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Consultants in Geotechnical Engineering, Geology
and
Environmental Earth Sciences

October 17, 2014
Project No. T-7037

Mr. Corey Watson
Quadrant Homes
14725 SE 36th Street, Suite 200
Bellevue, Washington 98006

Subject: Critical Aquifer Recharge Areas Report
Edgewood West
172nd Avenue NE and NE 122nd Street
Redmond, Washington

Dear Mr. Watson:

As requested by Ms. Trish Clements of Goldsmith Land Development Services (Goldsmith), we performed a hydrogeologic assessment of the subject site. The purpose of our study was to evaluate potential impacts that the planned development may have on domestic water wells located in the vicinity of the site, and to prepare a written Critical Aquifer Recharge Areas (CARA) report in accordance with the requirements of Appendix 1 (Critical Areas Reporting Requirements) of the City of Redmond Zoning Code (RZC). The position of the site relative to the City of Redmond Wellhead Protection Zones is shown on Figure 1. General project information required by Appendix 1 of the RZC is provided in Appendix A.

Because the subject property is located within the City of Redmond's Wellhead Protection Zone 3 and the planned site development includes the creation of 5,000 feet or more impervious site area, the CARA report is required to include both Level 1 and Level 2 hydrogeologic assessments.

SITE DESCRIPTION

The site is an 11.5-acre vacant property (King County Tax Parcel No. 2526059033) located southeast of and adjacent to the intersection of 172nd Avenue NE and NE 122nd Street in Redmond, Washington. The site location is shown on Figure 2. Property use adjacent to the site and in the surrounding areas is predominantly residential.

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The site is located on the eastern side of a linear, regional physiographic feature called the Avondale Drift Upland, which is an approximately 5-mile long, north/northwest-trending highland bound by the Sammamish Trough on the west and the Bear Creek Channel on the east. Existing surface gradients are relatively flat in the western approximately 500 feet of the site, and then slope gently down toward the east property margin. A topographic survey by Goldsmith dated September 11, 2014 indicates that surface gradients generally range between about 2 percent and 10 percent. Site relief is about 76 feet from a topographic high of about Elev. 310 near the west site margin to about Elev. 234 near the east site margin. Site vegetation generally consists of deciduous forest with brush undergrowth.

Review of historical aerial photographs indicates that a residence occupied the western portion of the site for a period of time. Remnants of the residential foundation remain on-site.

We did not observe any surface water at the subject site. A Class II stream identified as Monticello Creek (City of Redmond Critical Areas Map 64.3 [Streams Classification]) flows from north to south approximately 320 feet east of the site.

PROJECT DESCRIPTION

The proposed project is a 51-lot residential development. A conceptual grading plan by Goldsmith dated September 30, 2014 indicates grading to achieve building pad and roadway elevations will consist of cuts and fills. Maximum cut depths and fill thicknesses are generally about six feet and ten feet, respectively. Planned site development is shown on Figure 3.

We expect that site utilities will generally be located within the road prism, with a maximum average depth that is not expected to exceed eight feet. Site stormwater will be collected and routed in an enclosed system to a buried detention vault located in the southeastern corner of the site. Preliminary dimensions shown on the conceptual grading plan indicate the vault will be 170 feet long, 110 feet wide, and 14 feet deep.

We understand that the vault will release controlled discharge to an existing closed system located off-site to the south that ultimately discharges to the Monticello Creek drainage. Water quality requirements are proposed to be met by wetpool storage within the vault.

SUBSURFACE CONDITIONS

Soils

The native soils observed in our site explorations are glacial till consisting primarily of silty sand with gravel and scattered cobbles. The upper approximately two to four feet of till has typically weathered to a medium dense condition. The underlying unweathered till is typically dense to very dense and weakly cemented. All 12 test pits were terminated in dense to very dense till.

Detailed descriptions of the subsurface conditions we observed in our site explorations are presented on the Test Pit Log in Appendix B. The approximate locations of the test pits are shown on Figure 3.

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The *Geologic Map of the Redmond Quadrangle, King County, Washington* by J. P. Minard and D. B. Booth (1988) shows site geology mapped as Vashon till (Qvt). The dense to very dense soils observed at depth in the test pits are generally consistent with this geologic map unit. The referenced geologic map is attached as Figure 4.

Groundwater

We observed groundwater seepage in 9 of the 12 test pits excavated at the site. The observed seepage was generally light to moderate and was typically perched above the dense to very dense till between depths of about three and five feet below the ground surface. We also observed light to moderate seepage from a localized sandy layer within the dense till at a depth of about eight feet at one test pit location. The sandy zone appears to be both laterally and vertically discontinuous, as we did not observe similar zones within the till at other locations.

The occurrence of shallow perched groundwater is typical for sites underlain by till. We expect that perched groundwater levels and flow rates will fluctuate seasonally and will typically reach their highest levels during and shortly following the wet winter months (October through May). Considering that our test pits were excavated in April, we expect that the observed groundwater levels and seepage flow rates are near their seasonal high.

In general, during the winter and spring months, a portion of the rainfall infiltrates through the upper weathered soil zone and becomes perched on the underlying, dense to very dense till or till-like soils, which have a relatively low permeability that impedes the downward migration of the infiltrated surface water. As a result, groundwater seepage will develop and tend to flow laterally along the surface of the till until emerging as seeps and springs at lower elevations in topographic features such as ravines and closed depressions. Locally, such seepage is referred to as interflow.

The gradient of the till surface and the permeability of the upper weathered till horizon governs the rate and direction of the interflow. The surface of the dense to very dense till typically parallels the existing surface topography. Therefore, the direction and gradient of shallow perched groundwater flow will generally be similar to that of surface water flow.

Based on our study, it appears that the surface of the till generally conforms to the ground surface. Therefore, we expect that the general direction of shallow groundwater interflow at the site is generally to the east. This is consistent with direction of flow indicated by the groundwater potentiometric surface elevations for alluvial and upland aquifers shown on Figure 4.4(a) (Alluvial and Upland Aquifers) of the City of Redmond Wellhead Protection Report.

Hydrogeology

The City of Redmond Wellhead Protection Report recognizes three aquifers within the wellhead protection area. These include the Alluvial Aquifer, which is where the Redmond municipal wells produce from; the Local Upland Aquifer, which occurs within Vashon advance outwash (Qva) deposits that stratigraphically underlie Qvt in upland areas; and the Sea Level Aquifer, which underlies the Qva and a regional aquitard formed by transitional bed (Qtb) silt and clay.

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Based on our study, three primary groundwater regimes are present in the site vicinity. These include shallow seasonal perched groundwater above the relatively-impermeable, dense to very dense till, groundwater within the Qva deposits underlying the till, and deep groundwater occurring within pre-Vashon sediments that underlie the Qtb.

As discussed, groundwater observed in our site explorations was perched above the unweathered till or in localized, apparently discontinuous, sandy zones within the till. Documented wells in the vicinity of the site are completed within the Qva, and within sediments underlying deeper silt and clay deposits consistent with Qtb.

WATER WELL REVIEW

We reviewed well log records available on the Washington State Department of Ecology (Ecology) Water Resources Program web site for existing water wells located within 1,300 feet of the site. We identified three domestic water wells located within this search radius. Brief summaries of the three wells are given below:

Dezotell Well (NE ¼ of SW ¼ of Section 25, Township 26N, Range 5E):

Domestic water well located at 16919 NE 122nd Street, approximately 750 to 800 feet west-southwest and upgradient from the subject site. The total drilled depth of the well is 118 feet. The well is finished in sand and gravel interpreted to be Qva deposits at a depth of 113 feet. The Qva aquifer at this location is separated from the ground surface by about 70 feet of till.

V. Van Dyke Well (SE ¼ of NE ¼ of Section 25, Township 26N, Range 5E):

Domestic water well located approximately 550 to 1,300 feet northeast and crossgradient from the subject site. No well address is given. The total drilled depth of the well is 208 feet. The well is finished in sand and gravel interpreted to be pre-Vashon outwash deposits at a depth of 208 feet. The sand and gravel unit underlies approximately 144 feet of silt and clay that we have interpreted to be Qtb deposits. The sand and gravel aquifer at this location is separated from the ground surface by several soil units, including approximately 35 feet of till and about 144 feet of Qtb.

Uffens/Murray Well (SE ¼ of SE ¼ of Section 25, Township 26N, Range 5E):

Domestic water well located at 11712 176th Avenue NE, approximately 1,300 feet southeast and crossgradient from the subject site. The total drilled depth of the well is 38 feet. The well is finished in sand and gravel interpreted to be Qva deposits at a depth of 38 feet. The sand and gravel underlies approximately 27 feet of soil described as "hardpan", which we have interpreted to be Vashon till.

Documented well details and driller's logs are attached as Appendix C. The approximate well locations relative to the subject site are shown on Figure 5.

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WELL WATER QUALITY REVIEW

We researched available water quality data for wells located within 1,300 feet of the site on the Washington State Department of Health, Office of Drinking Water (ODW) web site (<https://fortress.wa.gov/doh/eh/portal/odw/si/FindWaterSystem.aspx>), and the King County Groundwater Well Viewer (<http://green.kingcounty.gov/groundwater/map.aspx>). We identified one well within the search radius with water quality data. This well appears to be the previously discussed Dezotell Well located approximately 750 to 800 feet west-southwest and upgradient from the subject site, and identified as Well 1 on Figure 5.

Sample results are documented between April 1993 and May 2014 for inorganic contaminants, nitrate, and total coliform. Drinking water standards were exceeded for iron and color in a sample collected in April of 1993. No exceedances have been observed since that time. The well water quality data is attached as Appendix D.

DISCUSSION

Based on our study, it is our opinion that the proposed project will have no adverse impact on the quantity or quality of water in the 3 identified water wells located within 1,300 feet of the site. The identified wells are located either upgradient or crossgradient from the site, and are completed within aquifers protected from the ground surface by significant thicknesses of till (estimated thicknesses ranging between about 27 and 70 feet) and/or Qtb (estimated thickness of about 144 feet) aquitards. The proposed site development includes measures for water quality protection during site development in the form of appropriate application and maintenance of Best Management Practices (BMPs) for erosion prevention and sedimentation control, and pre-release treatment of collected stormwater runoff post development.

The proposed project is a residential development. Considering this, we expect that the use and storage of any hazardous materials or deleterious substances would be limited to quantities typical for residential use. In our opinion, no specific recommendations for storage and use of these materials would be required.

Potential impacts to surface water and shallow perched groundwater at the site would be in the form of trace petroleum hydrocarbons and trace metals from roadway runoff, and typical residential landscape products in the form of fertilizers, pesticides, and other landscaping chemicals. However, trace petroleum products and many common pesticides are readily degradable in the natural environment when dilute, and metals and pesticides are typically filtered by sorption in the upper portion of the soil column.

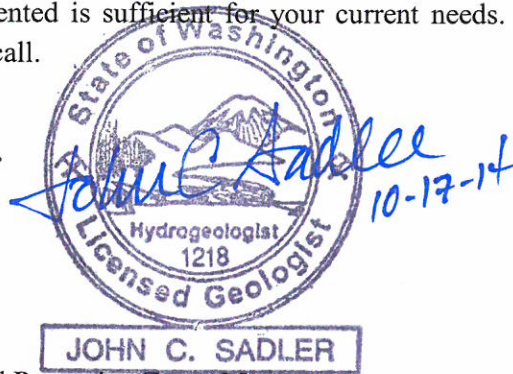
In our opinion, the proposed project will not result in adverse impacts to existing groundwater recharge of downgradient surface water features. As discussed, Monticello Creek is located approximately 320 feet east and downgradient from the site. However, any shallow interflow currently migrating off-site to the east would be intercepted by the existing deep sewer trench constructed adjacent to the east site margin in the 176th Avenue NE right-of-way. Pipe invert elevations shown on the topographic survey by Goldsmith indicate that the sewer is constructed approximately 17 to 22 feet below existing surface grades along the east property margin and an estimated 7 to 9 feet below the bottom elevation of the proposed stormwater detention vault.

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Because the development stormwater vault will ultimately discharge to the Monticello Creek drainage, shallow groundwater intercepted by on-site building and yard drains and surface water runoff collected by the development storm sewer system would enhance recharge to the natural drainage that may have been reduced incidental to the sewer construction and the associated Fischer Village residential development.

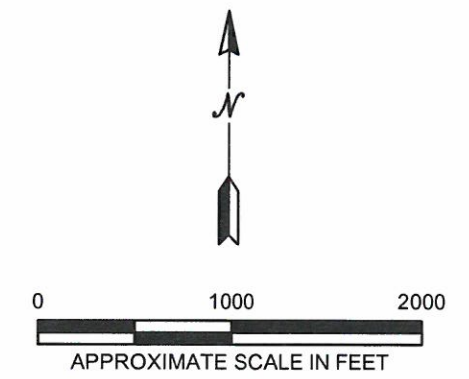
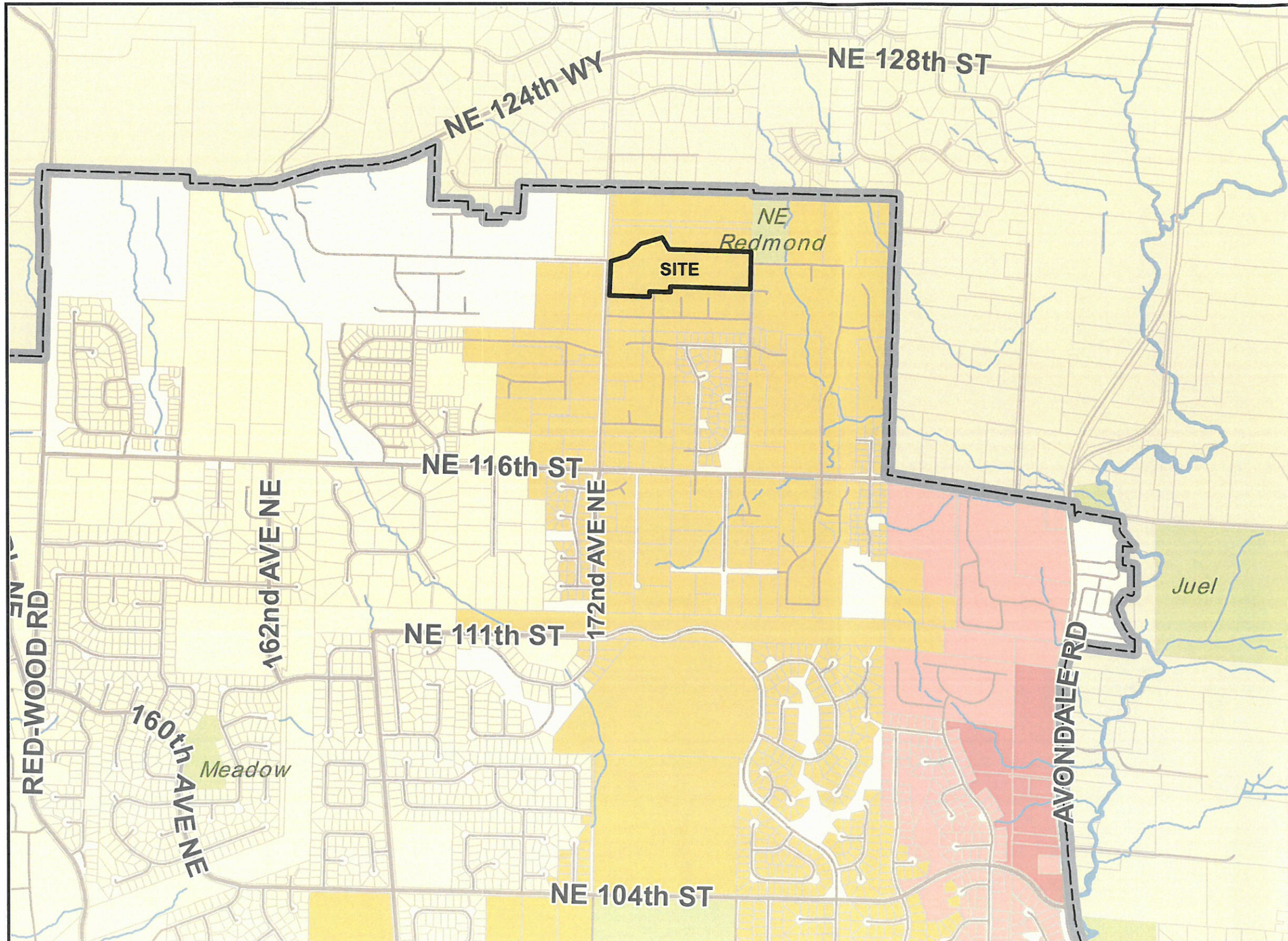
We trust the information presented is sufficient for your current needs. If you have any questions or require additional information, please call.

Sincerely yours,
TERRA ASSOCIATES, INC.



John C. Sadler, L.E.G., L.H.G.
Project Manager

- Encl: Figure 1 – Wellhead Protection Zones Map
 Figure 2 – Vicinity Map
 Figure 3 – Exploration Location Plan
 Figure 4 – Surficial Geologic Map
 Figure 5 – DOE Well Location Map
 Appendix A – General Information for Critical Areas Report
 Appendix B – Test Pit Logs
 Appendix C – DOE Well Details and Driller’s Logs
 Appendix D – Well Water Quality Data
 Appendix E – Bibliography
- cc: Ms. Trish Clements, Goldsmith Land Development Services
 Mr. Erik Enstrom, Goldsmith Land Development Services



MAP LEGEND

-  Wellhead Zone 1
-  Wellhead Zone 2
-  Wellhead Zone 3
-  Wellhead Zone 4

REFERENCE: CITY OF REDMOND



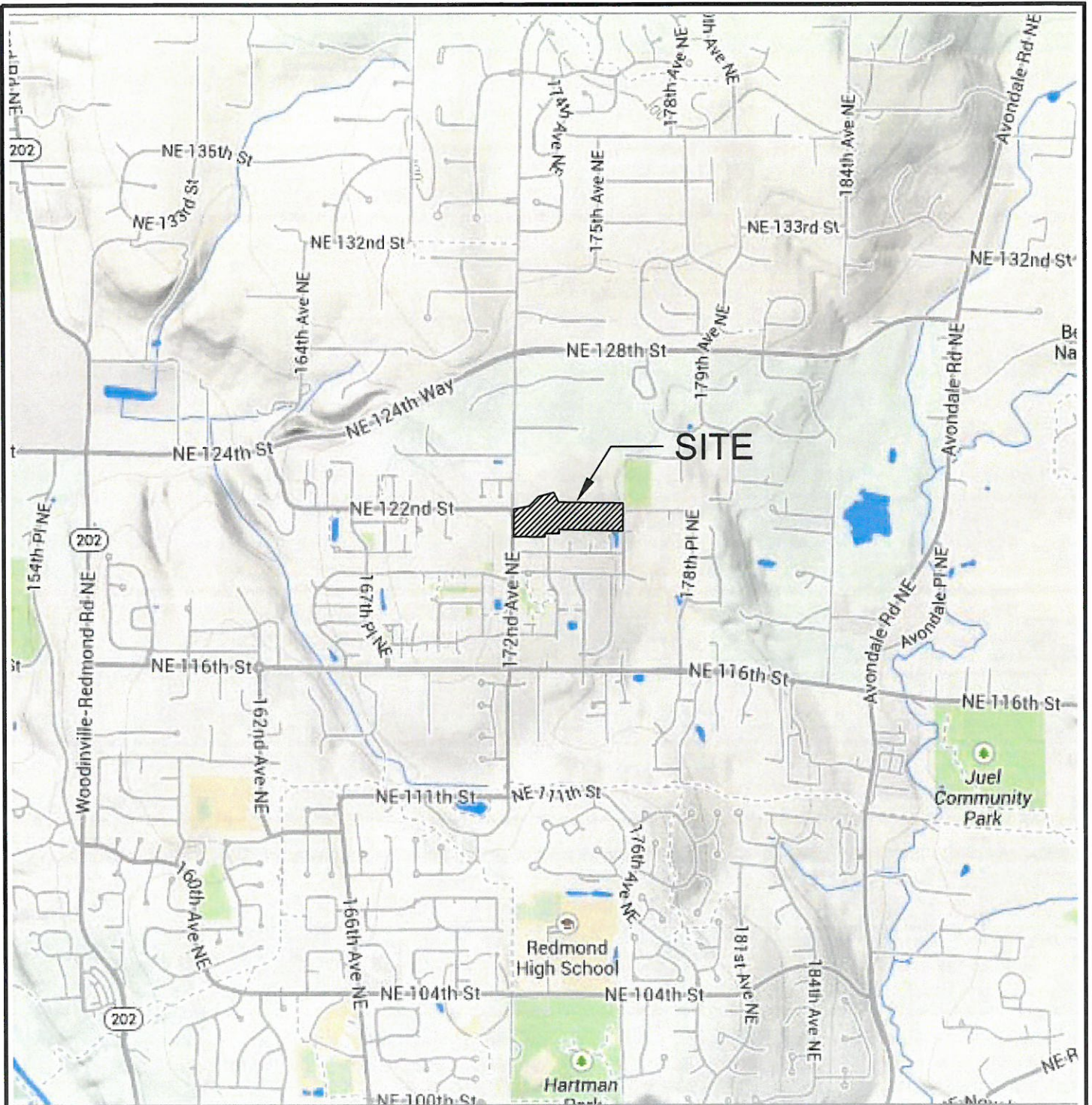
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**WELLHEAD PROTECTION ZONES MAP
 EDGEWOOD WEST
 REDMOND, WASHINGTON**

Proj. No.T-7037

Date OCT 2014

Figure 1

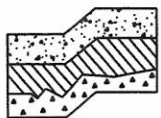


SITE



REFERENCE: GOOGLE MAPS (2014)

NOT TO SCALE



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VICINITY MAP
EDGEWOOD WEST
REDMOND, WASHINGTON

Proj. No.T-7037

Date OCT 2014

Figure 2

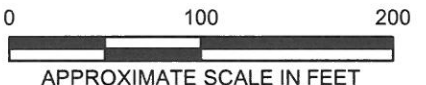
0 25 50 100
SCALE 1"=50'



NOTE:
THIS SITE PLAN IS SCHEMATIC. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE. IT IS INTENDED FOR REFERENCE ONLY AND SHOULD NOT BE USED FOR DESIGN OR CONSTRUCTION PURPOSES.

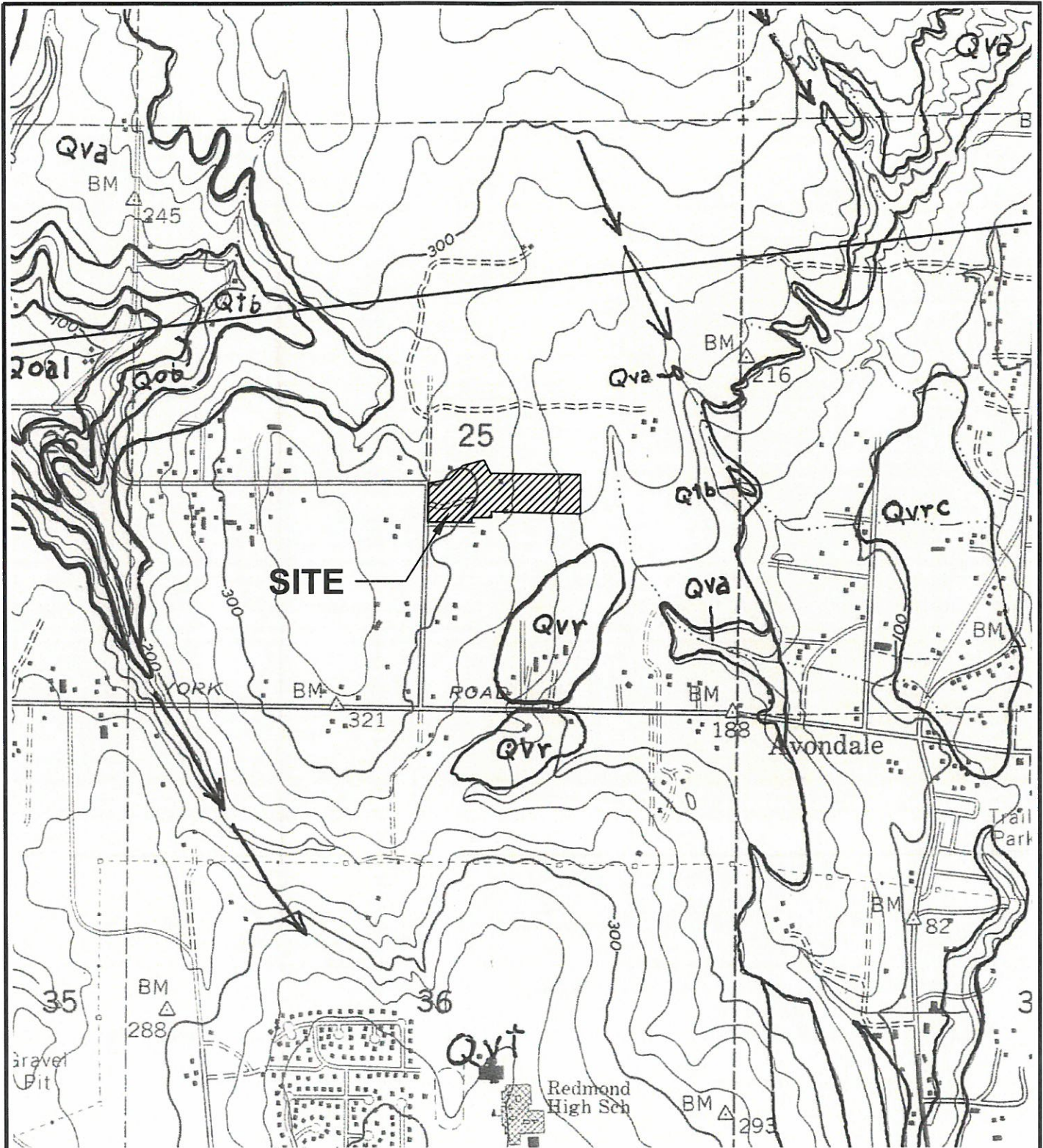
REFERENCE:
GOLDSMITH LAND DEVELOPMENT SERVICES

LEGEND:
 TP-1 APPROXIMATE TEST PIT LOCATION

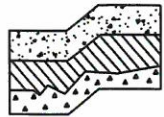
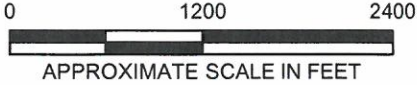



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EXPLORATION LOCATION PLAN EDGEWOOD WEST REDMOND, WASHINGTON		
Proj. No. T-7037	Date OCT 2014	Figure 3



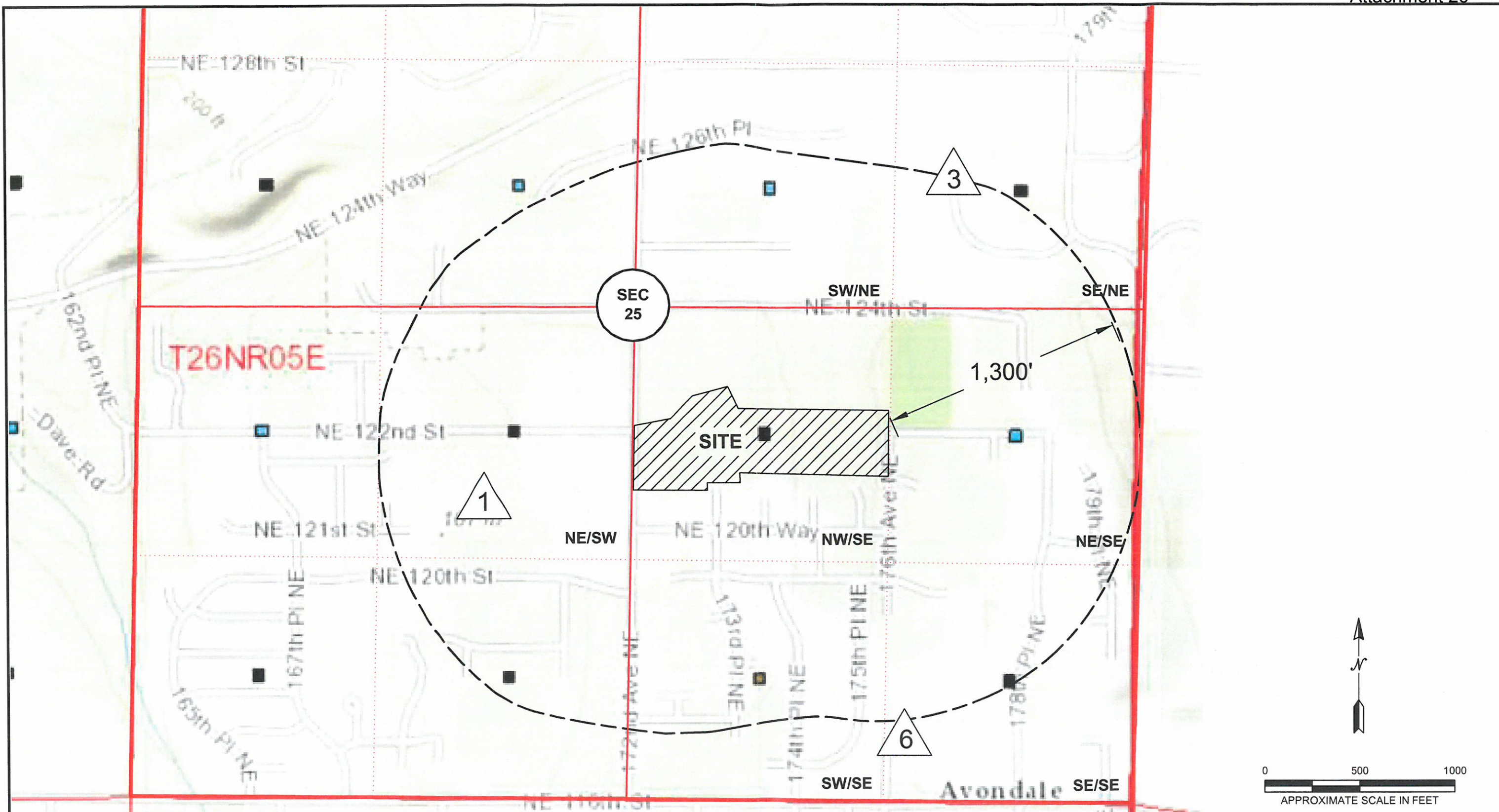
REFERENCE: GEOLOGIC MAP OF THE REDMOND QUADRANGLE,
KING COUTNY, WASHINGTON. (MINARD AND BOOTH, 1988)



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**SURFICIAL GEOLOGIC MAP
EDGEWOOD WEST
REDMOND, WASHINGTON**

Proj. No. T-7037	Date OCT 2014	Figure 4
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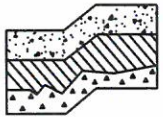


LEGEND:

- △ 1 APPROXIMATE LOCATION OF DEZOTELL WELL
- △ 3 APPROXIMATE LOCATION OF V. VAN DYKE WELL
- △ 6 APPROXIMATE LOCATION OF UFFENS/MURRAY WELL

NOTE: WELL DETAILS AND DRILLER'S LOGS IN APPENDIX C

REFERENCE: WSDOE WATER RESOURCES PROGRAM



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DOE WELL LOCATION MAP EDGEWOOD WEST REDMOND, WASHINGTON		
Proj. No.T-7037	Date OCT 2014	Figure 5

APPENDIX A

GENERAL INFORMATION FOR CRITICAL AREAS REPORT

Proposal Name: Edgewood West

Applicant Name: Quadrant Homes

Report Prepared by: John C. Sadler, L.E.G., L.H.G. of Terra Associates, Inc. Mr. Sadler is a State of Washington-licensed geologist, engineering geologist, and hydrogeologist with over 28 years of professional experience in Western Washington.

Report Date: October 17, 2014

Site Location: King County Tax Parcel No. 2526059033. See Figure 1 and report text.

Development Proposal: LAND-2014-00749 and PR-2014-00632. See Figure 2 and report text.

Description of Existing Site: See report text.

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

Site Map: See Figure 2 and Civil Plans.

Assumptions and Recommendations: See report text.

Bibliography: See Appendix E

APPENDIX B

TEST PIT LOGS

LOG OF TEST PIT NO. TP-1

FIGURE A-2

PROJECT NAME: Mansoori Parcel PROJ. NO: T-7037 LOGGED BY: CSD
 LOCATION: Redmond, Washington SURFACE CONDS: Underbrush APPROX. ELEV: N/A
 DATE LOGGED: April 11, 2014 DEPTH TO GROUNDWATER: 5 Feet DEPTH TO CAVING: N/A

DEPTH (FT.)	SAMPLE NO.	DESCRIPTION	CONSISTENCY/ RELATIVE DENSITY	W (%)	POCKET PEN. (TSF)	REMARKS
1		Dark brown silty SAND with gravel, fine to medium grained, moist, heavy organics. (SM) (TOPSOIL)	Loose			
	1			26.3		
2		Red-brown to brown silty SAND with gravel, fine to medium grained, moist to wet, roots. (SM) (Weathered Till)	Medium Dense			
3						
	2	Gray SILT, fine grained, saturated, mottled. (ML)	Medium Stiff	29.8		
4						
	3		Medium Dense	14.3		
5						
6		Gray silty SAND with gravel, fine to medium grained, wet to moist. (SM) (Unweathered Till)				
7			Dense			
8						
		Test pit terminated at approximately 8 feet. Minor groundwater seepage observed at 5 feet.				
9						
10						

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.



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LOG OF TEST PIT NO. TP-2

FIGURE A-3

PROJECT NAME: Mansoori Parcel PROJ. NO: T-7037 LOGGED BY: CSD
 LOCATION: Redmond, Washington SURFACE CONDS: Underbrush APPROX. ELEV: N/A
 DATE LOGGED: April 11, 2014 DEPTH TO GROUNDWATER: N/A DEPTH TO CAVING: N/A

DEPTH (FT.)	SAMPLE NO.	DESCRIPTION	CONSISTENCY/ RELATIVE DENSITY	W (%)	POCKET PEN. (TSF)	REMARKS
1		Dark brown silty SAND with gravel, fine to medium grained, moist, heavy organics. (SM) (TOPSOIL)	Loose			
2		Red-brown to brown silty SAND with gravel, fine to medium grained, moist to wet, roots. (SM) (Weathered Till)	Medium Dense	32.8		
3	1					
4			Medium Dense			
5		Gray silty SAND with gravel, fine to medium grained, moist, some cementation, mottled to 4 feet. (SM) (Unweathered Till)	Dense	13.2		
6	2					
7			Very Dense			
8		Test Pit terminated at approximately 7 feet. No groundwater seepage observed.				
9						
10						

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.



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LOG OF TEST PIT NO. TP-3

FIGURE A-4

PROJECT NAME: Mansoori Parcel PROJ. NO: T-7037 LOGGED BY: CSD
 LOCATION: Redmond, Washington SURFACE CONDS: Underbrush APPROX. ELEV: N/A
 DATE LOGGED: April 11, 2014 DEPTH TO GROUNDWATER: 4 Feet DEPTH TO CAVING: N/A

DEPTH (FT.)	SAMPLE NO.	DESCRIPTION	CONSISTENCY/ RELATIVE DENSITY	W (%)	POCKET PEN. (TSF)	REMARKS
1		Dark brown silty SAND with gravel, fine to medium grained, moist, heavy organics. (SM) (TOPSOIL)	Loose			
2	1	Brown silty SAND with gravel, fine to medium grained, moist to wet, roots. (SM) (Weathered Till)	Medium Dense	27.0		
3			Medium Dense			
4			Dense			
5	2	Gray silty SAND with gravel, fine to medium grained, moist, some cementation, mottled to 4 feet. (SM) (Unweathered Till)		14.8		
6			Very Dense			
7						
8		Test pit terminated at approximately 8 feet. Moderate groundwater seepage observed at 4 feet.				
9						
10						

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.



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LOG OF TEST PIT NO. TP-4

FIGURE A-5

PROJECT NAME: Mansoori Parcel PROJ. NO: T-7037 LOGGED BY: CSD
 LOCATION: Redmond, Washington SURFACE CONDS: Underbrush APPROX. ELEV: N/A
 DATE LOGGED: April 11, 2014 DEPTH TO GROUNDWATER: 4 Feet DEPTH TO CAVING: N/A

DEPTH (FT.)	SAMPLE NO.	DESCRIPTION	CONSISTENCY/ RELATIVE DENSITY	W (%)	POCKET PEN. (TSF)	REMARKS
1		Dark brown silty SAND with gravel, fine to medium grained, moist, heavy organics. (SM) (TOPSOIL)	Loose			
	1			24.7		
2		Brown silty SAND with gravel, fine to medium grained, moist to wet, roots. (SM) (Weathered Till)	Medium Dense			
3						
4						
	2			16.3		
5		Gray silty SAND with gravel, fine to medium grained, moist, some cementation. (SM) (Unweathered Till)	Dense			
6			Very Dense			
7		Test pit terminated at approximately 6.5 feet. Minor groundwater seepage observed at 4 feet.				
8						
9						
10						

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.



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LOG OF TEST PIT NO. TP-5

FIGURE A-6

PROJECT NAME: Mansoori Parcel PROJ. NO: T-7037 LOGGED BY: CSD
 LOCATION: Redmond, Washington SURFACE CONDS: Underbrush APPROX. ELEV: N/A
 DATE LOGGED: April 11, 2014 DEPTH TO GROUNDWATER: N/A DEPTH TO CAVING: N/A

DEPTH (FT.)	SAMPLE NO.	DESCRIPTION	CONSISTENCY/ RELATIVE DENSITY	W (%)	POCKET PEN. (TSF)	REMARKS
1		Dark brown silty SAND with gravel, fine to medium grained, moist, heavy organics. (SM) (TOPSOIL)	Loose			
2	1	Brown silty SAND with gravel, fine to medium grained, moist to wet, roots. (SM) (Weathered Till)	Medium Dense	21.3		
6	2	Gray silty SAND with gravel, fine to medium grained, moist, some cementation. (SM) (Unweathered Till)	Dense	13.5		
8		Test pit terminated at approximately 8 feet. No groundwater seepage observed.				
9						
10						

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.



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LOG OF TEST PIT NO. TP-6

FIGURE A-7

PROJECT NAME: Mansoori Parcel PROJ. NO: T-7037 LOGGED BY: CSD
 LOCATION: Redmond, Washington SURFACE CONDS: Tall Blackberries APPROX. ELEV: N/A
 DATE LOGGED: April 11, 2014 DEPTH TO GROUNDWATER: 3 Feet DEPTH TO CAVING: N/A

DEPTH (FT.)	SAMPLE NO.	DESCRIPTION	CONSISTENCY/ RELATIVE DENSITY	W (%)	POCKET PEN. (TSF)	REMARKS
1		Dark brown silty SAND with gravel, fine to medium grained, moist, heavy organics. (SM) (TOPSOIL)	Loose			
2	1	Red-brown to brown silty SAND with gravel, fine to medium grained, moist to wet, roots. (SM) (Weathered Till)	Medium Dense	23.0		
3			Dense			
5	2	Gray silty SAND with gravel, fine to medium grained, moist, some cementation, mottled to 3 feet. (SM) (Unweathered Till)		13.7		
6			Very Dense			
8		Test pit terminated at approximately 8 feet. Minor groundwater seepage observed at 3 feet.				
9						
10						

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.



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LOG OF TEST PIT NO. TP-7

FIGURE A-8

PROJECT NAME: Mansoori Parcel PROJ. NO: T-7037 LOGGED BY: CSD
 LOCATION: Redmond, Washington SURFACE CONDS: Tall Blackberries APPROX. ELEV: N/A
 DATE LOGGED: April 11, 2014 DEPTH TO GROUNDWATER: N/A DEPTH TO CAVING: N/A

DEPTH (FT.)	SAMPLE NO.	DESCRIPTION	CONSISTENCY/ RELATIVE DENSITY	W (%)	POCKET PEN. (TSF)	REMARKS
1	1	Dark brown silty SAND with gravel, fine to medium grained, moist, heavy organics. (SM) (TOPSOIL)	Loose	14.7		
2		Brownish gray silty SAND with gravel, fine to medium grained, moist. (SM) (Weathered Till)	Medium Dense			
3						
4	2			13.8		
5		Gray silty SAND with gravel, fine to medium grained, moist, some cementation, mottled to 4 feet. (SM) (Unweathered Till)	Dense			
6						
7						
8		Test pit terminated at approximately 8 feet. No groundwater seepage observed.				
9						
10						

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.



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LOG OF TEST PIT NO. TP-8

FIGURE A-9

PROJECT NAME: Mansoori Parcel PROJ. NO: T-7037 LOGGED BY: CSD

LOCATION: Redmond, Washington SURFACE CONDS: Tall Blackberries APPROX. ELEV: N/A

DATE LOGGED: April 11, 2014 DEPTH TO GROUNDWATER: 4 Feet DEPTH TO CAVING: N/A

DEPTH (FT.)	SAMPLE NO.	DESCRIPTION	CONSISTENCY/ RELATIVE DENSITY	W (%)	POCKET PEN. (TSF)	REMARKS
1		Dark brown silty SAND with gravel, fine to medium grained, moist to wet, heavy organics. (SM) (TOPSOIL)	Loose			
2	1	Red-brown silty SAND with gravel, fine to medium grained, moist, roots. (SM) (Weathered Till)	Medium Dense	28.1		
3						
4						
5	2	Gray silty SAND with gravel, fine to medium grained, moist, mottled to 4 feet, some cementation. (SM) (Unweathered Till)	Dense	16.2		
6						
7						
8						
9		Test pit terminated at approximately 8 feet. Minor groundwater seepage observed at 4 feet.				
10						

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.



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 Geology and
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LOG OF TEST PIT NO. TP-9

FIGURE A-10

PROJECT NAME: Mansoori Parcel PROJ. NO: T-7037 LOGGED BY: CSD
 LOCATION: Redmond, Washington SURFACE CONDS: Tall Blackberries APPROX. ELEV: N/A
 DATE LOGGED: April 11, 2014 DEPTH TO GROUNDWATER: 8 Feet DEPTH TO CAVING: N/A

DEPTH (FT.)	SAMPLE NO.	DESCRIPTION	CONSISTENCY/ RELATIVE DENSITY	W (%)	POCKET PEN. (TSF)	REMARKS
1		Dark brown silty SAND with gravel, fine to medium grained, moist to wet, heavy organics. (SM) (TOPSOIL)	Loose			
	1			22.5		
2		Red-brown silty SAND with gravel, fine to medium grained, moist to wet, roots. (SM) (Weathered Till)	Medium Dense			
3						
4						
5						
6		Gray silty SAND with gravel, fine to medium grained, wet to moist, mottled to 4 feet. (SM) (Unweathered Till)	Dense			
	2			14.6		
7						
8		Test pit terminated at approximately 8 feet. Moderate groundwater seepage observed at 8 feet.				
9						
10						

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.



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LOG OF TEST PIT NO. TP-10

FIGURE A-11

PROJECT NAME: Mansoori Parcel PROJ. NO: T-7037 LOGGED BY: CSD
 LOCATION: Redmond, Washington SURFACE CONDS: Tall Blackberries/Brush APPROX. ELEV: N/A
 DATE LOGGED: April 11, 2014 DEPTH TO GROUNDWATER: 0 to 8 Feet DEPTH TO CAVING: 0 to 8 Feet

DEPTH (FT.)	SAMPLE NO.	DESCRIPTION	CONSISTENCY/ RELATIVE DENSITY	W (%)	POCKET PEN. (TSF)	REMARKS
1		(6 inches ORGANICS)				
2						
3						
4		FILL: gray and brown silty sand with gravel, fine to medium grained, saturated, highly organic, bricks, pvc, plastic.	Loose			
5						
6						
7						
8						
9	1	Gray silty SAND with gravel, fine to medium grained, moist, pieces of weathered bedrock. (SM) (Unweathered Till)	Very Dense	11.2		
10		Test pit terminated at approximately 9 feet. Heavy groundwater seepage observed from 0 to 8 feet. Moderate caving observed from 0 to 8 feet.				

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.



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LOG OF TEST PIT NO. TP-11

FIGURE A-12

PROJECT NAME: Mansoori Parcel PROJ. NO: T-7037 LOGGED BY: CSD
 LOCATION: Redmond, Washington SURFACE CONDS: Brush, Weeds, Grass APPROX. ELEV: N/A
 DATE LOGGED: April 11, 2014 DEPTH TO GROUNDWATER: 3 Feet DEPTH TO CAVING: N/A

DEPTH (FT.)	SAMPLE NO.	DESCRIPTION	CONSISTENCY/ RELATIVE DENSITY	W (%)	POCKET PEN. (TSF)	REMARKS
1		Dark brown silty SAND with gravel, fine to medium grained, moist, heavy organics. (SM) (TOPSOIL)	Loose			
2	1	Red-brown to brown silty SAND with gravel, fine to medium grained, wet, roots. (SM) (Weathered Till)	Medium Dense	33.5		
4	2			17.2		
5		Gray silty SAND with gravel, fine to medium grained, moist, some cementation, mottled to 4.5 feet, occasional cobble. (SM) (Unweathered Till)	Dense			
7	3			11.6		
7		Test pit terminated at approximately 7 feet. Minor groundwater seepage observed at 3 feet.				
8						
9						
10						

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.



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LOG OF TEST PIT NO. TP-12

FIGURE A-13

PROJECT NAME: Mansoori Parcel PROJ. NO: T-7037 LOGGED BY: CSD
 LOCATION: Redmond, Washington SURFACE CONDS: Tall Blackberries/Brush APPROX. ELEV: N/A
 DATE LOGGED: April 11, 2014 DEPTH TO GROUNDWATER: 3 Feet DEPTH TO CAVING: N/A

DEPTH (FT.)	SAMPLE NO.	DESCRIPTION	CONSISTENCY/ RELATIVE DENSITY	W (%)	POCKET PEN. (TSF)	REMARKS
1		Dark brown silty SAND with gravel, fine to medium grained, moist to wet, heavy organics. (SM) (TOPSOIL)	Loose			
	1			34.7		
2		Red-brown silty SAND with gravel, fine to medium grained, wet to saturated, roots. (SM) (Weathered Till)	Loose			
	2			19.9		
3						
	3			15.9		
4						
5		Gray silty SAND with gravel, fine to medium grained, wet to moist, mottled to 5 feet. (SM) (Unweathered Till)	Dense			
6						
7						
8		Test pit terminated at approximately 8 feet. Moderate groundwater seepage observed at 3 feet.				
9						
10						

NOTE: This subsurface information pertains only to this test pit location and should not be interpreted as being indicative of other locations at the site.



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APPENDIX C

DOE WELL DETAILS AND DRILLER'S LOGS



MAP SEARCH RESULTS

[← Back](#) [🔍 New Search](#)

- **Search Criteria Used:** Left Coordinate: 1243080, Right Coordinate: 1243307, Top Coordinate: 870664, Bottom Coordinate: 870421
- There are **9** well logs that match your search criteria.

[📷 Download all 9 images](#) | [📄 Download all 9 data records](#) | [🖨 Print this page](#) | [? Help](#)

Displaying 1 - 9 of **9** well log results Sort results by **Well Owner Name** ▼

1. **BOB DEZOTELL** - { [View PDF](#) }
 Public Land Survey: NE, SW, S-25, T-26-N, R-05-E, Tax Parcel Number: (blank)
 County: King, Well Address: (blank)
 Well Log ID: 88555, Well Tag ID:(blank), Notice of Intent Number: (blank)
 Well Diameter: 6 in. , Well Depth: 118 ft.
 Well Type: Water
 Well Completion Date: 12-01-1990, Well Log Received Date: 12-11-1990
2. **CHARLES PRIMBS** - { [View PDF](#) }
 Public Land Survey: NE, SW, S-25, T-26-N, R-05-E, Tax Parcel Number: (blank)
 County: King, Well Address: (blank)
 Well Log ID: 89251, Well Tag ID:(blank), Notice of Intent Number: (blank)
 Well Diameter: 6 in. , Well Depth: 121 ft.
 Well Type: Water
 Well Completion Date: 07-28-1975, Well Log Received Date: (blank)
3. **DARREL SWAFFIELD** - { [View PDF](#) }
 Public Land Survey: NE, SW, S-25, T-26-N, R-05-E, Tax Parcel Number: (blank)
 County: King, Well Address: (blank)
 Well Log ID: 89996, Well Tag ID:(blank), Notice of Intent Number: (blank)
 Well Diameter: 6 in. , Well Depth: 123 ft.
 Well Type: Water
 Well Completion Date: 03-25-1977, Well Log Received Date: 04-21-1977
4. **HIGHLAND CLASSIC HOMES** - { [View PDF](#) }
 Public Land Survey: NE, SW, S-25, T-26-N, R-05-E, Tax Parcel Number: (blank)
 County: King, Well Address: (blank)
 Well Log ID: 92401, Well Tag ID:(blank), Notice of Intent Number: A022255
 Well Diameter: 6 in. , Well Depth: 0 ft.
 Well Type: Decommissioned
 Well Completion Date: 01-17-1994, Well Log Received Date: 02-01-1994
5. **Micheal Phillips** - { [View PDF](#) }
 Public Land Survey: NE, SW, S-25, T-26-N, R-05-E, Tax Parcel Number: (blank)
 County: King, Well Address: 16922 NE 122nd St, Redmond 98052
 Well Log ID: 574123, Well Tag ID:(blank), Notice of Intent Number: SE03735
 Well Diameter: 8 in. , Well Depth: 15 ft.
 Well Type: Resource Protection
 Well Completion Date: 12-11-2008, Well Log Received Date: 01-07-2009
6. **Micheal Phillips** - { [View PDF](#) }
 Public Land Survey: NE, SW, S-25, T-26-N, R-05-E, Tax Parcel Number: (blank)
 County: King, Well Address: 16922 NE 122nd St, Redmond 98052
 Well Log ID: 574124, Well Tag ID:(blank), Notice of Intent Number: AE04962
 Well Diameter: 8 in. , Well Depth: 15 ft.
 Well Type: Decommissioned
 Well Completion Date: 12-11-2008, Well Log Received Date: 01-07-2009
7. **PARSON CONSTRUCTION** - { [View PDF](#) }
 Public Land Survey: NE, SW, S-25, T-26-N, R-05-E, Tax Parcel Number: 2526059059
 County: King, Well Address: 17040 NE 122ND ST, REDMOND
 Well Log ID: 506767, Well Tag ID:(blank), Notice of Intent Number: A126898
 Well Diameter: 48 in. , Well Depth: 15 ft.
 Well Type: Decommissioned
 Well Completion Date: 09-12-2007, Well Log Received Date: 10-04-2007
8. **PARSON CONSTRUCTION** - { [View PDF](#) }
 Public Land Survey: NE, SW, S-25, T-26-N, R-05-E, Tax Parcel Number: 12526059009
 County: King, Well Address: 16922 NE 122ND ST, REDMOND
 Well Log ID: 506771, Well Tag ID:(blank), Notice of Intent Number: A126897
 Well Diameter: 6 in. , Well Depth: 119 ft.
 Well Type: Decommissioned
 Well Completion Date: 09-12-2007, Well Log Received Date: 10-04-2007



MAP SEARCH RESULTS

Back New Search

- **Search Criteria Used:** Left Coordinate: 1245853, Right Coordinate: 1245989, Top Coordinate: 871852, Bottom Coordinate: 871665
- There are **3** well logs that match your search criteria.

[Download all 3 images](#) | [Download all 3 data records](#) | [Print this page](#) | [Help](#)

Displaying 1 - 3 of 3 well log results Sort results by **Well Owner Name**

1. **CAMWEST DEVELOPMENT** - { [View PDF](#) }
 Public Land Survey: SE, NE, S-25, T-26-N, R-05-E, Tax Parcel Number: (blank)
 County: King, Well Address: 172ND AVE NE AND NE 177TH WAY, RICHMOND
 Well Log ID: 384879, Well Tag ID:(blank), Notice of Intent Number: A064885
 Well Diameter: 6 in. , Well Depth: 82 ft.
 Well Type: Decommissioned
 Well Completion Date: 07-15-2004, Well Log Received Date: 08-20-2004
2. **Toi WA LP** - { [View PDF](#) }
 Public Land Survey: SE, NE, S-25, T-26-N, R-05-E, Tax Parcel Number: 2355000010
 County: King, Well Address: 17619 NE 128th ST, Redmond 98052
 Well Log ID: 812965, Well Tag ID:(blank), Notice of Intent Number: AE17888
 Well Diameter: 6 in. , Well Depth: 103 ft.
 Well Type: Decommissioned
 Well Completion Date: 07-21-2012, Well Log Received Date: 08-17-2012
3. **V. VAN DYKE** - { [View PDF](#) }
 Public Land Survey: SE, NE, S-25, T-26-N, R-05-E, Tax Parcel Number: (blank)
 County: King, Well Address: (blank)
 Well Log ID: 98616, Well Tag ID:(blank), Notice of Intent Number: (blank)
 Well Diameter: 6 in. , Well Depth: 208 ft.
 Well Type: Water
 Well Completion Date: 10-06-1978, Well Log Received Date: (blank)

Total Result Pages: 1

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

WATER WELL REPORT

Application No.

STATE OF WASHINGTON

Permit No.

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

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

(2) LOCATION OF WELL: County King W 1/2 of SE 1/4 NE 1/4 Sec. 25 T26 N, R5E 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 208 ft. 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 ... Model No ...
Type ... 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 padding 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 ...
Static level 98 ft. below top of well Date 10/16/78
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 41 hrs.
Artesian flow ... s.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, 1978 Completed 10/6, 1978

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] R. Johnson
(Well Driller)

License No. 0233 Date 10/6, 1978



MAP SEARCH RESULTS

[Back](#) [New Search](#)

- **Search Criteria Used:** Left Coordinate: 1245555, Right Coordinate: 1246303, Top Coordinate: 869322, Bottom Coordinate: 868958
- There are **7** well logs that match your search criteria.

[Download all 7 images](#) | [Download all 7 data records](#) | [Print this page](#) | [Help](#)

Displaying 1 - 7 of 7 well log results Sort results by [Well Owner Name](#)

1. **C/O GNR DOZING AVALON MANAGEMENT** - { [View PDF](#) }
Public Land Survey: SE, SE, S-25, T-26-N, R-05-E, Tax Parcel Number: (blank)
County: King, Well Address: 17818 ne 116th st, REDMOND 98052
Well Log ID: 727179, Well Tag ID:(blank), Notice of Intent Number: AE12310
Well Diameter: 6 in. , Well Depth: 34 ft.
Well Type: Decommissioned
Well Completion Date: 02-28-2011, Well Log Received Date: 05-18-2011
2. **CURRY ANDERSON** - { [View PDF](#) }
Public Land Survey: SE, SE, S-25, T-26-N, R-05-E, Tax Parcel Number: (blank)
County: King, Well Address: 17838 NE 116TH ST, REDMOND
Well Log ID: 347678, Well Tag ID:(blank), Notice of Intent Number: A063800
Well Diameter: 24 in. , Well Depth: 29 ft.
Well Type: Decommissioned
Well Completion Date: 08-05-2002, Well Log Received Date: 08-12-2002
3. **DARTMOOR CANTERFIELD** - { [View PDF](#) }
Public Land Survey: SE, SE, S-25, T-26-N, R-05-E, Tax Parcel Number: 252605-9150
County: King, Well Address: 17812 NE 116TH, REDMOND 98052
Well Log ID: 369267, Well Tag ID:(blank), Notice of Intent Number: AE00702
Well Diameter: 6 in. , Well Depth: 61 ft.
Well Type: Decommissioned
Well Completion Date: 09-23-2003, Well Log Received Date: 09-30-2003
4. **DARTMOOR CANTERFIELD** - { [View PDF](#) }
Public Land Survey: SE, SE, S-25, T-26-N, R-05-E, Tax Parcel Number: 252605-9182
County: King, Well Address: 17812 NE 116TH ST, REDMOND 98052
Well Log ID: 369268, Well Tag ID:(blank), Notice of Intent Number: AE00703
Well Diameter: 36 in. , Well Depth: 28 ft.
Well Type: Decommissioned
Well Completion Date: 09-23-2003, Well Log Received Date: 09-30-2003
5. **JIM TOST** - { [View PDF](#) }
Public Land Survey: SE, SE, S-25, T-26-N, R-05-E, Tax Parcel Number: (blank)
County: King, Well Address: NE 116TH ST AND 178TH AVE NE
Well Log ID: 306047, Well Tag ID:AFM763, Notice of Intent Number: R041617
Well Diameter: 0 in. , Well Depth: 25 ft.
Well Type: Resource Protection
Well Completion Date: 12-04-2000, Well Log Received Date: 04-09-2001
6. **RONALD UFFENS & WILLIAM MURRAY** - { [View PDF](#) }
Public Land Survey: SE, SE, S-25, T-26-N, R-05-E, Tax Parcel Number: (blank)
County: King, Well Address: (blank)
Well Log ID: 97348, Well Tag ID:(blank), Notice of Intent Number: (blank)
Well Diameter: 6 in. , Well Depth: 38 ft.
Well Type: Water
Well Completion Date: 05-04-1976, Well Log Received Date: (blank)
7. **S&I Properties LLC** - { [View PDF](#) }
Public Land Survey: SE, SE, S-25, T-26-N, R-05-E, Tax Parcel Number: 2526059049
County: King, Well Address: 11810 176th AVE NE
Well Log ID: 906948, Well Tag ID:AGR903, Notice of Intent Number: AE25129
Well Diameter: 6 in. , Well Depth: 39 ft.
Well Type: Decommissioned
Well Completion Date: 01-09-2014, Well Log Received Date: 01-21-2014

Total Result Pages: 1

WATER WELL REPORT

STATE OF WASHINGTON

SHORT PLAT NO. 115 14
Attachment 26
26/05-25A

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 1/4 SE 1/4 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: contaminated & discolored
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

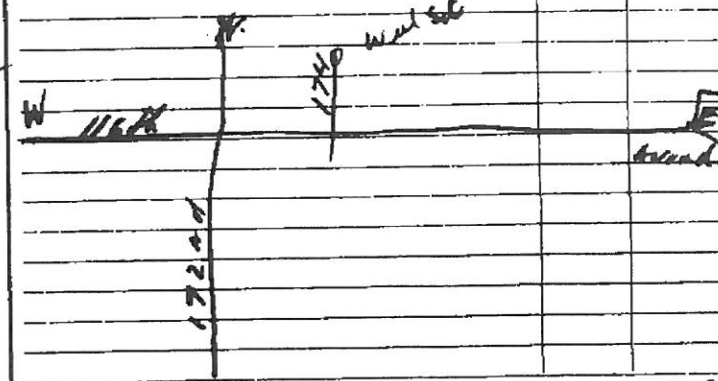
Date of test 7/20
Baller test: 30 gal./min. with 5 ft. drawdown after 1 hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes No

(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 Soily Fill	0	5
Yellow clay & some sand	5	12
Tight Red Brn Clay	12	20
Water at 20 ft		
Hard pan & grey clay	20	30
Layers of water saturation		
Layers of Hard Pan	30	32
Coarse sand & gr Red shell	32	34
Very Green Sand & Green		
Gravel -	34	38
Green Sand	38	39

This gravel was found like
Mally of grey in C&B 2 -
One of the previous grinds 2 hours
seen.

This well is pretty much in line
with wells to the south about 1/2
mile - Formation. fairly consistent



Work started 4-23, 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 DRILLING CO. (Type or print)
Address: 4429 Lake View Blvd. NE Kirkland, WASH 98023
[Signed] H.C. MEYER (Well Driller)
License No. 0308 Date 5-, 1976

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

APPENDIX D

WELL WATER QUALITY DATA



Division of Environmental Health Office of Drinking Water

Help

Individual System View - HIGHLAND RIDGE WATER SYSTEM - Water System Id - 03453J

Compliance Actions		Operating Permits		Operators		Reports		Water Use Efficiency	
General Information		Source Information		Samples		Exceedances		Water Quality Monitoring Schedule	
Group	B	Status	Active	Ownership Type	Investor				
Type		Residential Population	10	Jurisdiction	WA DOH ODW				
County	KING	NonResidential Population	0	System Effective Date	5/4/1994				
Owner Name	HIGHLAND RIDGE WATER SYSTEM	Total Calculated Connections	3	System Inactive Date					
Primary Contact	CARRIE TIBBETTS	Total Approved Connections	Undetermined	SMA Name					
Primary Contact Phone	(425) 861-7812	Distribution Capacity (gallons)	0	SMA Number					
Water System Mailing Address	16911 NE 122ND ST REDMOND, WA 98052								

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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.



Division of Environmental Health Office of Drinking Water

Help

Individual System View - HIGHLAND RIDGE WATER SYSTEM - Water System Id - 03453J

Compliance Actions	Operating Permits	Operators	Reports	Water Use Efficiency
General Information	Source Information	Samples	Exceedances	Water Quality Monitoring Schedule

Source 01 - B. DEZOTELL

Source Status	Active	Usage	Permanent	WRIA	Cedar-Sammamish	Intertie Supplying System	NA
Type	Groundwater Well	Capacity (gpm)	23	Township	26	Intertie Supplying Number	NA
Effective Date	5/4/1994	Treated	No	Range	05E		
Inactive Date		Metered	Yes	Section	25		
DOE Well Tag Number		Well Depth (ft)	119	Qtr/Qtr Section	NESW		

Records 1 - 1 of 1

Display as table with source treatment information

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Department of Health, Office of Drinking Water

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Phone: (360) 236-3100	

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 or call 360-236-3113.



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Individual System View - HIGHLAND RIDGE WATER SYSTEM - Water System Id - 03453J

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		5/21/2014	COLI_AP	MICRO	02998	066	No		
Dist		3/16/2010	COLI_AP	MICRO	01239	066	No		
Dist		8/22/2006	COLI_AP	MICRO	02969	066	No		
Dist		12/16/2004	COLI_AP	MICRO	04794	066	No		
Dist		7/11/2003	COLI_AP	MICRO	03136	066	No		
Dist		7/1/2002	COLI_AP	MICRO	02907	066	No		
Dist		7/17/2000	COLI_AP	MICRO	04850	066	No		
Dist		7/13/1999	COLI_AP	MICRO	04677	066	No		
Dist		8/27/1998	COLI_AP	MICRO	05930	066	No		
01		5/21/2014	NIT	IOC	07478	066	No		
01		10/12/2004	IOC	IOC	15222	066	No		
01		11/28/2000	NIT	IOC	46930	089	No		
01		7/17/2000	NIT	IOC	10482	066	No		
01		11/14/1996	IOC	IOC	27083	089	No		
01		9/20/1996	NIT	IOC	13156	066	No		
01		6/2/1993	IOC	IOC	08491	066	No		
01		4/27/1993	IOC	IOC	06591	066	Yes		
01		4/27/1993	VOC2	VOC	00129	104	No		

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Individual System View - HIGHLAND RIDGE WATER SYSTEM - Water System Id - 03453J

Compliance Actions	Operating Permits	Operators	Reports	Water Use Efficiency
General Information	Source Information	Samples	Exceedances	Water Quality Monitoring Schedule

Type	Source ▲	DOE Source	Collect Date	Analyte	Result Quantity	Units	Test Panel	Analyte Group	Sample Number	Lab Number
MCL2	01		4/27/1993	COLOR	20.0	CU	IOC	IOC	06591	066
MCL2	01		4/27/1993	IRON	1.10	mg/L	IOC	IOC	06591	066

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View Sample Detail - WSID 03453J - HIGHLAND RIDGE WATER SYSTEM

Collect Date 4/27/1993
 Lab Number 066
 Lab Name Amtest, Inc - Redmond
 Sample Number 06591
 Source 01
 Analyte Group IOC-INORGANIC CONTAMINANTS
 Test Panel IOC-COMPLETE INORGANIC ANALYSIS
 Sample Location
 Sample Type Pre-Treatment / Raw

Analyte DOH Num	Analyte Name	Result Range	Result Quantity	Maximum Contaminant Level	Units	State Reporting Limit
0008	IRON	EQ	1.1000	0.3000	mg/L	0.1000
0018	COLOR	EQ	20.0000	15.0000	CU	15.0000
0009	LEAD	EQ	0.0080		mg/L	0.0010
0010	MANGANESE	EQ	0.0460	0.0500	mg/L	0.0100
0014	SODIUM	EQ	9.4000		mg/L	5.0000
0015	HARDNESS	EQ	140.0000		mg/L	10.0000
0016	CONDUCTIVITY	EQ	320.0000	700.0000	Umhos/cm	70.0000
0017	TURBIDITY	EQ	18.0000		NTU	0.1000
0020	NITRATE-N	EQ	3.0000	10.0000	mg/L	0.2000
0022	SULFATE	EQ	18.0000	250.0000	mg/L	50.0000
0024	ZINC	EQ	0.2200	5.0000	mg/L	0.2000
0004	ARSENIC	LT	0.0100	0.0104	mg/L	0.0030
0005	BARIUM	LT	0.1000	2.0000	mg/L	0.4000
0006	CADMIUM	LT	0.0020	0.0050	mg/L	0.0020
0007	CHROMIUM	LT	0.0100	0.1000	mg/L	0.0200
0011	MERCURY	LT	0.0005	0.0020	mg/L	0.0004
0012	SELENIUM	LT	0.0050	0.0500	mg/L	0.0100
0013	SILVER	LT	0.0100	0.1000	mg/L	0.1000
0019	FLUORIDE	LT	0.2000	4.0000	mg/L	0.5000
0021	CHLORIDE	LT	20.0000	250.0000	mg/L	20.0000
0023	COPPER	LT	0.2000		mg/L	0.0200

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Department of Health, Office of Drinking Water

Groundwater Well Data - Details

Enter a Well ID: 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:

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: 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:

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 E**BIBLIOGRAPHY**

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Washington State Department of Health, Division of Environmental Health, Office of Drinking Water (ODW) Website (<https://fortress.wa.gov/doh/eh/portal/odw/si/FindWaterSystem.aspx>)