Boundary

N

0 300 600 1,200 1,800 2,400

Feet

Data Sources
Hillshade: Supermosaic (Puget Sound Lidar Consortium)
Parcels: Skagit County
Elevation in NAVD88
Well names from water well logs, not necessarily current owner.

RH2 ENGINEERS PLANNERS SCIENTISTS

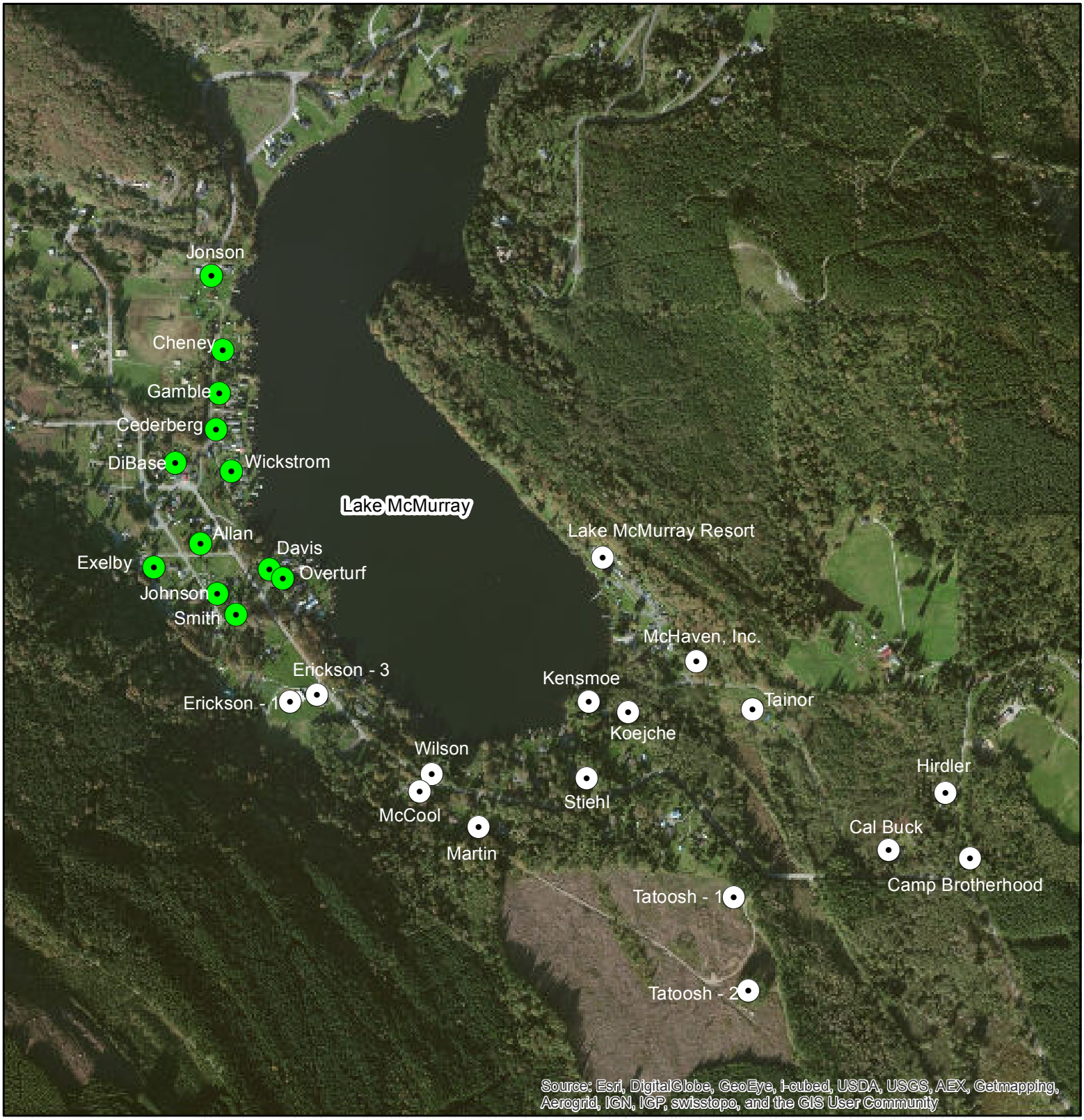


Figure 15. Name and Approximate Location of Well Logs along the Western Side of Lake McMurray

0 0.125 0.25 0.5 0.75 1 Miles

N

Legend

- Southern Wells
- Western Wells

Data Sources:
Aerial Photo: ESRI
Water Well Reports: Department of Ecology
Well names from water well logs, not necessarily current owner.

RH2 ENGINEERS PLANNERS SCIENTISTS

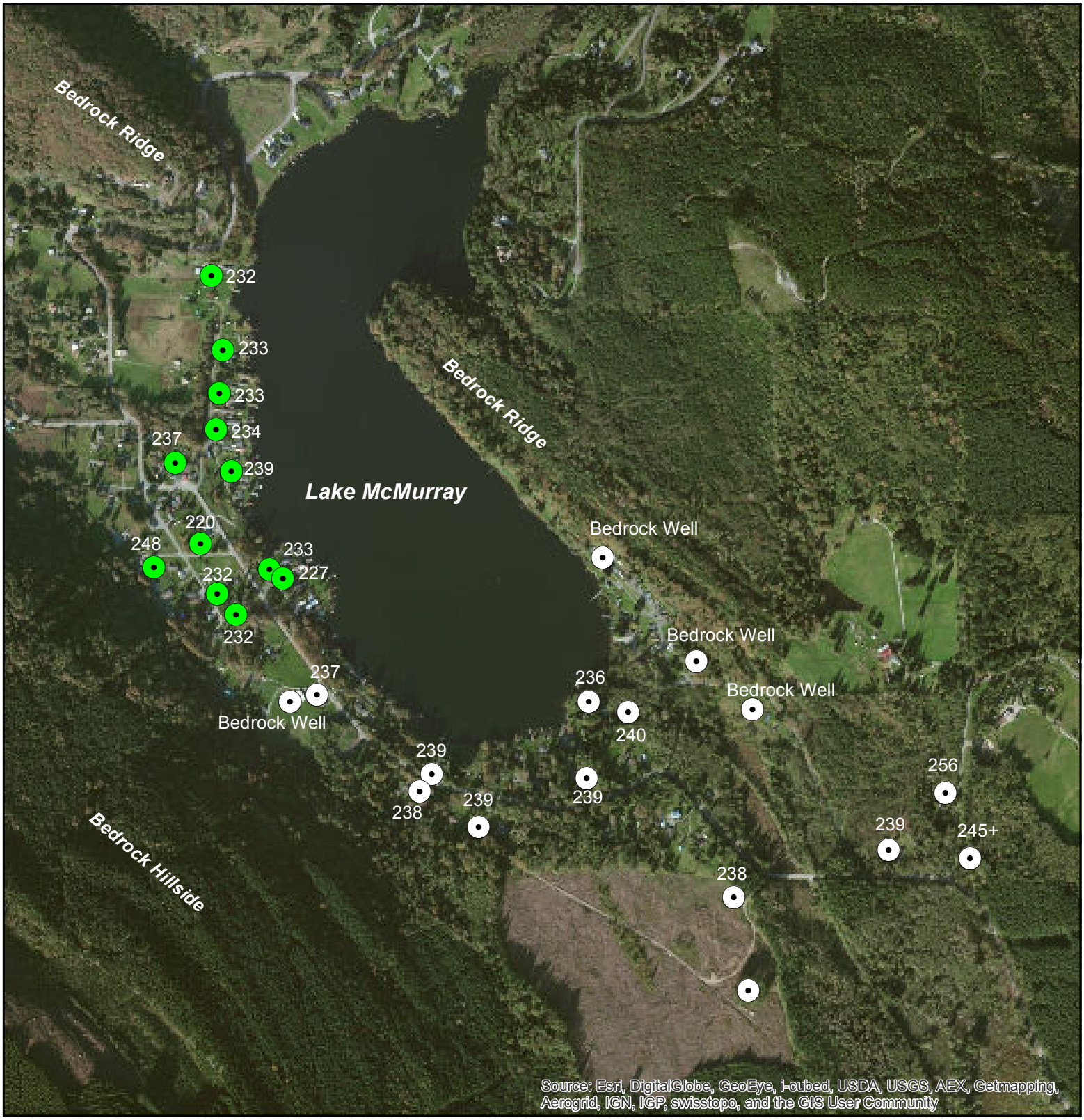


Figure 16. Approximate Groundwater Elevations Including the Western Well Logs

0 0.125 0.25 0.5 0.75 1 Miles

Legend

- Southern Wells
- Western Wells

Sources:
Aerial Photo: ESRI
Western Wells:
Well Logs and Depth to Water: Department of Ecology
Ground Surface Elevation: Google Earth
Southern Wells:
Field Located
Ground Surface Elevation: LiDAR
Elevation in NAVD88, feet.

N

RH2 ENGINEERS PLANNERS SCIENTISTS

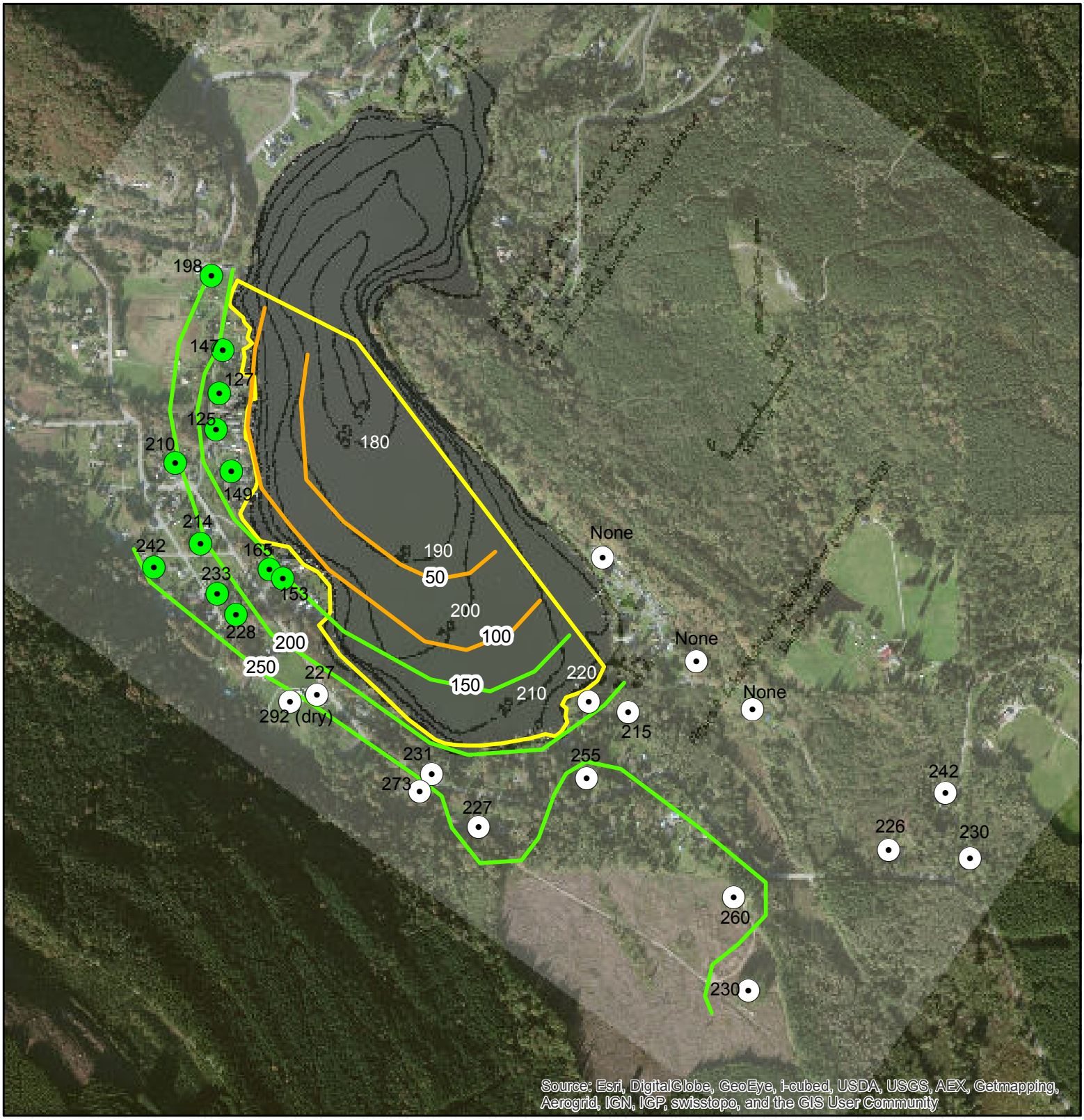


Figure 17. Approximate Elevation of the Bottom of Lake McMurray Compared to the Top of the Sand and Gravel Aquifer

Legend

- Southern Wells
- Western Wells
- Top of Aquifer Elevation
- Top of Aquifer Elevation Extrapolated
- Aquifer Under Lake

0 0.125 0.25 0.5 0.75 1 Miles

N

Data Sources:
Aerial Photo: ESRI
Elevation in NAVD88, feet
Lake Bathymetry (Wolcott, 1973)

RH2 ENGINEERS PLANNERS SCIENTISTS

Appendix A
Water Well Reports

33/03-30C
Application No

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

Permit No. 016708

(1) OWNER: Name Lake McMurray Resort Address 2294 McMurray Lane Mt. Vernon

(2) LOCATION OF WELL: County Skagit NE ¼ SW ¼ Sec 30 T. 33 N., R. 5E 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 300 ft. Depth of completed well 300 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from +3 ft. to 37 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
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ft.
Static level Surface ft. below top of well Date 10/29/87
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:

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	1
Tan clay	1	8
Gray clay	8	30
Brown-gray siltstone	30	98
Brown-gray siltstone - little water	98	99
Gray siltstone	99	123
Brown siltstone & water	123	132
Gray siltstone	132	136
Light gray siltstone & water	136	136½
Gray siltstone	136½	139
Dark gray sandstone & water	139	141
Gray med. sandstone	141	155
Light gray fine sandstone & water	155	208
Light gray med. sandstone	208	211
Light gray fine sandstone	211	212
Light gray med-coarse sandstone	212	215
Dark gray med.-coarse sandstone	215	216
Dark gray siltstone	216	218
Dark gray fine sandstone	218	219½
Dark gray siltstone	219½	227
Light gray siltstone	227	239
Dark gray siltstone	239	240
Coal	240	248
Brown fine sandstone	248	250
Tan light brown fine sandstone	250	252
Gray fine sandstone	252	257
Gray fine-med. sandstone	257	265
Med. to coarse gray sandstone	265	

Work started 10/28, 19 87 Completed 10/29, 19 87

RECEIVED
JAN 14 1988
DEPARTMENT OF ECOLOGY
NORTHWEST REGION

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 556 Ershig Rd. Bow

[Signed] Steve Gilbert
(Well Driller)

License No. 762 Date 1/7, 19 88

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

WATER WELL REPORT
STATE OF WASHINGTON

Start Card No. [redacted]
Water Right Permit No.

32/5/30m

(1) OWNER: Name MCHAVEN INC, JOE ZIPP Address 2290 LAKE MCMURRAY MT VERNON, WA 98273-

(2) LOCATION OF WELL: County SKAGIT - NW 1/4 SW 1/4 Sec 30 T 33 N., R 5E WM

(2a) STREET ADDRESS OF WELL (or nearest address) 2290 LAKE MCMURRAY LN

(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 220 ft. Depth of completed well 220 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Dia. from +3 ft. to 37 ft.
WELDED " Dia. from ft. to ft.
" Dia. from ft. to ft.

Perforations: YES
Type of perforator used AIR ROTARY PERF
SIZE of perforations 1/4 in. by 1 in.
15 perforations from 20 ft. to 24 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 BENTONITE
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 above mean sea level ... ft.
Static level 11 ft. below top of well Date 10/01/92
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 1 gal/min. w/ stem set at 218 ft. for 1 hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? 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 in formation.

MATERIAL	FROM	TO
TOPSOIL	0	2
BROWN SAND & SILT & GRAVEL	2	19
GRAY CLAY & SILT & GRAVEL	19	22
GRAY CLAY	22	23
GRAY SILTSTONE	23	32
GRAY SANDSTONE	32	54
GRAY SILTSTONE & WATER	54	62
GRAY SANDSTONE	62	65
GRAY SILTSTONE	65	75
COAL	75	76
GRAY SILTSTONE	76	96
GRAY SANDSTONE	96	103
GRAY SILTSTONE	103	154
BROWN SANDSTONE	154	162
BROWN SILTSTONE	162	204
BROWN SANDSTONE	204	

RECEIVED
OCT 0 8 1992
DEPT. OF ECOLOGY

Work started 09/30/92 Completed 10/01/92

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 10/07/92

WELL SITE MEETS ALL SIGHTING CRITERIA UNDER S.C.C. 12.48.090 AND WAC 173-160 BASED ON INFORMATION SUPPLIED BY THE OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE.

2544

ATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
DIVISION OF WATER RESOURCES

WELL SCHEDULE No. 33/5-30M1

Date 7/21, 1971

Record by PG

Source OBS.

File number

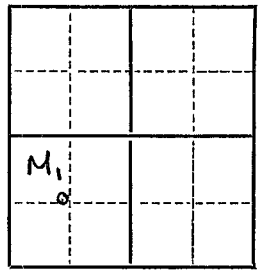


DIAGRAM OF SECTION

1. **Location:** State of WASHINGTON
   County SKAGIT
   Area LK MCMURRAY
   Map CLEAR LAKE
   NW¼ SW¼ sec. 30 T. 33 N., R. 5 E. W.
   Details NW OF HOUSE - AGAINST HILLSIDE.

2. **Owner or Tenant:** MRS. H. COOK (His No.)
   Address

3. **Driller:** Address

4. **Land-surface datum:** 29 ft. above / below LAKE LEVEL
   Topography:

5. **Type:** (Dug) Drilled Driven Bored Jetted **Depth:** Rept. feet Meas. feet
   Date , 19 60

6. **Casing:** Diam. to in. / ft. Type
   Depth ft. Finish

7. **Chief aquifer(s):** from ft. to ft.

8. **Water level:** Rept. Meas. 3.11 ft. 7/21, 1971, ~~above~~ below TOP OF CONCRETE CSG (3') which is 3 ft. (above) / ~~below~~ G.L. datum

9. **Pump:** Type Capacity / Size gal. min.
   Driven by horsepower

10. **Yield:** Flow gal. min. Pump gal. min. Meas. Rept. Est.
    Drawdown ft. after hours pumping gal. min.
    Adequacy, permanence

11. **Use:** Dom. Stock. PS. Ind. Irr. Obs.

12. **Quality:** Sample No. , 19 Temp. °F.
    Taste, color, hardness, sanitation, etc.

13. **Other data:** Log Water levels Draft Pump test Analyses

Turn up (over)

WELL SCHEDULE (Continued)

14. Well Log:

(As necessary, insert headings and use space below for full record. Complete logs should be recorded on separate form for that purpose, but fragmentary logs may be entered here)

	FROM (feet)	TO (feet)

15. Miscellaneous:

(On face of schedule add asterisks to identify topics amplified; use same topic headings here)

BLASTING NECESSARY — PROB. IN THE CHUCKANUT FM)

33-5-313

WATER WELL REPORT

STATE OF WASHINGTON

6803

Start Card No. W104232
Water Right Permit No. AEP479

(1) OWNER: Name BUCK,CAL/C&K CONSTRUCTION Address PO BOX 124 BOW, WA 98232-

(2) LOCATION OF WELL: County SKAGIT - NW 1/4 NE 1/4 Sec 31 T 33 N., R 5E WM
(2a) STREET ADDRESS OF WELL (or nearest address) 23483 SR 9

(3) PROPOSED USE: DOMESTIC

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

(5) DIMENSIONS: Diameter of well 6 inches
Drilled 54 ft. Depth of completed well 52 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Dia. from +2 ft. to 48.5 ft.
WELDED " Dia. from ft. to ft.
" Dia. from ft. to ft.

Perforations: 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
Manufacturer's Name COOK
Type STAINLESS STEEL Model No.
Diam. 6 slot size 18 from 47 ft. to 52 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 BENTONITE
Did any strata contain unusable water? NO
Type of water? Depth of strata ft.
Method of sealing strata off

(7) PUMP: Manufacturer's Name FLINT & WALLING
Type SUBMERSIBLE H.P. 3/4

(8) WATER LEVELS: Land-surface elevation above mean sea level ... ft.
Static level 20.45 ft. below top of well Date 09/16/98
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? YES If yes, by whom? HAYES DRILLING
Yield: 15 gal./min with 1.75 ft. drawdown after 1.5 hrs.

Recovery data
Time | Water Level | Time | Water Level | Time | Water Level

Date of test
Bailer test 14 gal/min. .5 ft. drawdown after .5 hrs.
Air test 30 gal/min. w/ stem set at 50 ft. for 1 hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? YES

(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 in formation.

MATERIAL	FROM	TO
BROWN SAND & GRAVEL	0	4
BROWN SILT SAND & GRAVEL	4	10
GRAY CLAY SILT & GRAVEL	10	18
BROWN GRAVEL SILT & SAND	18	25
GRAY GRAVEL & SAND	25	28
BROWN CLAY & GRAVEL	28	31
BROWN GRAVEL SAND & WATER	31	

RECEIVED
SEP 24 1998
NWRO-WR
DEPT OF ECOLOGY

Work started 09/11/98 Completed 09/11/98

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 5694 ERSWIG RD BOW WA

[SIGNED] [signature] License No. 2189

Contractor's Registration No. HAYESDI106J5 Date 09/17/98

WELL SITE MEETS ALL SIGHTING CRITERIA UNDER S.C.C. 12.48.090 AND WAC 173-160 BASED ON INFORMATION SUPPLIED BY THE OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE.

6470

WATER WELL REPORT
STATE OF WASHINGTON

Start Card No. 207892
Water Right Permit No.

33/5E/31D

(1) OWNER: Name LOMSDALEN, CHUB Address 638 WORLINE RD BOW, WA 98232-

(2) LOCATION OF WELL: County SKAGIT - NW 1/4 NW 1/4 Sec 31 T 33 N., R 5E WM

(2a) STREET ADDRESS OF WELL (or nearest address) 2325 A HWY 9

(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 58 ft. Depth of completed well 58 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Dia. from +2 ft. to 58 ft.
WELDED " Dia. from ft. to ft.
" Dia. from ft. to ft.

Perforations: 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: 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 BENTONITE
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 SUBMERSIBLE H.P. 1/2

(8) WATER LEVELS: Land-surface elevation above mean sea level ... ft.
Static level 34 ft. below top of well Date 12/22/92
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 50 gal/min. w/ stem set at 54 ft. for 1 hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? 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 in formation.

MATERIAL	FROM	TO
BROWN GRAVEL SAND	0	19
BROWN SAND	19	21
BROWN GRAVEL SAND	21	37
BROWN SAND GRAVEL & WATER	37	40
BROWN GRAVEL SAND & WATER	40	50
BROWN SAND GRAVEL & WATER	50	53
BROWN GRAVEL SAND & WATER	53	

RECEIVED
JUL 16 1993
DEPT. OF ECOLOGY

Work started 12/22/92 Completed 12/22/92

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] _____ License No. 1825

Contractor's Registration No. HAYESDI106J5 Date 07/14/93

WELL SITE MEETS ALL SIGHTING CRITERIA UNDER S.C.C. 12.48.090 AND WAC 173-160 BASED ON INFORMATION SUPPLIED BY THE OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE. 2906

ENTERED

33/5/31 B

Start Card No. 53176

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

UNIQUE WELL I.D. #

Water Right Permit No.

(1) **OWNER:** Name Dave + Kathy Hirdler Address 2328 Legge Rd MT VERNON

(2) **LOCATION OF WELL:** County SKAGIT - NW 1/4 NE 1/4 Sec 31 T. 33 N., R. 5 W.M.

(2a) **STREET ADDRESS OF WELL** (or nearest address) 2328 Legge Rd MT VERNON

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

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

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

(5) **DIMENSIONS:** Diameter of well 6 inches. Drilled 43 feet. Depth of completed well 42 ft.

(6) **CONSTRUCTION DETAILS:**

Casing Installed: 6 " Diam. from 1½ ft. to 42 ft.
Welded ☐ Liner Installed ☐ Threaded ☐ " Diam. from ft. to ft.
" 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
Type: H.P.

(8) **WATER LEVELS:** Land-surface elevation above mean sea level ft.
Static level 13 ft. below top of well Date 28 OCT 94
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 60 gal./min. with stem set at 40 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
BROWN SAND + CLAY	0	3
BROWN SAND, S. IT, GRAVEL	3	10
BROWN SAND/GRAVEL / CLAY	10	23
GREY SAND + GRAVEL	23	43

RECEIVED
WATER
NOV - 1 1994
DEPT OF ECOLOGY

Drilled in Compliance with SCC 12-48 Based on information supplied by owner

Greg Halvorsen

Work Started 28 OCT 94 Completed 28 OCT 94 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 AFFORDABLE WATER SYSTEMS (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 1196 VALENTINE Rd MTVERNON

(Signed) Greg Halvorsen (WELL DRILLER) License No. 1617

Contractor's Registration No. AFFORWS 101 RJ Date 28 OCT 94 19

(USE ADDITIONAL SHEETS IF NECESSARY)

ECL 050-1-20 (2/93)

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

8648 64418

WATER WELL REPORT
STATE OF WASHINGTON

Start Card No W117656
AFJ 853

(1) OWNER Name TRAINOR, DOUG Address 23054 LK MC MURRAY LN MT VERNON, WA 98274-

(2) LOCATION OF WELL County SKAGIT - NW 1/4 NE 1/4 Sec 31 T 33 N , R 5E WM
(2a) STREET ADDRESS OF WELL (or nearest address) 23054 LK MC MURRAY LN

RECEIVED NOV 17 21 07
DEPT OF ECOLOGY
FISCAL & BUDGET

33-5E-31B

(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 262 ft Depth of completed well 261 5 ft.

(6) CONSTRUCTION DETAILS:
Casing installed 6 " Dia from +3 ft to 28 ft
WELDED 4 " Dia from -15 ft to 251 5 ft
liner installed " Dia from ft to ft

Perforations: 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
Manufacturer's Name MONOFLEX
Type PVC Model No
Diam 4 slot size 10 from 251 5 ft to 261 5 ft
Diam slot size from ft to ft

Gravel packed YES Size of gravel 8/12
Gravel placed from 210 ft to 261.5 ft.

Surface seal YES To what depth? 18 ft
Material used in seal BENTONITE
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 above mean sea level ft
Static level 137 ft below top of well Date 11/07/00
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 4 gal/min w/ stem set at 258 ft for 1 5 hrs.
Artesian flow g p.m Date
Temperature of water Was a chemical analysis made? NO

(10) WELL LOG

Formations 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	2
BROWN CLAY SILT	2	13
GRAY SILTSTONE	13	27
GRAY SANDSTONE	27	49
COAL	49	51
GRAY SANDSTONE	51	90
BROWN SANDSTONE	90	92
GRAY SANDSTONE	92	95
BROWN SILTSTONE	95	107
GRAY SANDSTONE	107	228
GRAY CONGLOMERATE	228	250
GRAY CONGLOMERATE & WATER	250	

Well site meets all sighting criteria under S.C.C. 12.48.090 and WAC 173-160 based on information supplied by the owner or owner's authorized repsentative.

RECEIVED
NOV 21 2000
DEPARTMENT OF ECOLOGY
WELL DRILLING UNIT

Work started 11/06/00 Completed 11/07/00

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 5695 EVERSHED RD. BOW, WA

[SIGNED] License No 2189

Contractor's Registration No HAYESDI106JS Date 11/14/00

07166

ATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
DIVISION OF WATER RESOURCES

WELL SCHEDULE No. 33/5-30Q1

Date 9/21, 1971

Record by PG

Source OBS

File number

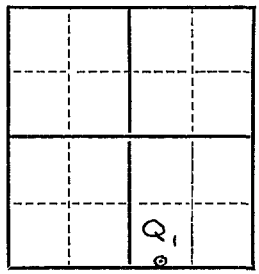


DIAGRAM OF SECTION

1. **Location:** State of WASHINGTON
   County SKAGIT
   Area LK. McMURRAY
   Map CLEAR LK.
   SW¼ SE¼ sec. 30 T. 33 N., R. 5 E. W.
   Details WELL IS W. OF HOUSE

2. **Owner or Tenant:** DR. BRYANT (His No.)
   Address RT 5 MT. VERNON, WA

3. **Driller:** Address

4. **Land-surface datum:** 375± ft. above below SEA LEVEL
   Topography:

5. **Type:** (Dug) Drilled Driven **Depth:** Rept. 30± feet
   Bored Jetted Meas. feet
   Date , 19

6. **Casing:** Diam. to in. Type
   Depth ft. Finish

7. **Chief aquifer(s):** from ft. to ft.

8. **Water level:** Rept. Meas. 9.00 ft. 7-21, 1971, ~~above~~ below CSG
   which is 1 ft. above below G.L. datum

9. **Pump:** Type Capacity Size gal. min.
   Driven by horsepower

10. **Yield:** Flow gal. min. Pump gal. min. Meas. Rept. Est.
    Drawdown ft. after hours pumping gal. min.
    Adequacy, permanence

11. **Use:** Dom. Stock. PS. Ind. Irr. Obs.

12. **Quality:** Sample No. 8-5, 1971 Temp. °F.
    Taste, color, hardness, sanitation, etc.

13. **Other data:** Log Water levels Draft Pump test Analyses

Turn up

OVER

WELL SCHEDULE (Continued)

14. Well Log:

(As necessary, insert headings and use space below for full record Complete logs should be recorded on separate form for that purpose, but fragmentary logs may be entered here.)

	FROM (feet)	TO (feet)

15. Miscellaneous:

(On face of schedule add asterisks to identify topics amplified; use same topic headings here)

WELL SUFFICIENT FOR DOM. SUPPLY — CANNOT IRRIGATE LAWN. OWNER MENTIONS BLUE STAINING IN TOILET & WHERE WATER DRIPS — CU ?
RD. CBLES & PBLS SUGGEST WEATHERED TILL OR OUTWASH.

33/5E/31 D

WATER WELL REPORT
STATE OF WASHINGTON

Start Card No. 072724
Water Right Permit No.

(1) OWNER: Name BORBE, EDGAR Address 10327 51ST AVE.S SEATTLE, WA 98278-

(2) LOCATION OF WELL: County SKAGIT - NW 1/4 NW 1/4 Sec 31 T 33 N., R 5 WM
(2a) STREET ADDRESS OF WELL (or nearest address) 2327 HWY 9 MT. VERNON

(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 44 ft. Depth of completed well 44 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Dia. from 0 ft. to 44 ft.
WELDED " Dia. from ft. to ft.
" Dia. from ft. to ft.

Perforations: 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: 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 BENTONITE
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 above mean sea level ... ft.
Static level 1 ft. below top of well Date 08/21/91
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 30 gal/min. 20 ft. drawdown after hrs.
Air test gal/min. w/ stem set at ft. for hrs.
Artesian flow g.p.m. Date 08/21/91
Temperature of water Was a chemical analysis made?

(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 in formation.

MATERIAL	FROM	TO
BROWN CLAY GRAVEL	0	18
WATER GRAVEL	18	24
BLUE CLAY GRAVEL	24	33
BLUE CLAY GRAVEL WATER	33	40
CLEAN GRAVEL WATER	40	44

Work started 08/21/91 Completed 08/21/91

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 DAHLMAN PUMP & WELL DRILL
(Person, firm, or corporation) (Type or print)

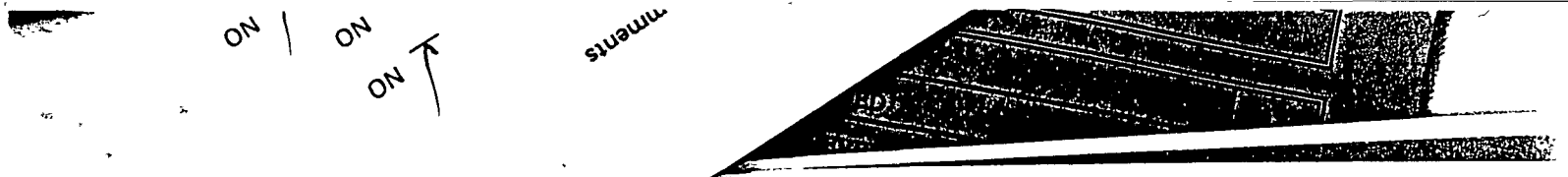
ADDRESS PO BOX 422,BURLINGTON, WA

[SIGNED] Ted Rickets License No. 0623

Contractor's Registration No. DAHLMPW123LC Date 08/22/91

AUG 29 1991

DEPT. OF ECOLOGY



Company 87189 Well #1 Source, S01

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. _____

Owner's Copy
Copy—Driller's Copy

Water Right Permit No. _____

(1) OWNER: Name Foothills Investment Address P.O. Box 247 Arlington Wash. 982

(2) LOCATION OF WELL: County _____ ¼ ¼ Sec. T. N., R. W

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

(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 12 inches. Drilled 160 feet. Depth of completed well 160 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 12 " Diam from +2 ft. to 158 ft
Welded ☒ Liner installed ☐ Threaded ☐ _____ " Diam. from _____ ft. to _____ ft.
_____ " Diam from _____ ft. to _____ ft.

Perforations: Yes ☒ No ☐
Type of perforator used Mills Knife
SIZE of perforations 3/8 in. by 2½ in
420 perforations from 70 ft to 140 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? _____ ft
Material used in seal _____
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
Static level 17 ft. below top of well Date 9/14/71
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? Driller
Yield 1000 gal./min with 151' ft. drawdown after 24 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) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTIC

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

MATERIAL	FROM	TO
gravel (dry)	0	37
coarse sand + gravel + water	37	58
Layers of sand + gravel	58	65
sand + gravel	65	80
Loose gravel	80	110
gravel	110	143
Fine sand	143	151
blue clay	151	153
gravel	153	160

87189 S01

TATOOSH WATER COMPANY PWS 87189 SRC. 01
SNOHOMISH Long -122 21684 Lat 48 30788
Well Tag: ABR276

Work started 8/24/71, 19 Completed 9/14/71, 19

WELL CONSTRUCTOR CERTIFICATION:

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

NAME Kounkel Well Drilling (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 997 N. Smith Rd. Camano Is. Wa

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

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

33/5E 31/A

WATER WELL REPORT

STATE OF WASHINGTON

Application No. [illegible] 11902

~~33/05-31A~~

Permit No. G1-00113P

(1) OWNER: Name Foothills Investment Company for Camp Brotherhood Address Grand Central on the Park Seattle, Washington 98104

(2) LOCATION OF WELL: County Skagit NE ¼ NE ¼ Sec. 31 T. 33 N., R. SE W.M.

Bearing and distance from section or subdivision corner 1170' S and 1170'W of NE corn. Sec 31

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

(4) TYPE OF WORK: Owner's number of well (If more than one) #3 (4-B)

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

(5) DIMENSIONS: Diameter of well 8 inches.
Drilled 75 ft. Depth of completed well 75 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8 " Diam. from 0 ft. to 75 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☐ " Diam. from ft. to ft.

Perforations: Yes ☒ No ☐
Type of perforator used Mills
SIZE of perforations 1.5 in. by .375 in.
20 perforations from 15 ft. to 65 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? 15 ft.
Material used in seal
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off 7 Sack Mix Cement

(7) PUMP: Manufacturer's Name Red Jacket Pump Co.
Type: Submersible HP 7½

(8) WATER LEVELS: Land-surface elevation above mean sea level ft.
Static level ft. below top of well Date 5/12/71
Artesian pressure 3 lbs. per square inch Date 5/12/71
Artesian water is controlled by Cap (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? Driller
Yield: 1350 gal./min. with 17 ft. drawdown after 8 hrs.
1350 " 17 "
" " "

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	17				
01	3				

Date of test 5/12/71
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow 270 g.p.m. Date 5/12/71
Temperature of water 46 Was a chemical analysis made? Yes ☒ No ☐

(10) WELL LOG: 33/05-31A

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
Hard pan	0	15
Coarse gravel + water	15	70
Sandstone	70	?

Work started 4/29, 19 71 Completed 5/12, 19 71

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 Kunkel Well Drilling (Person, firm, or corporation) (Type or print)

Address 7914 Smith Rd Camano Is Wa 98292

[Signed] A G Kunkel (Well Driller)

License No. 247 Date Oct 13, 19 74

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7358—OS—(Rev. 4-71).

File Original and First Copy with the Division of Water Resources
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT 19957

STATE OF WASHINGTON

Application No. 3/25/31D

Permit No. .....

(1) OWNER: Name Glenn Wilson Address 10533-41st N.E. Seattle

(2) LOCATION OF WELL: County SKAGIT — NW¼ NW¼ Sec 31 T 33 N., R 5 E W.M.

Bearing and distance from section or subdivision corner BERGMANS LAKE McMURRY TRACTS #5

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

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

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 69 ft. Depth of completed well 69 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Diam. from 1 ft. to 69 ft.
Threaded [ ] " Diam. from ... ft. to ... ft.
Welded [X] " 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 [X] No [ ] Manufacturer's Name Houston Well Screen
Type Stainless Model No. ...
Diam. 6 Slot size 30 from 64 ft. to 69 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 [ ] No [X] To what depth? ... ft.
Material used in seal ...
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.
Static level 50 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 15 gal./min. with 5 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
Sand - Silt	0	18
Clay & Gravel	18	29
Cemented Sand & Gravel	29	45
Light brown Silt	45	48
Hardpan	48	54
Sandy Clay	54	59
Sand & Gravel	59	69

NOV 30 11 08 AM '71 DEPT. OF ECOLOGY

Work started 11-15 19 71 Completed 11-22 19 71

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 DAHLMAN PUMP & DRILLING
(Person, firm, or corporation) (Type or print)

Address P. O. Box 422, Burlington 98233

[Signed] Ralph C. Johnson (Well Driller)

License No. 223-02-7387 Date 11-30 19 71

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—(Rev. 2-66)—2-66—5M. 4516.

File Original and First Copy with Department of Ecology
Second Copy -- Owner's Copy
Third Copy -- Driller's Copy 33/5F/31/C

WATER WELL REPORT
STATE OF WASHINGTON

Application No. 33/05-31C
Permit No.

(1) OWNER: Name Hassell, Harriett Address 2320 STATE Hwy 9, MtVernon Wash.

(2) LOCATION OF WELL: County SKAGIT — NE¼ NW¼ Sec. 31 T. 33 N., R. E 5 W.M.
Bearing and distance from section or subdivision corner BEARING N53° 09' E 1500' FROM SW CORNER GOV'T LOT 2.

(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 88 ft. Depth of completed well 88 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Diam. from 0 ft. to 88 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 Jacuzzi Bro.
Type: Sub H.P. 3/4

(8) WATER LEVELS: Land-surface elevation above mean sea level ft.
Static level 63 ft. below top of well Date 1-3-74
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 30 gal./min. with No 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
Clay, brown and rock	0	7
Cemented Gravel	7	69
Gravel, Water bearing	69	88
Gravel and Sand	88	

Work started 12-20-73 19 Completed 1-2-74 19

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 DAHLMAN PUMP & DRILLING
(Person, firm, or corporation) (Type or print)

Address Burlington 98233

[Signed] R. C. Johnson
(Well Driller)

License No. 223-02-7387 Date 6-3-74 19

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71).

052821

181876

11668

WATER WELL REPORT
STATE OF WASHINGTON

Start Card No. **W189665**
AKB 137

(1) OWNER: Name **STIEHL, JOHN** Address **2302 E SUNSET DRIVE BELLINGHAM, WA 98226-**

(2) LOCATION OF WELL: County **SKAGIT** - **NW** 1/4 **NW** 1/4 Sec **31** T **33** N., R **5E** WM

(2a) STREET ADDRESS OF WELL (or nearest address) **23225 HWY 9**

(3) PROPOSED USE: **DOMESTIC**

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

(5) DIMENSIONS: Diameter of well **6** inches
Drilled **60** ft. Depth of completed well **57** ft.

(6) CONSTRUCTION DETAILS:
Casing installed: **6** " Dia. from **+3** ft. to **57** ft.
WELDED " Dia. from ft. to ft.
" Dia. from ft. to ft.

Perforations: **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: **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 **BENTONITE**
Did any strata contain unusable water? **NO**
Type of water? Depth of strata ft.
Method of sealing strata off

(7) PUMP: Manufacturer's Name **FLINT & WALLING**
Type **SUBMERSIBLE** H.P. **3/4HP**

(8) WATER LEVELS: Land-surface elevation above mean sea level ... ft.
Static level **39** ft. below top of well Date **09/14/05**
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? **YES** If yes, by whom? **HAYES DRILLING**
Yield: **13** gal./min with **9** ft. drawdown after **2** 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 **15** gal/min. w/ stem set at **55** ft. for 1 hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? **YES**

(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 in formation.

MATERIAL	FROM	TO
TOPSOIL	**0**	**2**
BROWN SAND CLAY & GRAVEL	**2**	**12**
BROWN CLAY & GRAVEL	**12**	**18**
GRAY SAND & GRAVEL	**18**	**25**
GRAY GRAVEL & SAND	**25**	**40**
GRAVEL & SAND & WATER	**40**	

RECEIVED
OCT 0 5 2005
DEPARTMENT OF ECOLOGY
WELL DRILLING UNIT

Well site meets all sighting criteria under S.C.C. 12.48.090 and WAC 173-160 based on information supplied by the owner or owner's authorized representative.

DEPT. OF ECOLOGY FISCAL SECTION OCT 3 AM 9:50

Work started **08/26/05** Completed **08/26/05**

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 **5696 ERSHIG RD BOW, WA**

[SIGNED] Cyl Hayes License No. **2146**

Contractor's Registration No. **HAYESDI106J5** Date 09/19/05

08004

4282O6

33-5E-31C

WATER WELL REPORT

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

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

☒ Construction

○ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

CURRENT

Notice of Intent No. WE 12632

Unique Ecology Well ID Tag No. BBA300

Water Right Permit No. _____

Property Owner Name Jim Koetsche

Well Street Address 23243 Hwy 9

City MT. VERNON County SKAGIT

Location NE 1/4-1/4 NW 1/4 Sec 31 Twn 33 R 5 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. P18337

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 _____ ft. Depth of completed well _____ ft.

CONSTRUCTION DETAILS

Casing Installed: ☒ Welded 6" Diam. from +2 ft. to 45 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 Johnson

Type Stainless Model No. _____

Diam. 5 Slot size 10 from 45 ft. to 50 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 NONE

Type: _____ H.P. _____

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

Static level 5 ft. below top of well Date 11 mar 11

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 18+ 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

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 Sand Clay + Gravel	0	3
Brown Clay + Gravel	3	13
Brown Clay	13	20
Grey Clay + Sand Gravel	20	24
Grey Clay + Gravel	24	30
Grey Sand + Gravel	30	51
Grey Clay	51	

RECEIVED OCT 13 2011 WATER RESOURCES NWRO

Start Date 9 mar 11 Completed Date 11 mar 11

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) Halvorson

Driller/Engineer/Trainee Signature _____

Driller or trainee License No. 1617

Drilling Company Affordable Water Systems

Address 14021 Beaverdam Rd

City, State, Zip Mount Vernon 98273

Contractor's Registration No. AFFORWS101RJ Date 12 mar 11

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

Ecology is an Equal Opportunity Employer

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

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

33-5E-31A

Notice of Intent NA--

UNIQUE WELL I.D. # BBF734

Water Right Permit No.

(1) OWNER: Name Mark Youngs Address 23179 SR9, MtVernon, WA 98274

(2) LOCATION OF WELL: County skagit - NE 1/4 NE 1/4 Sec 31 T. 33 N.,R 5E W.M.

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

TAX PARCEL NO. P77793

(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)
[ ] New Well Method: [ ] Dug [ ] Bored [ ] Deepened [ ] Cable [ ] Driven [ ] Reconditioned [ ] Rotary [ ] Jetted [ ] Decommission
Inspection

(5) DIMENSIONS: Diameter of well 6 inches. Drilled ____ feet. Depth of completed well 48.5 ft.

(6) CONSTRUCTION DETAILS:
Casing Installed:
[X] Welded 6 " Diam. from +1.5 ft. to 48.5 ft.
[ ] Liner installed ____ " Diam. from ____ ft. to ____ ft.
[ ] 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: [ ] 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 ____
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.
Static level 39.4 ft. below top of well Date 12/2/2010
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: 13.6 gal./min. with 2.85 ft. drawdown after .5 hrs.
Yield: 13.6 gal./min. with 2.85 ft. drawdown after 1 hrs.
Yield: 13.6 gal./min. with 2.85 ft. drawdown after 1.5 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
1min	39.55	2 min	39.5	5min	39.4

Date of test 12/2/2010
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 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
Inspection only-Aquatech Well Drilling did not construct this well. Original driller or documents unknown.		

Department of Ecology DEC 23 2010 Water Resources Program - NWRO

Work Started 12/2/2010 , 19. Completed 12/2/2010 , 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 Jason Boyd (Licensed Driller/Engineer) License No. 3098
Trainee Name Jason M. Boyd License No. ____
Drilling Company Aquatech Well Drilling & Pumps Inc.
(Signed) ____ (Licensed Driller/Engineer) License No. 3098
Address 2675 Butler Crk Rd SedroWoolley Wa 98284
Contractor's Registration No. AQUATWD040K4 Date 12/8/2010 , 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.

ATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
DIVISION OF WATER RESOURCES

WELL SCHEDULE No. 33/5-30 P1

Date 7-21, 19 71

Record by P.G.

Source OBS

File number

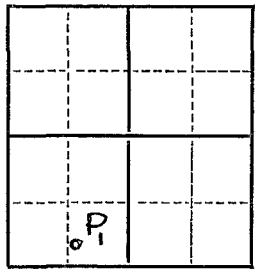


DIAGRAM OF SECTION

1. **Location:** State of WASHINGTON
   County
   Area
   Map
   SE ¼ SW¼ sec. 30 T. 33 N., R. 5 E. W.
   Details

2. **Owner or Tenant:** MC LELLAN (His No.)
   Address RT 5 MT. VERNON, WA.

3. **Driller:** JOHNSON Address

4. **Land-surface datum:** 5 ft. above below LAKE LEVEL
   Topography:

5. **Type:** (Dug) Drilled Driven Bored Jetted **Depth:** Rept. 21 feet
   ~~Meas.~~ feet
   Date , 19

6. **Casing:** Diam. to in. ft. Type
   Depth ft. Finish

7. **Chief aquifer(s):** from ft. to ft.

8. **Water level:** Rept. Meas. 5.16 ft. 7-21, 19 71, above below TOP CONCRETE C96. which is 8" ft. above below datum GL

9. **Pump:** Type Capacity Size gal. min.
   Driven by horsepower

10. **Yield:** Flow gal. min. Pump gal. min. Meas. Rept. Est.
    Drawdown ft. after hours pumping gal. min.
    Adequacy, permanence

11. **Use:** Dom. Stock. PS. Ind. Irr. Obs.

12. **Quality:** Sample No. 8-5, 19 71 Temp. °F.
    Taste, color, hardness, sanitation, etc.

13. **Other data:** Log Water levels Draft Pump test Analyses

Turn up OVER

WELL SCHEDULE (Continued)

14. Well Log:

(As necessary, insert headings and use space below for full record. Complete logs should be recorded on separate form for that purpose, but fragmentary logs may be entered here.)

	FROM (feet)	TO (feet)
Soil		2
Till	2	19(?)
Sand (Tkc = Chuckanut)	19(?)	21

15. Miscellaneous:

(On face of schedule add asterisks to identify topics amplified; use same topic headings here.)

33/5 – 31

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

Application No. .....

Permit No. .....

Mail: 2019 Dry Slough Rd. Mt. Vernon, WA 9827

(1) OWNER: Name Rod Peterson Address .....

(2) LOCATION OF WELL: County Skagit — ¼ ¼ Sec. 31 T. 33 N., R. 5E W.M.

Bearing and distance from section or subdivision corner Tract C - Govt. Lot 1 Lake McMurray

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

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

(5) DIMENSIONS: Diameter of well 6" inches.
Drilled 60 ft. Depth of completed well 60 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6" Diam. from 0 ft. to 60 ft.
Threaded [ ] ..." Diam. from ... ft. to ... ft.
Welded [ ] ..." 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 [ ]
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.
Static level 47 ft. below top of well Date 4-10-81
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 [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 20 gal./min. with 8 ft. drawdown after ... hrs.
Artesian flow ... g.p.m. Date ...
Temperature of water ... Was a chemical analysis made? Yes [ ] No [X]

(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
Top Soil	0	21
Clay & Gravel	2	55
Water & Gravel	55	60

RECEIVED
MAR 15 1983
DEPARTMENT OF ECOLOGY
NORTHWEST REGION

Work started 4-10-81, 19 Completed 4-10-81, 19

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 DAHLMAN PUMP & DRILLING
(Person, firm, or corporation) (Type or print)

Address Box 422 Burlington, WA 98233

[Signed] [signature]
(Well Driller)

License No. 0222 Date 8-12-81, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy 33/5E/31/D

WATER WELL REPORT
STATE OF WASHINGTON

33/05-31D
Application No.
Permit No.

(1) OWNER: Name Ronald Martin Mail Address 410 N. Section, Burlington 98233

(2) LOCATION OF WELL: County Skagit, Lake McMurray — NW¼ NW¼ Sec. 31 T. 33 N., R. 5E W.M.
Bearing and distance from section or subdivision corner West 750' of Gov. Lot 2

(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 83 ft. Depth of completed well 83 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Diam. from 0 ft. to 83 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? ft.
Material used in seal
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.
Static level 63 ft. below top of well Date 8-25-75
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
Baller test 25 gal./min. with 6 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
Topsoil	0	5
Sand & Gravel	5	12
Blue Clay & Gravel	12	34
Hardpan	34	74
Dry Sand & Gravel	74	81
Water & Gravel	81	84

Work started 8-15-75, 19 Completed 8-22-75, 19

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 DAHLMAN PUMP & DRILLING, INC.
(Person, firm, or corporation) (Type or print)

Address Burlington 98233

[Signed] R. C. Johnson
(Well Driller)

License No. 223-02-7387 Date 9-5-75, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71).

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

A) WELL # 4

WATER WELL REPORT

STATE OF WASHINGTON

33/05-31F

Application No. —

Permit No G1-00115P

(1) OWNER: Name Tatoosh Water Address 1624-300th N.W. - STANWOOD, WASH.

(2) LOCATION OF WELL: County SKAGIT - SE ¼ NW ¼ Sec. 31 T. 33 N., R. 5 W.M.

Bearing and distance from section or subdivision corner 150' West & 670' NORTH FROM CENTER OF SECTION

(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 8 inches.
Drilled 135 ft. Depth of completed well ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 8 " Diam. from 0 ft. to 113 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 Johnson
Type Wire Model No 304
Diam. 8 Slot size 100 from 113 ft. to 135 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 bentanite & mud
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.
Static level 60 ft. below top of well Date 5/30/79
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? driller
Yield: 350 gal./min. with 7" drawdown after 24 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
000	60-7				
001	60-0				

Date of test 5/30/79
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water 49 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
Clayey gravel	0	68
coarse gravel with thin streaks of sand	68	135

Work started 5/14, 19 79 Completed 5/30, 19 79

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 Kaunkel Well Drilling (Person, firm, or corporation) (Type or print)

Address 797 N Smith Rd Camano Is Wa 98292

[Signed] A G Kaunkel (Well Driller)

License No. 0247 Date 10/9, 19 80

(USE ADDITIONAL SHEETS IF NECESSARY)

OCT 10 1980

ECY 050-1-20

33-5E-31L

WATER WELL REPORT

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

Construction/Decommission ("x" in circle) 139303

☒ Construction

○ Decommission *ORIGINAL CONSTRUCTION Notice of Intent Number*

CURRENT Notice of Intent No. W167946

Unique Ecology Well ID Tag No. AHH 668

Water Right Permit No. —

Property Owner Name Travis McCool

Well Street Address 231XX SR 9

City Mt Vernon County: Skagit

Location NE 1/4-1/4 SW 1/4 Sec 31 Twn 33 R 5 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. 330531-0-008-0100

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 95 ft

Depth of completed well 95 ft

CONSTRUCTION DETAILS

Casing Installed: ☒ Welded 6" Diam from 0 ft to 92'6" 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

Materials 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 Sta-Rite

Type Sub 10 Gpm 5192000 HP 3/4

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

Static level 73 ft below top of well Date 9-10-03

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 15 gal/min with stem set at 92 ft for 1.5 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	2
Brown clay & silt w/ gravel & rocks	2	11
Gray clay hard gravel & boulders	11	34
Brown coarse gravel with sand	34	95
Water	75	95

RECEIVED
SEP 30 2003
DEPT OF ECOLOGY

Start Date 9-10-03 Completed Date 9-10-03

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) Paul Anderson

Driller/Engineer/Trainee Signature [signature]

Driller or Trainee License No. 1367

If trainee, licensed driller's Signature and License no. ______

Drilling Company Anderson Drilling

Address 6310-145th Dr NE

City, State, Zip Lk Stevens WA 98258

Contractor's Registration No. ANDERDWCK Date 9-10-03

Ecology is an Equal Opportunity Employer ECY 050-1-20 (Rev 4/01)

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

6258 ENTERED

WATER WELL REPORT
STATE OF WASHINGTON

Start Card No. W100009
Water Right Permit No.

(1) OWNER: Name ERICKSON, MAURICE Address 2282 HWY 9 MOUNT VERNON, WA 98273-

(2) LOCATION OF WELL: County SKAGIT - NE 1/4 NE 1/4 Sec 36 T 33 N., R 4E WM
(2a) STREET ADDRESS OF WELL (or nearest address) 2282 HWY 9

33-4-36A

(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 160 ft. Depth of completed well 160 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Dia. from +2.5 ft. to 58 ft.
WELDED " Dia. from ft. to ft.
" Dia. from ft. to ft.

Perforations: 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: 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 BENTONITE
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 above mean sea level ... ft.
Static level NONE ft. below top of well Date 10/13/97
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 gal/min. w/ stem set at ft. for hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? 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 in formation.

MATERIAL	FROM	TO
TOPSOIL	0	1
BROWN SILT SAND & GRAVEL	1	15
BROWN SAND & GRAVEL	15	30
GRAY CLAY SAND & GRAVEL	30	50
GRAY SILTSTONE	50	60
GRAY SANDSTONE	60	

No Water

RECEIV
DEC 0 4
DEPT Of E...

Work started 10/10/97 Completed 10/13/97

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 ERSKIG RD., BOW, WA

[SIGNED] _____ License No. 2189

Contractor's Registration No. HAYESDI106J5 Date 11/11/97

WELL SITE MEETS ALL SIGHTING CRITERIA UNDER S.C.C. 12.48.090 AND WAC 173-160 BASED ON INFORMATION SUPPLIED BY THE OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE.

6177

33-4-36A

WATER WELL REPORT
STATE OF WASHINGTON

Start Card No. W100009
Water Right Permit No.

6258

(1) OWNER: Name ERICKSON, MAURICE Address 2282 HWY 9 MOUNT VERNON, WA 98274-

(2) LOCATION OF WELL: County SKAGIT - NE 1/4 NE 1/4 Sec 36 T 33 N., R 4E WM
(2a) STREET ADDRESS OF WELL (or nearest address) 2282 HWY 9

(3) PROPOSED USE: DOMESTIC

(4) TYPE OF WORK: Owner's Number of well (If more than one) 3
NEW WELL Method: ROTARY

(5) DIMENSIONS: Diameter of well 6 inches
Drilled 79 ft. Depth of completed well 79 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Dia. from +1.5 ft. to 79 ft.
WELDED " Dia. from ft. to ft.
" Dia. from ft. to ft.

Perforations: 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: 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 BENTONITE
Did any strata contain unusable water? NO
Type of water? Depth of strata ft.
Method of sealing strata off

(7) PUMP: Manufacturer's Name FLINT & WALLING
Type SUBMERSIBLE H.P. 3/4

(8) WATER LEVELS: Land-surface elevation above mean sea level ... ft.
Static level 55.50 ft. below top of well Date 11/13/97
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? YES If yes, by whom? HAYES DRILLING
Yield: 17 gal./min with 0.30 ft. drawdown after 1.5 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 gal/min. w/ stem set at ft. for hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? YES

(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 in formation.

MATERIAL	FROM	TO
TOPSOIL	0	1
BROWN SILT & SAND	1	10
BROWN GRAVEL & SAND	10	20
GRAY GRAVEL SAND & SILT	20	41
GRAY SAND & GRAVEL	41	50
GRAY GRAVEL SAND & SILT	50	65
GRAY GRAVEL SAND & WATER	65	

RECEIVED
NOV 24 1997
DEPT. OF ECOLOGY

Work started 11/11/97 Completed 11/12/97

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 ERSKIG RD. BOW, WA

[SIGNED] Tom Barker License No. 1966

Contractor's Registration No. HAYESDI106J5 Date 11/14/97

WELL SITE MEETS ALL SIGHTING CRITERIA UNDER S.C.C. 12.48.090 AND WAC 173-160 BASED ON INFORMATION SUPPLIED BY THE OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE.

6183

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy 33/4E/36/A

WATER WELL REPORT
STATE OF WASHINGTON

Application No. 33/04-36A
Permit No.

(1) OWNER: Name Hazen, Raymond Address 2287 Highway 9 Mount Vernon
Skagit

(2) LOCATION OF WELL: County Skagit Government Lot 1 ¼ Sec. 36 T. 33 N., R. 4E W.M.
Bearing and distance from section or subdivision corner 160 feet from creek 85ft. from middle of Road.

(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 45 ft. Depth of completed well 45 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? 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 Jacuzzi Bro.
Type: Submersible H.P. ½

(8) WATER LEVELS: Land-surface elevation above mean sea level ft.
Static level 28 ft. below top of well Date 4-8-74
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 12 gal./min. with 4 ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG: NE¼ NE¼
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	12
Blue Clay	12	37
Gravel	37	45
AH# 876		

Work started 4-1, 19 74 Completed 4-2, 19 74

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 Dahlman Pump & Drilling (Person, firm, or corporation) (Type or print)
Address Burlington 98233
[Signed] R. C. Johnson (Well Driller)
License No. 223-62-7787 Date 5-7, 19 74

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71).

WA06-0049 P#17858

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

279483

33-4E-25D

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 100 ft. Depth of completed well 100 ft.

CONSTRUCTION DETAILS

Casing Installed: [X] Welded 6" Diam. from 0 ft. to 95 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: [X] Yes [ ] No [ ] K-Pac Location ____

Manufacturer's Name ____

Type STAINLESS STEEL Model No. ____

Diam. 6 Slot size #20 from 95 ft. to 100 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

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 17 ft. below top of well Date 10/1/07

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.

Airtest 75 gal./min. with stem set at 94 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. WE07470

Unique Ecology Well ID Tag No. BAT 119

Water Right Permit No. ____

Property Owner Name JOE DAVIS

Well Street Address 22853 LAKESIDE LANE

City MOUNT VERNON County SKAGIT

Location NW 1/4-1/4 NW 1/4 Sec 25 Twn 33 R 4 EWM [X] Or WWM [ ] Check One

(s, t, r Still REQUIRED)

Lat/Long Lat Deg ___ Lat Min/Sec ___

Long Deg ___ Long Min/Sec ___

Tax Parcel No. (Required) 330425-4-052-0005

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
TOPSOIL AND GRAVEL	0	1
GRAVEL AND BROWN SAND	1	3
BROWN CLAY	3	9
GRAVEL COBBLES SAND & BROWN CLAY	9	20
GRAVEL SAND AND GREY CLAY	20	52
GREY CLAY SAND AND GRAVEL	52	65
GRAVEL SAND AND BROWN SILT	65	85
GRAVEL SAND AND WATER	85	100
WELL LOCATED ACCORDING TO SKAGIT COUNTY ORDINANCE #12.48		

AT 165 AQ

85 ft of fines

GS ~ 150

DDW = 17

WL elev 233

RECEIVED OCT 23 2007 DEPT. OF ECOLOGY

Start Date 10/1/07 Completed Date 10/1/07

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 [signature]

Driller or trainee License No. 2043

IF TRAINEE: Driller's License No: ____

Driller's Signature: ____

Drilling Company DAHLMAN PUMP & WELL DRILLING INC

Address P O BOX 422

City, State, Zip BURLINGTON, WA, 98233

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

ECY 050-1-20 (Rev 4/07)

Ecology is an Equal Opportunity Employer

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

P17253 — 22565 Hull Rd — 33/4c/25/K

WATER WELL REPORT

STATE OF WASHINGTON

Application No. 33/64-25K

Permit No. .....

(1) OWNER: Name Robert Chaney Address 2255 Hull Rd. Lake Mc Murray

(2) LOCATION OF WELL: County Skagit ¼ ¼ Sec. 25 T. 33 N., R. 4 W.M.

Bearing and distance from section or subdivision corner 169 ft South of N line of Gov lot 4

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

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

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 90 ft. Depth of completed well 88 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: ..." Diam. from ... ft. to ... ft.
Threaded [ ] ..." Diam. from ... ft. to ... ft.
Welded [X] 6" Diam. from +1 ft. to -88 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? 20 ft.
Material used in seal Cement Grout
Did any strata contain unusable water? Yes [X] No [ ]
Type of water? Salt Depth of strata 21 ft.
Method of sealing strata off Cement Grout

(7) PUMP: Manufacturer's Name Goulds
Type: Submersible H.P. ½

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 6" ft. below top of well Date 7-7-73
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 40 gal./min. with 30 ft. drawdown after 2 hrs.
Artesian flow ... g.p.m. Date ...
Temperature of water ... Was a chemical analysis made? Yes [X] 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
Top soil	0'	1'
Clay & silt	1'	5'
Water sand & silt	5'	7ft.
Clay blue	7'	86'
Water sand & gravel (coarse)	86'	88'
GS ~ 233		
DTW ~ 0.5		
WL ELEV 232.5		
SC = 1.33 mmhos/cm		

Work started 7-3 19 73 Completed 7-7 19 73

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 RADKE WELL DRILLING
(Person, firm, or corporation) (Type or print)

Address 1432 McCorquodale Rd. Mt. Vernon, Wash.

[Signed] R.O. Radke
(Well Driller)

License No. ... Date 7-16 19 73

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71).

279564

33-4E-25L

11999

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. W246533

APP 119

(1) OWNER: Name **WICKSTROM, PAT** Address **P66165** **MOUNT VERNON, WA**

(2) LOCATION OF WELL: County **SKAGIT** - **NE** 1/4 **SW** 1/4 Sec **25** T **33** N., R **4E** WM

(2a) STREET ADDRESS OF WELL (or nearest address) **22721 HULL ROAD**

(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 **160** ft. Depth of completed well **157.8** ft.

(6) CONSTRUCTION DETAILS:

Casing installed: **6** " Dia. from **+3** ft. to **154.3** ft.

WELDED " Dia. from ft. to ft.

" Dia. from ft. to ft.

Perforations: **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**

Manufacturer's Name **JOHNSON**

Type **STAINLESS STEEL** Model No.

Diam. **6** slot size **18** from **152.8** ft. to **157.8** 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 **BENTONITE**

Did any strata contain unusable water? **NO**

Type of water? Depth of strata ft.

Method of sealing strata off

(7) PUMP: Manufacturer's Name **GOULDS 10LS05**

Type **SUBMERSIBLE** H.P. **1/2**

(8) WATER LEVELS: Land-surface elevation above mean sea level ... ft.

Static level **.33** ft. below top of well Date **11/05/07**

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? **YES** If yes, by whom? **HAYES DRILLING**

Yield: **14.5** gal./min with **15** ft. drawdown after **1.5** hrs.

Recovery data

Time	Water Level	Time	Water Level	Time	Water Level

Date of test

Bailer test **5** gal/min. **10** ft. drawdown after **1** hrs.

Air test gal/min. w/ stem set at ft. for hrs.

Artesian flow g.p.m. Date

Temperature of water Was a chemical analysis made? **YES**

(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 in formation.

MATERIAL	FROM	TO
BROWN SAND & SILT	0	20
BROWN SAND & SILT & WATER	20	40
BROWN CLAY & SAND	40	65
GRAY CLAY & GRAVEL	65	90
GRAY GRAVEL	90	112
GRAY GRAVEL & WATER	112	140
GRAY GRAVEL & WATER	140	152
GRAY SAND & GRAVEL & WATER	152	

AT 149

AQ

RECEIVED
DEC 05 2007
DEPARTMENT OF ECOLOGY
WELL DRILLING UNIT

DEPT. OF ECOLOGY
FISCAL & BUDGET
07 DEC -3 A 9:00

Well site meets all sighting criteria under S.C.C. 12.48.090 and WAC 173-160 based on information supplied by the owner or owner's authorized representative.

Variance attached.

SC = 0.5 to 1

GS-239

Work started **10/23/07** Completed **10/25/07**

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 **5696 ERSHIG RD. BOW, WA**

[SIGNED] License No. **2562**

Contractor's Registration No. **HAYESDI106J5** Date **11/13/07**

08345

Amended 33-4E-25R

WATER WELL REPORT

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

Construction/Decommission *("x" in circle)* 205580

☑ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

CURRENT
Notice of Intent No. WE05377

Unique Ecology Well ID Tag No. AKK099

Water Right Permit No. _____

Property Owner Name DOUG & JUDY OVERTURF

Well Street Address 22957 LAKESIDE LANE

City MOUNT VERNON County SKAGIT

Location SE 1/4-1/4 SE 1/4 Sec 25 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. _____

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 100 ft.
Depth of completed well 100 ft.

CONSTRUCTION DETAILS

Casing Installed: ☑ Welded 6 " Diam. from 0 ft. to 95 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 STAINLESS STEEL Model No. _____
Diam. 6 Slot size 20 from 95 ft. to 100 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 16 ft. below top of well Date 8/2/06
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 50 gal./min. with stem set at 93 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. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
TOPSOIL AND GRAVEL	0	4
BROWN CLAY GRAVELA ND COBBLES	4	21
GREY CLAY AND GRAVEL	21	56
GRAVEL SAND AND GREY CLAY	56	90
GRAVEL COARSE SAND AND WATER	90	100
WELL LOCATED ACCORDING TO SKAGIT		
COUNTY ORDINANCE #12.48		
GS - 293		
DTW = 16		
WL ELEV ~ 227		

AT
AQ 15

RECEIVED
SEP 14 2006
DEPT. OF ECOLOGY

Start Date 8/2/06 Completed Date 8/2/06

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) 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 8/2/06

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.**

KAREN LONG

P75142

11512 198709

WATER WELL REPORT
STATE OF WASHINGTON

Start Card No. W229216
AKB 167

(1) OWNER: Name **JOHNSON, JAMES** Address **22897 FRONT ST MOUNT VERNON, WA 98273-**

(2) LOCATION OF WELL: County **SKAGIT** - **SE** 1/4 **SE** 1/4 Sec **25** T **33** N., R **4E** WM
(2a) STREET ADDRESS OF WELL (or nearest address) **22897 FRONT ST.**

(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 **79** ft. Depth of completed well **77.66** ft.

(6) CONSTRUCTION DETAILS:
Casing installed: **6** " Dia. from **+2** ft. to **74** ft.
WELDED " Dia. from ft. to ft.
" Dia. from ft. to ft.

Perforations: **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**
Manufacturer's Name **JOHNSON**
Type **STAINLESS STEEL** Model No.
Diam. **6** slot size **10** from **72.66** ft. to **77.66** 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 **BENTONITE**
Did any strata contain unusable water? **NO**
Type of water? Depth of strata ft.
Method of sealing strata off

(7) PUMP: Manufacturer's Name **4F10S07 3WIRE**
Type **SUBMERSIBLE** H.P. **3/4**

(8) WATER LEVELS: Land-surface elevation above mean sea level ... ft.
Static level **48** ft. below top of well Date **05/30/06**
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? **YES** If yes, by whom? **HAYES DRILLING**
Yield: **13** gal./min with **3** ft. drawdown after **1** hrs.

Recovery data
Time | Water Level | Time | Water Level | Time | Water Level

Date of test
Bailer test **10** gal/min. **1** ft. drawdown after **1** hrs.
Air test gal/min. w/ stem set at ft. for hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? **YES**

(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 in formation.

MATERIAL	FROM	TO
TOPSOIL	**0**	**1**
BROWN SAND & SILT	**1**	**7**
GRAY SILT GRAVEL & SAND	**7**	**15**
GRAY GRAVEL SAND & SILT	**15**	**20**
GRAY GRAVEL SAND & CLAY	**20**	**29**
GRAY CLAY SILT & GRAVEL	**29**	**39**
BROWN GRAVEL SAND & SILT	**39**	**47**
BROWN GRAVEL SAND & WATER	**47**	

AT 233 AQ

GS ~ 280
DTW = 48
WL ELEV ≈ 232

Well site meets all sighting criteria under S.C.C 12.48.090 and WAC 173-160 based on information supplied by the owner or owner's authorized representative.

SC = 4.3 gpm/ft

RECEIVED
JUN 14 2006
DEPARTMENT OF ECOLOGY
WELL DRILLING UNIT

Work started **05/15/06** Completed **05/17/06**

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 **5696 ERSHIG RD. BOW, WA**

[SIGNED] _____ License No. **2189**

Contractor's Registration No. **HAYESDI106J5** Date **06/06/06**

RECEIVED JUN 12 2006 DEPT. OF ECOLOGY FISCAL & BUDGET

08083

P75139

File Original with Department of Ecology
Second Copy - Owner's Copy
Third Copy - Driller's Copy 63767

WATER WELL REPORT
STATE OF WASHINGTON

ENTERED

Notice of Intent W098067
UNIQUE WELL I.D. # ABD 732
Water Right Permit No.

(1) OWNER: Name MIKE SMITH Address 22913 FRONT ST. MT VERNON

(2) LOCATION OF WELL: County SKAGIT SW 1/4 SE 1/4 Sec 25 T 33 N R 4 WM

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

TAX PARCEL NO. 4145-018-025-0001 33-4E-25Q

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

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

(5) DIMENSIONS: Diameter of well 6 inches
Drilled 65 feet Depth of completed well 63' 3" ft

(6) CONSTRUCTION DETAILS
Casing Installed:
~~Welded~~ 6" Diam. from +2 ft. to 61' 7" ft
☐ Liner installed ____" Diam. from ____ ft. to ____ ft.
☐ Threaded ____" Diam. from ____ ft. to ____ ft.

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

Screens: ~~Yes~~ ☐ No ☐ K-Pac Location ____
Manufacturer's Name JOHNSON
Type SS Model No. ____
Diam 5 Slot Size 12 from 58 ft. to 63 ft
Diam ____ Slot Size ____ from ____ ft. to ____ ft.

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

Surface seal: ~~Yes~~ ☐ No To what depth? 40 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 GOULDS
Type: SUB H.P. 3/4

(8) WATER LEVELS: Land-surface elevation above mean sea level ____ ft.
Static level 50 ft. below top of well Date 19 NOV
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? DAVE & GENE
Yield: 15 gal./min with 4 ft. drawdown after 1 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 ____ ft drawdown after ____ hrs
Artesian flow ____ g p m Date ____
Temperature of water ____ Was a chemical analysis 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
BROWN TOPSOIL	0	2
BROWN CLAY	2	22
GRAY HARD PAN	22	38
BROWN HARD PAN	38	54
SAND & GRAVEL H2O	54	65

AT 22
AQ

GC ~ 282
DIV = 50
WL DIV ~ 232
SC = 3.75

RECEIVED
JAN 11 2000
DEPT OF ECOLOGY
NWRO-WR

Work Started 9 NOV 99 Completed 19 NOV 99

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 DR BATT License No. 2069
(Licensed Driller/Engineer)

Trainee Name ____ License No ____
Drilling Company GENE'S WELL DRILLING
(Signed) Dave Batt License No 0186
(Licensed Driller/Engineer)
Address 315 268th N.W. STANWOOD, WA
Contractor's Registration No GENES WDO71CC Date 11-20 99

(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-[illegible]

ECY 050-1-20 (11/93)

PAPER 95670

WATER WELL REPORT
STATE OF WASHINGTON

HDI # 2990

33/4E/25Q

(1) OWNER: Name EXELBY, ROB Address 2285 COMMERCIAL ST MOUNT VERNON, WA 98273-

(2) LOCATION OF WELL: County SKAGIT - SW 1/4 SE 1/4 Sec 25 T 33 N., R 4E WM

(2a) STREET ADDRESS OF WELL (or nearest address) HOLYOKE ST & COMMERCIAL

(3) PROPOSED USE: DOMESTIC

(4) TYPE OF WORK: Owner's Number of well (If more than one) 2
NEW WELL Method: ROTARY

(5) DIMENSIONS: Diameter of well 6 inches
Drilled 77 ft. Depth of completed well 76.5 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Dia. from +1.5 ft. to 74.5 ft.
WELDED " Dia. from ft. to ft.
" Dia. from ft. to ft.

Perforations: 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
Manufacturer's Name HOWARD SMITH
Type STAINLESS STEEL Model No. KO
Diam. 6 slot size 15 from 71.5 ft. to 76.5 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 BENTONITE
Did any strata contain unusable water? NO
Type of water? Depth of strata ft.
Method of sealing strata off

(7) PUMP: Manufacturer's Name AERMOTOR
Type SUBMERSIBLE H.P. 1/2

(8) WATER LEVELS: Land-surface elevation above mean sea level ... ft.
Static level 59.5 ft. below top of well Date 01/25/94
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? YES If yes, by whom? SORILO SORIA
Yield: 18.5 gal./min with 5.5 ft. drawdown after 2 hrs.

Recovery data

Time	Water Level	Time	Water Level	Time	Water Level

Date of test / /
Bailer test 15 gal/min. 3 ft. drawdown after 1 hrs.
Air test gal/min. w/ stem set at ft. for hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? YES

(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 in formation.

MATERIAL	FROM	TO	
TOPSOIL	0	2	
BROWN SAND SILT	2	14	
BROWN SAND SILT GRAVEL	14	22	
GRAY CLAY GRAVEL	22	36	AT
GRAY GRAVEL SAND	36	54	
GRAY CLAY SAND GRAVEL	54	65	242
BROWN SAND GRAVEL & WATER	65	77	AG
			BR

GS ~ 307
DTW ~ 59.5
WL elev ~ 247.5

RECEIVED
FEB 10 1994
DEPT. OF ECOLOGY

SC = 3.4 gpm/ft

Work started 01/25/94 Completed 01/25/94

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] Ryan Williams License No. 2190

Contractor's Registration No. HAYESDI106J5 Date 02/08/94

WELL SITE MEETS ALL SIGHTING CRITERIA UNDER S.C.C. 12.48.090 AND WAC 173-160 BASED ON INFORMATION SUPPLIED BY THE OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE.

:2104-25K

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

Application No. . .
Permit No . . .

(1) OWNER: Name DiBase, Jeanette Address 2265 Hwy. 9 Mount Vernon 98273

(2) LOCATION OF WELL: County Skagit ¼ ¼ Sec. 25 T. 33 N., R 4E W.M.
Bearing and distance from section or subdivision corner Lots 1 thru 4 Block 10 Town of McMurray Skagit Co.

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

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

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 69 ft Depth of completed well 69 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 64 ft.
Threaded [ ] " Diam. from . . . ft. to . . . ft.
Welded [ ] " 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 [X] No [ ]
Manufacturer's Name Houston Well Screen
Type Stainless Model No.
Diam. 6" Slot size 25 from 64 ft. to 69 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 Cement
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 Jacuzzi
Type: Submersible H.P. 1/2

(8) WATER LEVELS: Land-surface elevation above mean sea level . . . ft.
Static level 33½ ft. below top of well Date 8-31
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 3 gal./min with 30 ft. drawdown after . . . hrs.
Artesian flow . . . g.p.m. Date 8-28-78
Temperature of water . . . Was a chemical analysis made? Yes [ ] No [X]

(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
Dirt and gravel	0	12
Hard pan and gravel	12	60
Course gravel and water	60	69
60 Ft Fines		
SC = 0.27 GPM/Ft		
GS ~ 270		
DW = 33.5		
WL ELEV ~ 236.5		

Work started 8-28 19 78 Completed 8-31 19 78

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 DAHLMAN PUMP AND DRILLING
(Person, firm, or corporation) (Type or print)

Address Burlington 98233

[Signed] R. C. Johnson
(Well Driller)

License No. 0222 Date Sept. 5, 19 78

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

P 66154

Approx 22607 Hull Rd

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

Application No 33/4 — 5

Permit No

(1) OWNER: Name George Gamble Mail: 4022 Stone Way N. Seattle, 98103 Address Hull Rd. Lk., McMurry, 98273

(2) LOCATION OF WELL: County Skagit NE ¼ NE ¼ Sec 25 T 33 N., R. 4 W.M.

Bearing and distance from section or subdivision corner well: 2271 Hull Rd. NW SE

(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 113 ft. Depth of completed well 113 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 108 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 Lee Johnson
Type S' STAINLESS Model No
Diam. 6 Slot size #20 from 108 ft. to 113 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 CEMENT
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.
Static level 1 ft. below top of well Date 7-19-82
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 7 gal./min. with 100 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
Top soil	0	2
Silty blue clay	2	107
Water, gravel and sand	107	113

RECEIVED
OCT 04 1982
DEPT. OF ECOLOGY

GS ~ 234

DTW = 1

WL ELW ~233

SC = 0.079 mhos

Work started July 19 19 82 Completed July 19 19 82

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 DAHLMAN PUMP AND DRILLING (Person, firm, or corporation) (Type or print)

Address P.O. Box 422 Burlington, 98233

[Signed] R C Johnson (Well Driller)

License No 0222 Date July 20 19 82

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

P 66159 22669 Hull Road

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. 072403

Water Right Permit No. _____

(1) OWNER: Name Bill Cederberg Address 5309 204th S W Lynwood Wa. 98036

(2) LOCATION OF WELL: County Skagit SW ¼ NE ¼ Sec. 25 T. 33 N., R. 4 W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) 2283 Hull Rd. Lk McMurry

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

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

(5) DIMENSIONS: Diameter of well 6 inches. Drilled 124 feet. Depth of completed well 124 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Diam. from 0 ft. to 17 ft.
Welded ☑ Liner installed ☐ Threaded ☐ _____ " Diam. from _____ ft. to _____ ft.
_____ " 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 _____
Type: _____ H.P. _____

(8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.
Static level 1 ft. below top of well Date 3-8-90
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 ☑ 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 110 ft. drawdown after _____ hrs.
Airtest 5GPM gal./min. with stem set at 119 ft. for _____ 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	4
Silty Blue Clay	4	75
Blue Clay & Gravel	75	110
Gravel & Water	110	124

GS ~ 235

DTW = 1

WL elev ~ 234

SC = 0.05 m/d

RECEIVED
MAR 27 1990
DEPARTMENT OF ECOLOGY
NORTHWEST REGION

Work started 3-8- 19 90 completed 3-8- 19 90

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 Dahlman Pump & Well Drilling Inc. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address P O Box 422 Burlington Wa. 98233

(Signed) Ed Riechers (WELL DRILLER) License No. 0623

Contractor's Registration No. DAHLMPW123LC Date 3-8- 19 90

(USE ADDITIONAL SHEETS IF NECESSARY)

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

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

SC Well ID: 1339	DOE Well ID:	Unique Well ID:	NOI023236	Water Right Permit #

Owner

Last Name	First Name	Organization	Road	City	State	Zip
JONSON	LOWELL		P O BOX 323	SULTAN	WA	98294

Location

Parcel	Road	City	Zip	Q2	Q1	S	T	R	Elevation
P17245	2239 HWY 9	Mount Vernon	98273	NW	NW	30	33	5	

Dimensions

Diameter	Depth	CompletedDepth
6	40	40

Water Levels

Flow	Measured By	Depth	Measured Date
		5	19880824

Work

Proposed Use	Work Type	Method	Owners Well Number	Started	Completed
Domestic	New Well	Rotary		19880824	19880824

Casing

Connection Method	Diameter	Top	Bottom
	6	0	40

Perforation

Type	Size	Quantity	Top	Bottom

Screens

Manufacturer	Type	Model	Diameter	Slotsize	Top	Bottom

Pump

Manufacturer	Type	Horsepower

Gravel Pack

Size	Top	Bottom

Surface Seal

Depth	Seal	Method
18	BENTONITE	

Unusable Water

Water Type	Depth	Method

Temperature Reading

Temperature	Date Measured	Measured By

Artesian Pressure

Pressure	Measured Date	Controlled By

Well Tests

Type	Yield (gpm)	Drawdown/Stemset Hours	Measured By	Measured Date
Bailer		30		
Air	7	35		

Well Log

Material	Top	Bottom	
TOPSOIL	0	15	
SOUPY BLUE CLAY	15	30	
BROWN CLAY & GRAVEL	30	35	AT
BLUE CLAY 7 GRAVEL	35	39	
WATER & GRAVEL	39	40	AQ
SANDSTONE	40	45	BR

Driller

Contractor	Last Name	First Name	License
DAHLMAN PUMP & WELL DRILLING INC			0623

Skagit County Well Report

GS ~ 237

DTW = 5

WL ELEV ~ 232

TOP OF AQUIFER ELEV ~ 198

BEDROCK ELEV ~ 197

T75115

22848 SR9
ORSBORN

33/4-25Q

WATER WELL REPORT
STATE OF WASHINGTON

Start Card No.
Water Right Permit No. G1-25382

(1) OWNER: Name ALLAN, LARRY   Address 2272 HIGHWAY 9 MT. VERNON, WA 98273-

(2) LOCATION OF WELL: County SKAGIT   - SW 1/4 SE 1/4 Sec 25 T 33 N., R 4E WM
(2a) STREET ADDRESS OF WELL (or nearest address) 2272 HIGHWAY 9 (1150' E & 950' N of S1/4 cor sec 25)

(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 61 ft.   Depth of completed well 61 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Dia. from +2 ft. to 61 ft.
WELDED " Dia. from ft. to ft.
" Dia. from ft. to ft.

Perforations: 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: 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 above mean sea level ... ft.
Static level 55 ft. below top of well Date 11/15/88
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 15 gal/min. w/ stem set at 58 ft. for .5 hrs.
Artesian flow g.p.m. Date
Temperature of water   Was a chemical analysis made? 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 in formation.

MATERIAL	FROM	TO	
TOPSOIL	0	2	
BROWN CLAY	2	15	
GRAY CLAY COARSE SAND & GRAVEL	15	20	AT
BRWN COARS SAND & GRAVEL & CLAY	20	53	
BOULDER	53	54	
GRAY COARS SAND & GRAVEL	54	60	AQ
GRAY HARD CLAY	60	61	AT 214
GRAY COARS SAND GRAVEL & WATER	61		AQ

GS ~ 275
DTW = 55
WL ELEV ~ 220

Work started 11/15/88   Completed 11/15/88

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 WELL DRILLING/PUMPS
(Person, firm, or corporation) (Type or print)

ADDRESS 556 ERSHIG RD. BOW

[SIGNED] Steve Gilbert   License No. 762

Contractor's Registration No. HAYESWD187OW   Date 06/02/89

RECEIVED
JUN 5 1989
DEPARTMENT OF ECOLOGY
NORTHWEST REGION

Appendix B
Well Information

Well Log Name	Current Owner	Parcel Number	Site Address	DTW (ft)	DTW Date	Stickup of MP (ft)	LiDAR GS Elevation (ft)	Google Earth Elevation (ft)
Ronald Martin	Henry G. Baumgartner	18348	23142 SR 9, Mount Vernon, WA 98274	63.54	8/22/2013	1.35	301.16	300
Foothills Investment Well 1	Tatoosh Water Company	18362	NA	18.6	8/22/2013	-3.5	260.42	261
Tatoosh Water Well 2	Tatoosh Water Company	18362	NA	60	5/30/1979	Unknown	297.89	298
Mark Youngs	Mark L. Youngs	77793	23179 SR 9, Mount Vernon, WA 98274	39.4	12/2/2010	Unknown	278	
Harriett Hassell	Johnny L. Tate	18349	23190 SR 9, Mount Vernon, WA 98274	63	1/3/1974	Unknown	304	
Lake McMurray Resort	McHaven, Inc.	18301	22989 Lake McMurray Ln, Mount Vernon, WA 98274	8.67	8/22/2013	2.86	253.08	255
McHaven Inc, Joe Zipp	McHaven, Inc.	18301	22989 Lake McMurray Ln, Mount Vernon, WA 98274	11	10/1/1992	2.83	247.75	248
Glenn Wilson	Richard D. and Shelley M. Rondeau	61933	23103 SR 9, Mount Vernon, WA 98274	54.24	8/22/2013	2.57	290.24	290
Travis McCool	Evan R. Evans	119152	23100 SR 9, Mount Vernon, WA 98274	71.43	8/22/2013	2	307.49	306
Cal Buck/C&K Construction	Virginia A. and Jesse Elves	18358	23483 SR 9, Mount Vernon, WA 98274	19.33	8/22/2013	1.8	256.7	259
Dave and Kathy Hirdler	David W. Hirdler	18361	24797 Brotherhood Rd, Mount Vernon, WA 98274	9.69	8/22/2013	0.92	264.79	265
Doug Trainor	Ron and Cris Jilk	18347	23054 Lake McMurray Ln, Mount Vernon, WA 98274	2.2	8/22/2013	2.87	246.39	247
Camp Brotherhood	Camp Brotherhood Inc.	18359	24880 Brotherhood Rd Apt A., Mount Vernon, Wa 98274	-6.9	5/12/1971	0	245.4	245
Jim Koejche	Glenn W. Kensmoe	18354	23243 SR 9, Mount Vernon, WA 98274	7.22	8/22/2013	2.05	245	242
Unknown	Glenn W. Kensmoe	18353	23243 SR 9, Mount Vernon, WA 98274	16.3	8/22/2013	1.32	251.38	243
John Stiehl	John and Marie A. Stiehl	61953	23225 SR 9, Mount Vernon, WA 98274	36.97	8/22/2013	2.57	273.07	272
Chub Lomsdalen	Donald L. Lomsdalen	61949 or 18335	23217 or 23221 SR 9, Mount Vernon, WA 98274	34	12/22/1992	Unknown	269	
Edgar Borbe	Borbe Family Trust (Ed Borbe)	61954	23229 SR 9, Mount Vernon, WA 98274	1	8/21/1991	Unknown	246	
Rod Peterson	Roderick K. and Stacy L. Peterson	18321	23320 SR 9, Mount Vernon, WA 98274	47	4/10/1981	Unknown	287.66	
Maurice Erickson Well 1	Ivan and Sandra Rasmussen	17863	23008 SR 9, Mount Vernon, WA 98274	Dry hole	10/13/1997	Unknown	307.59	308
Maurice Erickson Well 3	Ivan and Sandra Rasmussen	17863	23008 SR 9, Mount Vernon, WA 98274	55.8	8/22/2013	1.45	291.72	291
Raymond Hazen	Steve and Lauralie Dundin	17858	23033 SR 9, Mount Vernon, WA 98274	28	4/8/1976	Unknown	270	
Western Wells								
Joe Davis			22853 Lakeside Lane	17	10/1/2007	Unknown		250
Robert Cheney		17253	2255 Hull Road (22565 Hull Road)	0.5	7/7/1973	Unknown		233
Pat Wickstrom		66165	22721 Hull Road	0.33	11/5/2007	Unknown		239
Doug and Judy Overturf			22957 Lakeside Lane	16	8/2/2006	Unknown		243
James Johnson		75142	22897 Front Street	48	5/30/2006	Unknown		280
Mike Smith		75139	22913 Front Street	50	11/19/1999	Unknown		282
Rob Exelby		95670	Holyoke St & Commercial	59.5	1/25/1994	Unknown		307
Jeanette DiBase			2265 Highway 9	33.5	8/31/1978	Unknown		270
George Gamble		66154	2271 Hull Road (approx 22607 Hull Road)	1	7/19/1982	Unknown		234
Bill Cederberg		66159	2283 Hull Road (22669 Hull Road)	1	3/8/1990	Unknown		235
Lowell Jonson		17245	2239 Highway 9	5	8/24/1988	Unknown		237
Larry Allan		75115	2272 Highway 9 (22848 Highway 9)	55	11/15/1988	Unknown		275

TWN: Township
RGE: Range
SEC: Section
Qtr-Qtr: Quarter Quarter Section
Qtr: Quarter Section
LAT: Latitude
LON: Longitude
DTW: Depth to water
MP: Measurement point
GS: Ground surface
Negative depth to water values indicate that the static water level is above the measurement point.

Well Log Name	Approximate Water Level Elevation (ft)	Well Depth (ft)	Well Diameter (inches)	Top of Sand and Gravel Aquifer	
				Depth (ft)	Elevation (ft)
Ronald Martin	238.97	83	6	74	227.16
Foothills Investment Well 1	238.32	160	12	0	260.42
Tatoosh Water Well 2	237.89	113	8	68	229.89
Mark Youngs	238.6	48.5	6	Unknown	Unknown
Harriett Hassell	241	88	6	69	235
Lake McMurray Resort	247.27	265	6	None	None
McHaven Inc, Joe Zipp	239.58	204	6	None	None
Glenn Wilson	238.57	69	6	59	231.24
Travis McCool	238.06	92.5	6	34	273.49
Cal Buck/C&K Construction	239.17	52	6	31	225.7
Dave and Kathy Hirdler	256.02	42	6	23	241.79
Doug Trainor	247.06	261.5	6	None	None
Camp Brotherhood	252.3	75	8	15	230.4
Jim Koejche	239.83	50	6	30	215
Unknown	236.4	Unknown	6	Unknown	Unknown
John Stiehl	238.67	57	6	18	255.07
Chub Lomsdalen	235	58	6	0	269
Edgar Borbe	245	44	6	40	206
Rod Peterson	240.66	60	6	55	232.66
Maurice Erickson Well 1	NA	160	6	15	292.59
Maurice Erickson Well 3	237.37	79	6	65	226.72
Raymond Hazen	242	45	6	37	233
Western Wells					
Joe Davis	233	100	6	85	165
Robert Cheney	232.5	88	6	86	147
Pat Wickstrom	238.67	152	6	90	149
Doug and Judy Overturf	227	100	6	90	153
James Johnson	232	78	6	47	233
Mike Smith	232	65	6	54	228
Rob Exelby	247.5	77	6	65	242
Jeanette DiBase	236.5	69	6	60	210
George Gamble	233	113	6	107	127
Bill Cederberg	234	124	6	110	125
Lowell Jonson	232	45	6	39	198
Larry Allan	220	61	6	61	214

TWN: Township
RGE: Range
SEC: Section
Qtr-Qtr: Quarter Quarter Section
Qtr: Quarter Section
LAT: Latitude
LON: Longitude
DTW: Depth to water
MP: Measurement point
GS: Ground surface
Negative depth to water values indicate

Appendix C Historic Lake and Wetland Water Level Measurements (Skagit County Public Works)

	Raw Data from Skagit County Public Works		NAVD88 Corrected Elevation	
Date	Lake McMurray (Boat Launch)	State Route 9 Beaver Dam	Lake McMurray (Boat Launch)	State Route 9 Beaver Dam
7/31/2002	228.10	227.65	231.86	231.41
8/14/2002				
8/8/2002	227.85		231.61	
8/23/2002	227.80		231.56	
8/26/2002	227.60		231.36	
8/30/2002	227.63	227.47	231.39	231.23
9/4/2002	227.58	227.48	231.34	231.24
9/26/2002	227.50	227.45	231.26	231.21
10/2/2002	227.41	227.50	231.17	231.26
10/15/2002	227.36		231.12	
11/6/2002	227.36	227.10	231.12	230.86
12/2/2002	227.65	227.82	231.41	231.58
12/16/2002	227.60	227.40	231.36	231.16
1/2/2003	228.20	226.50	231.96	230.26
1/16/2003	228.35		232.11	
1/29/2003	228.40		232.16	
2/19/2003	228.38		232.14	
3/14/2003	228.45		232.21	
3/24/2003	228.58	226.98	232.34	230.74
4/18/2003	228.45	227.30	232.21	231.06
5/3/2003	227.60		231.36	
5/23/2003	228.37		232.13	
6/24/2003	227.80		231.56	
8/6/2003	227.40		231.16	
9/24/2003	227.20		230.96	
11/13/2003	228.32	228.10	232.08	231.86
11/20/2003	229.00		232.76	
12/12/2003	228.30		232.06	
12/30/2003	228.27		232.03	
1/23/2004	228.24	228.00	232	231.76
1/29/2004	228.75		232.51	
3/13/2004	227.75		231.51	
5/13/2004	227.85		231.61	
5/21/2004	227.50		231.26	
6/7/2004	228.06		231.82	
6/14/2004	228.06		231.82	
7/1/2004	227.40		231.16	
7/16/2004	227.26		231.02	
7/30/2004	227.14	228.00	230.9	231.76
8/20/2004	226.96	227.98	230.72	231.74
9/13/2004	227.75	228.16	231.51	231.92
10/8/2004	227.68	228.15	231.44	231.91
11/19/2004	228.14		231.9	
12/3/2004	228.20		231.96	
12/17/2004	228.20		231.96	
1/14/2005	227.79		231.55	
1/19/2005	228.37		232.13	
1/28/2005	228.07		231.83	
2/11/2005	227.77		231.53	
2/25/2005	227.66		231.42	
3/11/2005	227.46		231.22	
4/28/2005	227.74		231.5	
5/24/2005	227.42		231.18	
6/24/2005	227.62		231.38	

Correction for NAVD88 is performed by adding 3.76 feet to raw data (Page, 2010)

Appendix D
Manual Water Level Measurements

Lake McMurray - Manual		
Date and Time	Staff gage reading (ft)	NGVD88 Elevation (ft)
6/18/2013 11:01	7.94	231.7
7/23/2013 8:37	7.31	231.07
8/22/2013 13:43	6.9	230.66
9/18/2013 15:32	7.01	230.77
9/24/2013 8:07	7.03	230.79
4/7/2014 14:00	8.2	231.96

Elevation correction is based on:
Adding 220 feet to staff gage reading
Then adding 3.76 feet to correct for NAVD88

State Route 9 Wetland - Manual		
Date and Time	Staff gage reading (ft)	NGVD88 Elevation (ft)
6/18/2013 11:43	2.5	230.89
7/23/2013 8:50	2.37	230.76
8/22/2013 13:52	2.21	230.6
9/18/2013 15:39	2.2	230.59
9/24/2013 8:23	2.13	230.52
4/7/2014 13:00	2.09	230.48

Elevation correction is based on:
Adding 228.39 feet to staff gage reading

Tatoosh Well No. 1 - Manual		
Date and Time	Depth to water from MP (ft)	NGVD88 Elevation (ft)
6/18/2013 9:41	16.62	240.3
7/23/2013 9:45	17.82	239.1
8/22/2013 14:06	18.6	238.32
9/24/2013 8:46	19.1	237.82

Elevation correction is based on:
Ground surface from LiDAR is 260.42
Top of access port (MP) is 3.5 feet below ground surface