associated earth sciences incorporated

Revised December 9, 2014
Project No. KE140047A

Quadrant Corporation
14725 SE 36th Street, Suite 100
Bellevue, Washington 98006

Attention: Mr. Corey Watson

Subject: Critical Aquifer Recharge Areas Report
Hussey Property
NE 122nd Street and 178th Avenue NE
Redmond, Washington

Dear Mr. Watson:

We are pleased to present the enclosed copies of the referenced report. This report summarizes the results of our hydrogeologic assessment and "Critical Aquifer Recharge Areas Report."

We have enjoyed working with you on this study and are confident that the recommendations presented in this report will aid in the successful completion of your project. Please contact me if you have any questions or if we can be of additional help to you.

Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Kirkland, Washington

Matthew A. Miller, P.E.
Principal Engineer

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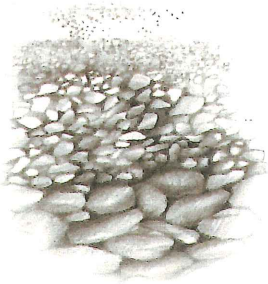
Attachment 13



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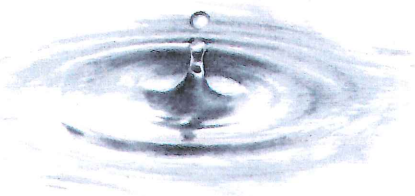

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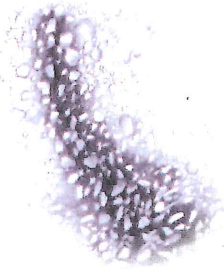

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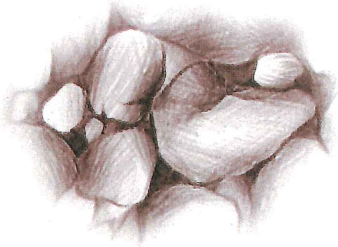

Geologic Assessments

Associated Earth Sciences, Inc.

Serving the Pacific Northwest Since 1981

Critical Aquifer Recharge Areas Report

HUSSEY PROPERTY

Redmond, Washington

Prepared for

Quadrant Corporation

Project No. KE140047A
Revised December 9, 2014

CRITICAL AQUIFER RECHARGE AREAS REPORT

HUSSEY PROPERTY

Redmond, Washington

Prepared for:
Quadrant Corporation
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Bellevue, Washington 98006

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Revised December 9, 2014
Project No. KE140047A

TABLE OF CONTENTS

Page

TABLE OF CONTENTS (CONTINUED)

LIST OF FIGURES

LIST OF APPENDICES

GENERAL INFORMATION
FOR CRITICAL AREAS REPORT

Proposal Name: Hussey Property.

Applicant Name: Quadrant Corporation.

Report Prepared by: Curtis J. Koger and Luke D. Mioduszewski of Associated Earth Sciences, Inc. Mr. Koger is a licensed geologist, hydrogeologist, and engineering geologist with 30 years of professional experience including over 20 years in the state of Washington. Mr. Mioduszewski is a licensed geologist in the state of Washington with 7 years of professional experience.

Date Prepared: Revised December 9, 2014.

Site Location: See Figure 1. The site is located north of the intersection of NE 122nd Street and 178th Place NE in Redmond, Washington and the Parcel Number is: 252605-9023.

Development Proposal: City File Number LAND 2014-00414. See Section 1.1 and Figure 3.

Description of Existing Site: See Section 1.1, "Project Description."

Aerial Photo Showing Site Boundaries and Critical Areas: See Figures 2 and 3.

Site Map: See Figure 3.

Assumptions and Recommendations: See report.

Bibliography: See Section 7.0, "References."

1.0 INTRODUCTION

This report presents the results of Associated Earth Sciences, Inc.'s (AESI's) Critical Aquifer Recharge Area (CARA) evaluation for the proposed improvements at the Hussey Property. This report is a revised version of AESI's initial CARA report, dated August 19, 2014. This Hydrogeologic Report was completed with an understanding of the project based on our previous work on the subject property and project plans provided by The Blueline Group (Blueline). We have previously prepared a "Subsurface Exploration and Geotechnical Engineering Assessment, Hussey Property," dated March 3, 2014 (AESI, 2014b). In addition, we have also prepared a "Phase I Environmental Site Assessment," dated March 21, 2014 (AESI, 2014a) for the subject property.

1.1 Project Description

The site is located north of the intersection of NE 122nd Street and 178th Place NE in Redmond, Washington (Figure 1). The project site consists of one parcel (Parcel Number 252605-9023), totaling about 7 acres in area. The site is generally surrounded by existing single-family residential development. Vegetation on the site primarily consists of grass lawn areas in the southwest quadrant of the site, surrounding the existing buildings. The remainder of the site is undeveloped and vegetated with various trees and brush. A creek flows approximately north-south along the eastern site boundary. From this creek the site topography slopes up approximately 50 feet to the west at an inclination of about 30 percent to a plateau that occupies the western side of the site.

The site is occupied by an abandoned home foundation and several outbuildings, including a workshop (metal construction) in the southwest area of the site. The subject property is currently utilized for storage of supplies associated with the property owner's off-site business (compost tea brewer).

We understand that the project will include the construction of a residential development on the western plateau. Based on the plans provided by Blueline, stormwater runoff will be conveyed to a combined detention/water quality vault which will eventually discharge directly into the creek at the toe of the eastern site slope. This on-site creek is a tributary to Bear Creek. This CARA evaluation addresses potential impacts related to the Hussey Property project.

1.2 Purpose and Scope

The purpose of this study was to evaluate hydrogeologic conditions for the site under existing and developed conditions and prepare a CARA Report, in accordance with Appendix 1.F of the *Redmond Zoning Code* (RZC), "Critical Aquifer Recharges Areas (Wellhead Protection) Reporting Requirements."

In accordance with Appendix 1.F, a Level 1 CARA is required for this site because it is located within Wellhead Protection Zone 3, defined as the zone with a 5- to 10-year time of travel for ground water beneath the site to reach the City of Redmond's drinking water well. The closest City of Redmond drinking water well is Well #3, approximately 1.7 miles south of the subject project. The location of the site with respect to the City's Wellhead Protection Zones is shown on Figure 2, "Wellhead Protection Zones Map." In addition, a Level 2 hydrogeologic assessment is required because the proposed development will result in at least 5,000 square feet of impervious surfaces. According to Appendix 1.F, the Level 1 CARA report shall include the following information:

1. Available information regarding geologic and hydrogeologic characteristics of the site, including the surface location of all critical aquifer recharge areas located on-site or immediately adjacent to the site, and permeability of the unsaturated zone.

2. Ground water depth, flow direction, and gradient based on available information.

3. Currently available data on wells and springs within 1,300 feet of the project area.

4. Locations of other critical areas, including surface waters, within 1,300 feet of the project site.

5. Available historic water quality data for the area to be affected by the proposed activity.

6. Best management practices (BMPs) proposed to be utilized.

The Level 2 hydrogeologic assessment shall include the following site- and proposal-related information:

1. Historic water quality data for the area to be affected by the proposed activity compiled for at least the previous 5-year period.

2. Ground water monitoring plan provisions.

3. Discussion of the effects of the proposed project on the ground water quality and quantity, including:

    a. Predictive evaluation of ground water withdrawal effects on nearby wells and surface water features.

    b. Predictive evaluation of contaminant transport based on potential releases to ground water.

    c. Predictive evaluation of ground water (recharge, elevation, dewatering feasibility, constructability, discharge permitting, etc.) on the proposed project.

4. Identification of the type and quantities of any deleterious substances or hazardous materials that will be stored, handled, treated, used, produced, recycled, or disposed of on the site.

5. Proposed methods of storing any of the above substances, including containment methods.

6. Proposed plan for implementing protection standards during construction.

7. A spill plan that identifies equipment and/or structures that could fail, resulting in an impact. Spill plans shall include provisions for regular inspection, repair, and replacement of structures and equipment that could fail.

8. A complete discussion of past environmental investigations, sampling, spills, or incidents that may have resulted in or contributed to contaminated soil or ground water at the site.

Our study included review of available geologic and hydrogeologic literature and assessment of geologic, ground water, and soil conditions, including the type, thickness, distribution, and physical properties of the subsurface sediments and ground water. In addition to the six exploration pits conducted at the site previously by AESI, we reviewed the logs of 15 exploration pits completed on-site by RH2 Engineering (Figure 3, Appendix A). AESI reviewed water well reports obtained from the Washington State Department of Ecology (Ecology) (Figure 4, Appendix B). Additionally, AESI reviewed water quality results for wells located within 1,300 feet of the site obtained from the Washington State Department of Health, Division of Environmental Health, Office of Drinking Water (ODW). These results are summarized in Appendix C.

1.3 Authorization

Authorization to proceed with this study was granted by Quadrant Corporation. This report has been prepared for the exclusive use of Quadrant Corporation and their agents for specific application to this project. Within the limitations of scope, schedule, and budget, our services have been performed in accordance with generally accepted hydrogeologic practices in effect in this area at the time our report was prepared. No other warranty, express or implied, is made.

1.4 Summary of Findings

The proposed improvements at Hussey Property will include construction of 24 residential lots and associated utilities and roadways on the western plateau of the property. Stormwater from pollution generating surfaces and nonpolluting roof runoff will be conveyed to a combination detention/water quality vault. Discharge from the vault will be tightlined to the

toe of the eastern site slope and discharge into the existing creek, ultimately flowing to Bear Creek.

Previous site explorations and nearby well logs indicate that the subject property is underlain by glacial till. The glacial till is interpreted to be underlain by advance outwash. Older pre-Fraser-age deposits underlie the advance outwash.

Seven individual domestic wells and one Group B domestic well were identified within the 1,300-foot search radius. These wells are completed within the Vashon advance outwash or pre-Fraser deposits and are protected from surface contamination by the glacial till. One of the domestic wells is located on the western border of the site near the northwest corner of the parcel. This domestic well served the property to the west and will be decommissioned during construction. The adjacent property will be connected to the City utilities to replace the water service, as necessary. Based on available data, the project site does not lie within the 100-foot sanitary control radius of any of the other off-site domestic wells. It is our opinion that none of the wells within the 1,300 feet of the site will be adversely impacted by the proposed Hussey Property improvements.

2.0 METHODOLOGY

2.1 Data Review

AESI reviewed available soil, ground water, and geologic data to gain an understanding of existing conditions in the study area. Information reviewed included the following:

- Previous reports and maps prepared by AESI for the subject property;
- Previous reports prepared by RH2 Engineering for the subject property;
- Previous reports and maps prepared by AESI for nearby properties, including a geologic and ground water study for the Willowmere Park project, located about 700 feet west of the site and review of data from AESI's ongoing ground water monitoring on a nearby development project (Curry Property) located about 1,500 feet southwest of the site;
- Reports and maps published by the United States Geological Survey (USGS) and the Washington State Department of Natural Resources (WDNR), Division of Geology and Earth Resources, King County, ODW, and Ecology;
- City of Redmond Wellhead Protection Program;
- Well logs obtained from the online Ecology and King County databases;

- King County Ground Water Protection Program;
- ODW and King County Public Health Drinking Water Program water quality data;
- Site plans provided by Blueline, the civil engineer, for the site.

Selected citations for documents used during this study are contained in the "References" section of this report.

2.2 Field Studies

AESI performed a subsurface exploration of the site on February 24, 2014. Our field study included excavating a total of six exploration pits. The locations of the exploration pits are shown on Figure 3. The various types of materials and sediments encountered in the explorations, as well as the depths where characteristics of these materials changed, are indicated on the exploration logs presented in Appendix A of this report.

2.3 Hydrogeologic Analysis

A conceptual hydrogeologic model of the site was developed to address depth to water, seasonal fluctuations, aquifer flow direction, recharge and discharge, hydrostratigraphy, and potential interaction between shallow and deeper aquifers. Our analysis also included evaluation of available water quality information from water wells within 1,300 feet of the site, identification of deleterious substances or hazardous materials that will be used, stored, or disposed of on-site, and an evaluation of potential impacts to ground water quality and quantity from the proposed improvement project.

2.3.1 Well Log Review

Ecology, ODW, and King County online well log databases were reviewed to obtain available water wells logs within 1,300 feet of the subject property. The well locations are approximately located on Figure 4, "Water Well Location Map," and copies of the logs are included in Appendix B. A review of these logs is presented in Section 4.1, which evaluates potential impacts to off-site wells from the proposed improvements.

2.3.2 Water Quality Analysis

The water quality analysis included an evaluation of available water quality information from wells within 1,300 feet of the project site; BMPs to prevent degradation of the area aquifers; identification of deleterious substances or hazardous materials that will be used, stored, or disposed of on-site due to development of the site; and an evaluation of potential impacts on water quality due to potential releases to ground water.

3.0 EXISTING CONDITIONS

3.1 Physical Setting and Topography

As shown on Figure 1, the site and surrounding community are generally located on a broad uplands area, which is bounded to the east by the Bear Creek Valley and to the west by the Sammamish River Valley. Topographic features in the vicinity of the site were formed by glacial and post-glacial processes. Elongate, northwest-southeast trending hills and swales parallel the flow direction of an ice sheet that occupied the Puget Lowland about 15,000 years ago. The hydrologic divide between the Bear Creek Valley Basin and the Sammamish River Valley Basin trends north-south and is west of the site, such that the subject site is located entirely within the Bear Creek Valley Basin. The site drains to the east, towards an unnamed tributary to Bear Creek at the toe of an approximately 50-foot-high slope on the eastern margin of the site.

3.2 Regional and Project Geology

Our interpretation of the geologic/hydrogeologic conditions in the vicinity of the project site is based on a review of selected information in the available literature, water well reports for wells located in the surrounding area, review of AESI's geotechnical engineering report (AESI, 2014b), and our experience on numerous hydrogeology projects in the site vicinity. A geologic map of the site vicinity, adapted from Booth et al. (2006), is shown on Figure 5, "Regional Surficial Geologic Map." Figure 4 shows approximate water well locations near the site and the location of Geologic Cross-Section A-A' (Figure 6) summarizing interpreted surface and subsurface geology in the vicinity of the site. The Ecology water well reports used during this study are presented in Appendix B.

Three stratigraphic units, in addition to fill, have been identified and delineated for this study: Vashon lodgement till, Vashon advance outwash, and pre-Fraser undifferentiated non-glacial and glacial deposits. The stratigraphic units were determined with regard to the following parameters: 1) stratigraphic position, 2) composition, and 3) importance of the unit in terms of the presence of ground water. The interpreted subsurface stratigraphy of the site and uplands plateau area are in general agreement with that presented in reports published by the City of Redmond (Parametrix et al., 1997) and other published geologic maps for the area, including *Geologic Map of the Redmond Quadrangle, Washington* (Minard and Booth, 1988), the *Geologic Map of King County, Washington* (Booth et al., 2006), and the *Geologic Map of the Redmond Bear Creek Area* (Booth, Troost, and Wisher, 2007). Similar stratigraphic sequences have been observed in the uplands area east of Bear Creek Valley (AESI, 2004) and the Snoqualmie Valley between Carnation and Duvall (Turney et al., 1995), and were identified in previous hydrogeologic evaluations by AESI in the project vicinity (AESI, 1998, 2007a, 2007b, 2010, and 2011). The stratigraphic units are described below and shown on the accompanying cross-section where applicable.

3.2.1 Fill

Fill soils (those not naturally placed) were encountered in explorations EP-2, EP-5, and EP-6 and are anticipated to be found around the outbuildings, other areas of past grading, and over buried utilities. The fill encountered extended to about 5 feet in depth at the location of EP-2 and may be related to past grading in relation to the abandoned home foundation just east of EP-2. The fill observed in EP-2 consisted of loose, very moist, brown fine sand with silt and few amounts of gravel. Organic-rich fill was encountered at the location of EP-5, extending to 7 feet in depth and consisting of dark brown to black, fine sand with silt with abundant woody debris. Fill encountered at the location of EP-6 extended to about 3 feet and consisted of loose, brown, fine sand with silt and trace to few amounts of organics. The approximate extent of existing fill based on our explorations and the explorations completed by RH2 Engineering is shown on Figure 3, "Site and Exploration Plan."

3.2.2 Vashon Lodgement Till

Below the existing fill, where encountered, all explorations encountered lodgement till sediments. Lodgement till consists of an unsorted mixture of sand, silt, clay, gravel, and occasional cobbles. These sediments were deposited at the base of an active continental glacier and were subsequently overrun and compacted by about 3,000 feet of glacial ice in the project area during the Vashon Stade of the Fraser Glaciation, approximately 15,000 years ago. The high relative density of the unweathered till is due to its consolidation by the massive weight of the glacial ice from which it was deposited. The lodgement till deposits extended below the maximum depths explored. Due to its very dense nature and high content of fine-grained material, the till has a very low-permeability and is typically characterized as a barrier to ground water flow.

3.2.3 Vashon Advance Outwash

This unit was interpreted from Ecology water well reports and appears to underlie the till throughout most of the uplands area in the vicinity of the site based on Ecology water well reports and published geologic maps. This unit generally consists of a varied mixture of sand and gravel with minor amounts of fines. Based on the domestic well reports, the Vashon advance outwash generally ranges from about 30 feet thick to more than 100 feet thick.

3.2.4 Pre-Fraser Deposits

Fine-Grained Facies

This unit was interpreted from Ecology water well reports and appears to be continuous throughout the subsurface near the site. The unit consists of generally dense and hard silt and clay with variable amounts of sand. For the purposes of this study, we have included the fine-grained transitional beds and pre-Fraser fine-grained deposits in this unit. Beneath the

site, these sediments are interpreted to occur below the Vashon advance outwash. The pre-Fraser fine-grained deposits are shown on published geologic maps in areas along the lower slopes of the uplands to the west and east of the site.

Coarse-Grained Facies

This unit was interpreted from Ecology water well reports as continuous throughout the subsurface beneath the western uplands. The unit is likely continuous beneath the east side of the uplands, although no Ecology water well reports were identified that fully penetrate the unit. This unit consists of generally interbedded sequences of sand, silt, and clay with varied gravel content.

3.2.5 Previous Work by Others

RH2 Engineering previously prepared a report on geology at the subject site (RH2 Engineering, 2005) containing logs of 15 exploration pits completed on the site in January 2005. The locations of these pits are shown on Figure 3. The near-surface soil conditions identified in the 2005 report describe site soils as existing fill, in areas, over Vashon-age lodgement till. Existing fill was encountered at the locations of TP-2, TP-3, TP-9, and TP-10 to depths up to 7 feet. All of the pits were terminated in the lodgement till. AESI is in general agreement with the soil conditions described in the 2005 report by RH2 Engineering. The natural, near-surface site soils encountered during our explorations are similarly classified.

3.3 Hydrogeology

Water that is present in the pore spaces of sediments is part of the hydrologic cycle. In the natural state, the hydrologic cycle begins with infiltration of precipitation (recharge) and ends with discharge to springs, streams, wetlands, and/or wells. Under natural conditions, ground water recharge and discharge may shift with climatic cycles, but remain in overall balance. Ground water will flow under saturated conditions, preferentially through materials with greater porosity and permeability, such as clean gravels and sands. Where geologic conditions limit discharge, ground water accumulates in such permeable zones, which, if they can support production from wells, are termed aquifers. The sustainability of wells, or the long-term aquifer capacity, depends on the extent of the aquifer, its rate of recharge, and the amount of withdrawal by producing wells. Withdrawal of ground water by wells diverts a part of the ground water cycle, resulting in adjustments to natural recharge, discharge, or both.

Copies of selected well/boring logs from Ecology are presented in Appendix B. The approximate locations of these logs are shown on Figure 4. Note that the limited resolution provided by the well reports typically allows water users to be located only within the nearest quarter-quarter section. Some of the well locations were refined, based on address or parcel information. It should also be noted that most of these well reports are prepared by non-geologists and standardized geologic descriptions are not commonly utilized. Therefore,

interpretations from the well reports are considered to be rough approximations and are only used to obtain a general overview of regional geologic conditions.

Based on the information obtained to date (existing literature and on-site explorations), three principal ground water "regimes" occur in the site vicinity. They include shallow perched ground water, a Vashon advance aquifer, and an undifferentiated deep aquifer. The vertical and lateral occurrence of the advance outwash and deep aquifers are in general agreement with that presented in the City of Redmond "Wellhead Protection Report" (Parametrix et al., 1997).

3.3.1 Shallow Perched Ground Water (Interflow)

Perched ground water occurs when surface water infiltrates down through relatively permeable soils, such as the weathered portions of the glacial till, and becomes trapped or "perched" atop a comparatively impermeable barrier, such as unweathered till horizons. This zone of shallow perched ground water is also commonly referred to as the "interflow zone." The perched ground water can only slowly penetrate the low-permeability zones.

Slow to moderate ground water seepages were observed in all exploration pits at varying depths, generally deeper than 3 feet below existing ground surface. The seepages were typically observed near the contact between the existing fill and underlying till and the contact between the weathered and unweathered till. We expect ground water seepage across much of the site to be limited to interflow.

It should be noted that the occurrence and level of ground water seepage at the site may vary in response to such factors as changes in season, precipitation, and site use. The most recent exploration for this study was conducted during the month of February, when shallow ground water levels are typically near, though likely still below, their seasonal high.

3.3.2 Vashon Advance Outwash Aquifer

The Vashon advance outwash aquifer is an aquifer developed in Vashon advance sand and gravel deposits. Aquifer distribution is illustrated on Geologic Cross-Section A-A' (Figure 6). The Vashon advance outwash aquifer is the uppermost aquifer present beneath the site. In most areas, it is an unconfined aquifer, but confined aquifer behavior occurs in some localities where static water levels extend above the top of the aquifer and into the overlying till. The Vashon advance aquifer provides water to a number of domestic wells in the vicinity of the project area within an approximate 1-mile radius from the project boundary. Some representative water levels are shown on Figure 6.

Based on the domestic well reports, the Vashon advance outwash generally ranges from about 30 feet thick to more than 100 feet thick. Water table elevations within the Vashon advance aquifer generally range from about 200 to 250 feet above mean sea level (amsl) in the uplands

area. Ground water flow in this aquifer below the site is to the east toward the Bear Creek Valley, and water table elevations generally decrease to the east.

Beneath the site and surrounding area, the Vashon advance outwash aquifer is underlain by very low-permeability, pre-Fraser silt/clay deposits, which impede further downward vertical flow.

3.3.3 Undifferentiated Deep Aquifer

The undifferentiated deep aquifer was identified in domestic well reports, as shown on Geologic Cross-Section A-A' (Figure 6). The undifferentiated deep aquifer includes water-bearing zones within the pre-Fraser sediments. Completion elevations were wide-ranging beneath the plateau. The undifferentiated deep aquifer is separated from the site by several intervening layers, including Vashon lodgement till covering the majority of the site, Vashon advance outwash, and silt or clay layers within the pre-Fraser sediments. Exceptions occur in the Sammamish and Bear Creek Valleys where Vashon-age and younger deposits may directly overlie the deposits of the undifferentiated deep aquifer.

Recharge to the undifferentiated deep aquifers is interpreted to be from leakage through overlying, fine-grained units. Deeper zones within the undifferentiated deep aquifer interval likely also receive recharge from hydraulic connections with the Bear Creek and Sammamish River Valley aquifer systems.

4.0 PROJECT IMPACTS AND MITIGATIONS

The following sections provide information regarding the potential impacts the Hussey Property project will have on the surrounding properties and area ground water.

4.1 Summary of Nearby Well Systems

As shown on Figure 4, seven wells are located within 1,300 feet of the site. This section provides a summary of nearby well systems and an evaluation of potential water quality impacts to these wells associated with the proposed site improvements. We identified seven domestic wells and one Group B domestic well serving up to three homes within the search radius. No Group A water systems were identified within the search radius. All available well logs of the wells shown on Figure 4 are provided in Appendix B. Summaries of the well construction details for the wells located within the search radius are provided below.

4.1.1 On-Site Domestic Well

As noted above, one domestic well is located along the west property line near the northwest corner of the parcel. A public water supply restrictive covenant (#7707200810) was recorded in

relation to this well in 1977. A log of this well was not found in the Ecology online well database, in the King County online well database, nor in the State Department of Health records. It is not known if this well is still in use; however, we understand that it serviced the residence on the adjacent property to the west. The well is situated on the property line, such that its 100-foot sanitary control radius extends into the proposed development. It is our understanding that the well will be decommissioned by a licensed well driller in accordance with *Washington Administrative Code* (WAC) Section 173-160 prior to construction. The residence on the property to the west will be connected to the City utilities to provide water service, as necessary.

4.1.2 Off-Site Domestic Wells

- **Bocor Builders Well (#11):** The location of this domestic well is identified in the well log as the SW ¼ of the NE ¼ of Section 25, Township 26N, Range 5E. Ecology well log data indicates the well was drilled to a total depth of 56 feet in August 1983 by B & J Drilling Co. The well log indicates 6-inch casing extends from 1 foot above ground surface to a depth of 55 feet. Based on the well log, the casing was subsequently pulled back to install a 17-slot screen from 50 to 55 feet. The producing interval is identified as gray coarse sand and gravel. The static water level was reported at 18 feet below the top of the well (at an elevation of 237 feet), and a bailer test resulted in a yield of 30 gallons per minute (gpm), with 13 feet of drawdown after 1 hour. The well log indicates a surface seal was installed from ground surface to a depth of 18 feet. The exact location of this well is not known; it is located by township, range, quarter-quarter section. Based on the information available, the well is located approximately 1,200 feet northwest of the Hussey property boundary at an elevation of 255 feet.

- **V. Van Dyke Well (#12):** The location of this domestic well is identified in the well log as the western half of the SE ¼ of the NE ¼ of Section 25, Township 26N, Range 5E. Ecology well log data indicates the well was drilled to a total depth of 208 feet in October 1978 by Johnson Drilling Co. The well log indicates 6-inch casing extends from ground surface to a depth of 208 feet. A well screen was not installed, the bottom of the well was not gravel-packed, and the well casing was not perforated. The producing interval is identified as gray sand and gravel. The static water level was reported at 98 feet below the top of the well (at an elevation of 127 feet), and a bailer test resulted in a yield of 30 gpm, with 75 feet of drawdown after 4 hours. The well log indicates a surface seal was installed from ground surface to a depth of 18 feet. The exact location of this well is not known; it is located by township, range, quarter-quarter section. Based on the information available, the well is located approximately 600 feet north-northwest of the Hussey property boundary at an elevation of 225 feet.

- **Leo Fischer Well (#13):** The location of this domestic well is identified in the well log as the southern half of the NE ¼ of the SE ¼ of Section 25, Township 26N, Range 5E. Ecology well log data indicates the well was drilled to a total depth of 60 feet in April

1984 by Ray's Well Drilling. The well log indicates 6-inch casing extends from ground surface to a depth of 54 feet with a 30-slot screen installed from 54 to 60 feet. The producing interval is identified as gray gravel and sand. The static water level was reported at 7 feet below the top of the well (at an elevation of 213 feet), and a bailer test resulted in a yield of 20 gpm, with 4 feet of drawdown after 2 hours. The well log indicates a surface seal was installed from ground surface to a depth of 18 feet. The exact location of this well is not known; it is located by township, range, quarter-quarter section. Based on the information available, the well is located on the order of 200 feet south of the Hussey property boundary at an elevation of 220 feet.

- **Birge Well (#14):** The location of this domestic well is in the NW ¼ of the SE ¼ of Section 25, Township 26N, Range 5E and, based on King County iMAP, is approximately 1,100 feet west of the Hussey Property. A log of this well was not found in the Ecology well database. Based on King County information, this domestic well is 85 feet deep at a surface elevation of 315 feet. It is not known if this well is still in use.

- **John Freemand Well (#16):** The location of this domestic well is identified in the well log as the SW ¼ of the SW ¼ of Section 30, Township 26N, Range 6E. Ecology well log data indicates the well was drilled to a total depth of 49 feet in January 1991 by D & R Well Drilling, Inc. The well log indicates 6-inch casing extends from 2.5 feet above ground surface to a depth of 45 feet with a 30-slot screen installed from 45 to 49 feet. The producing interval is identified as fine to coarse sand and gravel, with some clay and silt. The static water level was reported at 2 feet above ground surface (at an elevation of 107 feet), and a bailer test resulted in a yield of 5 gpm, with 40 feet of drawdown after 1 hour. The well log indicates a surface seal was installed from ground surface to a depth of 18 feet. The location of the well is not clear. The mapped location on King County iMAP (11811 184th Avenue NE) is outside the 1,300-foot search radius. However, the address on the well log (12041 184th Avenue NE) is closer to the subject project, within the 1,300-foot search radius. Based on the address in the well log, the well is located approximately 1,000 feet southeast of the Hussey property boundary at an elevation of approximately 105 feet.

- **Crosby Well (#17):** The location of this domestic well is in the SE ¼ of the SE ¼ of Section 25, Township 26N, Range 5E. Although its exact location is not certain, King County iMAP has this well located approximately 2,000 feet south of the Hussey Property, although it may be closer. A log of this well was not found in the Ecology well database. Based on King County information, this domestic well is 32 feet deep at a surface elevation of 189 feet. It is not known if this well is still in use.

4.1.3 Group B Wells

- **Uffens (#15):** This Group B well is located at Parcel 2526059049 at an address of 11810 176th Avenue NE about 1,300 feet southwest of the Hussey Property, based on King County data. No reference to this well was identified in the ODW database. The location is identified in the well log as the SE ¼ of the SE ¼ of Section 25, Township 26N, Range 5E. Ecology well log data indicates the well was drilled to a total depth of 38 feet in May 1976 by H. Meyer Drilling Co. The well log indicates 6-inch casing extends from 1 foot above ground surface to a depth of 38 feet. A well screen was not installed, the bottom of the well was not gravel-packed, and the well casing was not perforated. The producing interval is identified as sand. The static water level was reported at 15 feet below the top of the well (at an elevation of 165 feet), and a bailer test resulted in a yield of 20 gpm, with 5 feet of drawdown after 1 hour. The well log indicates a surface seal was installed from ground surface to a depth of 20 feet.

The closest well to the site with water quality data is a Group B well (Sumner) about 2,500 feet south of Hussey Property. A summary of this well is included below because water quality data is not available for any of the wells within 1,300 feet of the site in the online ODW or King County databases.

- **Sumner Well (#18):** This well services a Group B water system identified as Water System 01235(N) by ODW. ODW records indicate there are six residential connections supplied by a single-treated well source with a capacity of 8 gpm. The well is identified as the Sumner well in ODW records. Based on Ecology well records, the well was drilled using cable tool methods to a total depth of 44 feet in July 1989 by Statewide Drilling Company. The water well report indicates 6-inch casing extends from the ground surface to a depth of 44 feet. A well screen was not installed, the bottom of the well was not gravel-packed, and the well casing was not perforated. The producing interval is described as a gray medium to coarse gravel. The driller reported a static water level of 22 feet below the top of the well and indicated testing resulted in a yield of 8 gpm with 8 feet of drawdown after 1 hour of pumping. The water well report indicates a surface seal was installed from ground surface to a depth of 18 feet. The King County database indicates the well is located on Parcel No. 3626059030, with an address of 17759 NE 116th; however, information from the King County Assessor's office indicates that this parcel number no longer exists. In addition, a well abandonment report for the parcel was also found. The well has been located according to the King County iMAP location, which indicates that well is on Parcel No. 3204930010. Based on this information, the well is located approximately 2,500 feet south of the Hussey property at an elevation of 245 feet; however, it is not known if this well is still in use.

Based on the available data, the project site does not lie within the 100-foot sanitary control radius of any of the off-site domestic wells. The domestic well that is located on-site will be decommissioned prior to construction, as noted above.

It is our opinion that none of the wells within 1,300 feet of the site will be adversely impacted by the proposed improvements since the proposal is protective of ground water quality by treating all stormwater originating from potential pollution-generating land uses during design-level storm events. Discharge from the detention/water quality vault will flow directly to surface waters, specifically the creek at the toe of the eastern site slope. Additionally, except for the John Freemand well identified above, all of the identified wells are located upgradient or crossgradient and in a stratigraphically lower elevation aquifer, protected from the site by a natural aquitard, Vashon lodgement till. The John Freemand well is located within the Bear Creek Valley, approximately 100 feet lower in elevation than the subject site. It is on the opposite side of the creek that flows at the toe of the eastern site slope of the subject property. Any stormwater generated on the Hussey Property will be diverted into this creek, and ultimately to Bear Creek, and will not adversely impact the Freemand well, in our opinion.

4.2 Water Quality Results for Nearby Wells

King County and ODW water quality records were searched to identify any water quality information for wells within 1,300 feet of the project boundary. None of the wells located within the search radius had any reported water quality data. We did not find any evidence of off-site contaminated ground water that could be adversely impacted by the proposed site development.

The closest well with water quality data is a Group B well (Sumner) about 2,500 feet south of Hussey Property. This water quality data is summarized below.

- **Sumner Well**: This well is located approximately 2,500 feet south of the Hussey property. Sample results are available between the years of 1991 and 2003 for total coliform and a variety of inorganic constituents. Total coliform has not been detected. Drinking water standards were exceeded for iron and manganese in 1991. These constituents have not been tested since then. Iron and manganese are both naturally occurring and are unlikely to be due to anthropogenic sources.

5.0 GROUND WATER QUANTITY AND QUALITY IMPACTS AND MITIGATION

The proposed Hussey Property project will avoid significant adverse impacts to downgradient water resources by implementing stormwater management controls required by the City of Redmond. The proposed modern stormwater management controls described in the following sections of this report are considered BMPs for keeping surface water flows at natural levels, maintaining ground water recharge, and mitigating water quality impacts to surface water and ground water in accordance with WAC Chapter 173.200 and 173.201A (WAC, 2014).

The following sections describe how the stormwater detention system and selected BMPs will protect area ground water resources. The specific stormwater treatment and site construction BMPs that will protect ground water resources are described below.

5.1 Water Quantity Considerations

Water and sewer service for the project is provided by the City of Redmond. There is no ground water withdrawal related to the existing Hussey Property or the proposed improvements. Stormwater runoff will discharge from the proposed vault into surface water, the creek at the toe of the eastern site slope.

Ground water levels have been monitored on a nearby development project (Curry Property) since April 2004 (Figure 7). The Curry Property is located on the east side of 172nd Avenue NE about 1,500 feet southwest of the subject project site (shown on Figure 4). Seasonal aquifer water level fluctuations are typically less than 1 foot and show a relationship to seasonal precipitation trends. Water level monitoring indicates an increase in aquifer water levels over the 10 year period of record. There is no indication that development activities have influenced water levels during the monitoring period.

The USGS published a report (Konrad and Booth, 2002) summarizing the results of a study that had been initiated, in part, under the assumption that development-related reductions in ground water recharge would be identified in urban area stream flows. Instead, the study found that *"Changes in hydrologic processes, such as infiltration and recharge, resulting from urban development apparently do not have a general influence on annual low flows…."* This finding indicates that aquifer water levels are not being adversely impacted by urban development, otherwise low flows in the streams should have been quantifiably reduced.

There is no evidence indicating that ground water levels will be adversely impacted by the Hussey Property project. Therefore, there will be no project-related withdrawal effects on nearby wells and surface water features, in our opinion.

5.2 Water Quality Considerations

This section provides an assessment of water quality considerations associated with the proposed improvement project. This assessment includes an evaluation of potential pollutants, fate and transport considerations, and mitigating measures that will be included in the proposed improvement project.

Pollutants generated during construction include suspended solids and trace petroleum hydrocarbons. Following construction, the two primary sources of pollutants include roadways and landscaping chemicals. Roadway runoff includes trace petroleum hydrocarbons and trace metals. Landscaping chemicals include fertilizers, pesticides, and herbicides.

General fate and transport for each of the pollutants identified above includes the following:

- Suspended solids (including heavy metals in a particulate form) are removed by filtration within several inches of the ground surface.

- Heavy metals in the dissolved form are strongly sorbed to soil particles and do not typically migrate more than several inches through the soil column.

- Dilute concentrations of petroleum hydrocarbons (typical of roadway runoff) are readily degradable in the natural environment.

- Most modern pesticides and herbicides are strongly sorbed in the soil column and/or readily degraded in the natural environment.

- Fertilizers contain nitrogen that can be present as nitrate (or other forms of nitrogen) and may migrate into the soil column. The nitrogen is utilized by plants and microbes in the soil column and either incorporated into plant material or converted to nitrogen gas.

The proposed project will avoid significant adverse impacts to downgradient water resources by implementing required stormwater management controls and due to natural hydrogeologic "protection" of the deeper source aquifers. Modern stormwater management controls are considered BMPs for keeping surface water flows at natural levels, maintaining ground water recharge, and mitigating water quality impacts to surface water and ground water. For example, stormwater from paved areas and nonpolluting roof runoff will be conveyed to treatment and detention facilities prior to controlled release to surface waters.

As noted above, the on-site domestic well will be decommissioned prior to construction and thus will not be affected by the proposed development. In addition, all of the remaining wells within 1,300 feet of the site are completed in a stratigraphically lower aquifer. The confining units, lodgement till and silt/clay deposits, between the site and the aquifers will provide natural hydrogeologic "protection" of the deeper source aquifers. In addition, these wells are constructed with well seals to prevent local surface contamination of the sources. Water quality data on file with King County and the ODW indicate there are no anthropogenic sources of contamination in any of the wells.

The property owner has used the subject property for storage/cultivation of compost for his off-site natural fertilizer (compost tea brewing) business. Up to 7 feet of organic-rich fill material was encountered at the south end of the site. In addition, piles of trash bags filled with organic material were observed at the south end of the site. As part of site development, we anticipate that all organic-rich fill material and compost will be removed prior to grading of the site, installation of utilities, and home construction. Therefore, by removal of these materials, the proposed improvements will reduce the risk of adverse impacts to water quality

in relation to infiltration or runoff of stormwater through composting nutrient-rich materials, as compared to the existing conditions.
In summary, the available data indicate there is no potential for the proposed project to cause a significant adverse impact to water quality at any nearby wells.

5.3 Proposed Stormwater Quality Treatment Best Management Practices

In accordance with the 2005 Ecology *Stormwater Management Manual for Western Washington* (Ecology, 2005), the project will require water quality treatment for pollution-generating surfaces. Information provided by Blueline indicates that on-site runoff will be routed to a combined detention/water quality vault prior to controlled release to surface waters.

5.4 Construction Best Management Practices

Per the *Redmond Municipal Code* (RMC) Section 15.24.080, placement of contaminated fill material is prohibited. Contaminated fill is defined in RMC 15.24.095 as those materials that exceed cleanup standards for soil specified in WAC 173-340-740, Model Toxics Control Act (MTCA). As discussed further in Section 5.5 of this report, AESI completed a Phase I Environmental Site Assessment, dated March 21, 2014 (AESI, 2014a). No contaminated soils or potential sources of contamination were identified on-site as part of this study. The native material observed on-site during our explorations appeared to be free of contamination and should be suitable for reuse as fill material provided that it is at a moisture content that will allow proper compaction. As discussed in Section 5.2 of this report, up to 7 feet of organic-rich fill material was encountered at the south end of the site. This organic fill material will be removed as part of site development and will not be reused as fill. Any imported fill materials should also be free of contamination.

As noted above, ground water seepages were observed in all exploration pits at varying depths, typically near the contact between the existing fill and underlying till and the contact between the weathered and unweathered till. The encountered ground water is expected to be limited to seepages within the interflow zone, as discussed in Section 3.3 of this report, and flow volumes should be small. Based on the provided grading plans, the deeper aquifer should not be encountered during construction. Therefore, we do not anticipate the need for extensive dewatering in advance of excavations; however, the contractor should be prepared to intercept any ground water seepage entering excavations and route it to a suitable discharge location. Use of conventional dewatering methods, including sumps and pumps, should be sufficient to accommodate the expected flow volumes.

5.4.1 Spill Prevention and Hazardous Material Cleanup

Hazardous materials that will be stored on-site during construction of the Hussey Property development include: gasoline, diesel, hydraulic fluid, machine oil, and paint. A Spill

Prevention and Response Plan for the proposed development during construction is summarized below, and provided in Appendix E. The spill plan is in accordance with the City of Redmond Protection Standards During Construction RZC 21.64.050 (D)(3)(f).

General Hazardous Material Storage and Spill Prevention

- Ensure all hazardous substances are properly labeled.
- Store, dispense, and/or use hazardous substances in a way that prevents releases.
- Provide secondary containment when storing hazardous substances in bulk quantities (approximately 55 gallons).
- Maintain good housekeeping practices for all chemical materials at the facility.
- Routine/Daily checks in the hazardous substance storage area to be performed by a future person on-site to be named at the commencement of work.
- Monthly inspections of the hazardous substance storage area, secondary containment, and annular space (interior cavity of double wall tank) on any aboveground storage tanks (ASTs) or underground storage tanks (USTs) need to be logged in this plan.
- In general, most substances stored on-site will be minimal in size, such as 5-gallon gasoline cans. Large volume spills are not anticipated involving the work on this site.

Spill Containment

- The general spill response procedure at this facility is to stop the source of the spill, contain any spilled material and clean up the spill in a timely manner to prevent accidental injury or other damage.
- Small spills will be contained by site personnel if they are able to do so without risking injury. Spill kits will be located at the job site safety office.

Emergency Procedures

- Immediately call **911** in the event of injury, fire or potential fire, or spill of a hazardous substance that gives rise to an emergency situation.
- Spill cleanup for large spills should be handled by the Spill Cleanup Contractor

5.4.2 Erosion Hazard Considerations

Care must be taken during construction not to contaminate the stormwater facilities with silt and turbid stormwater. Therefore, a properly developed, constructed, and maintained erosion control plan consistent with City of Redmond standards and best management erosion control practices will be required for the project. The following recommendations are related to general erosion potential and mitigation.

Project planning and construction should follow City of Redmond standards of practice with respect to temporary erosion and sediment control (TESC). BMPs should include but not be limited to:

1. Construction activity should be scheduled or phased as much as possible to reduce the amount of earthwork activity that is performed during the winter months.

2. TESC measures should be installed prior to any site activity or disturbance.

3. During the wetter months of the year, or when large storm events are predicted during the summer months, work areas should be stabilized, so the site can receive the rainfall without excessive erosion or sediment transport. The required measures will depend on the time of year and the duration that the area will be left un-worked. During the winter months, areas that are to be left unworked should be covered with plastic on a daily basis. During the summer months, stabilization may consist of seal-rolling the subgrade. The stabilization should include establishing temporary stormwater conveyance to route runoff to the approved discharge location.

4. Surface runoff and discharge should be controlled during and following development. Uncontrolled discharge may promote erosion and sediment transport. Under no circumstances should concentrated discharges be allowed to flow over the top of steep slopes.

5. Soils that are to be reused around the site should be stored in such a manner as to reduce erosion from the stockpile. Protective measures may include, but are not limited to, covering with plastic sheeting, the use of low stockpiles in flat areas, or the use of silt fences around pile perimeters.

6. After construction is complete, disturbed areas should be revegetated as soon as possible. If it is outside of the growing season, the disturbed areas should be covered with mulch or plastic sheeting, as recommended in the erosion control plan.

It is our opinion that with the proper implementation of the TESC plans and by field-adjusting appropriate mitigation elements (BMPs) during construction, the potential adverse impacts from erosion hazards on the project may be mitigated.

5.5 Description and Management of Deleterious Substances and Hazardous Materials

As specified in Appendix 1.F of the RZC (Redmond, 2001), the Level 2 CARA hydrogeologic assessment shall identify any deleterious substances and hazardous materials that will be stored, handled, treated, used, produced, recycled, or disposed of on-site. And, if necessary, the assessment shall specify methods of storing and handling these substances and provide a spill plan. Since the proposed development is limited to residential land use, quantities of deleterious substances and hazardous materials are unlikely to exceed standard household quantities. Therefore, specifics regarding storage and handling of these materials is not warranted.

Based on discussions with the property owner (Mr. Hussey), it is our understanding that one UST was historically utilized on the subject property, for approximately 2 years, but it has been removed. The UST was located adjacent to the workshop, on the south side of the building. Mr. Hussey was not aware of any sampling having been performed at the subject property during the removal of the UST. As part of the completion of our Phase I Environmental Site Assessment (ESA), referenced previously, AESI observed excavation of one exploration pit in the vicinity of the former UST location, and collected a soil sample for laboratory analysis for Total Petroleum Hydrocarbons (TPH) as Diesel (TPH-Dx) and Heavy Oil (TPH-Ox). No detections above the laboratory reporting limit were identified.

AESI's March 21, 2014 Phase I Environmental Site Assessment states:

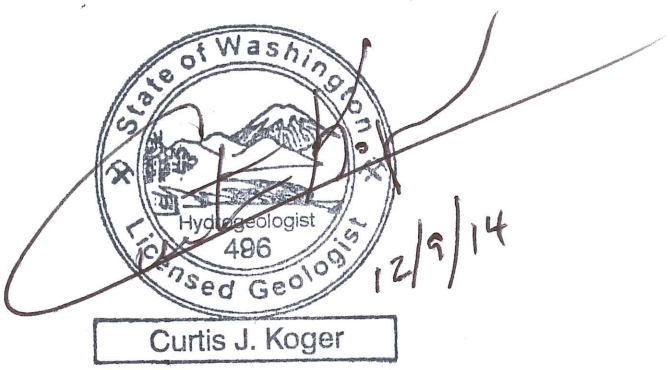
> Based on the information gathered during this Phase I ESA, this assessment has not identified recognized environmental conditions, in our opinion, that would present a material threat of a release of hazardous substances or petroleum hydrocarbons at the subject property.

Appendix D contains the Executive Summary from the Phase I ESA.

6.0 CLOSURE

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

Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Kirkland, Washington



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Senior Principal Geologist/Hydrogeologist

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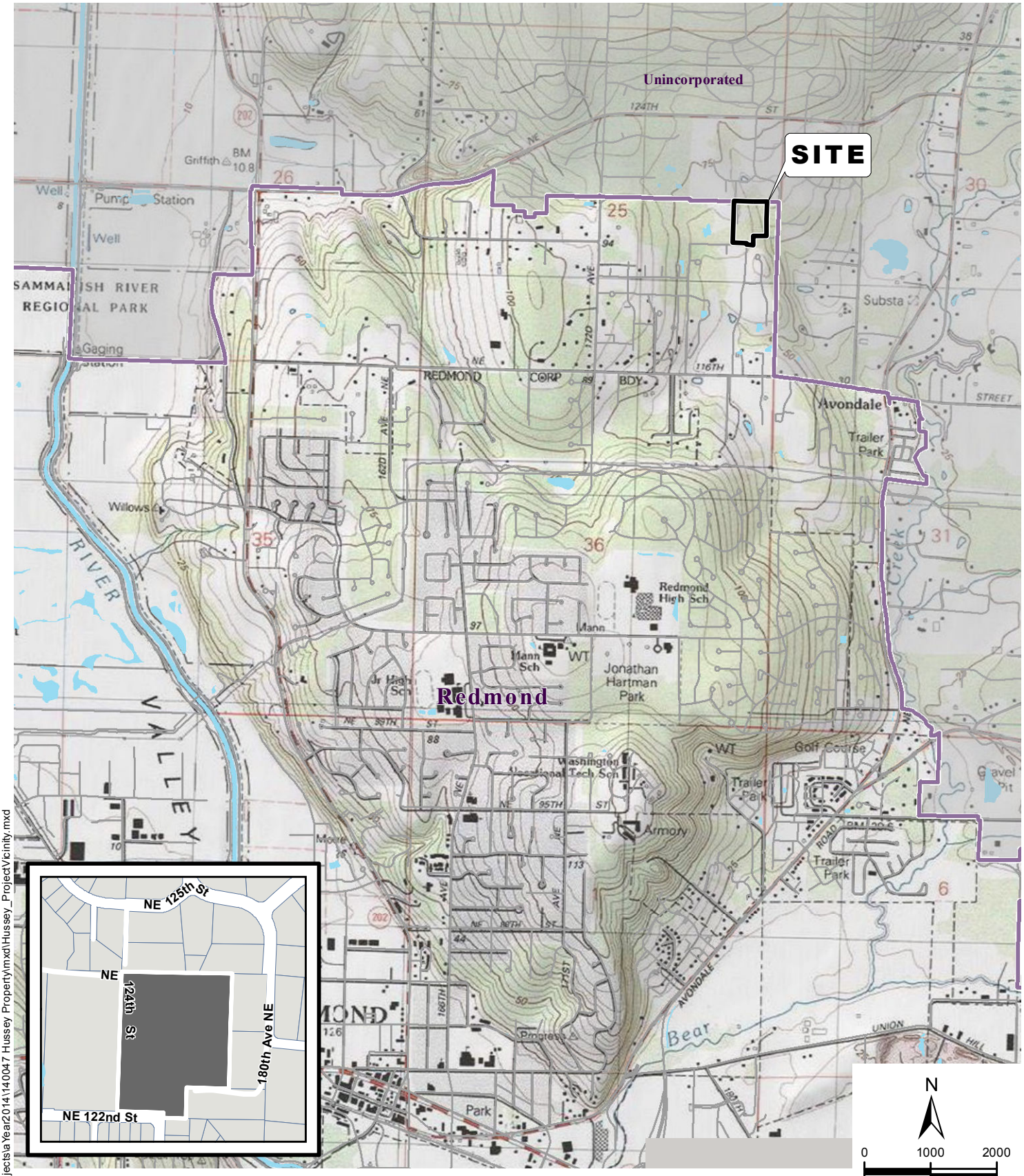

REFERENCE: USGS, KING CO

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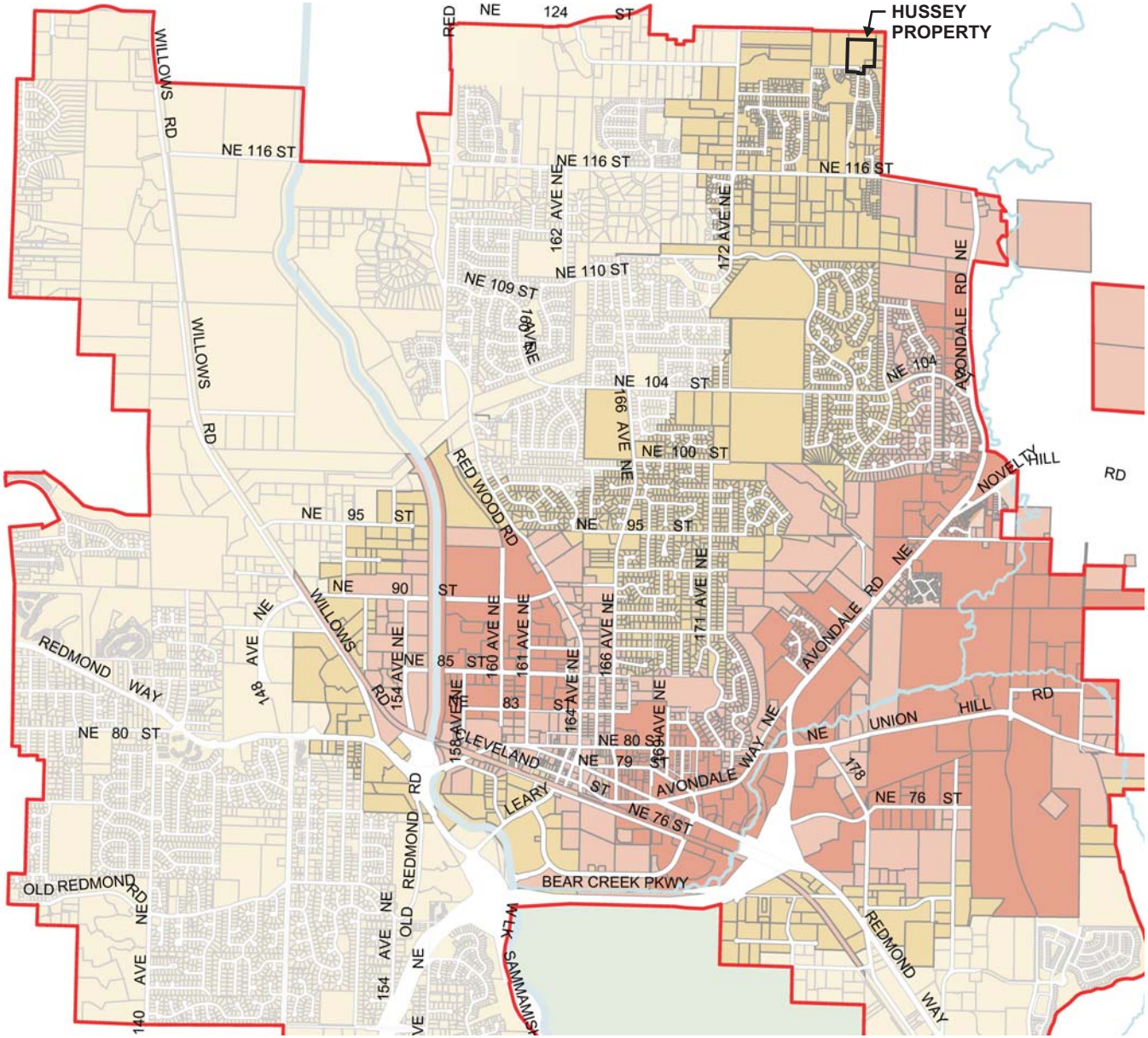
VICINITY MAP

HUSSEY PROPERTY
REDMOND, WASHINGTON

FIGURE 1

DATE 8/14

PROJ. NO. KE140047A



REFERENCE: CITY OF REDMOND

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WELLHEAD PROTECTION ZONES MAP

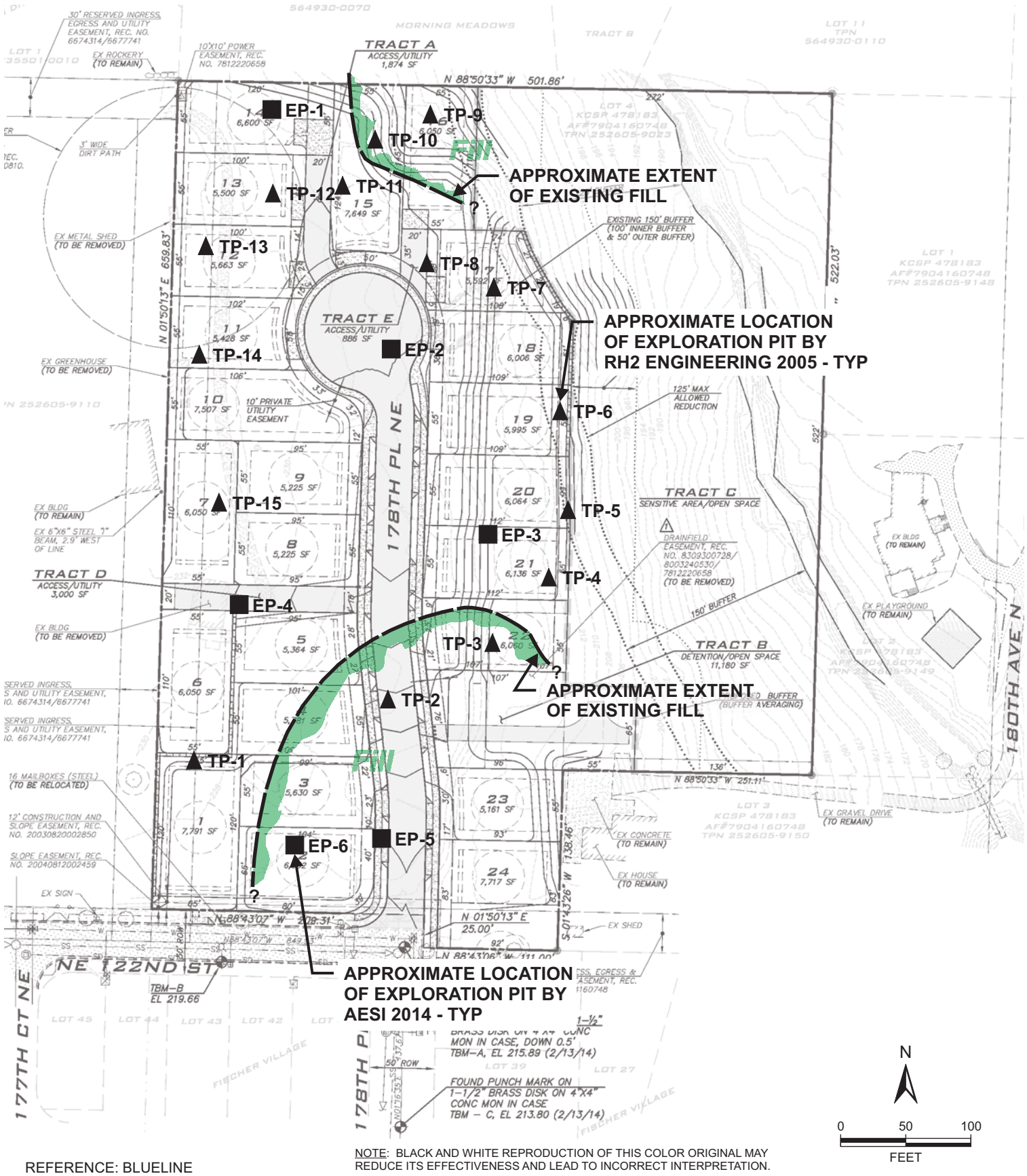
HUSSEY PROPERTY
REDMOND, WASHINGTON

FIGURE 2

DATE 8/14

PROJ. NO. KE140047A

140047 Hussey Property \ 140047 Wellhead.cdr



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SITE AND EXPLORATION PLAN

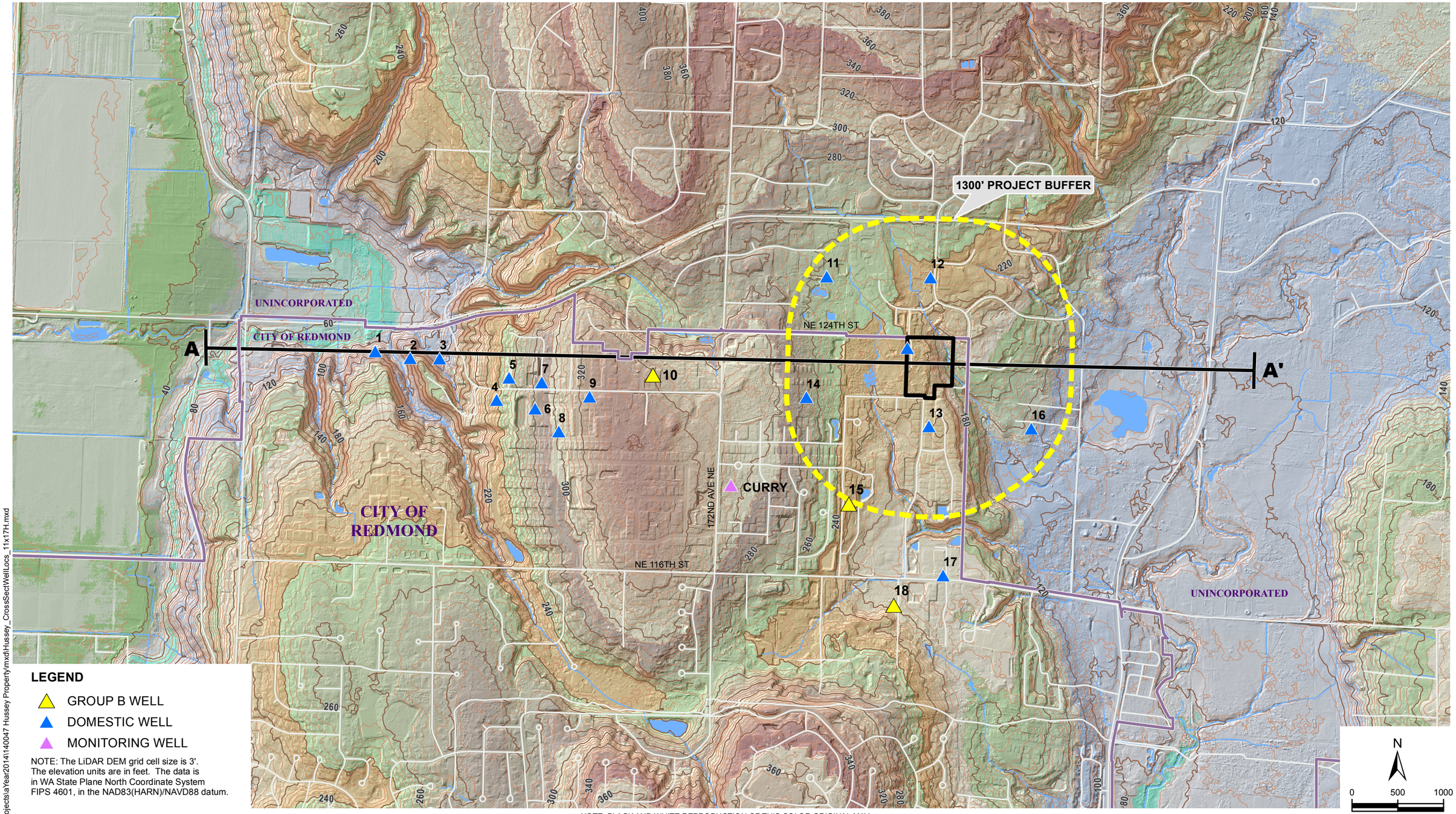
HUSSEY PROPERTY
REDMOND, WASHINGTON

FIGURE 3

DATE 12/14

PROJ. NO. KE140047A

140047 Hussey Property \ 140047 Site and Expl 12-14.cdr



LEGEND

- GROUP B WELL
- DOMESTIC WELL
- MONITORING WELL

NOTE: The LiDAR DEM grid cell size is 3'. The elevation units are in feet. The data is in WA State Plane North Coordinate System FIPS 4601, in the NAD83(HARN)/NAVD88 datum.

REFERENCE: PSLC

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0 500 1000

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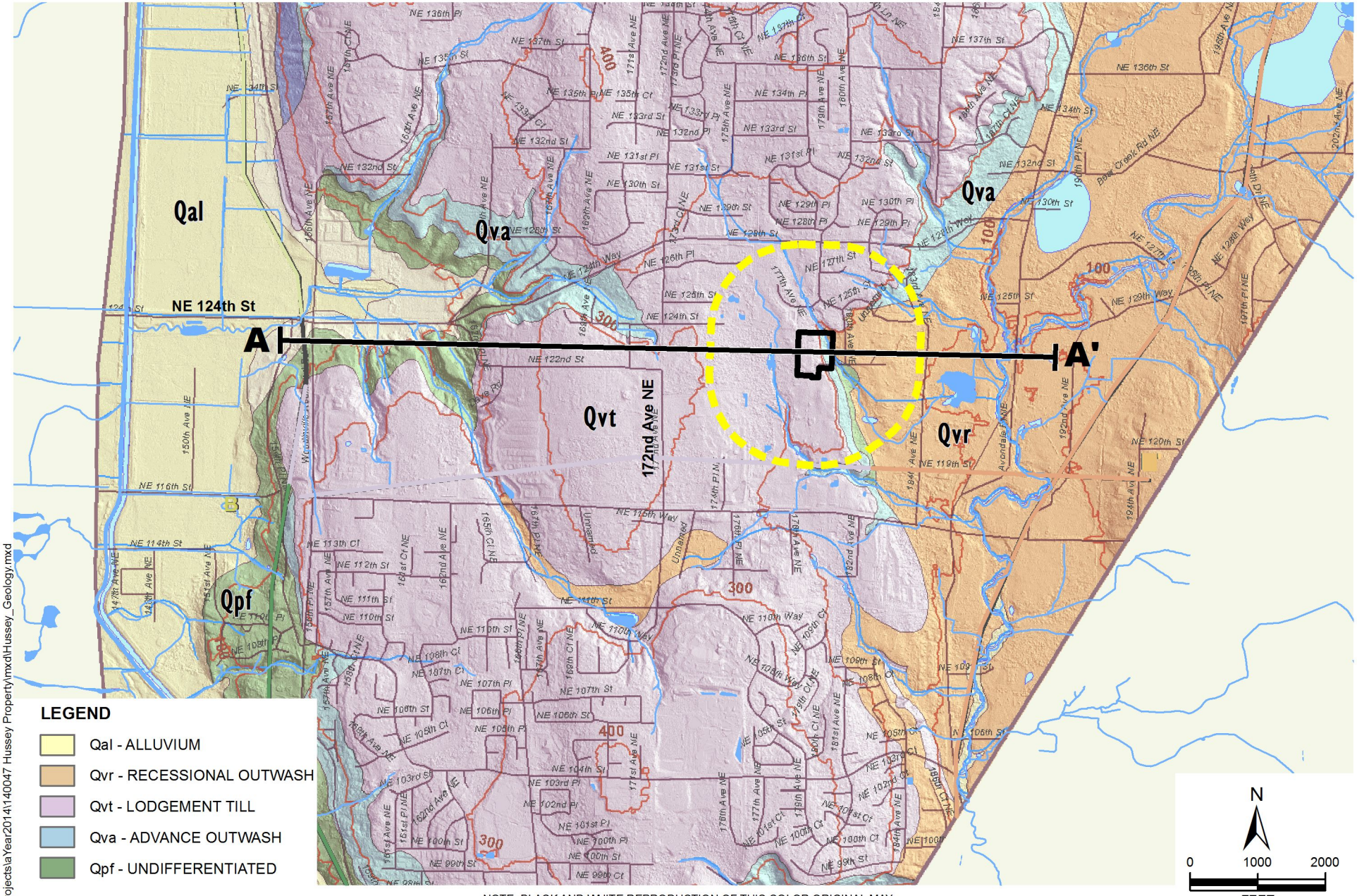
WELL LOCATIONS

HUSSEY PROPERTY
REDMOND, WASHINGTON

FIGURE 4

DATE 12/14

PROJ. NO. KE140047A



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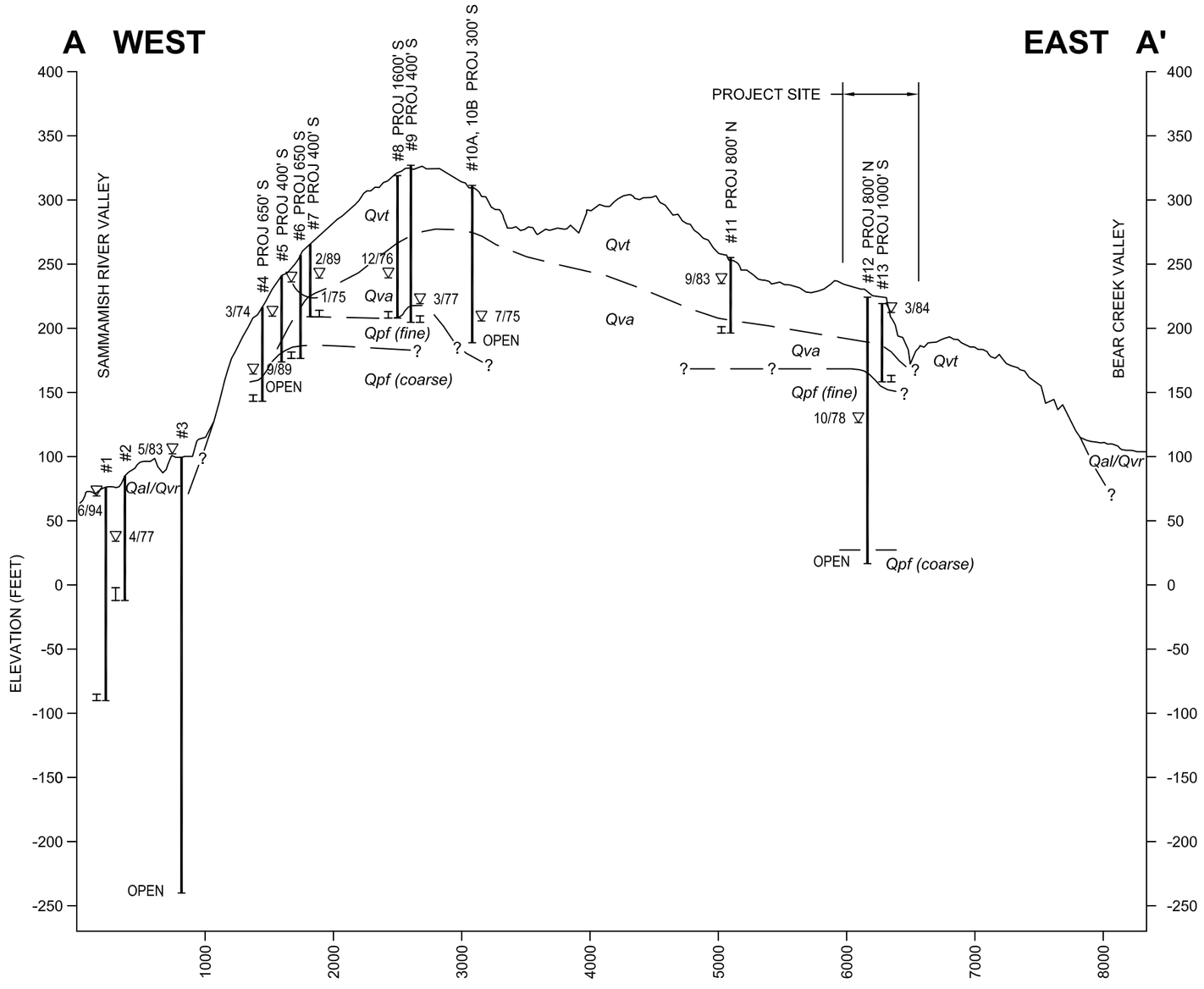
GEOLOGY

HUSSEY PROPERTY
REDMOND, WASHINGTON

FIGURE 5

DATE 12/14

PROJ. NO. KE140047A



LEGEND:

Qal	ALLUVIUM
Qvr	VASHON RECESSIONAL OUTWASH
Qvt	VASHON LODGEMENT TILL
Qva	VASHON ADVANCE OUTWASH
Qpf	PRE-FRASER DEPOSIT - UNDIFFERENTIATED
(fine)	FINE-GRAINED FACIES
(coarse)	COARSE-GRAINED FACIES
▽ 3/77	STATIC WATER LEVEL RECORDED FROM ECOLOGY LOGS ON DATE INDICATED
	WELL SCREEN
?	APPROXIMATE GEOLOGIC CONTACT

associated earth sciences incorporated

GEOLOGIC CROSS-SECTION A - A'

HUSSEY PROPERTY
REDMOND, WASHINGTON

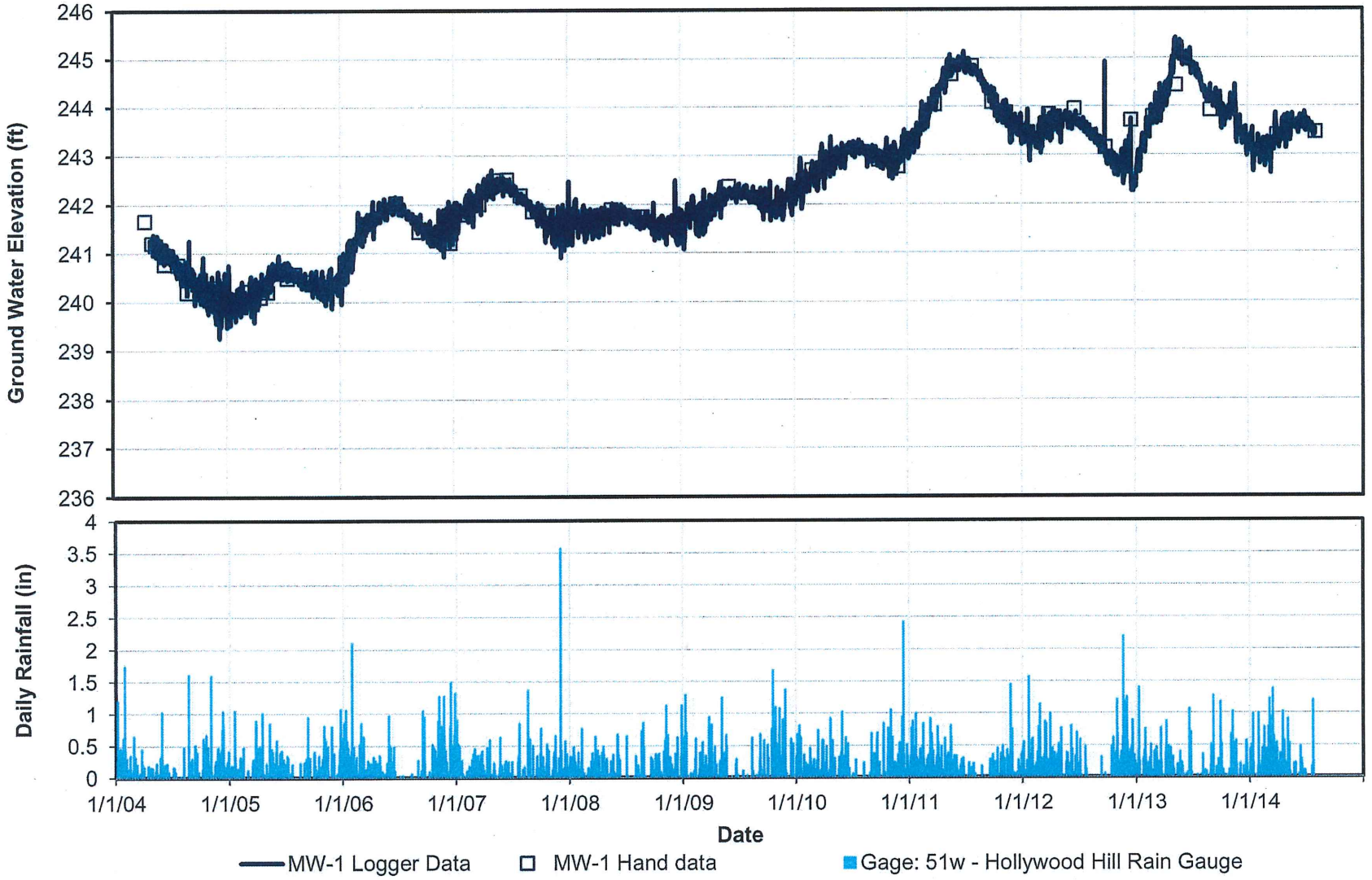
FIGURE 6

DATE 8/14

PROJECT NO. KE140047A

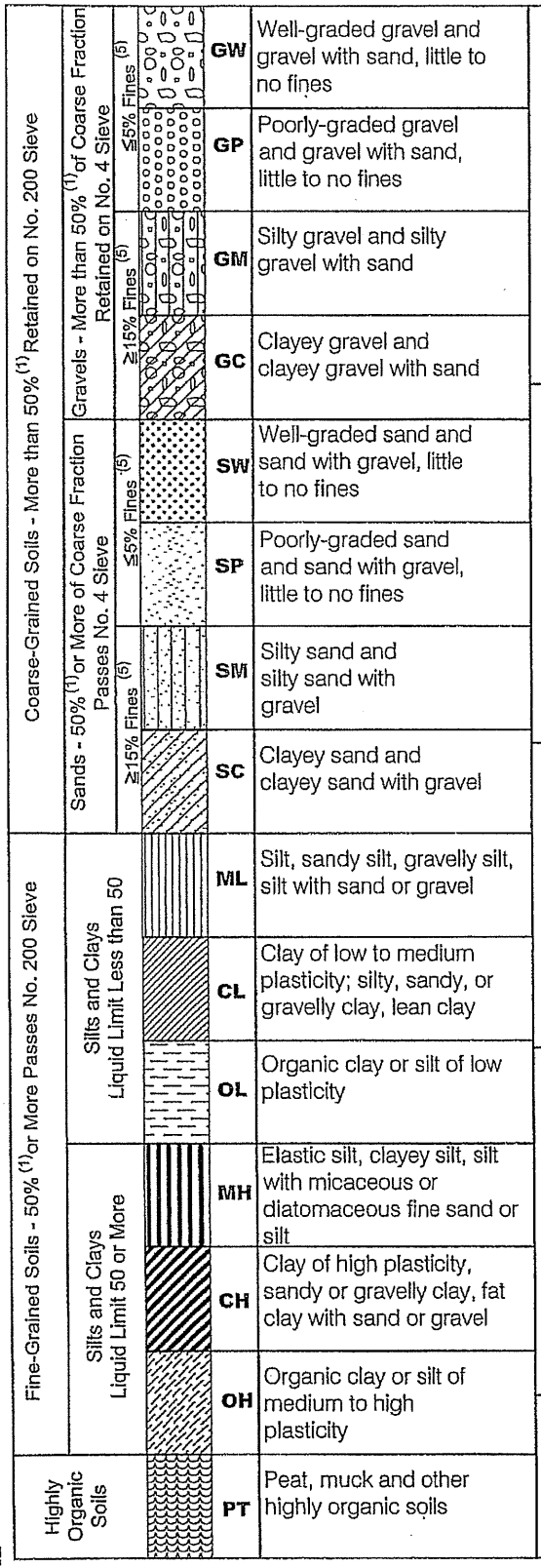
140047 Hussey Property \ 140047 Geo Sect.dwg LAYOUT: Sect A-A

Figure 7: Curry Property Monitoring Well, MW-1
Ground Water Elevations vs. Rainfall



APPENDIX A

Exploration Logs



Terms Describing Relative Density and Consistency

	Density	SPT[2] blows/foot
Coarse-Grained Soils	Very Loose	0 to 4
	Loose	4 to 10
	Medium Dense	10 to 30
	Dense	30 to 50
	Very Dense	>50
	Consistency	**SPT[2] blows/foot**
Fine-Grained Soils	Very Soft	0 to 2
	Soft	2 to 4
	Medium Stiff	4 to 8
	Stiff	8 to 15
	Very Stiff	15 to 30
	Hard	>30

Test Symbols

G = Grain Size
M = Moisture Content
A = Atterberg Limits
C = Chemical
DD = Dry Density
K = Permeability

Component Definitions

Descriptive Term	Size Range and Sieve Number
Boulders	Larger than 12"
Cobbles	3" to 12"
Gravel	3" to No. 4 (4.75 mm)
Coarse Gravel	3" to 3/4"
Fine Gravel	3/4" to No. 4 (4.75 mm)
Sand	No. 4 (4.75 mm) to No. 200 (0.075 mm)
Coarse Sand	No. 4 (4.75 mm) to No. 10 (2.00 mm)
Medium Sand	No. 10 (2.00 mm) to No. 40 (0.425 mm)
Fine Sand	No. 40 (0.425 mm) to No. 200 (0.075 mm)
Silt and Clay	Smaller than No. 200 (0.075 mm)

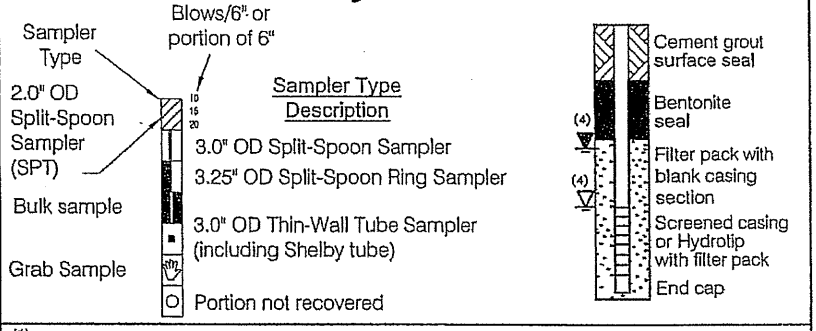
(3) Estimated Percentage

Component	Percentage by Weight
Trace	<5
Few	5 to 10
Little	15 to 25
With	- Non-primary coarse constituents: ≥ 15% - Fines content between 5% and 15%

Moisture Content

Dry - Absence of moisture, dusty, dry to the touch
Slightly Moist - Perceptible moisture
Moist - Damp but no visible water
Very Moist - Water visible but not free draining
Wet - Visible free water, usually from below water table

Symbols



(1) Percentage by dry weight
(2) (SPT) Standard Penetration Test (ASTM D-1586)
(3) In General Accordance with Standard Practice for Description and Identification of Soils (ASTM D-2488)
(4) Depth of ground water
ATD = At time of drilling
Static water level (date)
(5) Combined USCS symbols used for fines between 5% and 15%

Classifications of soils in this report are based on visual field and/or laboratory observations, which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field or laboratory testing unless presented herein. Visual-manual and/or laboratory classification methods of ASTM D-2487 and D-2488 were used as an identification guide for the Unified Soil Classification System.

Associated Earth Sciences, Inc.

EXPLORATION LOG KEY

FIGURE A1

blocks\log_key.dwg LAYOUT: Layout2

LOG OF EXPLORATION PIT NO. EP-1

Depth (ft)	DESCRIPTION
	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered.
	Topsoil
1	**Weathered Vashon Lodgement Till**
2	Loose, very moist to wet, reddish brown to brown, fine SAND, with silt, few fine to coarse gravel, trace organics (SM).
3	
	Vashon Lodgement Till
4	Dense to very dense, very moist, mottled brown to gray, fine SAND, trace medium to coarse sand, with silt, few fine to coarse gravel; diamict (SM).
5	Few cobbles.
6	Becomes gray.
7	
8	Very dense, very moist, gray, fine SAND, few medium to coarse sand, with silt, few fine to coarse gravel, trace cobbles; diamict (SM).
9	
10	Bottom of exploration pit at depth 9.5 feet Seepage at 3.5 feet. No caving.
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Hussey Property
Redmond, WA

Logged by: LDM
Approved by:

associated earth sciences incorporated

Project No. KE140047A

2/24/14

KCTP3 140047.GPJ December 8, 2014

LOG OF EXPLORATION PIT NO. EP-2

Depth (ft)	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered. **DESCRIPTION**
1	**Fill**
2	Loose, very moist, dark brown, fine SAND, with silt, few fine to coarse gravel (SM),
3	
4	Loose, very moist, brown, fine to medium SAND, with silt, few fine to coarse gravel (SM).
5	Relict topsoil (6 to 12 inches thick).
6	**Weathered Vashon Lodgement Till**
7	Loose to medium dense, very moist to wet, reddish brown, fine SAND, with silt, few fine to coarse gravel (SM).
8	**Vashon Lodgement Till**
9	Dense, very moist, brown, fine to coarse SAND, with silt, few to little fine to coarse gravel (SM).
10	
11	Bottom of exploration pit at depth 10.5 feet Seepage at 6 feet. Slight caving abover 6 feet.
12	
13	
14	
15	
16	
17	
18	
19	
20	

KCTP3 140047.GPJ December 8, 2014

Hussey Property
Redmond, WA

Logged by: LDM

Approved by:

associated earth sciences incorporated

Project No. KE140047A

2/24/14

LOG OF EXPLORATION PIT NO. EP-3

Depth (ft)	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered. **DESCRIPTION**
1	**Topsoil**
2	**Weathered Vashon Lodgement Till** Medium dense, very moist to wet, reddish brown, fine SAND, with silt, trace medium to coarse sand, few fine to coarse gravel (SM).
3	
4	**Vashon Lodgement Till** Dense to very dense, very moist, brown to gray, fine SAND, trace medium to coarse sand, with silt, few fine to coarse gravel, with thin layers (2 to 4 inches) of fine to medium sand, few silt; diamict (SM).
5	
6	
7	
8	As above.
9	
10	Bottom of exploration pit at depth 9 feet Mderate seepage at approximately 3 feet. No caving.
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Hussey Property
Redmond, WA

Logged by: LDM
Approved by:

associated earth sciences incorporated

Project No. KE140047A
2/24/14

KCTP3 140047.GPJ December 8, 2014

LOG OF EXPLORATION PIT NO. EP-4

Depth (ft)	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered. **DESCRIPTION**
	Topsoil
1	**Weathered Vashon Lodgement Till**
	Medium dense, very moist to wet, reddish brown, fine SAND, with silt, trace medium to coarse sand, few fine to coarse gravel (SM).
2	
3	**Vashon Lodgement Till**
4	Very dense, very moist, gray, fine SAND, trace medium to coarse sand, with silt, few fine to coarse gravel; diamict (SM).
5	
6	
7	Bottom of exploration pit at depth 6.5 feet Slight seepage at 3 to 4 feet. No caving.
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Hussey Property
Redmond, WA

Logged by: LDM
Approved by:

associated earth sciences incorporated

Project No. KE140047A
2/24/14

KCTP3 140047.GPJ December 8, 2014

LOG OF EXPLORATION PIT NO. EP-5

Depth (ft)	DESCRIPTION
	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered.
	Fill
1	Very loose to loose, very moist to wet, black to dark brown, fine SAND, with silt, with organics and wood debris (SM).
2	
3	
4	
5	
6	
7	**Weathered Vashon Lodgement Till**
8	Medium dense, very moist to wet, brown, fine SAND, trace medium to coarse sand, with silt, few fine to coarse gravel; diamict (SM).
9	Becomes gray with occasional mottling.
10	Bottom of exploration pit at depth 9.5 feet Moderate seepage at 6 to 7 feet. Moderate caving above 7 feet.
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

KCTP3 140047.GPJ December 8, 2014

Hussey Property
Redmond, WA

Logged by: LDM

Approved by:

associated earth sciences incorporated

Project No. KE140047A

2/24/14

LOG OF EXPLORATION PIT NO. EP-6

Depth (ft)	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered. **DESCRIPTION**
1	**Fill** Loose, very moist to wet, brown, fine SAND, with silt, few fine to coarse gravel, with organics (SM).
2	
3	**Weathered Vashon Lodgement Till** Loose to medium dense, very moist to wet, reddish brown to brown, fine SAND, with silt, few fine to coarse gravel (SM).
4	
5	**Vashon Lodgement Till** Dense to very dense, very moist, gray to brown, fine SAND, trace medium to coarse sand, with silt, few fine to coarse gravel; diamict (SM).
6	
7	Bottom of exploration pit at depth 7 feet Moderate seepage at 3 to 4 feet. No caving.
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Hussey Property
Redmond, WA

Logged by: LDM
Approved by:

associated earth sciences incorporated

Project No. KE140047A
2/24/14

KCTP3 140047.GPJ December 8, 2014

RH2

Test Pit Logs

TEST PIT 1 (TP1)

Depth	*Soil Interpretation*
0-0.5 ft	O Horizon; dark brown; roots, silty sand/sandy silt, bioturbated; moist (ALDERWOOD SOIL)
0.5-1.0 ft	A Horizon; orange-brown; roots, silty sand/sandy silt, bioturbated; moist (ALDERWOOD SOIL)
1-2.5 ft	B Horizon; brown-gray, mottling; fewer roots, silty sand/sandy silt, firm but bioturbated; moist (ALDERWOOD SOIL)
2.0-4.5 ft	C Horizon; brown to gray, mottling; silty sand/sandy silt with occasional gravel, firm but bioturbated; moist (ALDERWOOD SOIL)
4-6 ft	Unweathered; brownish gray; silty sand/sandy silt with gravel and occasional cobble; massive (no bedding) and dense; moist; stable pit walls; (TILL)
Notes:	Test pit completed at approx. 6'. No groundwater seepage or caving observed. Test pit observed and logged by Andrea Mast on 01/27/2005.

TEST PIT 2 (TP2)

Depth	*Soil Interpretation*
0-4 ft	Dark brown; roots, sandy silt very organic-rich, occasional gravel or small cobble, moist to damp, bioturbated; (FILL)
~3.5-4 ft	Transition from fill to Alderwood soils.
3.5-4.5 ft	O & A Horizons; brown; roots, silty sand/sandy silt, (ALDERWOOD SOIL)
4-5ft	B Horizon; brown; fewer roots, silty sand/sandy silt, firm but bioturbated; (ALDERWOOD SOIL)
5-7 ft	C Horizon; brown to gray, mottling; silty sand with occasional gravel, moist to wet; medium-dense. Seepage at 5'. (ALDERWOOD SOIL)
6.5-7 ft	Unweathered; brownish gray; silty sand with occasional gravel; massive (no bedding) and dense; moist; stable pit walls; (TILL)
Notes:	Test pit completed at approx. 7'. No caving observed. Groundwater seepage observed at 5'. Piezometer (P1) installed on west side of test pit. Test pit observed and logged by Andrea Mast on 01/27/2005.

TEST PIT 5 (TP5)

Depth	*Soil Interpretation*
0-9 in	O Horizon; dark brown; roots, silty sand/sandy silt, bioturbated; (ALDERWOOD SOIL)
6-10 in	A Horizon; brown; roots, silty sand/sandy silt, bioturbated; (ALDERWOOD SOIL)
10 in-4 ft	B Horizon; brown; fewer roots, silty sand/sandy silt, firm but bioturbated; (ALDERWOOD SOIL)
4-7.5 ft	C Horizon; brown to gray, moist to damp; mottling; silty sand with gravel, firm; (ALDERWOOD SOIL)
7.5-8 ft	Unweathered; blue-gray; silty sand with gravel and occasional cobble; massive (no bedding) and dense; moist; stable pit walls; (TILL)
Notes:	Test pit completed at approx. 8'. No groundwater seepage or caving observed. Piezometer (P2) installed in test pit. Test pit observed and logged by Andrea Mast & Geoff Clayton on 01/27/2005.

TEST PIT 6 (TP6)

Depth	*Soil Interpretation*
0-12 in	O Horizon; dark brown; roots, silty sand/sandy silt, bioturbated; (ALDERWOOD SOIL)
6-14 in	A Horizon; brown; roots, silty sand/sandy silt, bioturbated; (ALDERWOOD SOIL)
14 in-2.5 ft	B Horizon; brown; fewer roots, silty sand/sandy silt, moist to damp; firm but bioturbated; (ALDERWOOD SOIL)
2.5-10 ft	C Horizon; brown to gray, mottling; silty sand with gravel, firm and dense; moist to damp; no blue-grey till observed like in TP5. Material was starting to become "blocky" at base of pit; (ALDERWOOD SOIL)
Notes:	Test pit completed at approx. 10'. Minor groundwater seepage at 9'. No caving observed. Test pit observed and logged by Andrea Mast on 01/27/2005.

TEST PIT 9 (TP9)

Depth	*Soil Interpretation*
0-7 ft	Fill; dark brown; roots and stumps, silty sand/sandy silt, bioturbated; (FILL)
7-11 ft	C-horizon; brown; roots, sandy silt, dense; moist; no visual indication of other soil horizons; (ALDERWOOD SOIL)
Notes:	Test pit completed at approx. 11'. No groundwater seepage or caving observed. Test pit observed and logged by Andrea Mast on 01/27/2005. Test pit located near back northeast corner of existing abandoned foundation at top of slope.

TEST PIT 10 (TP10)

Depth	*Soil Interpretation*
0-2 ft	Fill; dark brown; roots, silty sand/sandy silt with gravel, bioturbated; (FILL)
1.5-2.5 ft	A Horizon; brown; roots, silty sand/sandy silt, bioturbated; (ALDERWOOD SOIL)
2-4ft	B Horizon; brown; fewer roots, silty sand/sandy silt, firm but bioturbated; (ALDERWOOD SOIL)
4-11 ft	C Horizon; brown to gray, mottling; silty sand with gravel and occasional cobble, firm and dense; moist; (ALDERWOOD SOIL)
Notes:	Test pit completed at approx. 11'. Minor seepage at 9'. No caving observed. Piezometer (P4) installed in test pit. Test pit observed and logged by Andrea Mast on 01/27/2005.

TEST PIT 11 (TP11)

Depth	*Soil Interpretation*
0-18 in	O/A Horizons; dark brown to brown; roots, sandy silt, moist; bioturbated; (ALDERWOOD SOIL)
18in-3.5 ft	B Horizon; brown; roots, sandy silt, moist; firm but bioturbated; (ALDERWOOD SOIL)
3.5-8.5 ft	C Horizon; brown to gray, mottling; silty sand with gravel, dense; damp; did not reach unweathered till, but was more dense with depth; (ALDERWOOD SOIL)
Notes:	Test pit completed at approx. 8.5'. Minor to moderate seepage observed at 7'. Very minor caving observed at 7'. Test pit observed and logged by Andrea Mast on 01/27/2005.

TEST PIT 14 (TP14)

Depth	*Soil Interpretation*
0-1 ft	O Horizon; dark brown; roots, sandy silt, bioturbated; (ALDERWOOD SOIL)
1-1.5 ft	A Horizon; brown; roots, sandy silt, bioturbated; (ALDERWOOD SOIL)
1.5-3 ft	B Horizon; brown; fewer roots, sandy silt, moist; firm but bioturbated; (ALDERWOOD SOIL)
3-5 ft	C Horizon; brown to gray, mottling; sandy silt with occasional gravel, moist; firm; very fine grained similar to TP13; (ALDERWOOD SOIL)
4.5-8 ft	Unweathered; brownish gray; very fine grained sandy silt with gravel; massive (no bedding) and dense; moist; stable pit walls; (TILL)
Notes:	Test pit completed at approx. 8'. No groundwater seepage or caving observed. Test pit observed and logged by Andrea Mast on 01/27/2005.

TEST PIT 15 (TP15)

Depth	*Soil Interpretation*
0-6 in	O/A Horizons; dark brown to brown; roots and burnt wood, silty sand/sandy silt, bioturbated; (ALDERWOOD SOIL)
6 in-2.5 ft	B Horizon; brown; fewer roots, silty sand/sandy silt, firm but bioturbated; (ALDERWOOD SOIL)
2.5-6 ft	C Horizon; brown to gray, mottling/oxidation; very fine grained sandy silt with occasional gravel, moist; firm but bioturbated; (ALDERWOOD SOIL)
6-7.5 ft	Unweathered; brownish gray; very fine grained sandy silt with gravel; massive (no bedding) and dense; blocky; moist; stable pit walls; (TILL)
Notes:	Test pit completed at approx. 7.5'. No groundwater seepage or caving observed. Test pit observed and logged by Andrea Mast on 01/27/2005.

APPENDIX B

Ecology Water Well Reports

Attachment 13

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

ENTERED

WATER WELL REPORT 1

STATE OF WASHINGTON

Start Card No. AAA 2725

Water Right Permit No. 26/5/35C

(1) OWNER: Name HAZEL MAGE Address 16029 NE 124 WOODINVILLE WA

(2) LOCATION OF WELL: County KING NE ¼ NW ¼ Sec 35 T 26 N., R 5 E W.M.

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

(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)

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

(5) DIMENSIONS: Diameter of well 6 inches. Drilled 165 feet. Depth of completed well 164 ft.

(6) CONSTRUCTION DETAILS:

Casing Installed: 6 " Diam. from +1 ft. to 159 ft.
Welded [X] Liner installed [ ] Threaded [ ]
" Diam. from ft. to ft.
" 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 COOK
Type TELESCOPE Model No.
Diam. 6 Slot size .015 from 159 ft. to 164 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 FLINT WALLING
Type: SUBMERSIBLE H.P. 1

(8) WATER LEVELS: Land-surface elevation above mean sea level ft.
Static level 8 ft. below top of well Date 6-13-94
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 [X] No [ ] If yes, by whom? DRILLER
Yield: 40 gal./min. with 38 ft. drawdown after 1 hrs.
" " " "
" " " "

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

Time	Water Level	Time	Water Level	Time	Water Level

Date of test 6-13-94

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

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

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

MATERIAL	FROM	TO
BROWN SANDY CLAY	0	3
BLUE CLAY	3	98
SILTY CLAY	98	105
BLUE CLAY	105	128
SILTY CLAY H2O LENSES	128	135
SOFT HEAVING CLAY	135	142
BLUE CLAY	142	157
SANDY CLAY	157	158
SANDY SILT H2O SWL 55'	158	160
SANDY GRAVEL	160	161
COARSE SAND GRAVEL	161	164
CLAY GRAVEL	164	165

WELL TAG NO - AAO 107

RECEIVED
JUN 15 1994
DEPT. OF ECOLOGY

Work started 6-7 19 94 Completed 6-13 19 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 A & J DRILLING (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 10410 NE 142ND ST BOTHELL

(Signed) (WELL DRILLER) License No. 1534

Contractor's Registration No. AJDRIC*094MD Date 6-13 19 94

(USE ADDITIONAL SHEETS IF NECESSARY)

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

Attachment 13

Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT 2

STATE OF WASHINGTON

Application No. ....

Permit No. ....

(1) OWNER: Name Bauman John Address

(2) LOCATION OF WELL: County King — NE ¼ SE ¼ Sec 26 T 26 N., R. 05 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 6 ft. Depth of completed well 96 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from +1 ft. to 86 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 S T ST Model No.
Diam. 86 Slot size 10 from 86 ft. to 96 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? 11 ft. 20 ft.
Material used in seal Bentonite & cl cutting
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.

(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 60 gal./min. with 24 ft. drawdown after 2 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	2
Hardpan & cobbles	2	6
Yellow hardpan - sm H2O at 25 ft	6	25
Hardpan & sm gr	25	35
Yellow clay	35	50
Sd & clay	55	57
Clean sd & water	57	65
Set screen at 60-65		
But got only 4 gpm		
Pulled screen went deeper		
Hardpan	64	70
Blue clay	70	74
Silt - gray to pit b. 82	74	82
Clean water bearing sand	84	96

Work started 4-11, 1977. Completed 4-18, 1977

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 H.O. Meyer Drlg Co. Dr. H.O.M (Person, firm, or corporation) (Type or print)

Address 6424 Lake Wa Blvd N.E. Kirkland Wa 98033

[Signed] H.O. Meyer (Well Driller)

License No. 0308 Date Nov. 26, 1977

(USE ADDITIONAL SHEETS IF NECESSARY)

Attachment 13

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

WATER WELL REPORT 3

STATE OF WASHINGTON

Application No. ____

Permit No. ____

(1) OWNER: Name Helen Tuttle Address 16215 NE 124th Redmond WA

(2) LOCATION OF WELL: County King SE¼ NE¼ SE¼ ¼ Sec 26 T 26 N., R 5E W.M.

Bearing and distance from section or subdivision corner

(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 [ ] Jetted [ ]

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 240 ft. Depth of completed well 224 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Diam. from +1 ft. to 224 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 [ ] No [X]
Manufacturer's Name ____
Type ____ Model No. ____
Diam. ____ Slot size ____ from ____ ft. to ____ ft.
Diam. ____ Slot size ____ from ____ ft. to ____ ft.

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

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

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

(8) WATER LEVELS: Land-surface elevation above mean sea level ____ ft.
Static level Surface ft. below top of well Date 28 May 83
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? driller
Yield: 3 gal./min. with 200 ft. drawdown after 3 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
24 Hrs	Surface				

Date of test 26 May 1983
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 [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	surface	3
Clay, blue	3	212
Silty sand	212	220
Fine sand, gravel, boulders, with numerous clay lumps and places	220	240

Casing was backed in increments from 240 to 224 with testing at each increment, to arrive at the most efficient strata.
Clay in water bearing strata made developping of screen impossible so the attempt to screen was not successful.

This is a very limited production well and must be treated very gently.

Four weeks of effort were expended making the well as good as possible. Information aquired by driller indicated that the next strata lays at least 600 feet so well was finished as it is.

RECEIVED
JUL 8 1983
DEPARTMENT OF ECOLOGY
WATER RES.

Work started 12 April, 1983 Completed 28 May, 1983

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 Fields Well Drilling
(Person, firm, or corporation) (Type or print)
Address 8811 196th SE Snohomish WA

[Signed] [illegible] (Well Driller)
License No. 0584 Date 5 July 1983

USE ADDITIONAL SHEETS IF NECESSARY

Attachment 13

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

WATER WELL REPORT 4

STATE OF WASHINGTON

Application No. G2-26866

Permit No. ....

(1) OWNER: Name Tim Federspiel Address 16423 NE 122 Woodinville Wa

(2) LOCATION OF WELL: County King NW¼SW¼ Sec. 25 T. 26 N., R. 05 E 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 ..... ft. Depth of completed well 72 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: ____" Diam. from ____ ft. to ____ ft.
Threaded ☐ ____" Diam. from ____ ft. to ____ ft.
Welded ☑ 6" Diam. from +1 ft. to 62 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 Stainless Steel Model No.
Diam. ____ Slot size ____ from ____ ft. to ____ ft.
Diam. 6 Slot size .016 from 67 ft. to 72 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 50 ft. below top of well Date 9-31
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 ☑ 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 9-31
Bailer test 10 gal./min. with 15 ft. drawdown after 2 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
Brown Silty Sand	5	8
Gray Silty Sand & Gravel	8	55
Silty Sand & Gravel	55	72

RECEIVED
BY
NOV 09 1989
DEPARTMENT OF ECOLOGY
NORTHWEST REGION

Work started 9-30 19 89 Completed 9-31 19 89

WELL DRILLER'S STATEMENT:

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

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

Address PO Box 42 Monroe

[Signed] A. Aured Last.
(Well Driller)

License No. 0007 Date 10-17, 1989

(USE ADDITIONAL SHEETS IF NECESSARY)

Attachment 13

5

Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy 26/5E/25/N

WATER WELL REPORT STATE OF WASHINGTON

26/05-25 ... 26/05-25 ...
Permit No. ....

(1) OWNER: Name Mrs. R.B. Long Address 16424 122nd N.E. Redmond Wash

(2) LOCATION OF WELL: County King W½ NW ¼ — NW ¼ SW ¼ Sec. 25 T. 26 N., R. 5E W.M.

Bearing and distance from section or subdivision corner

(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 ... ft. Depth of completed well 68 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: ... " Diam. from ... ft. to ... ft.
Threaded [ ] ... " Diam. from ... ft. to ... ft.
Welded [X] 6 " Diam. from 0 ft. to 68 ft.

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

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

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

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

(7) PUMP: Manufacturer's Name Goulds
Type: Jet H.P. 1

(8) WATER LEVELS: Land-surface elevation above mean sea level.... ft.
Static level 31 ft. below top of well Date 3-14-74
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 [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 10 gal./min. with 19 ft. drawdown after 2 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
Topsoil	0	1
Brown Sand and Gravel	1	4
Brown Silty Sand and Gravel	4	24
Brown Clayeyn Sand and Gravel	24	43
Dense Grey Clay and Sand Occ. Gryl.	43	58
Coarse Sand and Gravlel	58	68

Work started 3-11-74, 19 Completed 3-14-74, 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 AURDAL DRILLING CO
(Person, firm, or corporation) (Type or print)

Address Rt. 3 Box 144 Monroe Wash. 98272

[Signed] A R Aurdal
(Well Driller)

License No. 0007 Date 3-15-74, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71).

Attachment 13

Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy 26/5E/25/M

WATER WELL REPORT 26/05 6
STATE OF WASHINGTON
Permit No. ....

(1) OWNER: Name Mr. Ell Dee L. Sede Address 17518 199th N.E. Woodinville, Wa. 98072

(2) LOCATION OF WELL: County King SW¼ — NW ¼ SW ¼ Sec. 25 T. 26 N., R. 5E W.M.
Bearing and distance from section or subdivision corner W 150 Ft. of N290 Ft. Less Co. Rd.

(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 80 ft. Depth of completed well 80 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: ____" Diam. from ____ ft. to ____ ft.
Threaded [ ] ____" Diam. from ____ ft. to ____ ft.
Welded [X] 6" Diam. from 0 ft. to 75 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 Johnson
Type Stainless Steel Model No.
Diam. 6 Slot size .020 from 75 ft. to 80 ft.
Diam. ____ Slot size ____ from ____ ft. to ____ ft.

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

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

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

(8) WATER LEVELS: Land-surface elevation above mean sea level.... ft.
Static level 20 ft. below top of well Date 1-16-75
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 [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
Baller test 20 gal./min. with 13 ft. drawdown after 2 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
Topsoil	0	2
Brown Silty Sand Gravel	2	19
Clayey Sand	19	23
Sandy Clay With Gravel	23	36
Blue Clay With Sand	36	61
Silty Sand with Organics	61	72
Coarse Sand with Medium Gravel	72	80

Work started 1-8-75, 19 Completed 1-16-75, 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 AURDAL DRILLING CO.
(Person, firm, or corporation) (Type or print)
Address RT. 3 BOX 144 MONROE, WASH. 98272
[Signed] A L Aurdal
(Well Driller)
License No. 0007 Date 1-31-75, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71).

Attachment 13

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

WATER WELL REPORT 7

STATE OF WASHINGTON

Start Card No. 065245

Water Right Permit No. _____

(1) OWNER: Name Dick Starwalt Address _____

(2) LOCATION OF WELL: County King NW ¼ SW ¼ Sec 25 T 26 N, R 5E W.M.

(2a) STREET ADDRESS OF WELL (or nearest address) app: 16488 - NE 122nd ST. Redmond 98052

(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) _____

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

(5) DIMENSIONS: Diameter of well 6 inches. Drilled 55 feet. Depth of completed well 55 ft.

(6) CONSTRUCTION DETAILS:

Casing Installed: 6 " Diam. from +18" ft. to 50 ft.
Welded [X] Liner installed [ ] Threaded [ ]
_____ " Diam. from _____ ft. to _____ ft.
_____ " 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 Johnson
Type Stainless Steel Model No. _____
Diam. 5" Slot size .014 from 50 ft. to 55 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 [X] No [ ]
Type of water? Surface Depth of strata 15'
Method of sealing strata off Bentonite

(7) PUMP: Manufacturer's Name Flint & Walling
Type: Submersible H.P. 1/2

(8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.
Static level 25' ft. below top of well Date 2/23/89
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes [X] No [ ] If yes, by whom? _____
Yield: 20 gal./min. with 12 ft. drawdown after 2 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 18 gal./min. with 10 ft. drawdown after 1 hrs.
Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water 13 deg C. Was a chemical analysis made? Yes [X] 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
Clay : Brown	0	5
Till : Brown	5	35
Clay : Brown	35	48
Sand : Brown, coarse, with water	48	55
Clay : Brown	55	

RECEIVED
MAR 1 1989
DEPARTMENT OF ECOLOGY
NORTHWEST REGION

Work started Feb 15-89 19. Completed Feb 22 1989

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 Cable Tool Well Drilling Comp. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 11723-194th Ave N.E. Redmond 9805_

(Signed) [signature] (WELL DRILLER) License No. 0852

Contractor's Registration No. CARLETW132D3 Date Feb 26 1989

(USE ADDITIONAL SHEETS IF NECESSARY)

Attachment 13

Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

8

STATE OF WASHINGTON

Permit No. ....

(1) OWNER: Name Atta Mansorri Address 17010 NE 91st St Redmond WN 98052

(2) LOCATION OF WELL: County King SW ¼ SW ¼ Sec 25 T 26 N., R 5E W M

Bearing and distance from section or subdivision corner 50 ft S of N ½ of E ½ of SW ¼ of SW ¼

(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 112 ft. Depth of completed well 111 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: ____" Diam. from ____ ft. to ____ ft.
Threaded ☐ ____" Diam. from ____ ft. to ____ ft.
Welded ☑ 6 " Diam. from 0 ft. to 106 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 ☐ Johnson
Manufacturer's Name
Type Model No.
Diam. 6 Slot size 14 from 106 ft. to 111 ft.
Diam. ____ Slot size ____ from ____ ft. to ____ ft.

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

Surface seal: Yes ☑ No ☐ To what depth? 20 ft.
Material used in seal Bentonite & Neat 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 80 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)

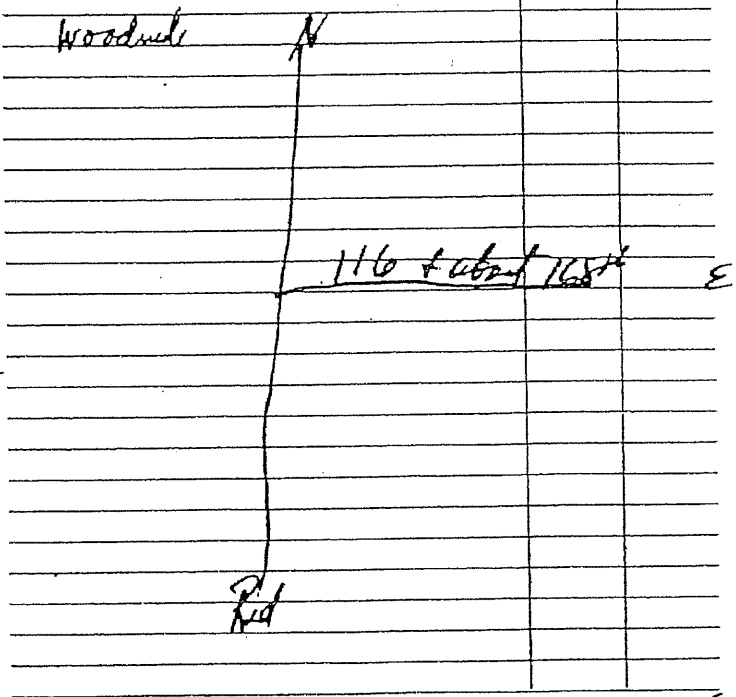
Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Baller test 15 gal./min. with 10 ft. drawdown after 2 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
Brn. Clay	0	6
Brn fill	6	24
" "	24	54
Gray Brn sand & fill	54	89
Some water at 77 ft		
Brn sand & gr	89	97
Med Brn sand & gr	97	112
Blue clay at		112



Work started 12-23 19 76 Completed 12-25 19 76

WELL DRILLER'S STATEMENT:

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

NAME H-O Meyer Drlg Co
(Person, firm, or corporation) (Type or print)

Address 6424 Lake Wash Blvd NE Kirkland 98033

[Signed] H O Meyer
(Well Driller)

License No. 0368 Date 12-28 19 76

(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

WATER WELL REPORT 9

STATE OF WASHINGTON

Attachment 13

Application No. ....

Permit No. ....

(1) OWNER: Name DARREL SHAFFIELD Address 16605 N.E. 122 REDMOND WASH.

(2) LOCATION OF WELL: County KING Sell NE 1/4 SW 1/4 Sec. 25 T. 26 N., R. 05 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 125 ft. Depth of completed well 123 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 118 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 ____ Model No. ____
Diam. 6 Slot size 20 from 118 ft. to 123 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 108 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 8 gal./min. with 1 ft. drawdown after 1 hrs.
Artesian flow ____ g.p.m. Date 3/25/77
Temperature of water ____ Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG: NE 1/4, SW 1/4

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
BLUE SILTY SAND & GRAVEL	1	14
GREY " " "	14	52
GREY SAND & GRAVEL	52	67
GREY SILTY SAND	67	82
BROWN SILTY SAND	82	107
BLUE FINE SAND	107	116
BLUE CLAY	116	117
BLUE SAND (WATER BEARING)	117	123
GRAVEL		

RECEIVED
APR 21 1977
DEPARTMENT OF ECOLOGY
SOUTHWEST REGIONAL OFFICE

Work started 3/18/77, 19__. Completed 3/25/77, 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 STATEWIDE DRILLING CO. 1333 BEACON WAY SO. RENTON, WA 98178 (Person, firm, or corporation) (Type or print)

Address ____

[Signed] (signature) (Well Driller)

License No. 0541 Date 3/25, 1977

(USE ADDITIONAL SHEETS IF NECESSARY)

Attachment 13

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

WATER WELL REPORT 10a

STATE OF WASHINGTON

Application No. X

Permit No. .....

(1) OWNER: Name PRIMBS CHARLES Address 16908 - NE 122 REDMOND

(2) LOCATION OF WELL: County KING NE¼ SW¼ Sec 25 T 26 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 121 ft. Depth of completed well 121 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 121 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 ____
Type: ____ H.P. ____

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ____ ft.
Static level 105 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 20 gal./min. with 3 ft. drawdown after 1 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
BRN SILTY SANDY LOAM	0	2
BRN TILL	2	8
GREY TILL	8	35
BRN SI SA W/CCC GVL	35	90
BRN SA GVL	90	121

RECEIVED DEPT OF ECOLOGY EASTERN REGION JUN 8 1981

Work started ____, 19____ Completed JULY 28, 1975

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 AXELSEN DRILLING
(Person, firm, or corporation) (Type or print)

Address 18802 - 92 NE BOTHELL

[Signed] A. Axelsen
(Well Driller)

License No. 0008 Date JUNE 3, 1981

(USE ADDITIONAL SHEETS IF NECESSARY)

Attachment 13

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

WATER WELL REPORT 10b

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name PRIMBS, CHARLES Address 16908 - NE 122 REDMOND

(2) LOCATION OF WELL: County KING SE ¼ NW ¼ Sec. 25 T. 26N., 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 127 ft. Depth of completed well 127 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Diam. from 0 ft. to 124 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
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level.... ft.
Static level 100 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 4 ft. drawdown after 2 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
BRN SI SA LOAM	0	3
BRN TILL	3	5
GREY TILL	5	46
BRN SI SA	46	95
BRN SA GVL	95	127

RECEIVED
OCT 3 1986
DEPT. OF ECOLOGY

Work started , 19 Completed July 28 , 19 86

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 AKELSEN DRILLING
(Person, firm, or corporation) (Type or print)

Address 18802 - 92 NE BOTHELL

[Signed] (Well Driller)

License No. 0008 Date AUG 10 , 1986

(USE ADDITIONAL SHEETS IF NECESSARY)

Attachment 13

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

WATER WELL REPORT 11

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name Bocor Builders Address 11058 Main St. Bellevue 98004

(2) LOCATION OF WELL: County King SW ¼ NE ¼ Sec. 25 T. 26 N., R. 5E W.M.

Bearing and distance from section or subdivision corner 128 & 172 Redmond wa.

(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 56 ft. Depth of completed well 55 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6" Diam. from +1 ft. to 55 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 Cook
Type SS Model No. ____
Diam. 6" Slot size 17 from 55 ft. to 50 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 .... 320 ft.
Static level 18' 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 30 gal./min. with 13 ft. drawdown after 1 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
Dark Brown Top soil w/ Rocks	0	2
Brown sandy clay gravel Rocks	2	10
Brown Clay Sand gravel Rock cont'd	10	18
Light gray clay silt sand gravel	18	35
Dark gray silt clay sand gravel	35	38
Gray silty clay sand gravel Trace to	38	47
Gray coarse sand gravel water	47	55
Brown clay sand gravel water	55'	56'

RECEIVED
JAN 25 1984
DEPARTMENT OF ECOLOGY
NORTHWEST REGION

Work started Aug 29 19 83 Completed Sept 1 19 83

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 B & J Drilling Co 392-3826
(Person, firm, or corporation) (Type or print)

Address 9026 38th Ave SW. Seattle

[Signed] Donald Cannon & D. Cannon
(Well Driller)

License No. 0924 Date Sept. 4, 19 83

(USE ADDITIONAL SHEETS IF NECESSARY)

Attachment 13

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

WATER WELL REPORT 12

STATE OF WASHINGTON

Application No. X

Permit No. ....

(1) OWNER: Name V. Van Dyke Approximate Address 72nd + 128th, Redmond, Wa.

(2) LOCATION OF WELL: County King W½ of SE¼ NE¼ Sec. 25 T. 26 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: Drilled 208 ft. Diameter of well 6 inches. Depth of completed well 208 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6" Diam. from 0 ft. to 208 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 puddling 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 98 ft. below top of well Date 10/6/78
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 7.5 ft. drawdown after 1 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
Surface	0	2
Brown hardpan	2	35
Gray loose sand & gravel	35	54
Gray silty clay	54	95
Gray silt	95	184
Gray clay	184	198
Gray water sand & gravel	198	208

Work started 10/4 19 78 Completed 10/6 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 Johnson Drilling Co., Inc. (Person, firm, or corporation) (Type or print)

Address 19415 108th Ave SE Renton 98055

[Signed] Rod Johnson (Well Driller)

License No. 0233 Date 10/6, 1978

(USE ADDITIONAL SHEETS IF NECESSARY)

Attachment 13

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

WATER WELL REPORT 13

STATE OF WASHINGTON (17812 NE 116th) Application No. .....

Permit No. .....

(1) OWNER: Name LEO FISCHER Address 7812 NE 116 TH RED. WA-98052

(2) LOCATION OF WELL: County KING S-1/2 NE 1/4 SE 1/4 Sec 25 T 26 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 60 ft. Depth of completed well 60 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 54 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 ☐ JOHNSON S.S.
Manufacturer's Name
Type STAINLESS STEEL Model No
Diam. 6" Slot size 30 from 54 ft. to 60 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 PIONEERED
Type: SUB H.P. 1½

(8) WATER LEVELS: Land-surface elevation above mean sea level.... ft.
Static level 7 ft. below top of well Date 3-20-84
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 3-20-84
Bailer test 20 gal./min. with 4 ft. drawdown after 2 hrs.
Artesian flow g.p.m. Date
Temperature of water 48 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 BROWN	0	3
HARD PAN GRAY	3	12
SAND STONE	12	30
GRAVEL & SAND GRAY	30	32
CLAY HARD WITH GRAVEL BROWN	32	54
GRAVEL & SAND GRAY	54	60

RECEIVED
JUN 14 1984
DEPARTMENT OF ECOLOGY
NORTHWEST REGION

Work started 4-15-, 19 84 Completed 4-20-84 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 RAY'S WELL DRILLING (Person, firm, or corporation) (Type or print)

Address 12420-208TH NE RED.WA-98053

[Signed] R. Fischer (Well Driller)

License No. 1195 Date 4-25-, 19 84

(USE ADDITIONAL SHEETS IF NECESSARY)

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

15

SHORT PLAT 2610S-25R Attachment 13

WATER WELL REPORT
STATE OF WASHINGTON

Application No.
Permit No. ....

(1) OWNER: Name RONALD J. UFFENS & WILLIAM R. MURRAY Address 13705 NE 72ND PL. REDMOND, WASH.

(2) LOCATION OF WELL: County King SHORT PLAT NO: 775074 SE ¼ SE ¼ Sec 25 T 26 N., R 5E W.M.
Bearing and distance from section or subdivision corner beginning 973 feet west of SE corner, then north to a point 994 feet west of NE corner, then west to NW corner, then south to SW 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 39 ft. Depth of completed well 38 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6" Diam. from +1 ft. to 38 ft.
Threaded ☐ ....." Diam. from ..... ft. to ..... ft.
Welded ☑ ....." Diam. from ..... ft. to ..... ft.

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

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

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

Surface seal: Yes ☑ No ☐ To what depth? 20 ft.
Material used in seal Bentonite & drill cuttings
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 15 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

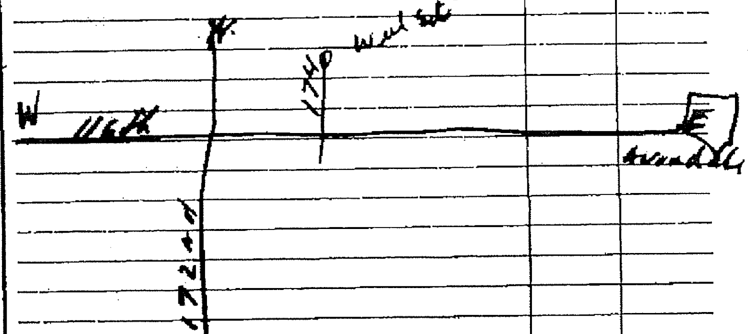
Date of test .....
Bailer test 20 gal./min. with 5 ft. drawdown after 1 hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☑

(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 & Fill	0	5
yellow clay & some sand	5	12
tight hard pan & clay	12	20
some Water at 20 ft		
hardpan & grey clay	20	30
lenses of water between layers of hard pan	30	32
Course sand & gr. tight drill	32	34
Very Course Sand & Clean gravel	34	38
lenses sand	38	39

This gravel was Round like marbles & grey in color - one of the prettiest gravels I have seen.

This well is pretty much in line with wells to the South about 1/4 mile - Formation fairly consistent



Work started 5-3, 1976 Completed 5-4, 1976

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 H.C. MEYER Drlg Co. (Person, firm, or corporation) (Type or print) H.C. Meyer
Address 6424 Lake Wn. Blvd NE Kirkland, Wash 98033
[Signed] H.C. Meyer (Well Driller)
License No. 0308 Date 5- , 1976

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71).

Attachment 13 N

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

16

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. 075264

Water Right Permit No. _____

(1) OWNER: Name John Freemand Address 12041 184 NE Redmond WA 98052

(2) LOCATION OF WELL: County King SW ¼ SW ¼ Sec. 30 T. 26 N., R. 6E W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) 12041 184 NE Redmond WA 98052

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

(5) DIMENSIONS: Diameter of well 6 inches. Drilled 49 feet. Depth of completed well 49 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Diam. from +2.5 ft. to 45 ft.
Welded [X] Liner installed [ ] Threaded [ ] _____ " Diam. from _____ ft. to _____ ft.
_____ " 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 _____
Type SS Model No. _____
Diam. 5 Slot size .030 from 45 ft. to 49 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 Bentanite
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 Berkly
Type: 10MG05 Sub H.P. ½

(8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.
Static level +2 ft. ~~below top of well~~ Date → above Surface 2.8.91
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 5 gal./min. with 40 ft. drawdown after 1 hrs.
Airlest _____ gal./min. with stem set at _____ ft. for _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? Yes [ ] No [X]

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

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

MATERIAL	FROM	TO
Loam	0	2
Sandy Tan Clay - Surface Water	2	9
Sandy Tan Till - Cobbles - Water	9	13
Gray Till - Cobbles - Wet	13	19
Silt, Sand, Gray Clay - Dry	19	41
Gray Till - Wet	41	44
Fine to Coarse Sand and Gravel some Clay & Silt	44	49

Work started 1.5.91, 19. Completed 2.6.91, 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 D&R Well Drilling Inc. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)
Address PO Box 814 Carnation WA 98014
(Signed) Robert H Scarlett (WELL DRILLER) License No. 1425
Contractor's Registration No. DRWELDI121NZ Date 2.9, 1991

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 060-1-20 (10/87) -1329-

Attachment 13

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

WATER WELL REPORT 18

STATE OF WASHINGTON

Start Card No. 000514

Water Right Permit No. _____

(1) OWNER: Name HAAD SUMNER Address 215 10th ST Suite KIRKLAND WA

(2) LOCATION OF WELL: County KING NE ¼ NE ¼ Sec 36 T 26 N., R 5E W.M.

(2a) STREET ADDRESS OF WELL (or nearest address) 17759 NE 116th REDMOND

(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 44 feet. Depth of completed well 44 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 44 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 22 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 8 gal./min. with 8 ft. drawdown after 1 hrs.

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

Artesian flow _____ g.p.m. Date _____

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

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

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

MATERIAL	FROM	TO
TOP SOIL	0	1
BROWN A.P.	1	21
BROWN PEAT	21	22
GRAY TILL	22	38
GRAY MED-COARSE GRAVEL	38	44

RECEIVED AUG 15 1989 DEPARTMENT OF ECOLOGY

Work started 7/22/89 19. Completed 8/10 19 89

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 STATEWIDE DRILLING CO. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 1333 Beacon Way S. / Renton, WA 98055 772-5771

(Signed) D. Yuste (WELL DRILLER) License No. 0541

Contractor's Registration No. STATEDC176LE Date 8/15 19 89

(USE ADDITIONAL SHEETS IF NECESSARY)

Attachment 13A
26 5E 36A

323906

HAYES DRILLING,INC.

P.O. Box 124
Bow, WA 98232-0124
HAYESDI106J5

HAYES DRILLING

phone: 360-766-6110
fax: 360-766-6133
www.hayesdrilling.com

WELL REPORT

JOB NUMBER: A3115
PROJECT NAME:
OWNER NAME: CamWest Develop LLC
REPRESENTATIVE:
CONSULTING FIRM:
DRILLER: Kyle Schaffer
COMPANY NAME: Hayes Drilling Inc.
DRILLING METHOD:
LAND ELEVATION:

START CARD NO.: A114557
COUNTY: King
TAX ID NO: 3626059030
NE 1/4 NE 1/4 SEC 36 TWN 26 RNG 5 E
ADDRESS: 178th Ct. NE Redmond
WELL ID NO:
WATER ELEVATION:
INSTALLED: Abandonment
DEVELOPED:

AS BUILT	WELL DATA	FORMATION DESCRIPTION
0'	Diameter of well: 6" Depth of well: 38' Abandoned well by pulling casing and pressure grouting from bottom up. Static Level: 10'	

DEPT. OF ECOLOGY
FISCAL & BUDGET
08 AUG 21 A 9:05

RECEIVED
AUG 21 2008
DEPARTMENT OF ECOLOGY
WELL DRILLING UNIT

Date Completed: 2189 Driller: Kyle Schaffer 7/31/2008 License No.

APPENDIX C

Water Quality Results for Nearby Wells

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

WATER FACILITIES INVENTORY (WFI) FORM

ONE FORM PER SYSTEM

Quarter: 0
Updated: 05/14/2002
Printed: 8/7/2014
WFI Printed For: On-Demand
Submission Reason: Non-Periodic

RETURN TO: Northwest Regional Office, 20425 72nd Ave S STE 310, Kent, WA, 98032

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
01235 N	SUMNER WATER SYSTEM	KING	B	

6. PRIMARY CONTACT NAME & MAILING ADDRESS	7. OWNER NAME & MAILING ADDRESS	8. Owner Number 015778
THAD SUMNER [OWNER] 11419 178TH AVE N E REDMOND, WA 98053	SUMNER, THAD 11419 178TH AVE. N.E. REDMOND, WA 98053	TITLE:
STREET ADDRESS IF DIFFERENT FROM ABOVE ATTN ADDRESS CITY STATE ZIP	**STREET ADDRESS IF DIFFERENT FROM** ATTN ADDRESS CITY STATE ZIP	

9. 24 HOUR PRIMARY CONTACT INFORMATION	10. OWNER CONTACT INFORMATION
Primary Contact Daytime Phone:	Owner Daytime Phone:
Primary Contact Mobile/Cell Phone:	Owner Mobile/Cell Phone:
Primary Contact Evening Phone:	Owner Evening Phone:
Fax: | E-mail: XXXXXX	Owner Fax Phone: | E-mail: XXXXXX

WAC 246-290-420(9) requires that water systems provide 24-hour contact information for emergencies.

11. SATELLITE MANAGEMENT AGENCY - SMA (check only one)

- [x] Not applicable (Skip to #12)
- [ ] Owned and Managed — SMA NAME: _____ SMA Number:
- [ ] Managed Only
- [ ] Owned Only

12. WATER SYSTEM CHARACTERISTICS (mark all that apply)

[ ] Agricultural	[ ] Hospital/Clinic	[x] Residential
[ ] Commercial / Business	[ ] Industrial	[ ] School
[ ] Day Care	[ ] Licensed Residential Facility	[ ] Temporary Farm Worker
[ ] Food Service/Food Permit	[ ] Lodging	[ ] Other (church, fire station, etc.):
[ ] 1,000 or more person event for 2 or more days per year	[ ] Recreational / RV Park	_____

13. WATER SYSTEM OWNERSHIP (mark only one)

				14. STORAGE CAPACITY (gallons)
[ ] Association	[ ] County	[x] Investor	[ ] Special District	
[ ] City / Town	[ ] Federal	[ ] Private	[ ] State	600

15	16	17	18 SOURCE CATEGORY										19			20	21 TREATMENT					22	23	24 SOURCE LOCATION			
Source Number	SOURCE NAME LIST UTILITY'S NAME FOR SOURCE AND WELL TAG ID NUMBER. Example: WELL #1 XYZ456 IF SOURCE IS PURCHASED OR INTERTIED, LIST SELLER'S NAME Example: SEATTLE	INTERTIE SYSTEM ID NUMBER	WELL	WELL FIELD	WELL IN A WELL	SPRING	SPRING FIELD	SPRING IN SPRING FIELD	SEA WATER	SURFACE WATER	RANNEY / INF.	OTHER	PERMANENT	SEASONAL	EMERGENCY	SOURCE METERED	NONE	CHLORINATION	FILTRATION	FLUORIDATION	IRRADIATION (UV)	OTHER	DEPTH TO FIRST OPEN INTERVAL IN FEET	CAPACITY (GALLONS PER MINUTE)	1/4, 1/4 SECTION	SECTION NUMBER	TOWNSHIP	RANGE
S01	SUMNER		X										X					X	X				44	8	NE NE	36	26N	05E

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
01235 N	SUMNER WATER SYSTEM	KING	B	

	ACTIVE SERVICE CONNECTIONS	DOH USE ONLY! CALCULATED ACTIVE CONNECTIONS	DOH USE ONLY! APPROVED CONNECTIONS
25. SINGLE FAMILY RESIDENCES (How many of the following do you have?)	0	3	3
A. Full Time Single Family Residences (Occupied 180 days or more per year)	3		
B. Part Time Single Family Residences (Occupied less than 180 days per year)	0		
26. MULTI-FAMILY RESIDENTIAL BUILDINGS (How many of the following do you have?)			
A. Apartment Buildings, condos, duplexes, barracks, dorms	0		
B. Full Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied more than 180 days/year	0		
C. Part Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied less than 180 days/year	0		
27. NON-RESIDENTIAL CONNECTIONS (How many of the following do you have?)			
A. Recreational Services and/or Transient Accommodations (Campsites, RV sites, hotel/motel/overnight units)	0	0	0
B. Institutional, Commercial/Business, School, Day Care, Industrial Services, etc.	0	0	0
28. TOTAL SERVICE CONNECTIONS		3	3

29. FULL-TIME RESIDENTIAL POPULATION

A. How many residents are served by this system 180 or more days per 6

30. PART-TIME RESIDENTIAL POPULATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many part-time residents are present each month?												
B. How many days per month are they present?												

31. TEMPORARY & TRANSIENT USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many total visitors, attendees, travelers, campers, patients or customers have access to the water system each month?												
B. How many days per month is water accessible to the public?												

32. REGULAR NON-RESIDENTIAL USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. If you have schools, daycares, or businesses connected to your water system, how many students daycare children and/or employees are present each month?												
B. How many days per month are they present?												

33. ROUTINE COLIFORM SCHEDULE	Take one sample every 12 months

34. NITRATE SCHEDULE (One Sample per source by time period)	QUARTERLY	ANNUALLY	ONCE EVERY 3 YEARS
			S01

35. Reason for Submitting WFI:

☐ Update - Change ☐ Update - No Change ☐ Inactivate ☐ Re-Activate ☐ Name Change ☐ New System ☐ Other _____

36. I certify that the information stated on this WFI form is correct to the best of my knowledge.

SIGNATURE: _____

DATE: _____

PRINT NAME: _____

TITLE: _____

Washington State Department of Health

Division of Environmental Health
Office of Drinking Water

Help

Individual System View - SUMNER WATER SYSTEM - Water System Id - 01235N

Compliance Actions | Operating Permits | Operators | Reports | Water Use Efficiency

General Information | Source Information | Samples | Exceedances | Water Quality Monitoring Schedule

Source	DOE Source	Collect Date	Test Panel	Analyte Group	Sample Number	Lab Number	Exceedances
Dist		7/29/2003	COLI_AP	MICRO	06928	075	No
Dist		5/8/2002	COLI_AP	MICRO	04999	075	No
Dist		4/18/2001	COLI_AP	MICRO	02448	075	No
Dist		5/18/2000	COLI_AP	MICRO	01023	075	No
Dist		5/5/1998	COLI_AP	MICRO	01686	075	No
Dist		6/6/1997	COLI_AP	MICRO	04604	075	No
Dist		8/20/1996	COLI_AP	MICRO	02659	075	No
01		5/14/1991	ICHEM	IOC	10286	066	Yes

Records 1 - 8 of 8

Export CSV

Links to external resources are provided as a public service and do not imply endorsement by the Washington State Department of Health

Department of Health, Office of Drinking Water

Street Address:
243 Israel Road S.E. 2nd floor
Tumwater, WA 98501

Mail:
PO BOX 47822
Olympia, WA 98504-7822

Phone: (360) 236-3100

Send inquiries about DOH and its programs to the Health Consumer Assistance Office
Comments or questions regarding this Web site? Send email to Environmental Health Application Testing and Support or call 360-236-3113.

Washington State Department of Health

Division of Environmental Health
Office of Drinking Water

Help

View Sample Detail - WSID 01235N - SUMNER WATER SYSTEM

Collect Date	5/14/1991
Lab Number	066
Lab Name	Amtest, Inc - Redmond
Sample Number	10286
Source	01
Analyte Group	IOC-INORGANIC CONTAMINANTS
Test Panel	ICHEM-PRE II/V INORGANIC ANALYSIS
Sample Location	
Sample Type	Unknown

Analyte DOH Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0008	IRON	EQ	0.4000	0.3000	mg/L	0.1000
0010	MANGANESE	EQ	0.0590	0.0500	mg/L	0.0100
0018	COLOR	LT	70.0000	15.0000	CU	5.0000
0014	SODIUM	EQ	8.0000		mg/L	5.0000
0015	HARDNESS	EQ	120.0000		mg/L	10.0000
0016	CONDUCTIVITY	EQ	240.0000	700.0000	Umhos/cm	10.0000
0017	TURBIDITY	EQ	6930.0000		NTU	0.1000
0021	CHLORIDE	EQ	13.0000	250.0000	mg/L	20.0000
0022	SULFATE	EQ	65.0000	250.0000	mg/L	10.0000
0004	ARSENIC	LT	0.0100	0.0104	mg/L	0.0200
0005	BARIUM	LT	0.2500	2.0000	mg/L	0.1000
0006	CADMIUM	LT	0.0020	0.0050	mg/L	0.0020
0007	CHROMIUM	LT	0.0100	0.1000	mg/L	0.0100
0009	LEAD	LT	0.0050		mg/L	0.0020
0011	MERCURY	LT	0.0010	0.0020	mg/L	0.0005
0012	SELENIUM	LT	0.0050	0.0500	mg/L	0.0050
0013	SILVER	LT	0.0100	0.1000	mg/L	0.0100
0019	FLUORIDE	LT	0.2000	4.0000	mg/L	0.2000
0020	NITRATE-N	LT	0.2000	10.0000	mg/L	0.5000

Records 1 - 19 of 19

Links to external resources are provided as a public service and do not imply endorsement by the Washington State Department of Health

Department of Health, Office of Drinking Water

Street Address:
243 Israel Road S.E. 2nd floor
Tumwater, WA 98501

Mail:
PO BOX 47822
Olympia, WA 98504-7822

Phone: (360) 236-3100

Send inquiries about DOH and its programs to the Health Consumer Assistance Office
Comments or questions regarding this Web site? Send email to Environmental Health Application Testing and Support or call 360-236-3113.

Groundwater Well Data - Details

Enter a Well ID: Go *Example: GrpA_01001_01*

The search returns detailed info about the well, including all the water level and water quality sampling data for the searched well.

Download data: Download to Excel

View Well location in:-- Groundwater Well Viewer OR iMap

Well Detail

Well ID	R_474233122062501
Location Name	BIRGE
Well Type	Well
Well Depth (ft)	85
Surface Elevation (ft)	315
X Coord (WAN-SPF)	1326871.25
Y Coord (WAN-SPF)	261277.84375
Has Water Level Data?	No
Has Water Quality Data?	No
Local Number	26N/05E-25K01
Ecology Well Tag	Unknown
Parcel Number	
GWMA Code	Redmond-Bear Creek Valley
Basin	Bear Creek
CARA Area	None
City	Redmond

Water Level Sampling Data

No water level sampling data exists for the searched well.

Water Quality Sampling Data

No water quality sampling data exists for the searched well.

Updated: October 7, 2010

Groundwater Well Data - Details

Enter a Well ID: Go *Example: GrpA_01001_01*

The search returns detailed info about the well, including all the water level and water quality sampling data for the searched well.

Download data: Download to Excel

View Well location in:-- **Groundwater Well Viewer** OR **iMap**

Well Detail

Well ID	**R_474246122062201**
Location Name	BOCOR BUILDERS
Well Type	Well
Well Depth (ft)	55
Surface Elevation (ft)	255
X Coord (WAN-SPF)	1327097.375
Y Coord (WAN-SPF)	262591.09375
Has Water Level Data?	No
Has Water Quality Data?	No
Local Number	26N/05E-25G01
Ecology Well Tag	Unknown
Parcel Number	
GWMA Code	Redmond-Bear Creek Valley
Basin	Bear Creek
CARA Area	None
City	King County

Water Level Sampling Data

No water level sampling data exists for the searched well.

Water Quality Sampling Data

No water quality sampling data exists for the searched well.

Updated: October 7, 2010

Groundwater Well Data - Details

Enter a Well ID: Go *Example: GrpA_01001_01*

The search returns detailed info about the well, including all the water level and water quality sampling data for the searched well.

Download data: Download to Excel

View Well location in:-- Groundwater Well Viewer OR iMap

Well Detail

Well ID	**R_474231122060501**
Location Name	FISCHER LEO
Well Type	Well
Well Depth (ft)	60
Surface Elevation (ft)	220
X Coord (WAN-SPF)	1328234.125
Y Coord (WAN-SPF)	261051.046875
Has Water Level Data?	No
Has Water Quality Data?	No
Local Number	26N/05E-25J02
Ecology Well Tag	Unknown
Parcel Number	
GWMA Code	Redmond-Bear Creek Valley
Basin	Bear Creek
CARA Area	None
City	Redmond

Water Level Sampling Data

No water level sampling data exists for the searched well.

Water Quality Sampling Data

No water quality sampling data exists for the searched well.

Updated: October 7, 2010

Groundwater Well Data - Details

Enter a Well ID: Go *Example: GrpA_01001_01*

The search returns detailed info about the well, including all the water level and water quality sampling data for the searched well.

Download data: Download to Excel

View Well location in:-- **Groundwater Well Viewer** OR **iMap**

Well Detail

Well ID	**R_474221122060501**
Location Name	MURRAY WILLIAM/UFFENS RONALD
Well Type	Well
Well Depth (ft)	38
Surface Elevation (ft)	180
X Coord (WAN-SPF)	1328217.375
Y Coord (WAN-SPF)	260037.125
Has Water Level Data?	No
Has Water Quality Data?	No
Local Number	26N/05E-25R02
Ecology Well Tag	Unknown
Parcel Number	
GWMA Code	Redmond-Bear Creek Valley
Basin	Bear Creek
CARA Area	None
City	Redmond

Water Level Sampling Data

No water level sampling data exists for the searched well.

Water Quality Sampling Data

No water quality sampling data exists for the searched well.

Updated: October 7, 2010

Groundwater Well Data - Details

Enter a Well ID: Go *Example: GrpA_01001_01*

The search returns detailed info about the well, including all the water level and water quality sampling data for the searched well.

Download data: Download to Excel

View Well location in:-- Groundwater Well Viewer OR iMap

Well Detail

Well ID	**GrpB_unk03_01**
Location Name	UFFENS
Well Type	Well
Well Depth (ft)	38
Surface Elevation (ft)	0
X Coord (WAN-SPF)	1327337.5
Y Coord (WAN-SPF)	260104.65625
Has Water Level Data?	No
Has Water Quality Data?	No
Local Number	26N/05E-25
Ecology Well Tag	Unknown
Parcel Number	2526059049
GWMA Code	Redmond-Bear Creek Valley
Basin	Bear Creek
CARA Area	None
City	Redmond

Water Level Sampling Data

No water level sampling data exists for the searched well.

Water Quality Sampling Data

No water quality sampling data exists for the searched well.

Updated: October 7, 2010

Groundwater Well Data - Details

Enter a Well ID: Go *Example: GrpA_01001_01*

The search returns detailed info about the well, including all the water level and water quality sampling data for the searched well.

Download data: Download to Excel

View Well location in:-- **Groundwater Well Viewer** OR **iMap**

Well Detail

Well ID	**R_474246122060401**
Location Name	VAN DYKE V.
Well Type	Well
Well Depth (ft)	208
Surface Elevation (ft)	225
X Coord (WAN-SPF)	1328328.125
Y Coord (WAN-SPF)	262570.78125
Has Water Level Data?	No
Has Water Quality Data?	No
Local Number	26N/05E-25H01
Ecology Well Tag	Unknown
Parcel Number	
GWMA Code	Redmond-Bear Creek Valley
Basin	Bear Creek
CARA Area	None
City	King County

Water Level Sampling Data

No water level sampling data exists for the searched well.

Water Quality Sampling Data

No water quality sampling data exists for the searched well.

Updated: October 7, 2010

APPENDIX D

Phase I ESA - Executive Summary

EXECUTIVE SUMMARY

From Phase I Environmental Site Assessment
Hussey Property, Redmond, Washington
Prepared by Associated Earth Sciences, Inc. for Quadrant Corporation,
Dated March 21, 2014

Associated Earth Sciences, Inc. (AESI) conducted a Phase I Environmental Site Assessment (ESA) of the Hussey Property located at NE 122nd Street and 178th Place NE, Redmond, King County, Washington. The property is located in Section 25, Township 26 North, Range 5 East. For a complete legal description of the subject property, refer to the King County Records located in Appendix A (Not included).

The subject property is developed with a single, metal, workshop building. Access to the site is obtained via a gravel driveway from the north, or by foot on the south, from the intersection of NE 122nd Street and 178th Place NE. According to a review of historical information, the subject property has primarily been forested land, with a workshop.

The subject property is surrounded by single-family residences to the north, south, and east. To the west is a single-family residence and forested land; the forested land is identified as a park.

- AESI was completing a concurrent geotechnical subsurface investigation at the subject property and several test pits were excavated across the site. During test pit exploration at the subject property, two areas of fill material were observed. On the north-central portion of the subject property, in the vicinity of the former foundation of an uncompleted house, site-derived fill material was approximately 5 feet thick. On the south end of the subject property, non-site-derived fill material was observed to be 3 to 7 feet thick. No obvious indications of odors, debris, or staining were noted within the northern test pits. In the southern test pits, organic debris (wood chunks, posts, sawdust, branches, etc.) was observed.

- The subject property is occupied by a single, metal, workshop building. Access to the subject property is via a driveway on the north side, or by foot on the south side of the property.

- Polyvinyl chloride (PVC) stick-ups were observed throughout the subject property. According to the property owner, these stick-ups were part of a test he had done on the subject property to determine where ground water was. Ground water was reportedly not encountered in any of the stick-ups, according to the property owner.

- Multiple areas of trash were observed on the central and southern portions of the subject property. The trash included: plastic pots/containers, wire/fencing, pallets, and trash bags of organic material (leaves/grass).

- Access to the interior of the subject property workshop building was not granted at the time of the site reconnaissance.

During the site visit, the following conditions were noted on adjacent properties:

- The surrounding properties were residential, with a wooded area to the west, which is designated as a park.

AESI did not observe obvious indications of surficial staining, dumping, or environmentally significant releases of chemicals on the subject property. No obvious visual evidence of hazardous materials contamination was discovered in surficial areas of the site examined during our site reconnaissance.

The location of a former underground storage tank (UST) was identified by the property owner, adjacent and to the south of the existing metal workshop. According to the property owner, no assessment was conducted at the time of the removal of the UST. AESI excavated one exploration pit in the vicinity of the former UST location, and collected a soil sample for laboratory analysis for TPH as Diesel (TPH-Dx) and Heavy Oil (TPH-Ox). No detections above the laboratory reporting limit were identified.

Several off-site properties of potential environmental significance within the *American Society of Testing and Materials* (ASTM)-specified search radii were identified in the Environmental Data Resources, Inc. (EDR, 2014) database report. For a variety of reasons (e.g., no documented release; inferred ground water gradient, or distance from the subject property), these off-site properties, in our opinion, are unlikely to present a material threat of a release of hazardous substances or petroleum products to the subject property.

Based on the information gathered during this Phase I ESA, this assessment has not identified recognized environmental conditions, in our opinion, that would present a material threat of a release of hazardous substances or petroleum hydrocarbons at the subject property.

APPENDIX E

Spill Prevention and Response Plan

Spill Prevention and Response Plan

Project: Hussey Property
Location: NE 122nd Street and 178th Avenue NE**,** Redmond, Washington

Types of Hazardous Substances Used:

-Gasoline
-Diesel
-Hydraulic Fluid
-Machine Oil
-Paint

Spill Prevention

The following are general requirements for any hazardous substances stored or used at this facility.

General Requirements

- Ensure all hazardous substances are properly labeled.
- Store, dispense, and/or use hazardous substances in a way that prevents releases.
- Provide secondary containment when storing hazardous substances in bulk quantities (~55 g).
- Maintain good housekeeping practices for all chemical materials at the facility.
- Routine/Daily checks in the hazardous substance storage area to be performed by a future person on site to be named at the commencement of work.
- Monthly inspections of the hazardous substance storage area, secondary containment, and annular space (interior cavity of double wall tank) on any Above-ground Storage Tanks (AST) or Underground Storage Tanks (UST) need to be logged in this plan.
- In general, most substances stored on site will be minimal in size, such as 5 gallon gasoline cans. Large volume spills are not anticipated involving the work on this site.

Spill Containment

- The general spill response procedure at the site is to stop the source of the spill, contain any spilled material and clean up the spill in a timely manner to prevent accidental injury or other damage.
- Small spills will be contained by site personnel if they are able to do so without risking injury. Spill kits are located at the following location: _____
- Contents of Spill Kit:
  - UN approved 20-gallon pack/drum with screw-top lid.
  - (15) Absorbent Pads,
  - (3) 3" x 12' Sorbent Socks,
  - (2) 18 x 18" Pillows,
  - (1) Pair Nitrile Gloves, Emergency Handbook, Goggles and
  - (3) Disposal Bags
- Remove all contaminated soil as required at spill location.

Emergency Procedures:

- Immediately call **911** in the event of injury, fire or potential fire, or spill of a hazardous substance that gives rise to an emergency situation.
- If a spill has occurred, contact the following persons immediately:

_____ (Primary) (___) ____ - _____

_____ (Secondary) (___) ____ - _____

_____ (After Hours Emergency Contact) (___) ____ - _____

In the event of a large spill, a properly trained employee should:

- Assess the area for any immediate dangers to health or safety (i.e. a wrecked car on fire). If any dangers are present, move away from the area, **call 911**.
- Notify the primary and/or secondary contact from the list above and then continue your spill response. The primary contact should assess additional notification requirements (i.e. notify City of Redmond, Ecology, etc. see Spill Reporting below).
- Retrieve the spill kit from the closest location.
- Assess the size of the leak and any immediate threat of the spill reaching the storm drains or permeable surfaces in the area. If there is an immediate threat and there are no safety concerns, then attempt to block the spill from coming in contact with the storm drain or permeable surface. If no drain covers are available, then try to use absorbent (cat litter) and/or sock booms or rags to stop the spill from getting into the drains or to any permeable surfaces.
- If the spill can be contained with absorbent booms, deploy them around the spill. Use the booms to direct the spill away from any immediate hazards (i.e. a wrecked car).
- If there is no immediate threat to the storm drains or permeable surfaces, or after controlling the spill, try to plug or stop the leak, if possible. If applicable, put on protective gear (gloves, goggles, protective clothing, etc.) and plug the leak.
- Once the spill has been contained and any immediate threat to storm drains or permeable surfaces has been minimized, contact the spill cleanup contractor and dispatch them to clean up the spill or commence spill cleanup procedures.

Spill cleanup for large spills should be handled by the Spill Cleanup Contractor

Company Name: _____ Phone: _____

Spill Reporting

If a hazardous substance spill exceeds 25 gallons or if any amount has been released to soil, surface water, or storm drains, notify the following agencies:

Washington State Department of Ecology	**(360) 407-6300**
Washington Emergency Management Division	**(800) 258-5990**
National Response Center (NRC)	**(800) 424-8802**

Plan Management

The primary contact or designee shall administer this plan and will be responsible for updating and including any required documentation.

Training

All personnel who may respond to any spill, need to be trained on the contents and procedures in this plan. Trained personnel will add their names and dates of training to the Training Log. Only persons trained on this plan shall respond to a spill. If you are not trained and witness a spill, call or notify the primary and secondary contacts listed above.

Spill Tracking

Any spills must be entered into the Spill Log. If a large catastrophic spill occurs, attach additional pages to describe the event. Include known or possible causes, areas affected, and effectiveness of the cleanup. Include a review of the cleanup contractor and their procedures. For small spills, it is sufficient to fill out the Spill Log, and to take measures to prevent a repeat occurrence.

Facility Inspections

Routine inspections will be conducted daily during regular business hours. Daily inspections will include, at a minimum, a visual inspection of the hazardous substances containers and the area immediately adjacent to it for signs of a spill or leak. These inspections do not need to be logged unless a spill or leak is detected. Ideally, these inspections will be conducted by a manager or by regular employees.

Full site inspections will be conducted monthly by the primary contact or designee and, at a minimum, will include those items on the inspection form. If any item on the inspection form is found unacceptable, the inspection form will be attached to this plan. If all items are deemed acceptable; it is sufficient for the inspector to log only the inspection and the results in the Inspection Log.

Hussey Property

Spill Prevention Inspection Log

A = Acceptable U = Unacceptable If any items are unacceptable attach Inspection Form with details.

Inspection Month	Year	Inspector Initials	Lids and Labels?	Evidence Of Spills?	Alarms or Sensor?	New Product?	Spill Kit Complete?	Storm Drains?	Items Fixed?
January									
February									
March									
April									
May									
June									
July									
August									
September									
October									
November									
December									
January									
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December									
January									
February									
March									
April									
May									

Inspection Month	Year	Inspector Initials	Lids and Labels?	Evidence Of Spills?	Alarms or Sensor?	New Product?	Spill Kit Complete?	Storm Drains?	Items Fixed?
June									
July									
August									
September									
October									
November									
December									

Inspection Form

Acceptable	Unacceptable	
❒	❒	**Lids and Labels?** Have all lids and caps been returned to their proper place? Do all the containers still have labels?
❒	❒	**Evidence of Spills?** Is there any indication that a spill might have occurred? If so, was the spill properly cleaned up? Was there any spill kit materials used? Was the Spill Log filled out for that incident? Any housekeeping issues?
❒	❒	***For Tanks with alarm systems only*** **Any Alarms or Sensor issues?** Have there been any alarm conditions in the past month? If alarms have occurred, has the monitoring system been serviced by the manufacturer or an authorized service company? Is the system up and working at this time? Is the sensor working? Did you conduct a test of the alarm and the sensor? When was the last time the sensor was serviced?
❒	❒	**New Hazardous Substances?** Have any new chemical products been purchased? Do you have the MSDS for new products? Have you assessed how to store and handle this new product safely? Have you added the new hazardous substance to the inventory sheet in this plan? Is the container properly labeled?
❒	❒	**Spill Kit Complete?** Have any items been used from the spill kit? If items are missing, is there an associated entry in the Spill Log? Are there any items missing that are currently on order? Is the spill kit stored where it is supposed to be stored? Is there a sufficient supply of daily cleanup materials?
❒	❒	**Storm Drains?** Is there a buildup of sediment in the drain traps? Is there any evidence of drain clogging? Are the drain filters still intact? Any need replacing? Have they been replaced?
❒	❒	**Items Fixed?** Have all deficiencies previously noted been fixed or made acceptable?

List any issues, deficiencies, or failures in detail:

_____
_____
_____
_____

Hazardous Substance Inventory

Major Groups Only

Hazardous Substance	Manufacturer	Quantity/Unit of Issue