

Chevron Environmental Management Company

Data Gap Investigation Work Plan

**Former Jack's Grocery
706 South Columbus Avenue
Goldendale, Washington**

**Cleanup Site Identification No. 6826
Facility Site Identification No. 89542539
Voluntary Cleanup Program ID CE0537**

October 21, 2022

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October 21, 2022

Prepared By:

Arcadis U.S., Inc.
1100 Olive Way, Suite 800
Seattle
Washington 98101
Phone: 206 325 5254
Fax: 206 325 8218

Prepared For:

Chevron Environmental Management Company

Our Ref:

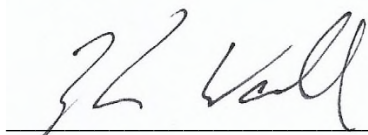
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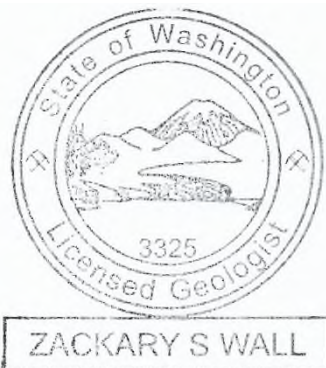
Julia Vidonish Aspinall
Staff Engineer



Eric Epple
Project Manager



Zackary Wall
Licensed Geologist



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Acronyms and Abbreviations

Arcadis	Arcadis U.S., Inc.
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and total xylenes
CEMC	Chevron Environmental Management Company
COC	constituent of concern
CUL	cleanup level
DRO	diesel-range organics
Ecology	Washington State Department of Ecology
EDB	ethylene dibromide
EDC	1,2-dichloroethane
GRO	gasoline-range organics
HRO	heavy-oil-range organics
MTBE	methyl tert-butyl ether
MTCA	Model Toxics Control Act
NFA	no further action
PID	photo ionization detector
PVC	polyvinyl chloride
site	Former Jack's Grocery, located at 706 South Columbus Avenue, Goldendale, Washington
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VCP	Voluntary Cleanup Program
VOC	volatile organic compound
Work Plan	Data Gap Investigation Work Plan

1 Introduction

On behalf of Chevron Environmental Management Company (CEMC), Arcadis U.S., Inc. (Arcadis) prepared this *Data Gap Investigation Work Plan* (Work Plan) for the former Jack's Grocery facility, located at 706 South Columbus Avenue, Goldendale, Washington (site). CEMC manages environmental matters on behalf of its affiliate, Union Oil Company of California (Union Oil). A site location map and a site vicinity map are shown on Figures 1 and 2, respectively.

The site was enrolled in the Washington Department of Ecology (Ecology) Voluntary Cleanup Program (VCP) on May 25, 2022, under Program ID CE0537. Additional site regulatory identifiers include Cleanup Site Identification No. 6826, Facility Site Identification No. 89542539, and Underground Storage Tank Identification No. 100342.

2 Objective

As discussed with Ecology during conference calls on January 26 and June 2, 2022, the objective of this Work Plan is to propose sampling activities to further delineate and/or evaluate residual petroleum hydrocarbon impacts in soil and groundwater at the site. The proposed scope of work is based on a review of historical site information and identified site constituents of concern (COCs) within soil and groundwater.

The proposed scope of work will be completed to support a no further action (NFA) determination for the site using model remedies for sites with petroleum impacts to soil, identified as Option 1 in Table 1 of the *Model Remedies for Sites with Petroleum Impacts to Soil* (Ecology 2017). The methods and procedures proposed are in accordance with the Model Toxics Control Act (MTCA) *Guidance for Remediation of Petroleum Contaminated Sites* (Ecology 2016).

3 Regulatory Framework

The site was previously enrolled in Ecology's VCP under Program ID CE0248 but was later removed in June 2008. In September and October 2021, and January 2022, Ecology issued final determinations of liability (Ecology 2021a, 2021b, 2022b). In a letter dated June 5, 2008, Ecology issued a partial sufficiency opinion. As stated in the letter, Ecology determined that the independent remedial action(s) performed at the Site were sufficient to meet the substantive requirements contained in MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing gasoline range petroleum hydrocarbons release in soil. However, independent remedial action(s) performed at the Site were not sufficient to meet MTCA's substantive requirements for characterizing and addressing releases of gasoline range hydrocarbons and associated constituents in groundwater. Ecology recommended installation of a minimum of two monitoring wells down-gradient of the historical source to define the extent of contamination and groundwater flow. In May 2022, Arcadis (on behalf of CEMC) applied to re-enroll the site into the VCP. On May 25, 2022, the site was accepted and enrolled into the VCP under Program ID CE0537 (Ecology 2022a).

4 Site Description, Background, and Preliminary Conceptual Site Model

This section discusses the site background, history of environmental assessments and remediation conducted, groundwater monitoring activities, and current understood groundwater and soil conditions at the site.

4.1 Site Background

The site is currently occupied by a one-story residential home located on the southeast corner of the intersection of South Columbus Avenue and East Brooks Street in Goldendale, Washington. The site vicinity is mixed residential and commercial properties. The site is bordered by residential properties to the east and south, East Brooks Street to the north, and South Columbus Avenue to the west. A commercial building with several tenants (Carquest Auto Parts, Goldendale Garden Supply, and J&N Cable) known as Columbus Square is located to the north across East Brooks Street, and a former car wash facility (Hardie's) is located to the west across South Columbus Avenue. Current and former site features are shown on Figure 3.

Based on known site information, historical aerial photographs, and community interviews, the residential and commercial development of the site began in the early 1930s (Robert D. Miller Consulting 1992a). The date the site was first used as a service station is unknown, although reportedly underground storage tanks (USTs) were installed as early as 1933 (Robert D. Miller Consulting 1992a; Shannon and Wilson 2014). Based on available records and site photographs, the site was occupied by a Union Oil service station from at least 1942 through 1961. Petroleum operations reportedly ceased at the site in 1982 and the status of the USTs is unknown. The Jack's Grocery store remained open until June 1992. In July and August 1992, four USTs and an unknown volume of petroleum-impacted soils were removed and disposed offsite (Robert D. Miller Consulting 1992a, 1992b). The site was also previously occupied by or associated with an auto court/motel and used as apartments/rental units for some time. The store was later remodeled into the current residential use, although the exact dates are unknown.

Information regarding the sizes, contents, locations, and number of tanks is conflicting and varied in historical documentation. As mentioned above, USTs were reportedly first installed at the site in approximately 1933 (Robert D. Miller Consulting 1992a). According to a Union Oil document dated 1946, one 280-gallon and two 550-gallon USTs were present at the site, with a 1,000-gallon tank to be installed to increase storage capacity. Four USTs were abandoned in 1982 and removed in 1992 (Robert D. Miller Consulting 1992a, 1992b). The reported USTs removed in 1992 included a 500-gallon gasoline tank (Tank 1), a 300-gallon gasoline tank containing waste oil (Tank 2), a 250-gallon gasoline tank (Tank 3), and a 1,000-gallon gasoline tank (Tank 4; Robert D. Miller Consulting 1992; Shannon and Wilson 2014). However, later reports suggest that all four USTs may have been used for gasoline storage; waste oil reportedly was stored in an undocumented aboveground tank (Robert D. Miller Consulting 1992b; Shannon and Wilson 2014). The four USTs removed in 1992 were of steel, single-walled construction. At the time of removal, the USTs were observed to be rusted with holes in the tank bottoms, situated at 5 feet below ground surface (bgs). No additional tanks were discovered during the investigation (Robert D. Miller Consulting 1992a).

4.1.1 Nearby Cleanup Sites

Several leaking underground storage tank sites are located in the vicinity of the Jack's Grocery site (Ecology 2022d). The Columbus Square site (CSID 6704, FSID 81593498) was formerly a Shell station and is located approximately 150 ft north across East Brooks Street; numerous borings have been drilled and wells installed in East Brooks Street and South Columbus Avenue to evaluate the extent of impacts and we understand additional offsite assessment is planned. The Hardie's Car Wash and Detail Shop site (CSID 12412, FSID 8187) is located approximately 150 ft west across South Columbus Avenue and is currently in the "Awaiting Cleanup" phase; the USTs appear to remain in place at this facility and no assessment has been performed. The JD Hattenhauer Distributing site (CSID 5570, FSID 14585311) is located approximately 200 ft east; UST removal and some assessment has been performed at this facility. The Temple Distributing, Inc. site (CSID 4590, FSID 95474961) is located approximately 350 ft to the south and additional remedial soil excavation is planned (Ecology 2022d).

4.2 Environmental History

Environmental assessments and remediation conducted at the site to date are summarized below. Soil analytical results are presented in Table 1 and groundwater gauging and analytical results are presented in Table 2. Historical soil sample locations are shown on Figure 4.

In July 1992, the four known USTs were removed from the site. During UST removal, free product was reportedly observed in the soil below the south end of Tank 1 (Robert D. Miller Consulting 1992a). The USTs were observed to be rusted with holes in the tank bottoms. Four discrete soil samples (Sample #1A @T4, Sample #1B @T4, Sample #2 @T2&T3, and Sample #3 @T1) were collected from the base of the excavation at depths of 6 to 7.5 feet bgs. The analytical results of Sample #3 @T1 (GRO, toluene, ethylbenzene, and xylenes), collected at 6.5 feet bgs, exceeded MTCA Method A cleanup levels (CULs).

In August 1992, the UST area was over-excavated to an approximate depth of 8 feet bgs, where bedrock was encountered (Robert D. Miller Consulting 1992b; Shannon and Wilson 2014) and nine confirmation sidewall and bottom soil samples were collected (Sample #1-NW, Sample #2-W, Sample #3-NE, Sample #4-E, Sample #5-SE, Sample #6-S, Sample #7-SW, Sample #8-E, and Sample #9-W). A groundwater grab sample (Sample #10 pit water) was also collected (Robert D. Miller Consulting 1992c). GRO, BTEX, and lead were detected in the water sample. Based on the results of Sample #1-NW, this area was further over-excavated to the west and Sample #11-NW was collected. GRO was not detected in Sample #11-NW. Over-excavation in the area of Sample #5-SE and Sample #6-S, which contained GRO above the MTCA Method A CUL, was not performed due to proximity to the building foundation; these soils were left in place (Robert D. Miller Consulting 1992b). However, three soil samples (Sample #12-NE, Sample #13-E, and Sample #14-NE) were collected from hand auger borings advanced horizontally into the eastern sidewall, to approximately 2 feet laterally beneath the building. These horizontal hand auger borings were advanced at depths of 5.5 to 6.5 feet bgs; GRO was only detected in #14-NE at a low concentration below the CUL (Shannon and Wilson 2014). The excavated soil (volume unknown) was reportedly transported to the owner's ranch approximately 5 miles northwest of the city for treatment via aeration. Following treatment and confirmation sampling the soil was reportedly disposed (location unknown).

In October 1992, Robert D. Miller Consulting prepared a corrective action progress report detailing the work completed in July and August 1992. No new work had been completed, and the report was an update of the work progress and request for comment regarding further actions. The report concluded remaining impacted soil was limited under the west wall of the building and residual soil and groundwater impacts were not significant. In a

letter submitted to Ecology by Robert D. Miller Consulting in November 1992, it was indicated that the soils excavated at the site were taken to Mr. Glenn McClaskey's Ranch and aeriated as treatment. The soil sample results post-treatment are presented as Sample #15 through Sample #18 in Table 1 (GRO not detected). The final disposition of the treated soils is unknown. According to Miller's November 1992 letter, the excavation was backfilled in early November 1992, and it is unclear as to whether it was backfilled with the excavated soils or not.

In May 1995, to further evaluate residual impacts, one soil and one groundwater grab sample were collected from each of two hand auger borings (Boring 1 and Boring 2). Boring 1 was advanced to 6.5 feet bgs adjacent to the northwest corner of the former grocery building, and Boring 2 was advanced to 5.5 feet bgs on the adjacent property to the east (Figure 4). Only a low concentration of DRO (identified by the laboratory as weathered gasoline) was detected in the soil sample collected from Boring 1. BTEX were detected in the grab groundwater sample collected from Boring 1; however, only benzene exceeded the Method A CUL (Robert D. Miller Consulting 1995). Petroleum hydrocarbons were not detected in the groundwater sample collected from Boring 2.

In October 2007, a soil investigation was performed by Robert D. Miller Consulting to further assess residual petroleum hydrocarbon concentrations along the site building (Robert D. Miller Consulting 2007). Three soil borings (B1 through B3) were advanced near/beneath the west side of the building. Sample B1-C was collected at 6.75 feet bgs near the western wall. Samples B2-A and B3-B were collected at approximately 7 and 7.5 feet bgs, respectively, from beneath the building. Low concentrations of GRO, xylenes, and/or lead were detected in one or two of the collected samples; however, the concentrations did not exceed MTCA Method A CULs.

Additionally, a grab groundwater sample was collected from B1 and three monitoring wells (MW-1, MW-2, and MW-3) were installed to further assess groundwater conditions at and surrounding the site. GRO, BTEX, and dissolved lead were detected in groundwater from the wells, but at concentrations below MTCA Method A CULs. The GRO concentration detected in the groundwater grab sample (B1) exceeded the MTCA Method A CUL.

The groundwater monitoring well network consisted of MW-1, MW-2, and MW-3 (Figure 3). However, in June 2022, a site visit was conducted by Arcadis to assess the condition of the monitoring wells, during which monitoring well MW-2 could not be located. Monitoring well MW-1 was determined to be on the parcel to the south of the site, Arcadis could not inspect the well due to lack of property access but it is believed to be in good condition. Monitoring well MW-3 was located and gauged; the well was determined to be in good condition. Based on historical documents, grab groundwater samples were collected from various locations at the site in 1992, 1995, and 2007. Groundwater samples were collected from wells MW-1, MW-2, and MW-3 in 2007.

Historically, the depth to water at the site has been measured at approximately 4 to 5 feet below top of casing. The current groundwater flow direction at the site is unknown. Gauging of the site wells in 2007 indicated a gradient toward the southwest. However, recent interpretations presented for the Columbus Square facility to the north suggest a flow direction toward the east/southeast (GHD 2022). Historical groundwater gauging data and analytical results are presented in Table 2.

4.3 Current Groundwater and Soil Conditions

Based on the findings of previous assessments completed at the site, petroleum impacted soil was left in place in the vicinity of, and possibly beneath, the existing building; however, the results of the 2007 borings (samples B2-A, B3-B, and B1-C) suggest a limited extent of impacted soils may remain in this area. Accordingly, residual petroleum impacted soil may remain near the former USTs. Historical soil samples are shown on Figure 5 and are summarized in Table 1.

Groundwater conditions at the site have not been adequately characterized. Contributions from off-site sources also have not been evaluated. Two grab groundwater samples, collected in 1995 and 2007 from near the former USTs, reported concentrations of GRO or benzene above the Method A CULs. Historical groundwater samples are shown on Figure 6 and summarized in Table 2.

5 Soil and Groundwater Data Gaps

Arcadis reviewed historical site data and identified data gaps for soil and groundwater exceeding MTCA Method A CULs. Based on this review, Arcadis proposes several soil borings and monitoring wells to assess for the possible presence of hydrocarbon impacts remaining in soil and groundwater at the site.

Assessment activities will include advancing three soil borings (SB-1, SB-2, and SB-3) and installing four groundwater monitoring wells (MW-4, MW-5, MW-6, and MW-7). The proposed locations are based on historical data and are shown on Figures 5 and 6.

Well and boring locations may be adjusted in the field based on accessibility and proximity to identified utilities or other obstructions. Additionally, if visible staining and/or elevated volatile organic compound (VOC) screening impacts are observed during drilling, soil samples will be collected, and additional step-out borings may be advanced to attempt to delineate soil to MTCA Method A CULs.

5.1 Data Gaps in Soil

Delineation and characterization samples are necessary to close data gaps identified in soil. The objective is to confirm and delineate site COCs in soil to less than the MTCA Method A CULs. Seven soil borings (MW-4 through MW-7, SB-1, SB-2, and SB-3) will be advanced for delineation and/or characterization purposes. A MTCA boundary map for soil, including proposed borings, is shown on Figure 5. These activities are described below.

5.1.1 Soil Conditions Near the Former Underground Storage Tanks

Discrete soil samples collected during the 1992 tank removal and subsequent excavations exceeded MTCA Method A CULs for petroleum compounds (Sample #3 @T1, Sample #1-NW, Sample #5-SE, and Sample #6-S). Soil sample locations Sample #3 @T1, and Sample #1-NW were subsequently over-excavated.

Arcadis proposes to advance soil borings SB-1, SB-2, and SB-3 to collect soil samples to evaluate current soil quality. Borings MW-4 through MW-7 will not be used to directly confirm or delineate any specific soil impacts but will be used to provide additional site characterization.

5.1.2 Soil Characterization

Soil has not been adequately analyzed at the site in accordance with MTCA Cleanup Regulation, Chapter 173-340 Washington Administrative Code for required testing associated with known heating or waste oil tanks. Although the prior presence of a waste oil UST is in question, Arcadis will collect additional soil characterization data from proposed soil borings SB-1, SB-2, and SB-3 to close any characterization data gaps at the site.

5.2 Data Gaps in Groundwater

Four additional monitoring wells (MW-4, MW-5, MW-6, and MW-7) will be installed to further evaluate groundwater quality and address groundwater data gaps. Monitoring wells will be used as future points of compliance to show that impacts are adequately delineated and to better understand groundwater flow direction. A MTCA site boundary map for the historical extent of dissolved-phase COCs exceeding CULs in groundwater is shown on Figure 6. The proposed activities are described below.

5.2.1 Groundwater Conditions in the Former Source Area

Groundwater grab samples collected from Boring 1 and B-1 contained dissolved-phase COC concentrations that exceeded MTCA Method A CULs. There are no permanent wells in the vicinity to provide additional characterization data in the source area; therefore, installation of one monitoring well is recommended. Arcadis proposes to install monitoring well MW-6 to evaluate current groundwater quality in the source area.

5.2.2 Groundwater Characterization/Delineation

As mentioned above, there are currently two known monitoring wells (MW-1 and MW-3) onsite. Additional monitoring wells will be installed to provide groundwater characterization/delineation at the site and to better understand site hydrogeologic conditions (depth to groundwater and flow direction).

Arcadis proposes to install monitoring wells MW-4, MW-5, and MW-7 to provide a sufficient groundwater monitoring network, delineate any dissolved-phase COCs associated with the site, and obtain additional characterization data.

6 Proposed Soil and Groundwater Assessment

This section discusses the proposed soil and groundwater investigation activities, which include a utility locate, soil boring drilling and sampling, monitoring well installation, development, and groundwater sampling, and management of investigation-derived waste.

6.1 Utility Locate

The Washington811 call center will be notified at least 48 hours prior to conducting subsurface activities to identify known public utilities within the work area. In addition, a private utility-locating company will conduct a utility scan, including the use of ground-penetrating radar, to confirm that the proposed boring and well locations are clear of underground utilities or other features.

6.2 Soil Boring Drilling and Sampling

The proposed soil borings will first be cleared for utilities using a combination of air knife/vacuum truck and/or hand auger to a minimum depth of 5 feet bgs. After preclearance, the boreholes will be advanced using direct-push drilling methods to the target depths presented in Table 6-1, below. The target depths are based on analytical soil data and depth to water recorded at wells closest to the proposed boring. Historical boring logs

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could not be located, but drillers logs (including construction details) are provided in Appendix A. Soil borings may not be able to be advanced to the target depth due to the presence of shallow bedrock. Confirmation and/or delineation soil samples are proposed to be collected from specific depth intervals in the vadose zone and at the anticipated groundwater interface (6.5 and 9 feet bgs) based on previous soil characterization as detailed in Table 6-1, below. However, additional soil samples for laboratory analysis may be collected based on photo-ionization detector (PID) readings or field observations of impacts.

Table 6-1. Proposed Soil Boring Target Depths and Laboratory Analytical Sample Intervals

Location	Boring Type	Approximate Target Depth (feet bgs)	Laboratory Analytical Sample Intervals (feet bgs)	Vertical Delineation Sample Interval (feet bgs)
MW-4	Monitoring well	9	6.5 and 9	9
MW-5	Monitoring well	9	6.5 and 9	9
MW-6	Monitoring well	9	6.5 and 9	9
MW-7	Monitoring well	9	6.5 and 9	9
SB-1	Soil boring	9	6.5 and 9	9
SB-2	Soil boring	9	6.5 and 9	9
SB-3	Soil boring	9	6.5 and 9	9

During preclearance activities, soil samples will be collected by hand auger at approximately 2.5 and 5 feet bgs and screened for VOCs using a PID. During drilling, soil samples will be collected and screened with a PID at 5-foot intervals continuously from the direct-push acetate sleeves to total depth. Each borehole will be logged using a combination of Wentworth scale and the Unified Soil Classification System.

Soil samples will be submitted to an Ecology-accredited laboratory under standard chain of custody procedures and analyzed for:

- GRO by Ecology Northwest Method NWTPH-Gx
- Diesel-range organics (DRO) by Northwest Method NWTPH-Dx
- Heavy-oil-range organics (HRO) by Northwest Method NWTPH-Dx
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) by United States Environmental Protection Agency (USEPA) Method 8260
- Methyl tert-butyl ether (MTBE) by USEPA Method 8260
- Ethylene dibromide (EDB) by USEPA Method 8260
- 1,2-dichloroethane (EDC) by USEPA Method 8260
- Lead by USEPA Method 6010.

Soil samples collected from SB-1, SB-2, and SB-3 will be additionally analyzed for the following:

- carcinogenic polycyclic aromatic hydrocarbons (PAHs) by USEPA Method 8270
- Naphthalenes by USEPA Method 8270
- Polychlorinated biphenyls (PCBs) by USEPA Method 8082
- Tetrachloroethylene by USEPA Method 8260
- Trichloroethylene by USEPA Method 8260
- Vinyl chloride by USEPA Method 8260
- 1,1-Dichloroethene by USEPA Method 8260
- cis-1,2-Dichloroethene by USEPA Method 8260
- trans-1,2-Dichloroethene by USEPA Method 8260.

6.3 Monitoring Well Installation and Sampling

6.3.1 Monitoring Well Installation

Monitoring wells MW-4, MW-5, MW-6, and MW-7 will be installed by a licensed Washington driller, in accordance with the Washington Administrative Code. The monitoring wells will be advanced to target depths with well screens set at intervals presented in Table 6-2, below, which are based on resource protection well reports (Appendix A) and depth to water measurements of historical wells closest to the proposed monitoring well. If soil borings encounter refusal due to shallow bedrock, construction details of the monitoring well(s) may be adjusted as needed.

Table 6-2. Proposed Monitoring Well Target Depths and Screened Intervals

Location	Target Depth (feet bgs)	Well Screen Length (feet)	Proposed Well Screen Interval (feet bgs)
MW-4	9	5	4 to 9
MW-5	9	5	4 to 9
MW-6	9	5	4 to 9
MW-7	9	5	4 to 9

Each well will be constructed using 2-inch-diameter Schedule 40 polyvinyl chloride (PVC) with 0.010-inch slotted screen. Blank PVC casing will be installed from the top of the screen to near surface grade. Sand filter pack will be placed in the annular space from the bottom of the boring to approximately 1 foot above the top of the well screen, followed by hydrated bentonite chips to approximately 2 feet bgs. The remaining annular space will be sealed with concrete. The wellhead will be completed with a locking well cap and traffic-rated bolt-down well vault. The vault will be installed slightly above the surrounding surface grade and finished with a concrete apron to provide positive relief away from the wellhead.

Following the installation of the monitoring wells, the well location, ground surface, and top-of-casing elevations will be surveyed by a professional Washington-licensed land surveyor.

6.3.2 Monitoring Well Development and Groundwater Sampling

The new and existing monitoring wells will be developed to ensure removal of fine-grained sediments from the sand pack and well screen. The wells will be developed by surging the screen interval and purging.

After a minimum of 72 hours, groundwater samples will be collected from the newly installed monitoring wells and select existing monitoring wells using standard low-flow groundwater purging and sampling methods. Groundwater samples will be submitted to an Ecology-accredited laboratory under standard chain of custody procedures and analyzed for the following:

- GRO by Northwest Method NWTPH-Gx
- DRO and HRO by Northwest NWTPH-Dx
- BTEX, MTBE, and EDC by USEPA Method 8260
- EDB by USEPA Method 8011
- Lead by USEPA Method 6000 series.

Arcadis proposes to initially conduct quarterly groundwater monitoring and sampling. The sampling frequency may be reduced after the first year of monitoring based on quarterly groundwater results.

7 Management of Investigation-Derived Waste

Soil cuttings and purge water generated during the field activities will be contained in U.S. Department of Transportation approved 55-gallon steel drums. The drums will be appropriately labeled and temporarily stored onsite pending analytical results and profiling. Once profiled, the drums will be transported to an appropriate offsite disposal facility.

8 Reporting

Soil and groundwater analytical results will be compared to the MTCA Method A CULs to assess site conditions and determine if further delineation and/or characterization is required.

Pending access and following the completion of the proposed data gap investigation activities (including the initial groundwater sampling event), a technical report will be prepared and submitted to Ecology. The report will document the investigation results and include the following:

- Site conditions and background information
- Scaled site plan with well and boring locations, and other relevant site features
- Documentation of well installations and soil borings, including boring logs
- Soil and groundwater laboratory reports and data summary tables
- USEPA Level II data validation
- Conclusions and recommendations based on results of the investigation.

9 References

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Tables

Table 1
 Summary of Soil Analytical Results
 Former Jack's Grocery
 706 South Columbus Avenue
 Goldendale, Washington



Sample Location	Date	Sample Depth	GRO	DRO	HRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	EDB	EDC	Napthalene	Total Lead	Comments
MTCA Method A CULs			30/100	2,000	2,000	0.03	7	6	9	0.005	--		250	
Underground Storage Tank Site Assessment – Robert D. Miller Consulting														
Sample #1A @T4	7/17/1992	6.00	<20	<50	<100	--	--	--	--	--	--	--	--	--
Sample #1B @T4	7/17/1992	6.00	<20	<50	<100	--	--	--	--	--	--	--	--	--
Sample #2 @ T2&T3	7/17/1992	7.50	<20	<50	<100	--	--	--	--	<0.05	<0.05	--	<3.0	
Sample #3 @T1	7/17/1992	6.50	2,800	<50	<100	<0.05	25	13	56	<0.05	<0.05	--	16	
Corrective Action Progress Report – Robert D. Miller Consulting														
Sample #1-NW	8/14/1992	6.50	496	--	--	--	--	--	--	--	--	--	<0.80	
Sample #2-W	8/14/1992	6.25	2.0	--	--	--	--	--	--	--	--	--	--	
Sample #3-NE	8/14/1992	5.50	<20	--	--	--	--	--	--	--	--	--	--	
Sample #4-E	8/14/1992	5.75	3.0	--	--	--	--	--	--	--	--	--	--	
Sample #5-SE	8/14/1992	6.00	478	--	--	--	--	--	--	--	--	--	--	
Sample #6-S	8/14/1992	6.00	348	--	--	--	--	--	--	--	--	--	--	
Sample #7-SW	8/14/1992	5.50	<20	--	--	--	--	--	--	--	--	--	--	
Sample #8-E	8/14/1992	8.00	<20	--	--	--	--	--	--	--	--	--	--	
Sample #9-W	8/14/1992	8.00	<20	--	--	--	--	--	--	--	--	--	--	
Sample #11-NW	8/18/1992	5.00	<20	--	--	--	--	--	--	--	--	--	--	
Sample #12-NE	8/31/1992	5.50	<5.0	--	--	--	--	--	--	--	--	--	--	
Sample #13-E	8/31/1992	6.00	<5.0	--	--	--	--	--	--	--	--	--	--	
Sample #14-NE	8/31/1992	6.50	30	--	--	--	--	--	--	--	--	--	--	
Post-Treatment Stockpile Soil Samples – Robert D. Miller Consulting⁷														
Sample #15	10/23/1992	--	<20	--	--	--	--	--	--	--	--	--	--	Stockpile sample
Sample #16	10/23/1992	--	<20	--	--	--	--	--	--	--	--	--	--	Stockpile sample
Sample #17	10/23/1992	--	<20	--	--	--	--	--	--	--	--	--	--	Stockpile sample
Sample #18	10/23/1992	--	<20	--	--	--	--	--	--	--	--	--	--	Stockpile sample
Site Check – Robert D. Miller Consulting														
Boring 1	5/27/1995	6.25	<13	32	<100	--	--	--	--	--	--	--	--	
Boring 2	5/27/1995	5.25	<13	<13	<100	--	--	--	--	--	--	--	--	
Partial Sufficiency and Further Action Determination – Robert D. Miller Consulting														
B1-C	10/15/2007	6.75	<20	--	--	<0.04	<0.10	<0.20	0.47	--	--	--	12	
B2-A	10/15/2007	7.00	23	--	--	<0.04	<0.10	<0.20	<0.40	--	--	<2.0	--	
B3-B	10/15/2007	7.50	82	--	--	<0.04	<0.10	<0.20	<0.40	--	--	<2.0	--	

Table 1
Summary of Soil Analytical Results
Former Jack's Grocery
706 South Columbus Avenue
Goldendale, Washington

Notes:

1. Analytical results are presented in milligram per kilogram (mg/kg).
2. **BOLD and highlighted** values are greater than their respective MTCA Method A CUL.
3. **BOLD** values are nondetect, but the method detection limit is greater than the MTCA Method A CUL.
4. Sample depth measured in feet below ground surface.
5. *Sample locations in gray have been overexcavated.*
6. GRO MTCA Method A CUL with benzene present is 30 mg/kg and without benzene present is 100 mg/kg.
7. Excavated soils were transported to the Glenn McClaskey Ranch for treatment and then sampled.

Acronyms and Abbreviations:

-- = not applicable, not available, or not analyzed
< = not detected at or greater than the laboratory reporting limit or method detection limit
CEMC = Chevron Environmental Management Company
CUL = cleanup level
MTCA = Model Toxics Control Act Cleanup
ND = nondetect
USEPA = United States Environmental Protection Agency

Analytical Methods:

Samples analyzed by NWTPH-Gx:

GRO = gasoline-range organics

Samples analyzed by NWTPH-Dx:

DRO = diesel-range organics

HRO = heavy oil range organics

Samples analyzed by USEPA Method 5030/8020 (1995)/8010 (2007):

Benzene, toluene, ethylbenzene, and total xylenes

EDB = ethylene dibromide

EDC = 1,2-dibromoethane

Samples analyzed by USEPA Method 160.2

Total VOCs = total volatile organic compounds

Table 2
Groundwater Gauging Data and Analytical Results
Former Jack's Grocery
706 South Columbus Avenue
Goldendale, Washington

Well ID	Sample Type	Date	DTW	NAPL	GWE	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	TRPH	Dissolved Lead	Total Lead	Comments
MTCA Method A CULs						800/1,000	5	1,000	700	1,000		15	15	
Sample #10 pit water	Grab	8/14/1992	--	--	--	657	<3.0	3.5	5.0	17	--	--	55	
Boring 1	Grab	5/27/1995	4.0	--	--	--	12	66	15	73	--	--	<40	
Boring 2	Grab	5/27/1995	4.0	--	--	--	<1.0	<1.0	<1.0	<1.0	<500	--	<40	
B-1	Grab	10/15/2007	--	--	--	1,090	<1.0	<1.0	<1.0	<3.0	--	ND	63	Same location as B1-C soil sample (Table 1)
MW-1	Monitoring Well	10/15/2007	4.9	--	--	576	2.0	2.0	<1.0	4.0	--	ND	25	
MW-2	Monitoring Well	10/15/2007	5.1	--	--	460	4.0	<1.0	<1.0	<3.0	--	ND	30	
MW-3	Monitoring Well	10/15/2007	5.0	--	--	368	<1.0	<1.0	<1.0	<3.0	--	ND	16	

Notes:

- Analytical results are presented in micrograms per liter (µg/L)
- 800/1,000 = GRO MTCA Method A CUL with benzene present is 800 µg/L and without is 1,000 µg/L.
- BOLD and shaded** values are greater than their respective MTCA Method A CUL.
- BOLD** values are nondetect below the laboratory reporting limit, but the reporting limit is greater than the MTCA Method A CUL.

Acronyms and Abbreviations:

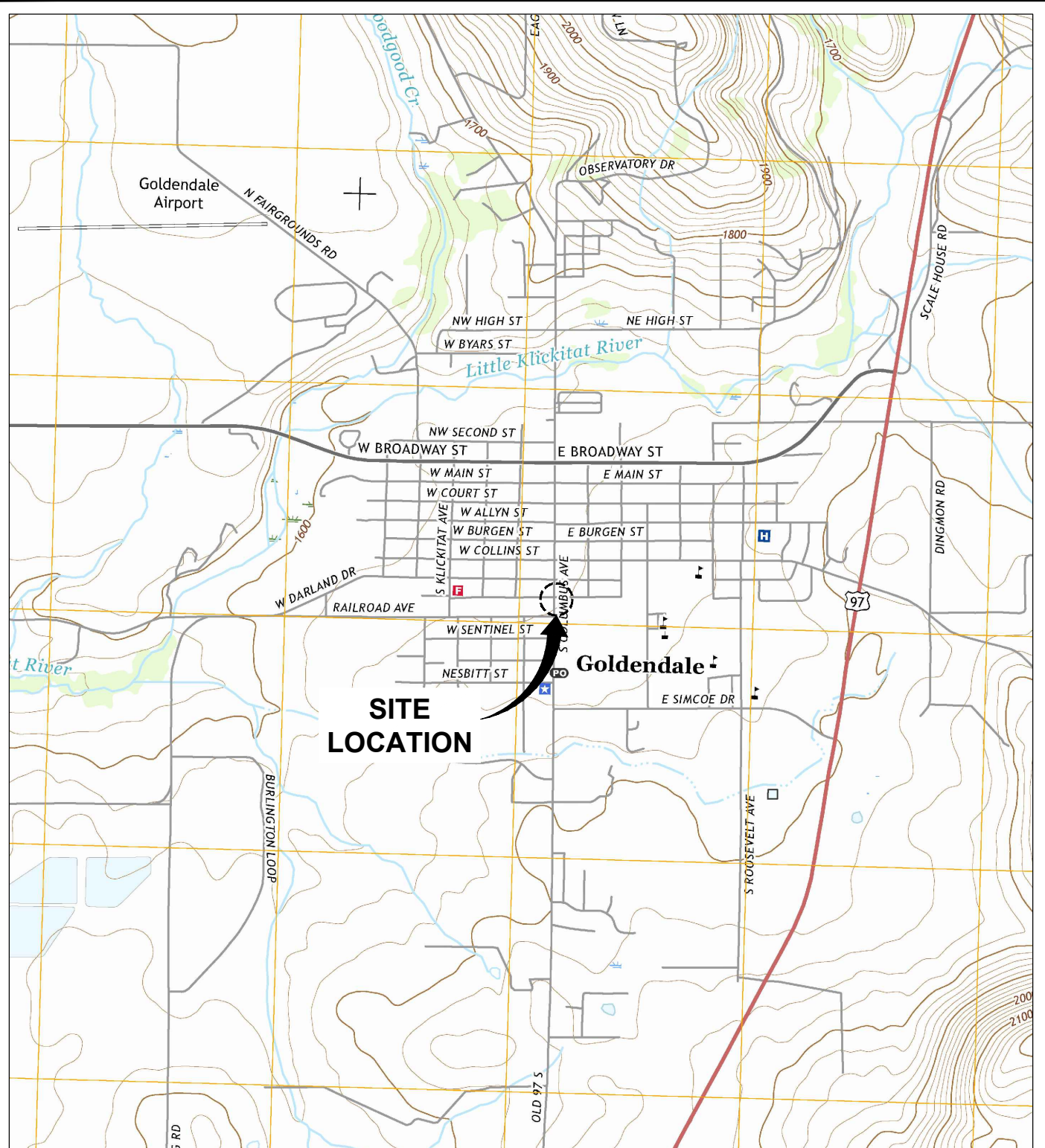
- = not applicable, not available, or not analyzed
- < = not detected at or greater than the laboratory reporting limit or limit of quantitation
- CEMC = Chevron Environmental Management Company
- CUL = cleanup level
- DTW = depth to water in feet below top of casing
- GWE = groundwater elevation
- MTCA = Model Toxics Control Act
- ND = nondetect; no laboratory reporting limit available
- USEPA = United States Environmental Protection Agency
- TRPH = Total recoverable petroleum hydrocarbons

Analytical Methods:

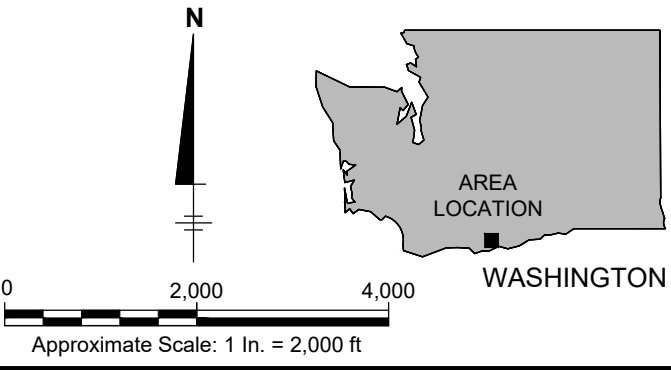
- Samples analyzed by NWTPH-Gx:
 - GRO = gasoline-range organics
- Samples analyzed by USEPA Method 5030/8020 (1995)/8010 (2007):**
 - Benzene, toluene, ethylbenzene, and total xylenes
- Total lead analyzed by USEPA 200.7/6010 (1995)/7420 (2007)**

Figures

CITY: CITY DIV/GROUP/ENV_CAD DB-CAD
 C:\Users\PHallw\ACCDocs\Arcadis\AUS-CHEVRON-375289-GOLDEDALE Washington\Project Files\2022\01-In Progress\01-DWG\GEN-OFFSITE-FORMER JACKS GROCERY-FIG01 SITE LOCATION.dwg LAYOUT: 1 SAVED: 9/20/2022 8:23 AM PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 9/20/2022 8:24 AM BY: HALLWELL, TRISH



SOURCE: BASEMAP USGS 7.5. MIN. TOPO. QUAD., GOLDEDALE, WASHINGTON 2017.

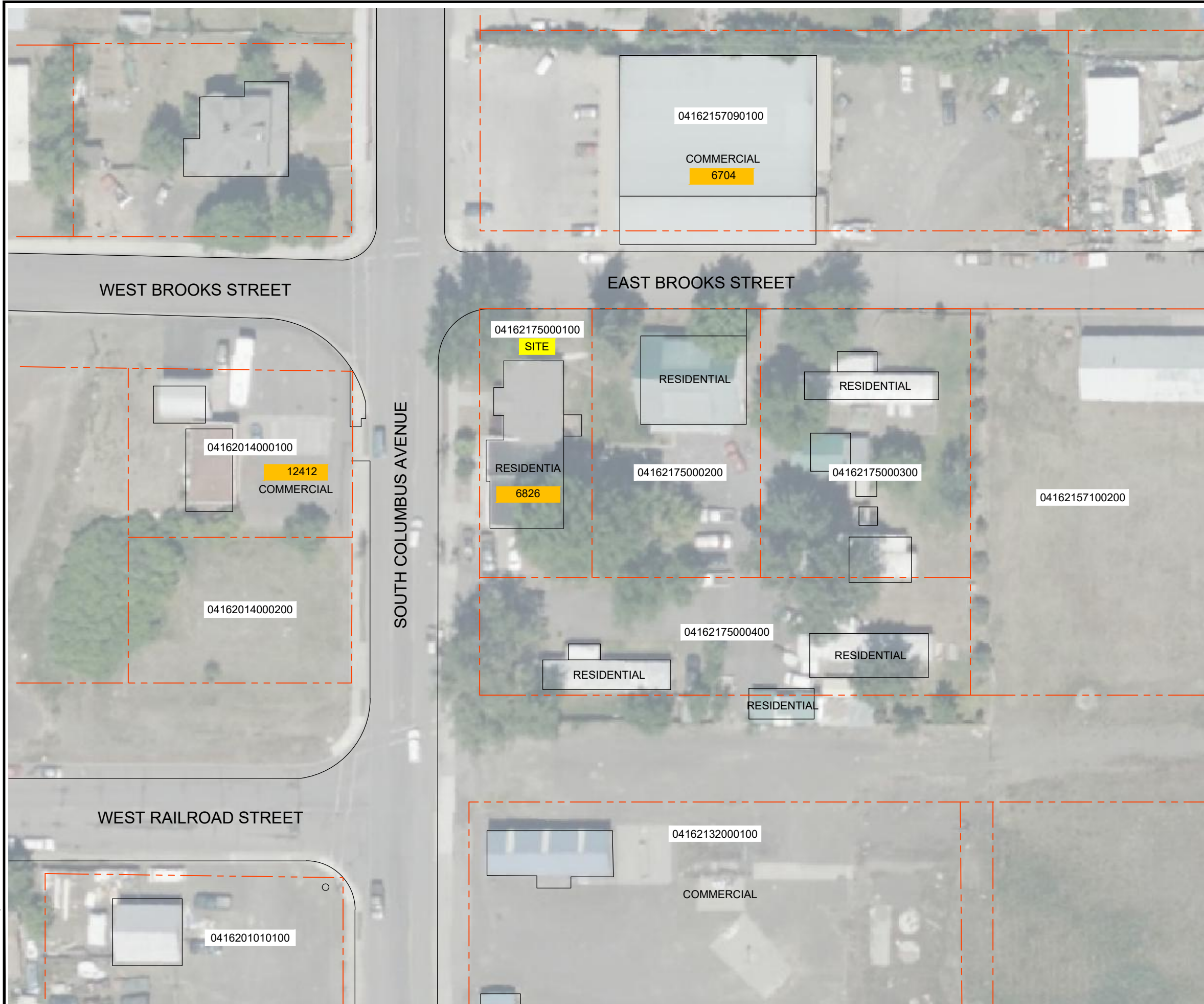


CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER JACK'S GROCERY
 706 SOUTH COLUMBUS AVENUE
 GOLDEDALE, WASHINGTON
 DATA GAP INVESTIGATION WORK PLAN

SITE LOCATION MAP



FIGURE
1



LEGEND:

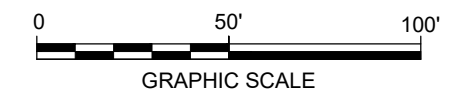
- 04162175000200 PARCEL IDENTIFICATION NUMBER
- APPROXIMATE PARCEL LINE
- 6704 CLEAN UP SITE ID

NOTES:

- 1. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.

SOURCE:

© 2022 MICROSOFT © 2022 MAXAR © CNES (2022) DISTRIBUTION AIRBUS DS

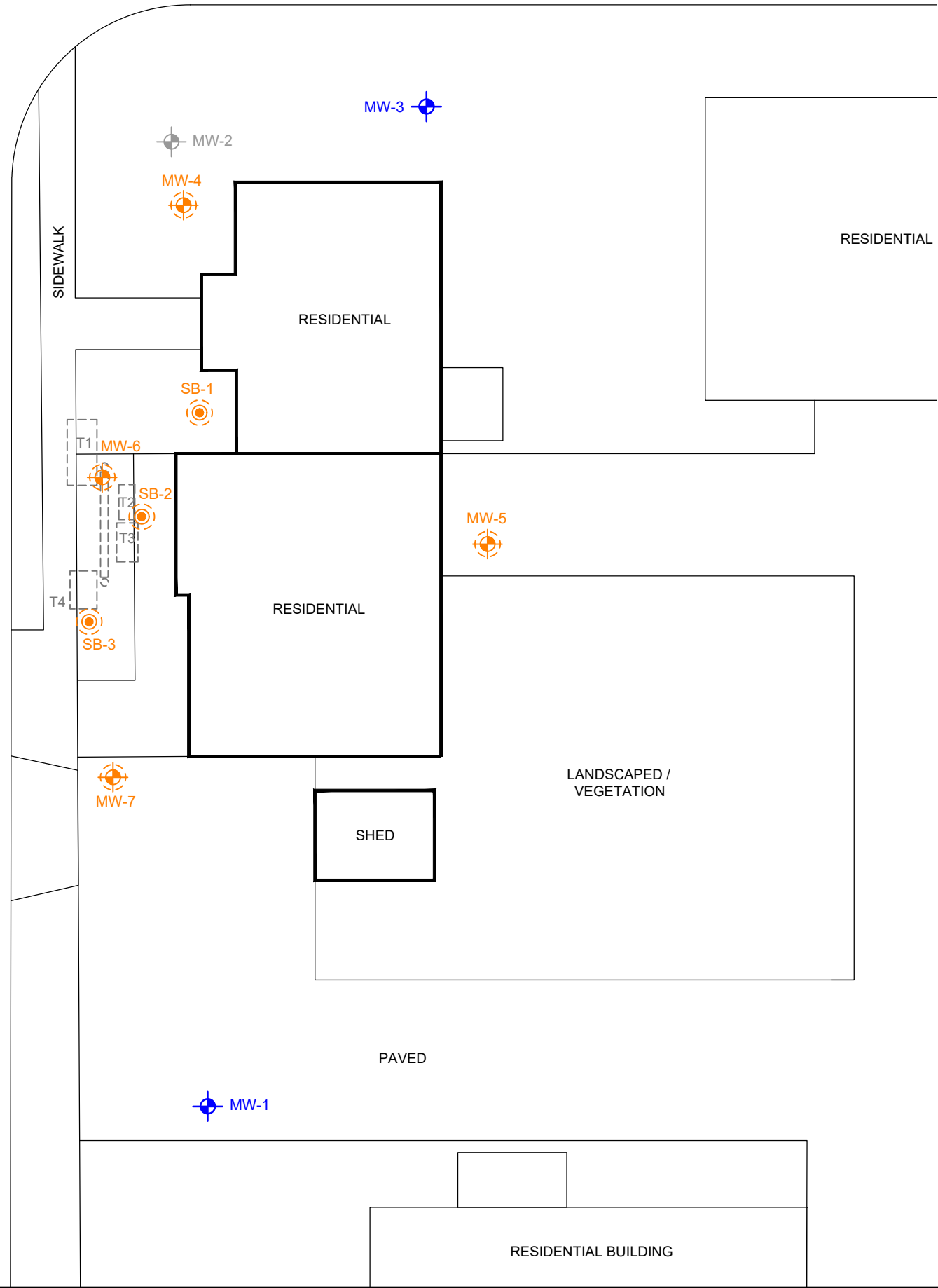


CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER JACK'S GROCERY
706 SOUTH COLUMBUS AVENUE
GOLDENDALE, WASHINGTON
DATA GAP INVESTIGATION WORK PLAN






SITE VICINITY MAP

EAST BROOKS STREET

SOUTH COLUMBUS AVENUE



LEGEND:

-  MONITORING WELL
-  ABANDONED WELL
-  FORMER UNDERGROUND STORAGE TANK
-  PROPOSED SOIL BORING / MONITORING WELL
-  PROPOSED SOIL BORING

NOTE:

1. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
2. PROPOSED LOCATIONS MAY BE ADJUSTED PENDING FIELD CONDITIONS.

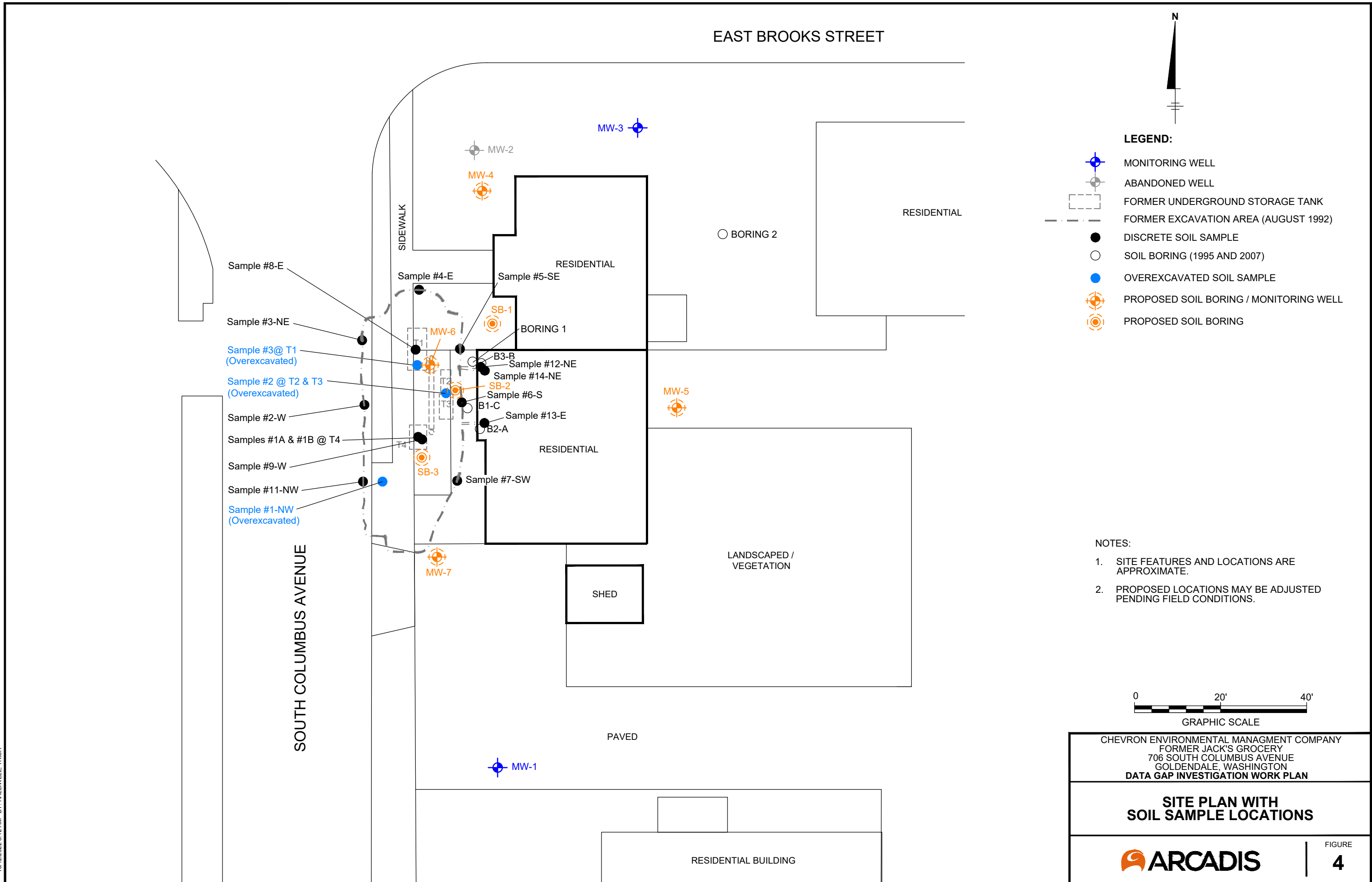


GRAPHIC SCALE

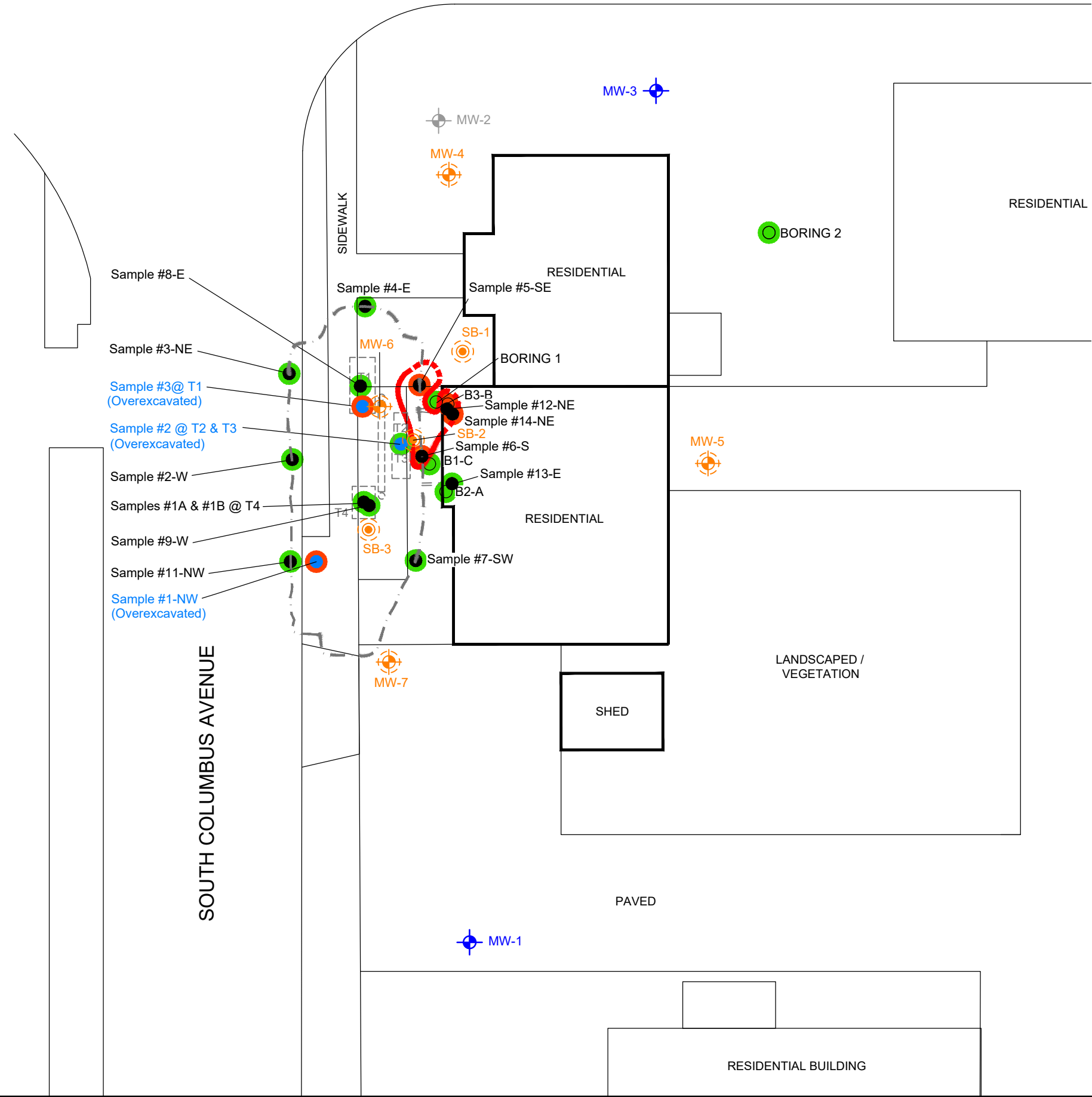
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER JACK'S GROCERY
 706 SOUTH COLUMBUS AVENUE
 GOLDENDALE, WASHINGTON
DATA GAP INVESTIGATION WORK PLAN

SITE PLAN





EAST BROOKS STREET



LEGEND:

- MONITORING WELL
- ABANDONED WELL
- FORMER UNDERGROUND STORAGE TANK
- FORMER EXCAVATION AREA (AUGUST 1992)
- DISCRETE SOIL SAMPLE
- SOIL BORING (1995 AND 2007)
- OVEREXCAVATED SOIL SAMPLE
- PROPOSED SOIL BORING / MONITORING WELL
- PROPOSED SOIL BORING
- ONE OR MORE CONSTITUENTS ANALYZED EXCEEDED MTCA METHOD A CULS
- CONSTITUENTS ANALYZED WERE LESS THAN MTCA METHOD A CULS
- HISTORICAL MTCA BOUNDARY MAP FOR SOIL (DASHED WHERE INFERRED)

DEFINITIONS:
 CUL = CLEANUP LEVEL
 MTCA = MODEL TOXICS CONTROL ACT

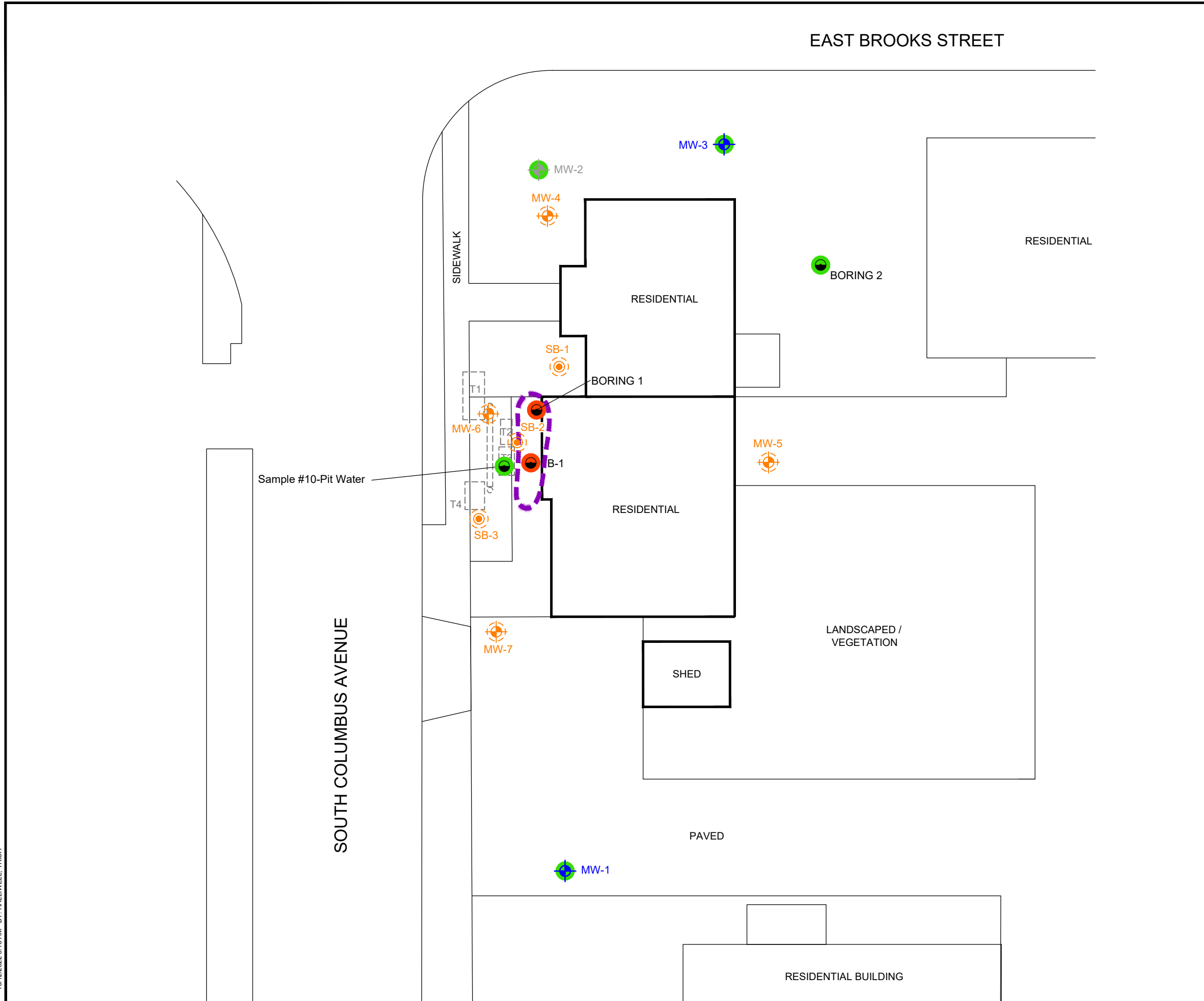
- NOTES:**
1. SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
 2. PROPOSED LOCATIONS MAY BE ADJUSTED PENDING FIELD CONDITIONS.
 3. SAMPLE LOCATIONS HAVE BEEN OVEREXCAVATED BUT THIS STILL CONSTITUTES A DATA GAP BECAUSE CONFIRMATION/PERFORMANCE SAMPLES WERE NOT COLLECTED AFTER ADDITIONAL EXCAVATION.



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER JACK'S GROCERY
 706 SOUTH COLUMBUS AVENUE
 GOLDENDALE, WASHINGTON
DATA GAP INVESTIGATION WORK PLAN

SOIL STATUS MAP

ARCADIS | **FIGURE 5**



LEGEND:

- MONITORING WELL
- ABANDONED WELL
- FORMER UNDERGROUND STORAGE TANK
- GROUNDWATER GRAB SAMPLE
- HISTORICAL MTCA BOUNDARY EXCLUDING LEAD (DASHED WHERE INFERRED)
- ONE OR MORE CONSTITUENTS ANALYZED EXCEEDED MTCA METHOD A CULS
- CONSTITUENTS ANALYZED WERE LESS THAN MTCA METHOD A CULS
- PROPOSED SOIL BORING / MONITORING WELL
- PROPOSED SOIL BORING

DEFINITIONS:

CUL = CLEANUP LEVEL
 MTCA = MODEL TOXICS CONTROL ACT

NOTES:

- SITE FEATURES AND LOCATIONS ARE APPROXIMATE.
- PROPOSED LOCATIONS MAY BE ADJUSTED PENDING FIELD CONDITIONS.

0 20' 40'
 GRAPHIC SCALE

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER JACK'S GROCERY
 706 SOUTH COLUMBUS AVENUE
 GOLDENDALE, WASHINGTON
DATA GAP INVESTIGATION WORK PLAN

GROUNDWATER STATUS MAP

ARCADIS | **FIGURE 6**

Appendix A

Resource Protection Well Reports

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

Please print, sign and return by mail to Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. E006506

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission (select one)

Construction 292440
 Decommission ORIGINAL INSTALLATION Notice of Intent Number _____

Type of Well (select one)

Resource Protection
 Geotech Soil Boring

Consulting Firm Robert D Miller Consulting, Inc

Property Owner Donal Anthony

Unique Ecology Well ID _____

Site Address 706 S Columbus Ave

Tag No. AEF 690 Owner ID: MW1

City Goldendale County Klickitat

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

Location SW 1/4-1/4 NW 1/4 Sec 21 Twn 4N R 16 EWM WWM

Lat/Long (s, t, r still REQUIRED) Lat Deg 45 Lat Min/Sec 49/2.7
Long Deg 120 Long Min/Sec 49/21

Driller Engineer Trainee Name (Print) Robert Miller, LHG
Driller/Engineer /Trainee Signature Robert D Miller
Driller or Trainee License No. 2331

Tax Parcel No. 04162175000100 (Lot SP G95-0217)

Cased or Uncased Diameter 2-inches Static Level 5.2 feet bgs

Work/Decommission Start Date 10-15-07

If trainee, licensed driller's Signature and License No. 2331

Work/Decommission Completed Date 10-15-07

Construction/Design	Well Data	Formation Description
Vault - 8-in dia with 12-in deep skirt set flush into 160 lbs of concrete pad.		Brown clayey silt (ML), stiff and moist
Lockable plug with padlock.		
Bentonite seal - 60 lbs of 3/8th chips set between 1 foot and 4.5 feet bgs in 6-inch bore hole		
Casing - 2-inch, schedule 40 PVC set between 0.3 feet and 4.9 feet		
Filter pack - 50 lbs of 10-20 silica sand		SWL at 5.22 feet bgs
Screen - 2-inch, schedule 40, 0.010-inch slots, PVC set between 4.9 and 6.7 feet		Top of Basalt rock at 6.75 feet bgs
End cap - 2-inch slip cap		
	<p>RECEIVED</p> <p>NOV 16 2007</p> <p>DEPARTMENT OF ECOLOGY WELL DRILLING UNIT</p>	

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

Please print, sign and return by mail to Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. E006506

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission (select one)

Construction 292441
 Decommission ORIGINAL INSTALLATION Notice
of Intent Number _____

Consulting Firm Robert D Miller Consulting, Inc

Unique Ecology Well ID

Tag No. AEF 691 Owner ID: MW2

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

Driller Engineer Trainee Name (Print) Robert Miller, LHG
Driller/Engineer /Trainee Signature Robert D Miller
Driller or Trainee License No. 2331

If trainee, licensed driller's
Signature and License No. 2331

Type of Well (select one)

Resource Protection
 Geotech Soil Boring

Property Owner Donal Anthony E

Site Address 706 S Columbus Ave

City Goldendale County Klickitat

Location SW 1/4-1/4 NW 1/4 Sec 21 Twn 4N R 16 Select One EWM WWM

Lat/Long (s, t, r still REQUIRED) Lat Deg 45 Lat Min/Sec 49/2.8

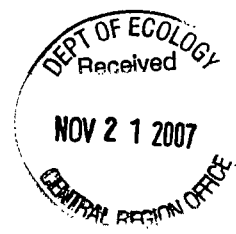
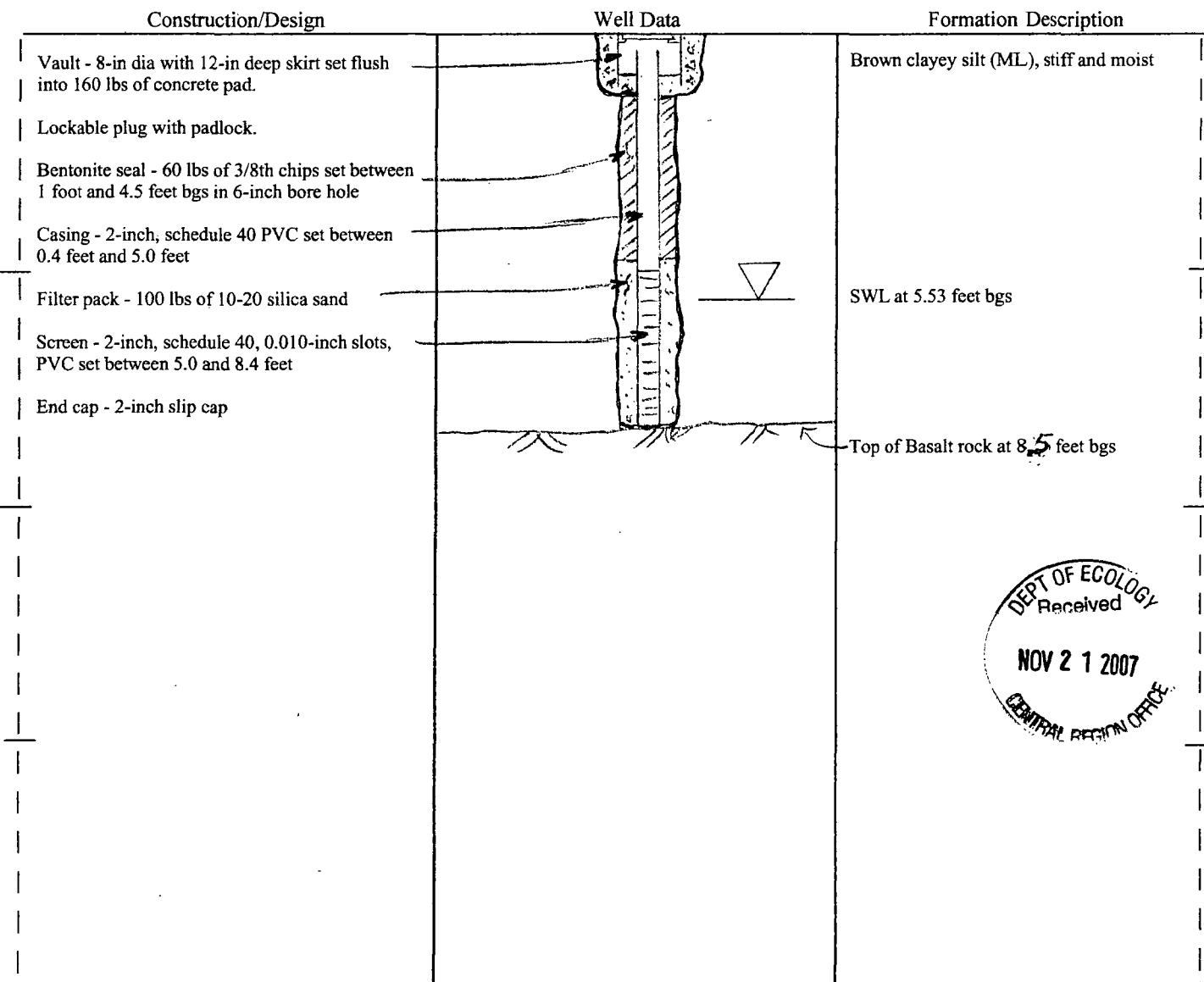
Long Deg 120 Long Min/Sec 49/21

Tax Parcel No. 04162175000100 (Lot SP G95-0217)

Cased or Uncased Diameter 2-inches Static Level 5.5 feet bgs

Work/Decommission Start Date 10-15-07

Work/Decommission Completed Date 10-15-07



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

Please print, sign and return by mail to Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. E006506

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission (select one)

Construction 292442
 Decommission ORIGINAL INSTALLATION Notice
of Intent Number _____

Type of Well (select one)

Resource Protection
 Geotech Soil Boring

Consulting Firm Robert D Miller Consulting, Inc

Property Owner Donal Anthony E

Unique Ecology Well ID _____

Site Address 706 S Columbus Ave

Tag No. AEF 692

Owner ID: MW3

City Goldendale County Klickitat

Location SW 1/4-1/4 NW1/4 Sec 21 Twn 4N R 16 Select One EWM WWM

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

Lat/Long (s, t, r) Lat Deg 45 Lat Min/Sec 49/2.8

still REQUIRED) Long Deg 120 Long Min/Sec 49/20

Driller Engineer Trainee Name (Print) Robert Miller, LHG

Driller/Engineer /Trainee Signature Robert A Miller

Driller or Trainee License No. 2331

Tax Parcel No. 04162175000100 (Lot SP G95-0217)

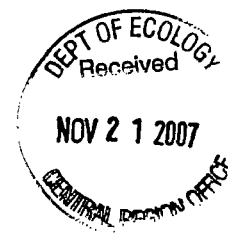
Cased or Uncased Diameter 2-inches Static Level 5.5 feet bgs

Work/Decommission Start Date 10-15-07

Work/Decommission Completed Date 10-15-07

If trainee, licensed driller's
Signature and License No. 2331

Construction/Design	Well Data	Formation Description
Vault - 8-in dia with 12-in deep skirt set flush into 160 lbs of concrete pad. Lockable plug with padlock. Bentonite seal - 60 lbs of 3/8th chips set between 1 foot and 4.2 feet bgs in 6-inch bore hole Casing - 2-inch, schedule 40 PVC set between 0.4 feet and 4.5 feet Filter pack - 100 lbs of 10-20 silica sand Screen - 2-inch, schedule 40, 0.010-inch slots, PVC set between 4.5 and 8.3 feet End cap - 2-inch slip cap		Brown clayey silt (ML), stiff and moist SWL at 5.41 feet bgs Top of Basalt rock at 8.3 feet bgs



Arcadis U.S., Inc.
1100 Olive Way, Suite 800
Seattle
Washington 98101
Phone: 206 325 5254
Fax: 206 325 8218
www.arcadis.com