



**PERIODIC REVIEW REPORT  
FINAL**

**ASTRO WESTERN STATION 607  
Facility Site ID#: 69431927**

**13117 NE Highway 99  
Vancouver, WA 98686**

**Southwest Region Office**

**TOXICS CLEANUP PROGRAM**

**September 2014**

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## 1.0 INTRODUCTION

This document is a review by the Washington State Department of Ecology (Ecology) of post-cleanup conditions and monitoring data to ensure that human health and the environment are being protected at the Astro Western Station 607 site (Site). Cleanup at this Site was implemented under the Model Toxics Control Act (MTCA) regulations, Chapter 173-340 Washington Administrative Code (WAC).

Cleanup activities at this Site were completed under the Voluntary Cleanup Program (VCP). The cleanup actions resulted in concentrations of gasoline-range petroleum hydrocarbons (TPH-G) in soil that exceeds MTCA Method A cleanup level. The MTCA Method A cleanup level for soil are established under WAC 173-340-740(2). WAC 173-340-420 (2) requires that Ecology conduct a periodic review of a site every five years under the following conditions:

- Whenever the department conducts a cleanup action.
- Whenever the department approves a cleanup action under an order, agreed order or consent decree.
- Or, as resources permit, whenever the department issues a no further action (NFA) opinion.
- And one of the following conditions exists:
  - (a) Institutional controls or financial assurance are required as part of the cleanup.
  - (b) Where the cleanup level is based on a practical quantitation limit.
  - (c) Where, in the department's judgment, modifications to the default equations or assumptions using site-specific information would significantly increase the concentration of hazardous substances remaining at the site after cleanup or the uncertainty in the ecological evaluation or the reliability of the cleanup action is such that additional review is necessary to assure long-term protection of human health and the environment.

When evaluating whether human health and the environment are being protected, the factors the department shall consider include [WAC 173-340-420(4)]:

- (a) The effectiveness of ongoing or completed cleanup actions, including the effectiveness of engineered controls and institutional controls in limiting exposure to hazardous substances remaining at the Site.
- (b) New scientific information for individual hazardous substances of mixtures present at the Site.
- (c) New applicable state and federal laws for hazardous substances present at the Site.
- (d) Current and projected Site use.
- (e) Availability and practicability of higher preference technologies.
- (f) The availability of improved analytical techniques to evaluate compliance with cleanup levels.

The department shall publish a notice of all periodic reviews in the Site Register and provide an opportunity for public comment.

## **2.0 SUMMARY OF SITE CONDITIONS**

### **2.1 Site History**

The Astro Western Station 607 Site is located at 13117 NE Highway 99 in Vancouver, Clark County, Washington. The Site is located in a commercial district of Vancouver, and is bounded to the north by the Lil Colonel Drive Inc, to the southwest by Highway 99, and to the east by NE 20<sup>th</sup> Avenue. A vicinity map and a Site Plan are available as Appendix 6.1 and Appendix 6.2, respectively. The Site currently consists of various new retail outlet shops constructed where the former Trail Mart convenience store building was located.

Since the mid-1970s, the Site was formerly occupied by a service station and a convenient store. WSCO Petroleum (WSCO) assumed ownership of the Site in 1985. Other parties reportedly owned and operated the Site for at least 10 years prior to WSCO. In February 1996, three underground storage tanks (USTs) were excavated and removed from the Site. These consist of two 6,000-gallon and one 10,000-gallon USTs all containing gasoline (Appendix 6.3). These USTs were replaced with one 15,000-gallon and one 8,000-gallon USTs, also containing gasoline. Both of these USTs were removed in May 2004 (Appendix 6.4).

### **2.2 Cleanup Levels**

WAC 173-340-704 states that MTCA Method A may be used to establish cleanup levels at sites that have few hazardous substances, are undergoing a routine cleanup action, and where numerical standards are available for all indicator hazardous substances in the media for which the Method A cleanup level is being used.

MTCA Method A cleanup levels for unrestricted land use were determined to be appropriate for this Site. The cleanup actions conducted at the Site were determined to be “routine”, few hazardous substances were found at the Site, and numerical standards were available in the MTCA Method A Table for each hazardous substances.

### **2.3 Underground Storage Tanks Removal, Site Investigations and Feasibility Study**

#### **2.3.1 1996 Underground Storage Tanks Removal and Remedial Actions**

During February through May, 1996, three USTs, two 6,000-gallon and one 10,000-gallon USTs, were decommissioned and removed. During this removal, TPH-G impacted soil was determined to exist beneath the fuel dispenser and two of the USTs (T1 and T2). The source of the petroleum release appeared to be via gasoline spillage at the filler necks/tubes of tanks T1 and T2 and a gasoline leak from the fuel dispenser at the east end of the fuel island. No release of petroleum was observed around the filler tube of tank T3. While excavating the TPH-G contaminated soils at the Site, groundwater was encountered and determined to also be impacted.

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### **2.3.1.1 Soil Cleanup**

A number of soil samples were collected prior to and during the excavation of contaminated soils. The results of shallow soil samples collected at the filler tubes of tank T1 and T2 showed a TPH-G concentration of 8,370 milligrams per kilogram (mg/Kg) and 7,200 mg/Kg, respectively. Also, a soil sample collected from the fuel island area at 8 feet below ground surface (bgs) during the excavation had a TPH-G concentration of 10,600 mg/Kg. The excavation was continued to remove all the contaminated soils. After the excavation, confirmation soil samples were collected from the side walls and bottom of the pit. The results of all soil samples were below the laboratory detection limits except one soil sample collected at 8 feet bgs, west end of fuel island had a TPH-G concentration of 1,260 mg/Kg, which exceeded the MTCA Method A cleanup level of 30 mg/Kg. Approximately 11 cubic yards of contaminated soils were left in place at this location. A total of approximately 815 tons of contaminated soils were excavated and transported to TPS treatment facility in Portland, Oregon for thermal treatment. Soil sampling locations and results are available in Appendix 6.3.

### **2.3.1.2 Groundwater Cleanup and Monitoring**

As stated above, groundwater was encountered within the tank excavation at a depth of 20 feet bgs. A grab water sample was collected from the pit excavation and analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), TPH-G, ethylene dibromide (EDB), 1,2 Dichloroethane (EDC), and total lead. The sample was found to be contaminated with all of the parameters at concentrations above MTCA Method A cleanup levels. Subsequently, a total of four groundwater monitoring wells (MW-1 through MW-4) were installed. MW-1 was installed where the grab water sample was collected. MW-2, MW-3, and MW-4 were located west, north, and east of the former tank pit respectively. On March 20, 1996, static water level elevations were measured and groundwater samples were collected from all wells for BTEX, TPH-G, EDB, EDC, and total lead analysis. The results showed that MW-1 contained all BTEX compounds with benzene and xylenes above MTCA Method A cleanup levels. Only toluene was detected below MTCA Method A cleanup level in MW-4. Results of water samples from MW-2 and MW-3 were all below the laboratory detection limits.

Between April 9 and April 25, 1996, a submersible pump was placed within MW-1 and a total of 2,800 gallons of groundwater was pumped out and stored into a polyethylene holding tank. On April 26, 1996, another water sample was collected from MW-1 for the analysis of the same parameters. At this time, only EDC was detected at 31.6 micrograms per liter ( $\mu\text{g/L}$ ) exceeding the MTCA Method A cleanup level of 5  $\mu\text{g/L}$ . BTEX, TPH-G, EDB and total lead concentrations were all below the laboratory detection limits. Groundwater monitoring well locations and all groundwater monitoring (including the pit grab water sample) results are available as Appendix 6.5.

As a result of the EDC exceedance, the quarterly groundwater monitoring was conducted until May 1998 and EDC continued to be detected above MTCA Method A cleanup levels. In July 1999, in-situ bioremediation of EDC in groundwater was attempted at the Site. Oxygen-

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releasing compound (ORC) in the form of a sock containing magnesium peroxide was installed in MW-1. Since no measurable effect was observed during the February 2000 sampling event, use of ORC was discontinued. Reportedly, the Site has been undergoing natural attenuation.

### **2.3.2 2005 Supplemental Site Characterization**

In April 2005, a supplemental Site investigation was conducted by Kleinfelder for Gramor Development, Inc., the new property owner of the Site. The investigation included the former Astro Western Station Site and the former Lil Colonel Drive In site to the north. A total of nine soil borings were advanced throughout both sites. Five of the soil borings were completed as monitoring wells (KMW-01 through KMW-05). Two of the soil borings (KAW-01 and KAW-02) and two of the monitoring wells (KMW-01 and KMW-02) were installed on the Astro Station Site. Existing monitoring wells, MW-1 through MW-3, were identified during the investigation; however, MW-4 was not found. KMW-2 was installed in the vicinity of the former location of MW-4.

Both soil and groundwater samples were collected from all borings. Only TPH-G (76.1 mg/Kg) was detected in one soil sample collected at 20 feet bgs at KAB-01 location. Groundwater samples collected from soil borings and the monitoring wells were analyzed for TPH-G, volatile organic compounds (VOCs), and lead. The groundwater analytical results indicated the presence of TPH-G and lead above MTCA Method A cleanup levels at KMW-01 and/or KMW-02. TPH-G was detected in KMW-01 at 6,809 µg/L and lead was detected both wells at 438 µg/L and 234 µg/L, respectively. However, these results were associated with high turbidity values. In November 2005, these monitoring wells were redeveloped and sampled again. Only lead was detected in MW-3 at 18.3 µg/L, which exceeded MTCA Method A cleanup level of 15 µg/L. All other contaminant concentrations were either below MTCA Method A cleanup levels or below the laboratory detection limits.

During the Site redevelopment, monitoring wells KMW-01 and MW-1 were destroyed; however, monitoring continued for wells KMW-02 and MW-3 for seven additional rounds between February 2007 and February 2009. Samples were analyzed for TPH-G, VOCs, and total and dissolved lead. No contaminants were detected in any of the samples above MTCA Method A cleanup levels.

### **2.3.3 Feasibility Study and Disproportionate Cost Analysis**

In December 2008, Kleinfelder conducted a groundwater sampling event to further assess the groundwater quality at the Site. The results showed that total lead was detected in KMW-02 (1.1 µg/L) and MW-3 (4.78 µg/L); however, dissolved lead was only detected in KMW-02 (1.21 µg/L). In addition, lead did not exceed the MTCA Method A cleanup level during the previous six sampling events.

Kleinfelder conducted a feasibility study and disproportionate cost analysis (FS/DCA) evaluating four remedial options. The DCA was developed as per the requirements of MTCA (WAC 173-340-360). The following four options were evaluated as a part of FS/DCA:

- Restriction of Groundwater use with a Deed Restriction.
- In-Situ Bioremediation with the Injection of Oxygen.
- Air Sparging and Soil Vapor Extraction System.
- Injection of Oxidizing Reagent through Angled Wells.

After the DCA evaluation, the first option, “Restriction of Groundwater use with a Deed Restriction” was selected as the appropriate remedy for the Site.

### **2.3.4 Long-Term Groundwater Monitoring**

As per the requirements of the NFA determination letter, groundwater monitoring is being conducted at monitoring wells KMW-02 and MW-3 every 18 months, has been since August 2009. Since April 2005, a total of 14 rounds (this includes six rounds after the NFA letter was issued) of groundwater monitoring has been conducted. None of the petroleum hydrocarbon-related constituents have been detected in the above monitoring wells since 2005. In addition, the lead concentration in MW-3 has been below the MTCA Method A cleanup level since February 2007. All the groundwater results are available as Appendix 6.5.

## **2.4 Restrictive Covenant**

The required RC (now referred to as an environmental covenant) was recorded for the Site on October 8, 2009 and an NFA determination for the Site was issued on December 17, 2009. The Covenant was required because the Remedial Action resulted in residual concentrations of TPH-G above MTCA Method A cleanup levels in soils at the Site. The Environmental Covenant (EC) imposes the following limitations:

1. No groundwater may be taken for any use from the Property.
2. A portion of the Property contains TPH-G contaminated soil located under the eastern portion of the southernmost building on the Site. The Owner shall not alter, modify, or remove the existing structure(s) in any manner that may result in the release or exposure to the environment of that contaminated soil or create a new exposure pathway without prior written approval from Ecology. As part of this Covenant, long-term monitoring of the groundwater at conditional points of compliance is required to ensure that the residual contaminated soil does not impact groundwater over time. The groundwater shall be monitored at a frequency of every 18 months to account for seasonal variations.
3. Any activity on the Property that may interfere with the integrity of the Remedial Action and continued protection of human health and the environment is prohibited.
4. The Owner of the property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner

without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

5. The Owner must restrict leases to uses and activities consistent with the Covenant and notify all lessees of the restrictions on the use of the Property.
6. The Owner must notify and obtain from Ecology prior to any use of the Property that is inconsistent with the terms of this EC. Ecology may approve any inconsistent use only after public notice and comment.
7. The Owner shall allow authorized representatives of Ecology the right to enter the property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect records that are related to the Remedial Action.
8. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this EC shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

A copy of the existing EC is available as Appendix 6.6.



## 3.0 PERIODIC REVIEW

### 3.1 Effectiveness of completed cleanup actions

Based upon the Site visit conducted on May 15, 2014, the building concrete floor slab at the Site continues to eliminate direct exposure pathways (ingestion, contact) to contaminated soils. The concrete floor slab is in satisfactory condition and no repair, maintenance, or contingency actions are required at this time. After the cleanup, the Site was redeveloped as a commercial center with a number of outlet retail shops and a parking lot. A photo log is available as Appendix 6.7.

A total of approximately 815 tons of contaminated soils were excavated as part of the remedial action. However, approximately 11 cubic yards of TPH-G-contaminated soils above MTCA Method A cleanup levels were left in place at 20 feet bgs, which is currently, below one of the on-Site buildings and beneath a concrete floor. Results of confirmation groundwater monitoring conducted at the Site were all non-detect for all petroleum constituents for a consecutive 14 rounds of sampling (since 2005), which indicate that the contaminated soils do not pose a threat to groundwater. An EC was recorded for the Site and remains active.

#### 3.1.1 Soil to Vapor Pathway

Evaluation of the soil to vapor pathway is required at sites contaminated with volatile organic hydrocarbons (VOCs) to determine the potential for adverse impacts on the indoor air quality that may pose a threat to human health and the environment. Examples of when this pathway should be evaluated include at sites where soil TPH-G and/or other VOC concentrations are significantly higher than the cleanup levels derived for the protection of groundwater for drinking water beneficial use, or where soil TPH-D concentrations are higher than 10,000 mg/Kg; WAC 173-340-740(3)(B)(iii)(C). As a part of this investigation, procedures outlined in the Ecology draft "Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remediation Action" should be used.

Though the Site is contaminated with TPH-G and some TPH-G-contaminated soils were left on the Site exceeding the cleanup levels, no investigations were conducted at this Site to evaluate the soil to vapor pathway and whether potential vapor concentrations are protective of human health and the environment. However, it is Ecology's opinion that the exposure through the soil to vapor pathway does not pose a significant risk based on the following reasons:

- The USTs were removed from the Site in 1996. Releases that occurred at the Site would have happened approximately 18 years ago. The last soil samples were collected nine years ago (in 2005) and it is likely that TPH-G present in the soils have volatilized even further and the current TPH-G concentrations on the Site are likely much lower.
- A significant amount of contaminated soils containing TPH-G were excavated (approximately 815 tons) from the Site. A small quantity (about 11 cubic yards) of contaminated soils remains on the Site below the building.

- The highest remaining TPH-G contamination of 76 mg/Kg in the soil is located beneath the building concrete floor slab at a depth of 20 feet bgs with approximately 20 feet of clean overburden soil. Contaminated vapors must pass through a minimum of 20 feet of clean soil to reach the building floor slab. Gasoline vapors attenuate quickly when passing through clean, well oxygenated soils.
- None of the other petroleum constituents, particularly benzene, were detected in the soil samples.
- Because of age of the release and lack of detection of other petroleum constituents in the soil samples, the results of the remaining TPH-G is likely a weathered gasoline, which produces little to no many vapors.
- Groundwater beneath the Site is no longer impacted. For the past last 11 years (April 2005), a total of 14 rounds of groundwater samples have been collected at the Site and all the results were below the laboratory detection limits.

Based on the above reasons, though there is lack of soil vapor and indoor air data, Ecology believes that it is highly unlikely that there is any adverse impact to human health and the environment through the soil to vapor pathway.

### **3.1.2 Residual Saturation**

WAC 173-340-747(10) provides that, “the soil concentrations must not result in the accumulation of non-aqueous phase liquid in groundwater. To determine if this criterion is met, residual saturation screening levels must be established and compared with the soil concentrations”

A residual saturation screening level of 1,000 mg/Kg has been established for weathered gasoline, which is applicable to this Site. Based on this screening level, soil concentrations at the Site may not be protective of groundwater; however, WAC 173-340-747 (10)(c) allows for empirical demonstration to be used to show that soil concentrations measured at the Site will not result in the accumulation of non-aqueous phase liquid on or in groundwater.

WAC 173-340-747 (10)(c)(i) states that, to demonstrate empirically that measured soil concentrations will not result in the accumulation of non-aqueous phase liquid on or in groundwater, the following shall be demonstrated:

(A) Non-aqueous phase liquid has not accumulated on or in groundwater; and

(B) The measured soil concentration will not result in non-aqueous phase liquid accumulating on or in groundwater at any time in the future. Specifically, it must be demonstrated that a sufficient amount of time has elapsed for migration of hazardous substances from soil into

groundwater to occur and that the characteristics of the site (e.g., depth to groundwater and infiltration) are representative of future site conditions.

The maximum TPH-G soil concentration (79 mg/Kg) left at this Site is less than one-tenth of its residual screening level of 1,000 mg/Kg. In addition, at this Site, sufficient groundwater monitoring data exists to demonstrate that the above TPH-G concentration remaining in the soil is not resulting in the accumulation of non-aqueous phase liquids at the Site. Groundwater monitoring data has been collected over a sufficient time period (18 years) to allow for migration of contaminants from soil to groundwater. The last 14 rounds (since 2005) of monitoring data has demonstrated that there are no TPH-G concentrations above the laboratory detection limits. This indicates that the TPH-G concentrations in soil do not appear to be impacting the groundwater at the Site.

### **3.2 New scientific information for individual hazardous substances for mixtures present at the Site**

There is no new relevant scientific information for hazardous substances remaining at the Site.

### **3.3 New applicable state and federal laws for hazardous substances present at the Site**

MTCA Method A cleanup levels for contaminants of concern at the Site have not changed since the NFA determination was issued on December 17, 2009.

### **3.4 Current and projected Site use**

The Site is currently occupied by a number of commercial shops (mini mall) and asphalt paved parking lot. This use is not likely to have a negative impact on the risk posed by hazardous substances contained at the Site. There are no changes projected in the Site use.

### **3.5 Availability and practicability of higher preference technologies**

The remedy implemented included capping of hazardous substances and it continues to be protective of human health and the environment. While higher preference cleanup technologies may be available, they are still not practicable at this Site.

### **3.6 Availability of improved analytical techniques to evaluate compliance with cleanup levels**

The analytical methods used at the time of the remedial actions were capable of detection below Site cleanup levels. The presence of improved analytical techniques would not affect decisions or recommendations made for the Site.

## 4.0 CONCLUSIONS

- The cleanup actions completed at the Site appear to be protective of human health and the environment.
- The soil cleanup level of 30 mg/Kg has not been met for TPH-G (79 mg/Kg) in one location at the Site; however, under WAC 173-340-740(6) (d), the cleanup action could comply with cleanup standards if the long-term integrity of the containment system was ensured and the requirements for containment technologies in WAC 173-340-360(8) have been met.
- A small quantity (about 11 cubic yards) of TPH-G-contaminated soil is present at 20 feet bgs, which is deeper than the direct contact pathway point of compliance depth of 15 feet. In addition, based on a review of data collected to date, benzene was present in two groundwater samples collected from MW-1 in 1996 and 1997. It has not been detected since, nor has it ever been detected in soil, suggesting that the TPH-G that is present is highly weathered. Further, the TPH-G concentration of 79 mg/Kg is more than ten times lower than the saturation screening level of 1,000 mg/Kg for weathered gasoline. As such, Ecology considers the cleanup level of 100 mg/Kg (when benzene is not present) to be more applicable to current Site conditions. Under that scenario, the soil meets cleanup standards.
- The seven rounds of post cleanup conformational groundwater monitoring results (since the NFA letter was issued) are all below the laboratory detection limits. In addition, none of the petroleum hydrocarbon-related constituents have been detected in the groundwater since 2005. This empirical demonstration of groundwater monitoring data confirms that the soil remediation conducted in 1996 was effective and the remaining residual TPH-G contaminated soil is not impacting the groundwater. As a result, the groundwater monitoring will be discontinued at the Site.
- Since the Site has been determined to meet cleanup standards, institutional controls are no longer needed and Ecology will initiate the process to terminate the previously recorded Environmental Covenant number 4609176 recorded on 10/08/2009 in Clark County for the Property.

### 4.1 Next Review

As discussed above, the Site has been determined to now be in compliance with cleanup standards and institutional controls are no longer needed. Hence Ecology is initiating the process to remove the environmental covenant recorded on the Site, and the Site will not require any periodic review in the future.

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## 5.0 REFERENCES

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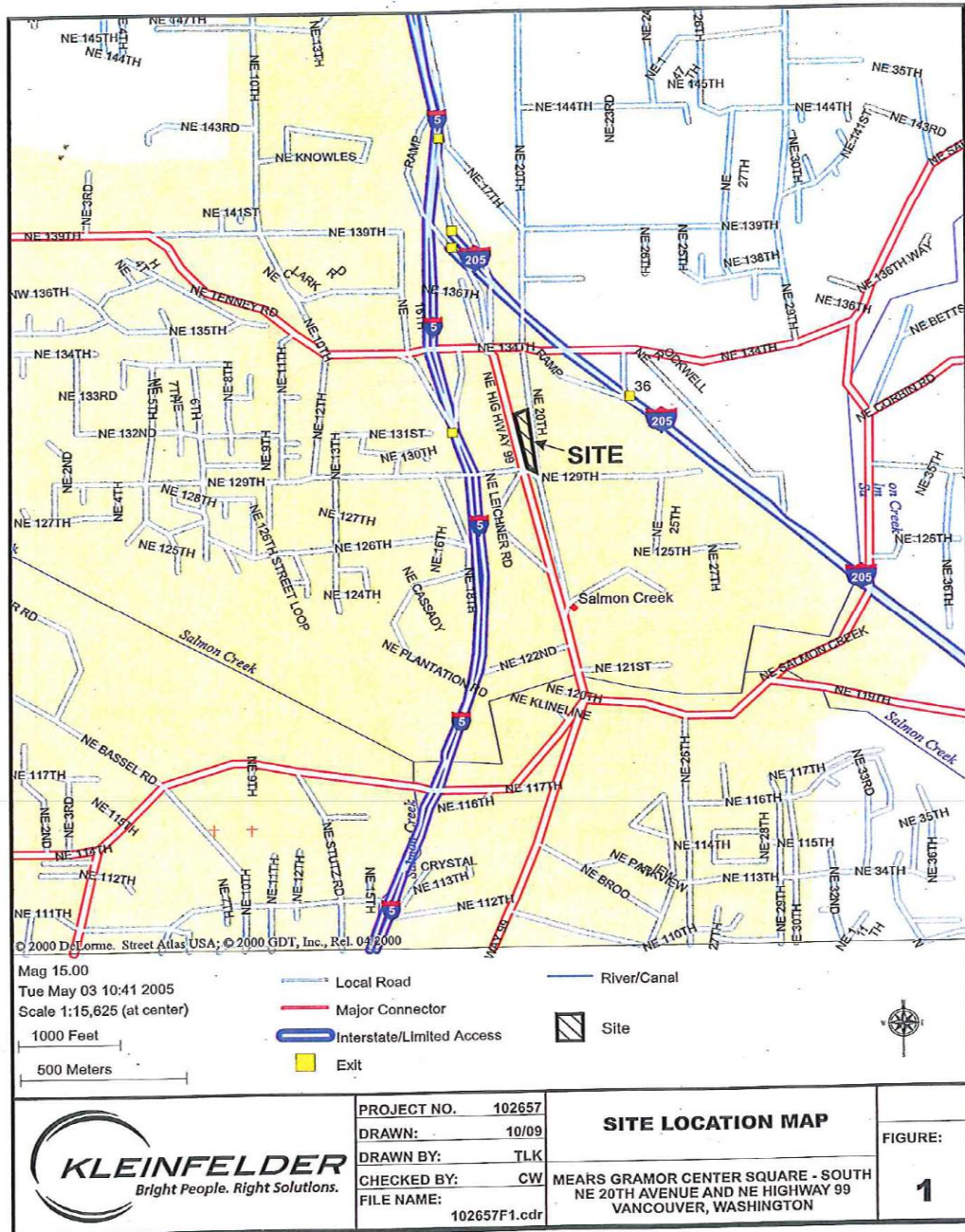
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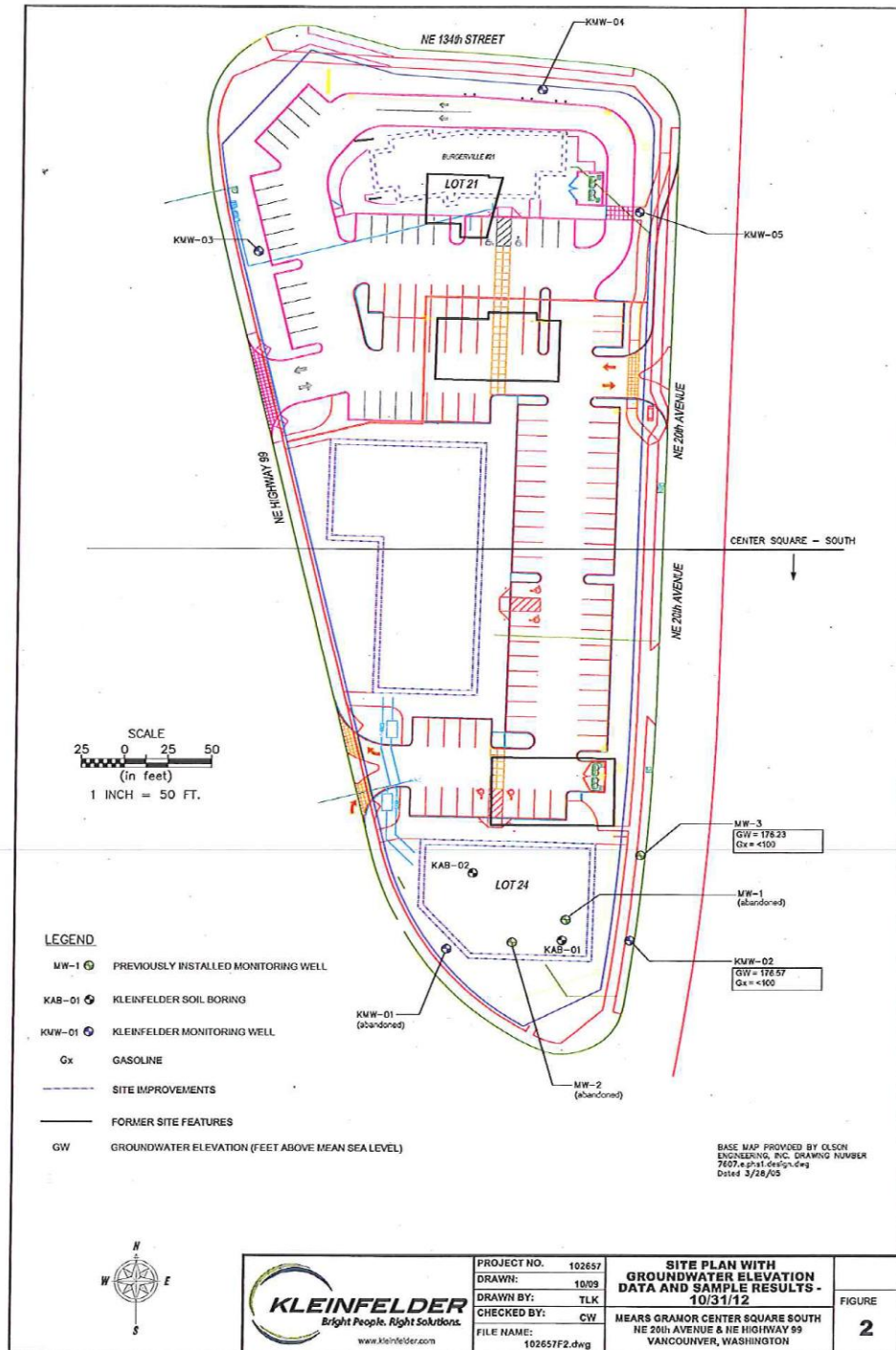
Department of Ecology, 2014. Site Visit, May 15, 2014.

## **6.0 APPENDICES**

### 6.1 Vicinity Map



## 6.2 Site Plan



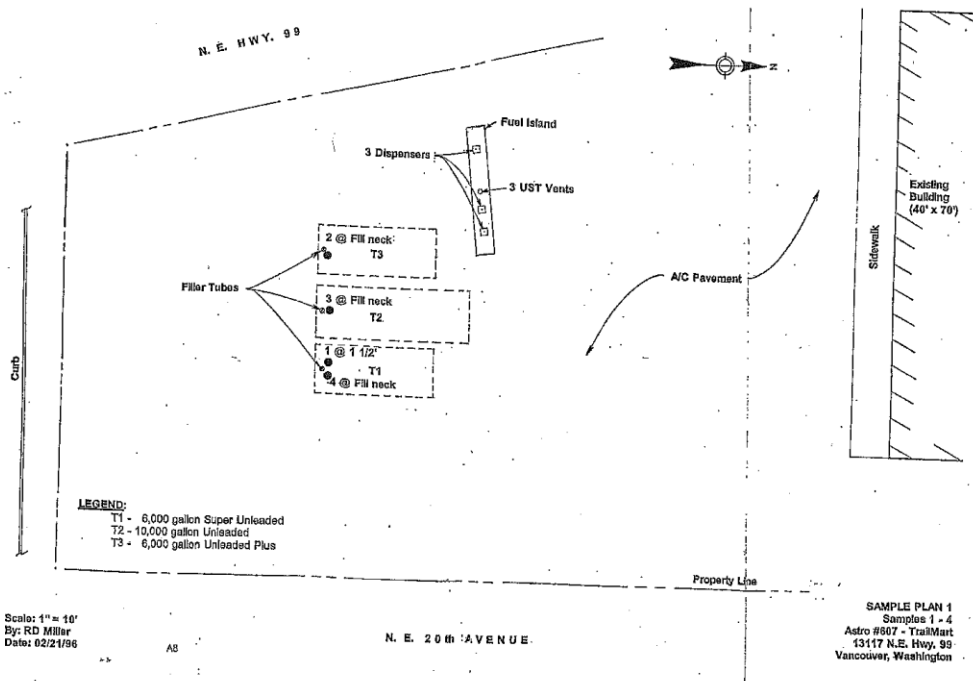


### 6.3 1996 - Underground Storage Tanks Removal, Soil Sampling Locations and Results

**Table 1 - Laboratory Test Results for Soil Samples**  
 Astro #607 - Trail Mart, Vancouver, WA

Sample	Date	Location	HCID	WTPH-G	Other	
1	02/21/96	T1 filler tube @ 1.5' BGS		G 4330	Flash Pt.	
2	02/21/96	T3 filler neck	ND		7200	
3	"	T2 filler neck	G		8370	
4	"	T1 filler neck	ND		ND	
5	02/23/96	E wall @ 9' BGS	ND		ND	
6	"	T1, south end @ 12' BGS	ND		ND	
7	"	T1, south wall @ 9' BGS	ND		ND	
8	02/26/96	NE end of T1 @ 12' BGS	ND		ND	
9	"	T2, south end @ 12' BGS	ND		ND	
10	"	T2, south end @ 12' BGS	ND		ND	
11	"	S wall T2 @ 10' BGS	ND		ND	
12	"	S wall T3 @ 10' BGS	ND		ND	
13	"	W wall @ 10' BGS	ND		ND	
14	"	Fuel island 9' from W end @ 8' BGS	G		10800	
15	"	Dispenser #3 @ 2' BGS			ND	
16	"	Duplicate - not run			ND	
17	"	T2, north end @ 12' BGS	G		288	
18	"	T3, north end @ 12' BGS			ND	
19	"	N wall between T1 and T2 @ 9' BGS			ND	
20	"	N wall between T2 and T3 @ 9' BGS			ND	
21	02/28/96	N wall of fuel island @ 5' BGS			ND	
22	"	T3, N end @ 20' BGS			27	
24	"	Fuel island bottom @ 14' BGS			1280	
25	"	W end fuel island @ 8'			ND	
26	"	N wall fuel island @ 8' 8"			ND	
27	03/14/96	MV1 @ 20' BGS			ND	
28	"	B1 @ 10'			ND	
29	"	B1 @ 15'			ND	
30	"	B1 @ 20'			ND	
31	"	B1 @ 25'			ND	
DOE Cleanup Limit for Method A					400	

**Notes:**  
 \*ND\* means "Not-Defected"  
 \*G\* means gasoline  
 \*ppm\* means parts per million  
 \*RED\* indicates results above DEQ action limits



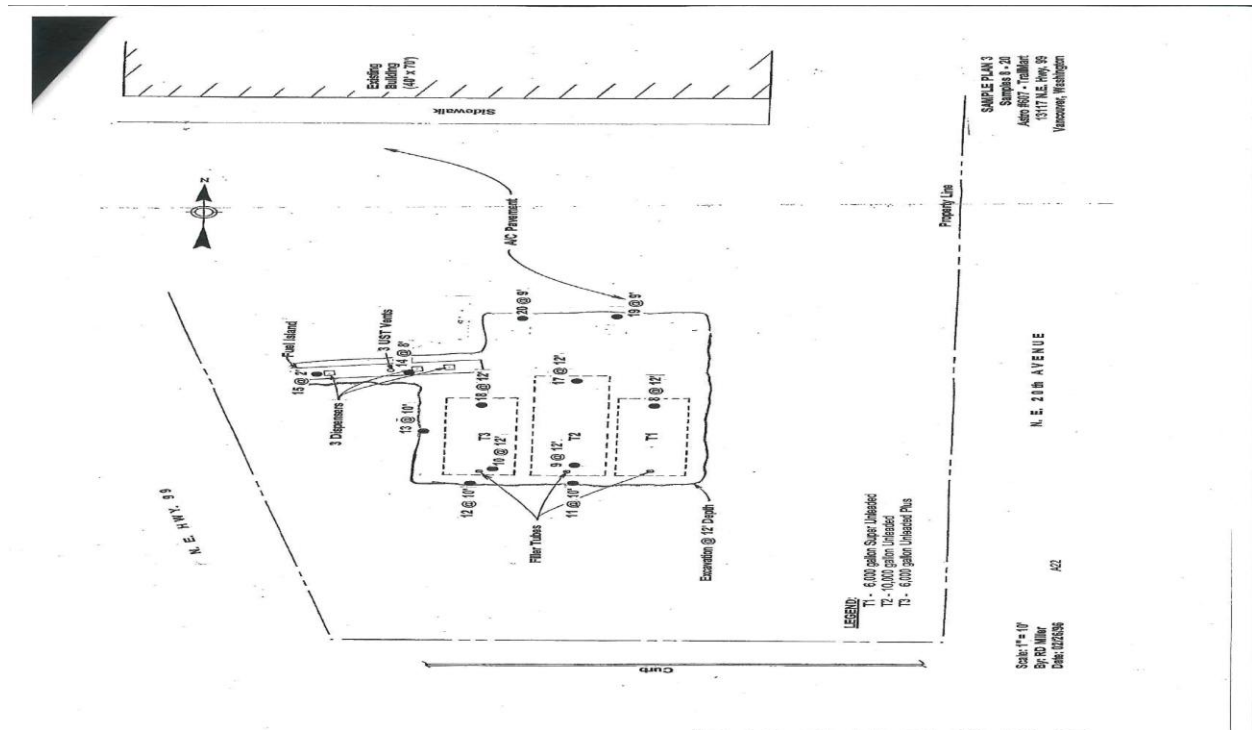


Figure 2: Soil Sampling Locations

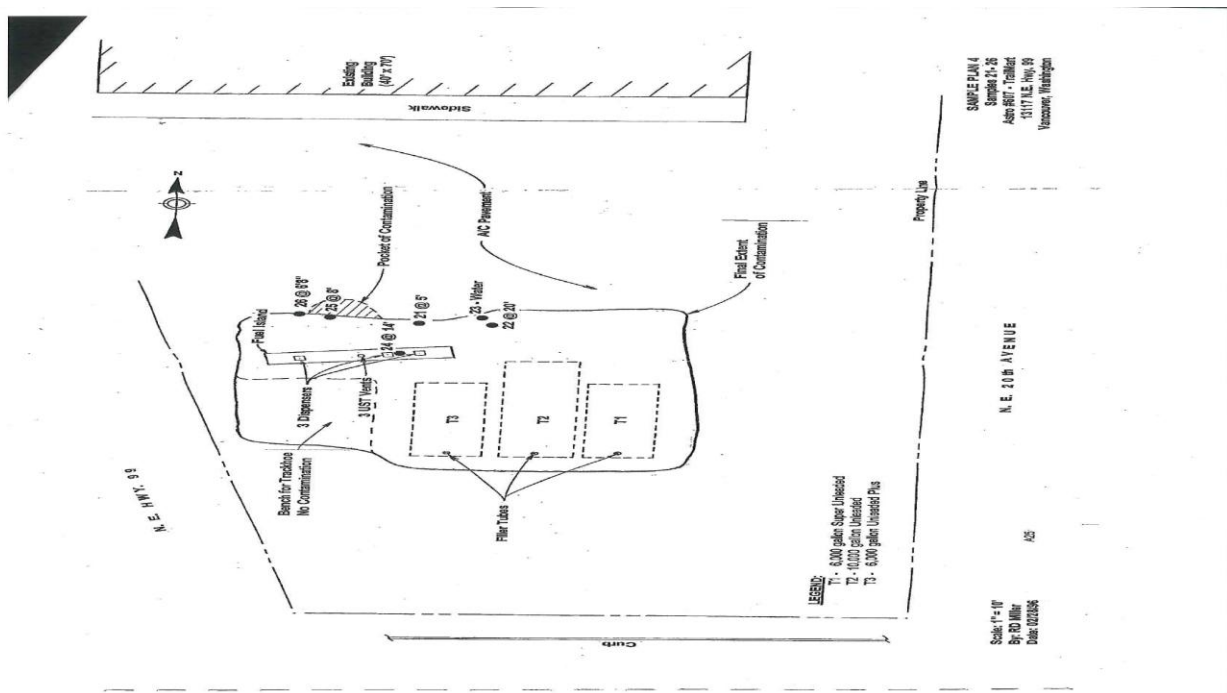
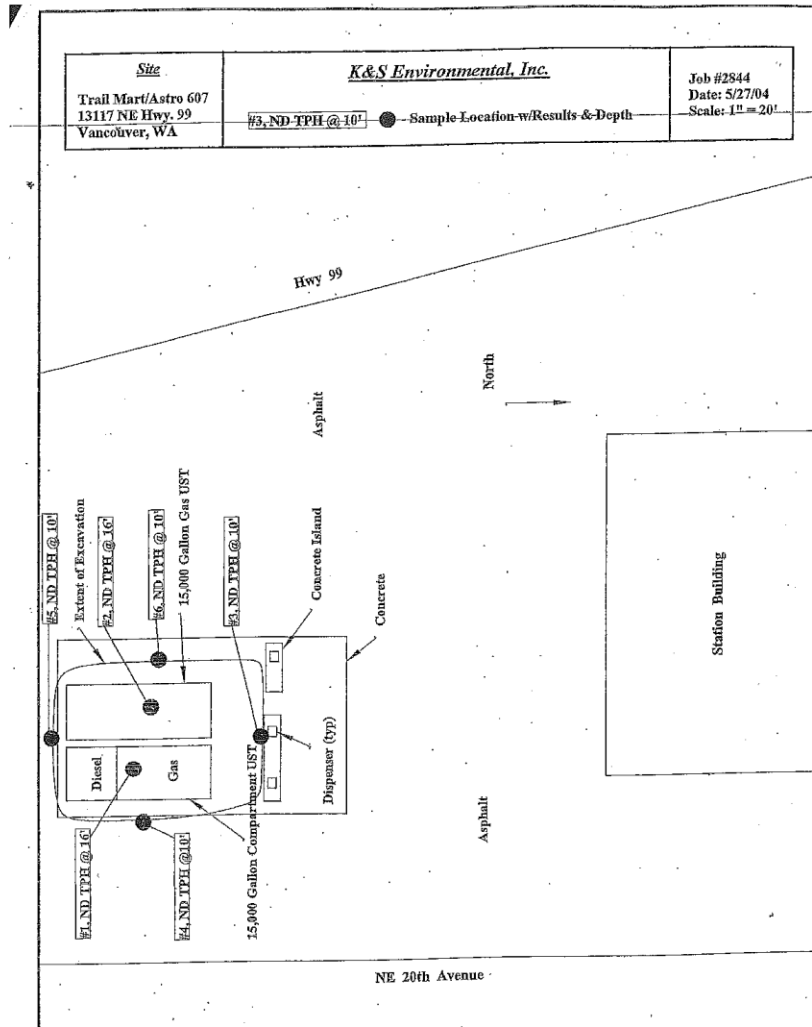


Figure 3: Soil Sampling Locations and Pocket of Soil Contamination Left on the Site

## 6.4 2004 – Underground Storage Tanks Removal, Soil Sampling Locations and Results

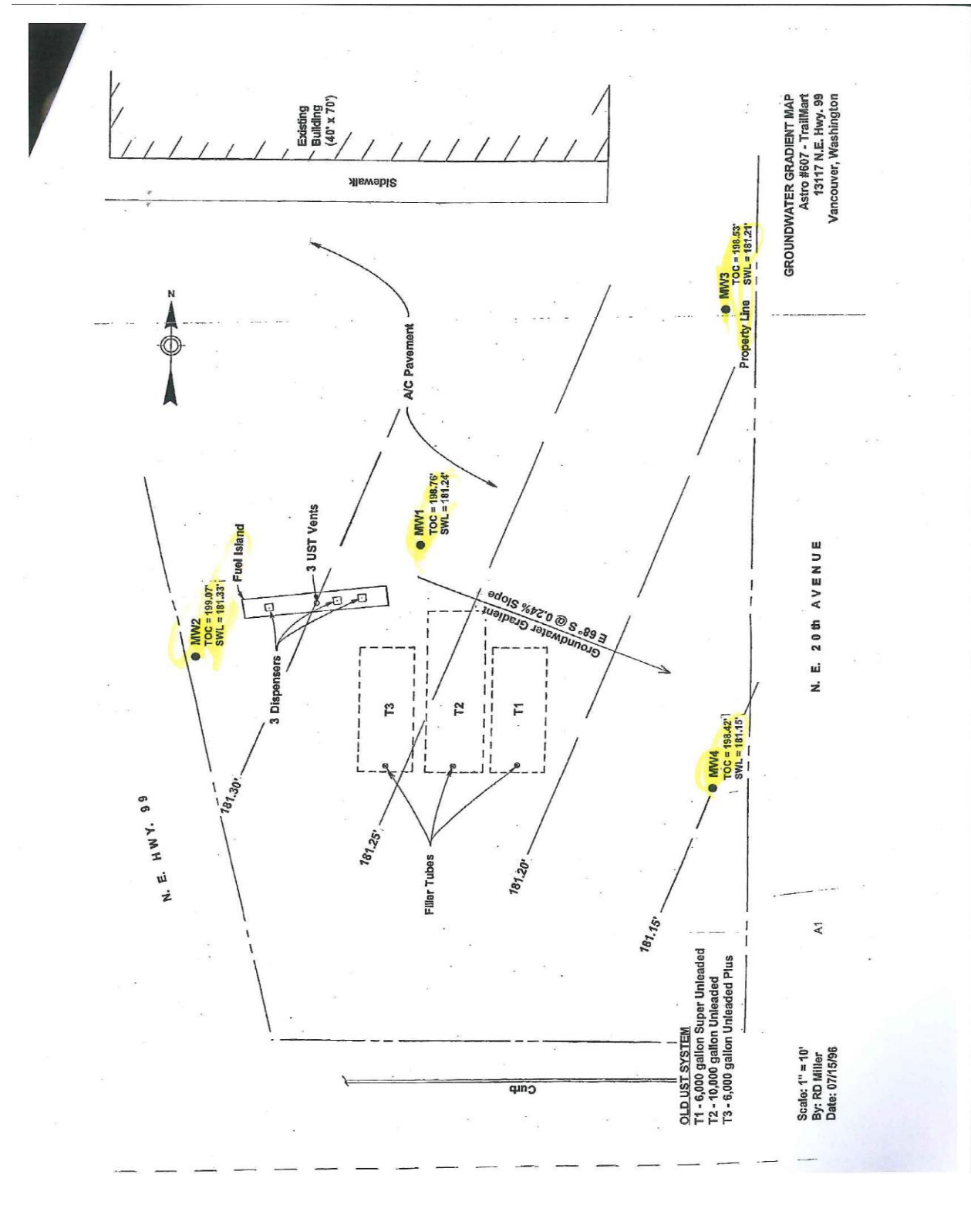


**Table 1**  
 Results of Soil Samples Collected on 5/19/04

Sample ID	Location and Depth	Results
#1	East Tank Bottom, 16 ft.	ND, ND, ND
#2	West Tank Bottom, 16 ft.	ND, ND, ND
#3	North Wall, 10 ft.	ND, ND, ND
#4	East Wall, 10 ft.	ND, ND, ND
#5	South Wall, 10 ft.	ND, ND, ND
#6	West Wall, 10 ft.	ND, ND, ND

NT - Not Tested for this analyte  
 ND - None detected at or above reportable levels

## 6.5 Monitoring Well Locations, Groundwater and Long-Term Groundwater Monitoring Results



### March 1996 – November 2004: Groundwater Monitoring Results

Table 2 - Test Results for Groundwater Samples  
 Astro #607 - Trail Mart, Vancouver WA


Page 1 of 2

Location/ Collection Date	B	T	E	X	Total Lead	EDB	EDC	NWTPH-Gx
	parts per billion (ppb) or ug/L							
Tank Pit (at MW1) Sample 23 - 02/28/96	1330	8810	2110	9120	59	61	20	
MW1								
03/20/96	21	4.9	0.9	81	ND	ND	32	ND
04/26/96	ND	ND	ND	ND	ND	ND	83	1630
07/15/96	ND	ND	ND	ND	ND	ND	120	217
11/18/96	ND	ND	3	ND	ND	ND	90	201
01/20/97	13	ND	5	13	ND	ND	73	151
04/21/97	ND	ND	ND	ND	Not Tested	ND	41	371
07/18/97	ND	ND	ND	ND	Not Tested	ND	29	Not Tested
01/20/98	ND	ND	ND	ND	Not Tested	ND	---	Not Tested per Ecology ---
05/05/98	ND	0.95	ND	0.59	---	---	88	Not Tested
02/12/99	---	---	---	---	Not Tested per Ecology	---	132	Not Tested
02/04/00	---	---	---	---	Not Tested per Ecology	---	32	Not Tested
02/23/01	---	---	---	---	Not Tested per Ecology	---	76	Not Tested
02/21/02	---	---	---	---	Not Tested per Ecology	---	7	Not Tested
09/17/03	---	---	---	---	Not Tested per Ecology	---	2	Not Tested
11/10/04	ND	ND	ND	ND	Not Tested	ND		
MW2								
03/20/96	ND	ND	ND	ND	ND	ND	39	386
07/15/96	ND	ND	ND	ND	ND	ND	66	ND
11/18/96	ND	ND	ND	ND	ND	ND	59	ND
01/20/97	ND	ND	ND	ND	ND	ND	44	ND
04/21/97	ND	ND	ND	ND	ND	ND	87	Not Tested
07/18/97	---	---	---	---	Not Tested	ND	87	Not Tested
01/20/98	---	---	---	---	Not Tested	ND	71	Not Tested
02/12/99	---	---	---	---	Not Tested per Ecology	---	63	Not Tested
02/04/00	---	---	---	---	Not Tested per Ecology	---	9	Not Tested
02/23/01	---	---	---	---	Not Tested per Ecology	---	11	Not Tested
02/21/02	---	---	---	---	Not Tested per Ecology	---	ND	Not Tested
09/17/03	---	---	---	---	Not Tested per Ecology	---	1	Not Tested
11/10/04	ND	ND	ND	ND	Not Tested	ND		
MW3								
03/20/96	ND	ND	ND	ND	ND	ND	61	561
07/15/96	ND	ND	ND	ND	7.2	ND	72	ND
11/18/96	ND	ND	ND	ND	ND	ND	60	ND
01/20/97	ND	ND	ND	ND	ND	ND	65	ND
04/21/97	---	---	---	---	Not Tested	ND	1	Not Tested
07/18/97	---	---	---	---	Not Tested	ND	77	Not Tested
01/20/98	---	---	---	---	Not Tested	ND	80	Not Tested
02/12/99	---	---	---	---	Not Tested per Ecology	---	55	Not Tested
02/04/00	---	---	---	---	Not Tested per Ecology	---	32	Not Tested
02/23/01	---	---	---	---	Not Tested per Ecology	---	63	Not Tested
02/21/02	---	---	---	---	Not Tested per Ecology	---	5	Not Tested
09/17/03	---	---	---	---	Not Tested per Ecology	---	ND	Not Tested
11/10/04*	ND	ND	ND	ND	Not Tested	ND		
MW4								
03/20/96	ND	1	ND	ND	ND	ND	3	297
07/15/96	ND	ND	ND	ND	ND	ND	6.6	ND
11/18/96	2	ND	ND	ND	ND	ND	1.8	ND
01/20/97	ND	ND	ND	ND	ND	ND	1.2	ND
04/21/97	---	---	---	---	Not Tested	ND	1.0	Not Tested
07/18/97	---	---	---	---	Not Tested	ND	0.9	Not Tested
01/20/98	---	---	---	---	Not Tested	ND		
02/12/99	---	---	---	---	Not Sampled per Ecology	---		
02/04/00	---	---	---	---	Not Sampled per Ecology	---		
02/23/01	---	---	---	---	Not Sampled per Ecology	---		
02/21/02	---	---	---	---	Not Sampled per Ecology	---		
09/17/03	---	---	---	---	Not Sampled per Ecology	---		
11/10/04	---	---	---	---	Not Sampled per Ecology	---		
MTCA, Method A Cleanup Limits	5	1000	700	1000	15	1	5	800

Notes:  
 \*B\* means benzene  
 \*T\* means toluene  
 \*E\* means ethyl-benzene  
 \*X\* means xylene  
 \*EDB\* means ethylene dibromide  
 \*EDC\* means ethylene dichloride  
 "ND" means not detected or below test method reporting limit  
 RED indicates result is above regulatory cleanup limit  
 NWTPH-Gx test results were not modified for Washington prior to 11/18/96  
 \*11/10/04\* analysts via EPA method 8260 indicated four VOC compounds in MW3: acetone at 707 ug/L;  
 2-butanone (MEK) at 3480 ug/L; naphthalene at 11 ug/L; and tetrahydrofuran at 670 ug/L. See text.



## 6.6 Environmental Covenant

**4609176 CUV**  
RecFee - \$72.00 Pages: 11 - MEARS GRAMOR LLC  
Clark County, WA 10/08/2009 11:09  


RECEIVED

After Recording Return to:  
Scott Rose  
Acting Unit Manager  
SWRO Toxics Cleanup Program  
Department of Ecology  
PO Box 47775  
Olympia, WA 98504-7775

OCT 15 2009

DEPARTMENT OF ECOLOGY

### Environmental Covenant

**Grantor:** Mears Gramor LLC  
**Grantee:** State of Washington, Department of Ecology  
**Legal:** #251 SEC 26 T3NR1EWM 2.32A  
**Tax Parcel No.:** 186742-000  
**Cross Reference:**

Grantor, Mears Gramor LLC, hereby binds Grantor, its successors and assigns to the land use restrictions identified herein and grants such other rights under this environmental covenant ( hereafter "Covenant" ) made this 10<sup>th</sup> day of September, 2009 in favor of the State of Washington Department of Ecology (Ecology). Ecology shall have full right of enforcement of the rights conveyed under this Covenant pursuant to the Model Toxics Control Act, RCW 70.105D.030(1)(g), and the Uniform Environmental Covenants Act, 2007 Wash. Laws ch. 104, sec. 12.

This Declaration of Covenant is made pursuant to RCW 70.105D.030(1)(f) and (g) and WAC 173-340-440 by Mears Gramor LLC, its successors and assigns, and the State of Washington Department of Ecology, its successors and assigns (hereafter "Ecology").

A remedial action (hereafter "Remedial Action") occurred at the property that is the subject of this Covenant. The Remedial Action conducted at the property is described in the following document[s]:

1. Supplemental Site Characterization Report, May 12, 2005, prepared by Kleinfelder.
2. Feasibility Study and Disproportionate Cost Analysis, February 23, 2009, prepared by Kleinfelder.
3. First Quarter 2009 Groundwater Monitoring Report, April 27, 2009, prepared by Kleinfelder.

These documents are on file at Ecology's Olympia Office.

This Covenant is required because the Remedial Action resulted in residual concentrations of gasoline-range petroleum hydrocarbons that exceed the Model Toxics Control Act Method A Cleanup Level for soil established under WAC 173-340-900. As such, a conditional point of compliance has been established for groundwater at the site.

The undersigned, Mears Gramor LLC, is the fee owner of real property (hereafter "Property") in the County of Clark, State of Washington, that is subject to this Covenant. The Property is legally described in Exhibit A.

Mears Gramor LLC makes the following declaration as to limitations, restrictions, and uses to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, as provided by law and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Property (hereafter "Owner").

Section 1.

1. No groundwater may be taken for any use from the Property.
2. A portion of the Property contains gasoline-contaminated soil located under the eastern portion of the southernmost building on the site. The Owner shall not alter, modify, or remove the existing structure[s] in any manner that may result in the release or exposure to the environment of that contaminated soil or create a new exposure pathway without prior written approval from Ecology. As part of this Covenant, long-term monitoring of the groundwater at conditional points of compliance is required to ensure that the residual contaminated soil does not impact groundwater over time. The groundwater shall be monitored at a frequency of every 18 months to account for seasonal variations. The Sampling and Analysis Plan detailing monitoring requirements is included as Exhibit B.



Section 2. Any activity on the Property that may interfere with the integrity of the Remedial Action and continued protection of human health and the environment is prohibited.

Section 3. Any activity on the Property that may result in the release or exposure to the environment of a hazardous substance that remains on the Property as part of the Remedial Action, or create a new exposure pathway, is prohibited without prior written approval from Ecology.

Section 4. The Owner of the property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

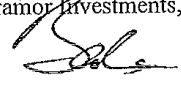
Section 5. The Owner must restrict leases to uses and activities consistent with the Covenant and notify all lessees of the restrictions on the use of the Property.

Section 6. The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Covenant. Ecology may approve any inconsistent use only after public notice and comment.

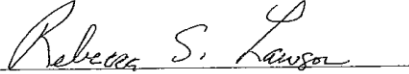
Section 7. The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect remedial actions conducted at the property, to determine compliance with this Covenant, and to inspect records that are related to the Remedial Action.

Section 8. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

Mears Gramor LLC, Washington limited liability company  
By: Gramor MBV LLC, a Washington limited liability company  
By: Gramor Investments, Inc., an Oregon corporation

By:   
Barry A. Cain, President

STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY



Rebecca S. Lawson, P.E., LHG  
Section Manager  
Toxics Cleanup Program  
Southwest Regional Office  
Dated: 9/30/2009

[INDIVIDUAL ACKNOWLEDGMENT]

STATE OF \_\_\_\_\_  
COUNTY OF \_\_\_\_\_

On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, I certify that \_\_\_\_\_ personally appeared before me, and acknowledged that he/she is the individual described herein and who executed the within and foregoing instrument and signed the same at his/her free and voluntary act and deed for the uses and purposes therein mentioned.

\_\_\_\_\_  
Notary Public in and for the State of  
Washington, residing at \_\_\_\_\_  
My appointment expires \_\_\_\_\_

[CORPORATE ACKNOWLEDGMENT]

STATE OF OREGON  
COUNTY OF WASHINGTON

On this 10<sup>th</sup> day of September, 2009, I certify that BARRY A. CAIN personally appeared before me, acknowledged that he is the PRESIDENT of the corporation that executed the within and foregoing instrument, and signed said instrument by free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that he was authorized to execute said instrument for said corporation.

Kristin Woods  
Notary Public in and for the State of  
Oregon, residing at  
Portland  
My appointment  
expires May 19, 2010.

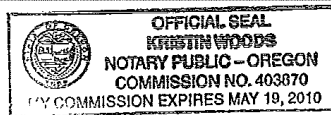


EXHIBIT "A"  
LEGAL DESCRIPTION  
"CENTER SQUARE"

A parcel of property situated in the Northwest quarter of Section 26, Township 3 North, Range 1 East of the Willamette Meridian in Clark County, Washington, described as follows:

COMMENCING at the Northeast corner of the Northwest quarter of said Section 26;

THENCE South 01° 38' 18" West along the East line of said Northwest quarter a distance of 1383.00 feet;

THENCE North 88° 21' 42" West a distance of 248.81 feet to the most Northerly point of that parcel vacated and conveyed to The Holland, Inc. by document recorded under Auditor's File No. 3983895, Clark County Deed Records and the TRUE POINT OF BEGINNING.

THENCE South 41° 54' 24" West along the West line of said vacated parcel a distance of 75.72 feet to a point on a 469.00 foot radius curve to the left with a tangent bearing of South 06° 24' 47" East into the curve at this point;

THENCE continuing along said West line around said 469.00 foot radius curve to the left a distance of 60.20 feet;

THENCE South 13° 46' 02" East along said West line a distance of 367.91 feet to a point on a 169.00 foot radius curve to the left;

THENCE continuing along said West line around said 169.00 foot radius curve to the left a distance of 137.19 feet to the most Southerly point of said road vacation;

THENCE North 63° 30' 16" East along the South line of said road vacation and the Easterly extension thereof a distance of 49.23 feet to the Westerly right-of-way line of N.E. 20<sup>th</sup> Avenue, said point being 50.00 feet from, when measured at right angles to the centerline thereof, as described in Exhibit "B" of that document recorded under Auditor's File No. 3972148, Clark County Deed Records, said point being on a 1350.00 foot radius curve to the left with a tangent bearing of North 08° 57' 30" East into the curve at this point;

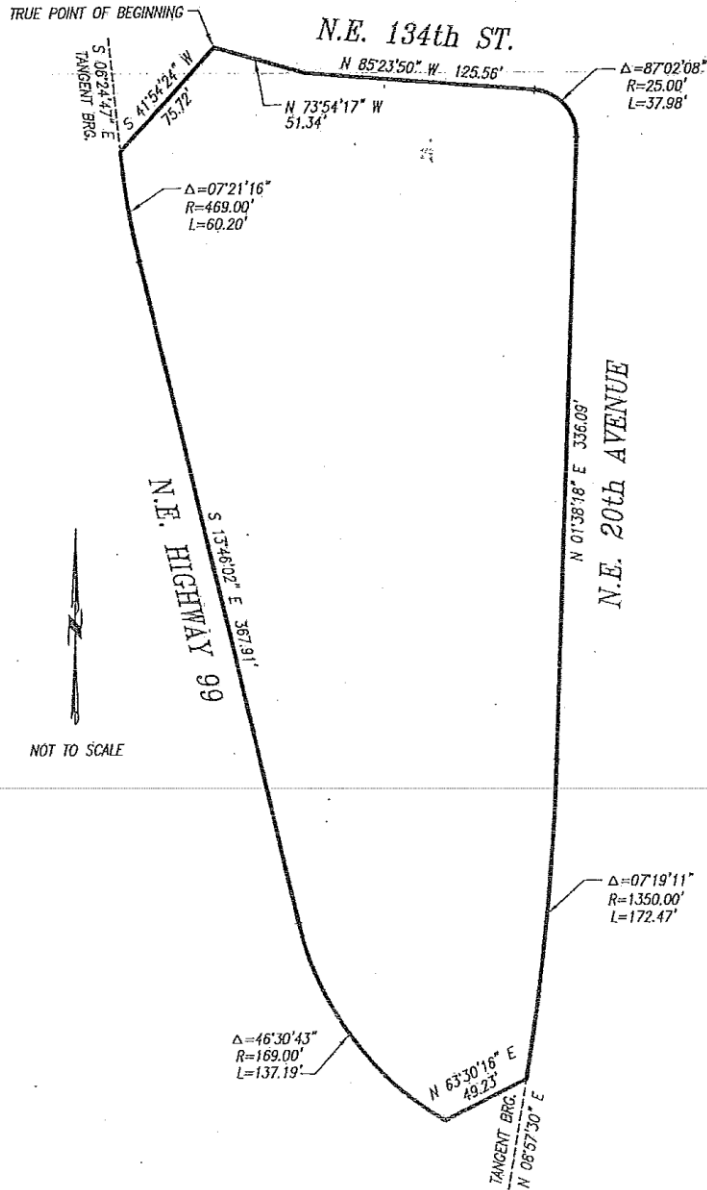
THENCE along said Westerly right-of-way line around said 1350.00 foot radius curve to the left a distance of 172.47 feet;

THENCE North 01° 38' 18" East continuing along said Westerly right-of-way line a distance of 336.09 feet to a point on a 25.00 foot radius curve to the left;

THENCE continuing along said Westerly right-of-way line around said 25.00 foot radius curve to the left a distance of 37.98 feet to a point on the North line of that parcel conveyed to The Holland, Inc. as described in Exhibit "A"1 recorded under Auditor's File No. 3972148, Clark County Deed Records;

THENCE North 85° 23' 50" West along the North line of said The Holland, Inc. parcel a distance of 125.56 feet to an angle point;

THENCE North 73° 54' 17" West continuing along said North line and the Easterly extension thereof a distance of 51.34 feet to the TRUE POINT OF BEGINNING.



## 6.7 Photo log



Photo 2: Outlet Shops and Parking Lot – From the Southeast



Photo 4: Asphalt Paved Parking Lot – From Southeast



Photo 1: Building and Parking Lot – From the East



Photo 3: Building on Previous KAB-01 Location-From the East





Photo 6: Asphalt Paved Parking Lot –From Southeast



Photo 8: Groundwater Monitoring Well MW-3



Photo 5: Building on Previous KAB-01 Location-From Southwest



Photo 7: Groundwater Monitoring Well KMW-02