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January 10, 2013

Mr. Dale Myers
Washington State Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, Washington 98008

Subject: Olympic Pipe Line Company Kent Block Valve Remedial Investigation Report
South 259th Street
Kent, Washington

Dear Mr. Myers,

On behalf of Olympic Pipe Line Company (OPLC), Antea™Group is pleased to submit the enclosed OPLC Kent Block Valve Remedial Investigation (RI) Report for the OPLC facility located at South 259th Street, Kent, Washington. Based on remedial actions completed to date, and groundwater analytical trends, it is Antea Group's opinion that four consecutive quarters of groundwater concentrations below MTCA Method A Cleanup Levels will be obtained following the second quarter 2013 sampling event. Subsequent to the submittal of this RI, Antea Group will submit the Site into the Voluntary Cleanup Program, and request an *Opinion Letter* on additional data necessary to obtain a No Further Action determination from Ecology.

Please feel free to contact Bryan Taylor of Antea Group at (425) 260-9321 if you have any questions regarding this report.

Sincerely,

Bryan Taylor
Senior Project Manager
ANTEA GROUP

Enclosure: Kent Block Valve Remedial Investigation Report

cc: Ms. Kelli Gustaf, Environmental Coordinator, OPLC, Renton, WA (Electronic Copy – CD)
Mr. Paul Supple, Atlantic Richfield (Electronic Copy – Enfos Upload)
Mr. James Chatham, BP Exploration (Alaska) Inc. (Electronic Copy – Enfos Upload)
File, Antea Group

REMEDIAL INVESTIGATION REPORT

Olympic Pipe Line Company Kent Block Valve

Kent, Washington

Ecology Facility Site ID: 2401

Antea™Group Project No. WAKBV-HA121
December 31, 2012

Prepared for:
Washington Department of Ecology
Northwest Regional Office
3190-160th Avenue Southwest
Bellevue, WA 98008

And

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Olympic Pipe Line Company Kent Block Valve
74th Avenue South & South 259th Street, Kent, WA

1.0 INTRODUCTION

1.1 Property Information

Property Name	Olympic Pipe Line Company Kent Block Valve
Property Address	74th Avenue South & South 259th Street, Kent, WA
Ecology Facility Site ID	2401
Cleanup Site ID	3070
Project Consultant	Antea™Group
Project Consultant Contact Information	Bryan Taylor – Senior Project Manager 4006 148th Avenue NE Redmond, Washington, 98052 Office – 425.882.3528 Direct – 425.498.7727
Current Owner/Operator	Puget Sound Energy (PSE)/Olympic Pipe Line Company

1.2 Purpose

On behalf of Olympic Pipe Line Company (OPLC), Antea™Group (Antea Group) has prepared this Remedial Investigation (RI) report for the site cleanup in the Foster Industrial Park area of Kent located at 74th Avenue South and South 259th Street, Kent, Washington (the Site, Figure 1).

The RI report was prepared to include the required items in Washington Administrative Code (WAC) 173-340-350 and summarizes environmental investigations associated with the petroleum hydrocarbon release in the vicinity of an OPLC block valve and pipeline right-of-way (ROW) in the Foster Industrial Park area. The background and previous work history presented in this report is a summary of investigations and documents prepared by Antea Group and previous consultants.

2.0 SITE IDENTIFICATION AND DESCRIPTION

2.1 Site Discovery and Regulatory Status

Prior to a real estate transaction, GeoEngineers conducted a site assessment in August 1989 on the adjacent property west of the Site. Site assessment activities included the installation of three groundwater monitoring wells (MW-1 through MW-3) on the adjacent property. Groundwater laboratory analyses indicated elevated concentrations of benzene {2,400 parts per billion (ppb)} in MW-1. OPLC was informed of the results and responded immediately. OPLC inspected the pipeline and block valve and a pinhole-sized leak was observed in the threading of a bolt located on the west side of the block valve. Following repairs, OPLC excavated approximately 30 cubic yards of hydrocarbon impacted soil from the area immediately surrounding the block valve. OPLC then contracted GeoEngineers to conduct a complete subsurface investigation to determine the extent of hydrocarbon impacts related to the release. GeoEngineers directed the advancement of borings, test pits, and trenches in the release area. Once the impacted area(s) had been identified, approximately 1,950 tons of soil was excavated. During excavation activities, GeoEngineers personnel observed thin zones of soil with apparent fuel contamination underlying the upper sand layer west of the pipeline. Excavation of these deeper layers of contaminated soil was discontinued due to the logistics associated with the removal of large thicknesses of overlying uncontaminated soil (up to 20 feet) in order to access a thin zone of contaminated soil. Although soil known to be impacted with petroleum hydrocarbons was left in place, soil borings surrounding the excavation contained concentrations of petroleum hydrocarbons that did not exceed the Washington State Department of Ecology's (Ecology) Model Toxics Control Act (MTCA) Method A Cleanup Levels at the time; therefore, indicating that impacted soil left in place was limited. According to Ecology's Toxics Cleanup Program Database, the Site discovery and release was reported to Ecology on February 19, 1992.

Currently, quarterly groundwater monitoring is being conducted at the Site. To date, two consecutive quarters of groundwater concentrations below MTCA Method A Cleanup Levels has been collected from all monitoring wells associated with the Site. Site characterization and remedial activities have been conducted by OPLC in accordance with MTCA as an Independent Cleanup Action outside Ecology's Voluntary Cleanup Program (VCP). However, along with this RI report, Antea Group is submitting an application to Ecology to enter this Site into the VCP. Recent groundwater analytical results indicate that concentrations of petroleum hydrocarbons continue to trend towards laboratory Method Reporting Limits (MRLs). Antea Group is the current consultant for this Site.

2.2 Site and Property Description

The property in which the release occurred is a narrow ROW parcel located approximately 400 feet east-northeast of the intersection of 74th Avenue South and South 259th Street (the Property). The ROW where the block valve is located is owned by Puget Sound Energy (PSE) and leased by OPLC. The block valve is part of an underground pipeline that supplies refined petroleum products from refineries in north Washington State to bulk fuel terminals and other facilities for distribution. A legal description of the Property is included in Appendix A.

Characterization of the release indicates that the actual MTCA Site location (the Site) is an area extending approximately 60 feet to the southeast, 100 feet to the east, and 530 feet to the southwest of the block valve Property.

2.3 Neighborhood Setting

Land use in the vicinity of the Property is primarily commercial and industrial. The block valve is located approximately 570 feet north of the Green River. Between the Green River and the block valve is Foster Park, which is owned by the City of Kent. Adjacent to the Property to the west is a commercial warehousing facility referred to as Foster Industrial Park. The ROW owned by PSE contains a former railroad route that has been converted to a public park trail, called the Interurban Trail Right of Way. An existing railroad track parallels the trail to the east (Figure 2).

2.4 Physiographic Setting/Topography

The OPLC Kent Block Valve Site is situated approximately 35 feet above mean sea level in the Puget Lowlands. The Green River is the nearest surface water body and is located approximately 570 feet south of the Property. The River runs parallel between the Site and Maple Valley Highway and flows in a general northerly direction to Puget Sound approximately 15 miles north of the Site. The lower 12 miles of the Green River is referred to as the Duwamish River. With the exception of the parking lot for the warehouse facility located to the west of the Property, the remainder of the Site is mostly unpaved.

3.0 PROPERTY DEVELOPMENT AND HISTORY

3.1 Past Property Uses and Facilities

The pipeline has been operational since the mid 1960's. It is unknown at this time when PSE purchased the ROW Property. A review of historical aerial photographs revealed that the area was undeveloped farmland through the 1980's.

3.2 Current Property Use and Facilities

The Property is a ROW owned by PSE. The Property is leased by OPLC and operates as a pipeline ROW and block valve location.

3.3 Proposed or Potential Future Property Uses

The potential planned use for the Property is continued use as a pipeline ROW and block valve location.

3.4 Zoning

With the exception of Foster Park, the Property and surrounding region are mostly zoned as limited industrial (King County Department of Assessments, Appendix A).

3.5 Transportation/Roads

The Property is located approximately 400 feet east-northeast of the intersection of 74th Avenue South and South 259th Street. Both roads are secondary streets that provide access from State Route 167 (SR-167) to the surrounding neighborhood. SR-167 is located approximately 700 feet west of the Property and provides access to SR-512 in Puyallup 17 miles south and Interstate 405 in Renton 7 miles north. Public bus stops are located on Central Avenue South approximately one half mile east of the Property.

3.6 Utilities and Water Supply

The Site's water, sanitary sewer and storm drainage is supplied by the City of Kent. A 10-inch water mainline lies beneath the westbound lane of South 259th Street and continues along the northbound lane of 74th Avenue South. Storm drains are located along the southbound lane of 74th Avenue South and route stormwater to Foster Park, which acts as a seasonal stormwater retention area. Two additional stormwater catch basins are located in the gutter of the westbound lane of South 259th Street that also directs stormwater to Foster Park. An 8-inch sanitary sewer line is present beneath the westbound lane of South 259th Street and the northbound lane of 74th Avenue South. The exact location of the sanitary sewer line is unknown at this time. Electrical is provided to the area by PSE via underground power lines. High voltage power lines run in a north-south direction immediately above the Interurban Trail Right of Way. Presently, natural gas lines are not in the immediate area. The approximate locations of the subsurface utilities are shown on Figure 3.

Depth to groundwater has been observed to range from approximately 9 feet below ground surface (bgs) to 23 feet bgs within the Site monitoring wells (Table 1). The majority of the groundwater at the Site is below 10 feet

bgs. Therefore, it is unlikely that these utility trenches act as preferential pathways for groundwater flow. Groundwater flow is typically to the southwest towards Green River (Section 5.3).

3.7 Potential Sources of Contamination

The likely source of the release of hydrocarbons at the Property is the pipeline block valve, located in the central portion of the Property. The release Property is located in the northeast section of the Site.

3.8 Potential Sources of Contamination from Neighboring Properties

A search was completed within the Ecology Leaking Underground Storage Tank (LUST) database to identify LUST sites within a one-mile radius of the Property. 13 LUST sites were identified within a one-mile radius, five of which are up-gradient of the Site. The closest up-gradient LUST site, Southcenter Oil (LUST ID 1192), is located approximately 3,000 feet from the Property. This LUST site is currently in the monitoring phase of cleanup. Due to the distance, these are not considered to be a potential source of impact to the Site.

4.0 ENVIRONMENTAL INVESTIGATION/INTERIM ACTION SUMMARY

The following investigations have been completed at the OPLC Block Valve Site:

- *Report of Geoenvironmental Services, Subsurface Contamination Study and Remedial Action Monitoring – October 1, 1990, GeoEngineers;*
- *Results of Groundwater Monitoring and Monitoring Well Replacement – October 1, 1999, GeoEngineers;*
- *Results of Groundwater Monitoring, March 2000 – April 25, 2000, GeoEngineers;*
- *June and September 2000 Quarterly Groundwater Monitoring - November 14, 2000, GeoEngineers;*
- *December 2000 Quarterly Groundwater Monitoring – February 8, 2001, GeoEngineers;*
- *March 2001 Quarterly Groundwater Monitoring – June 5, 2001, GeoEngineers;*
- *Supplemental Site Characterization –September 18, 2001, GeoEngineers;*
- *December 2001 Quarterly Groundwater Monitoring – January 28, 2002, GeoEngineers;*
- *March 2002 Quarterly Groundwater Monitoring – May 6, 2002, GeoEngineers;*
- *June 2003 Drilling and Quarterly Groundwater Monitoring Report – August 11, 2003, GeoEngineers;*
- *March 2004 Quarterly Monitoring – April 30, 2001, Delta Environmental Consultants;*
- *June 2004 Quarterly Groundwater Monitoring Report – August 31, 2004, Delta Environmental Consultants;*
- *September 2004 Quarterly Groundwater Monitoring – January 15, 2005, Delta Environmental Consultants;*
- *October 2004 Quarterly Groundwater Monitoring Report – April 13, 2005, Delta Environmental Consultants;*
- *July 2005 Annual Groundwater Monitoring Report – December 7, 2005, Delta Environmental Consultants;*
- *May 2006 Annual Groundwater Monitoring Report – August 3, 2006, Delta Environmental Consultants;*
- *Semiannual Groundwater Monitoring and Progress Report, First Half 2007 – August 3, 2007, Delta Consultants;*
- *Semiannual Groundwater Monitoring and Progress Report, Second Half 2007 – December 11, 2007, Delta Consultants;*
- *Semiannual Groundwater Monitoring and Progress Report, First Half 2008 – October 9, 2008, Delta Consultants;*
- *Semiannual Groundwater Monitoring and Progress Report, Second Half 2008 – January 13, 2009, Delta Consultants;*
- *Annual Status Report – July 2009, Delta Consultants;*

- *Annual Status Report – February 15, 2011, Antea Group; and*
- *Annual Status Report – December 2011, Antea Group.*

A chronological summary of investigations listed above is included as Appendix B. This summary represents all available investigation reports obtained by or provided to Antea Group. Historical soil analytical data tables and sample locations are attached as Appendix C. Current groundwater monitoring data are summarized in Table 1. Historical groundwater monitoring data are presented in Table 2 and Appendix C. All available historical boring logs for the previous investigations are included in Appendix D. Historical soil sample locations are included in Appendix E.

4.1 Constituents of Concern

Soil samples collected from the Site have been analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) compounds and total petroleum hydrocarbons (TPH). Groundwater samples collected from the Site have been analyzed for TPH as gasoline (TPH-G), TPH as diesel (TPH-D), TPH as oil (TPH-O), BTEX, methyl tert-butyl ether (MTBE), 1,2-dibromoethane (EDB), 1,2-dichloroethane (EDC), and lead. The available data indicate that media has not been adequately defined in accordance with current requirements in MTCA 173-340-900, Table 830-1. Future soil samples collected will be collected and analyzed by TPH-G, TPH-D, TPH-O, BTEX, and total lead. If MTBE, EDB, or EDC are detected in groundwater, future soil samples will also be analyzed for the detected constituent.

According to GeoEngineer's October 1, 1990, *Report of Geoenvironmental Services Subsurface Contamination Study and Remedial Action Monitoring*, a relatively small volume (less than 20 gallons) of free product was observed within the remedial excavation conducted between August and September 1989. According to the report, GeoEngineers understood that testing by OPLC personnel indicated that free product consisted of a mixture of gasoline, diesel, and jet fuel. The free product did not accumulate to measureable thicknesses and was collected with sorbent pads during the excavation. Although there is a potential that all three refined petroleum products were released, subsequent chemical analyses and investigations conducted at the Site indicate that the only constituents of concern (COCs) are related to gasoline released from the Property. One groundwater sample slightly exceeded the MTCA Method A Cleanup Level for TPH-D in 1999. However, all other groundwater samples were below the respective MTCA Method A Cleanup Levels or did not exceed laboratory MRLs for TPH-D and TPH-O. Based on the historical groundwater analytical data, TPH-D and TPH-O do not appear to be COCs. However, given the conditions regarding the original release, Antea Group will continue to analyze groundwater for TPH-D and TPH-O. The initial soil samples collected from the Site were analyzed for TPH using EPA Method 418.1. This method is no longer accepted for hydrocarbon analysis; therefore, soil samples collected in the future will also be analyzed for TPH-D and TPH-O. Therefore, for the purposes of this RI, the COCs are considered to be TPH-G, TPH-D, TPH-O, and BTEX.

4.2 Soil

Following the release discovery on August 23, 1989, GeoEngineers directed the excavation of test pits and trenches in the vicinity of the release. 15 soil samples were collected to define the extent of the petroleum hydrocarbon

impacts to soil. Based on the test pit and trench soil analytical results, two excavations were conducted to remove impacted to the east and west of the pipeline in the vicinity of the block valve. Ten additional soil samples were collected within the footprint of the excavations. The subsequent subsurface investigation conducted by GeoEngineers between September and December 1989 included the installation of monitoring wells MW-4 through MW-19 to depths between 16.5 feet and 32.5 feet bgs. In addition, recovery well RW-1 was installed to the west of the Property to a depth of 32 feet bgs. A soil sample was collected from well MW-9 at a depth of 33 feet bgs; however, soil samples were not collected from the other borings advanced during this investigation since field screening of soils did not indicate the presence of petroleum hydrocarbons.

On September 7, 1999, monitoring well MW-17A was installed at the Site to a depth of 30 feet bgs. One soil sample was collected during the installation activities at a depth of 24 feet bgs. On July 31, 2001, monitoring wells MW-20 and MW-21 were installed at the Site to depths of 20 feet and 30 feet bgs, respectively. One soil sample was collected from boring MW-21 at a depth of 16 feet bgs. In June 2003, four air sparge wells (BS-1 through BS-4) were installed at the Site to depths of 38 feet bgs. Composite soil samples were collected from the drill cuttings of each boring during the installation activities for waste characterization purposes.

Between 1989 and 2003, 32 soil samples were collected from the Site. Soil analytical data associated with these samples is included in Appendix C and is discussed in Section 6.2. The locations of the test pits, trenches, and associated soil samples from the August 1989 investigation are shown on GeoEngineer's Figure 3 of Appendix E. The locations of the two excavations and soil sample locations are shown on GeoEngineer's Figure 4 of Appendix E. The known locations of the previously installed monitoring wells, recovery well, and air sparge wells are shown on Figure 2. Available boring logs are included as Appendix D.

4.3 Surface Water

The Green River is the nearest surface water body and is located approximately 570 feet south of the Property. The River flows in a general northerly direction to Puget Sound approximately 15 miles north of the Site. No indication of surface water impact has been identified in association with the Site; therefore, surface water sampling has not been conducted in association with this Site.

4.4 Groundwater

Between August and December 1989, 19 groundwater monitoring wells were installed (MW-1 through MW-19) throughout the Site. Monitoring wells MW-1, MW-2, MW-4, MW-8, and MW-10 were abandoned in March and April 1990 due to constructions activities at the warehouse facility located adjacent to the Property. Monitoring wells MW-3, MW-5 through MW-7, MW 11, MW-12, and MW-17 have not been located since 1993. Monitoring well MW-17A was installed to replace MW-17 in September 1999. Well MW-15 was damaged in March 2011 during sidewalk/levee improvements.

Currently, nine groundwater monitoring wells (MW-9, MW-13, MW-14, MW-16, MW-17A, MW-18 through MW-21) are present at the Site. Groundwater monitoring has recently transitioned from annual monitoring to quarterly monitoring. Summaries of current and historical groundwater elevation and analytical data for existing

groundwater monitoring wells is included as Tables 1 and 2, respectively, and is further discussed within Section 6.4. Historical groundwater data from all other Site wells is included within Appendix C. A summary of groundwater natural attenuation parameters collected during 2011 and 2012 is presented in Table 3.

4.5 Sediment

Sediment sampling has not been conducted at the Site since there has been no indication of surface water impacts associated with the Site.

4.6 Air/Soil Vapor

Soil vapor sampling has not been conducted at the Site. Hydrocarbon vapor monitoring was conducted within the monitoring well casings during groundwater monitoring performed between September 1989 and August 1990. Vapor concentrations detected within the monitoring well casings are summarized in Section 6.6.

4.7 Natural Resources/Wildlife

Due to the proximity of Green River, Antea Group will complete a site-specific Terrestrial Ecological Evaluation (TEE) for the Site.

4.8 Cultural History/Archeology

Information collected in regards to the historical use of the Property does not indicate that additional investigation of Property history or archeology is necessary. No part of the Site is listed in the National Register of Historic places.

4.9 Interim Actions

Upon completion of repairs to the block valve, OPLC excavated approximately 30 cubic yards of hydrocarbon impacted soil from the area immediately surrounding the block valve. Between August 31 and September 27, 1989, two additional soil excavations were performed on the east and west sides of the pipeline and block valve. Excavation of impacted soil extended to approximately six feet bgs on the east side of the pipeline and extended to depths between 16 feet and 24 feet bgs on the west side of the pipeline. Excavation was discontinued in the vicinity of the pipeline due to the risk of compromising the structural integrity of the pipeline. Additional excavation to remove the deeper layers of impacted soil to the west of the pipeline and block valve was discontinued due to the logistics associated with the removal of large thicknesses of overlying uncontaminated soil (up to 20 feet) in order to access the thin zone of impacted soil. Approximately 1,950 tons of soil was removed during the remedial excavations. According to GeoEngineer's October 1, 1990, *Report of Geoenvironmental Services Subsurface Contamination Study and Remedial Action Monitoring*, soil which was not impacted with petroleum hydrocarbons or which contained concentrations of petroleum hydrocarbons below Ecology's previous cleanup guidelines was stored on-site in temporary stockpiles for use as backfill material. Upon completion of the excavations, a 30-inch diameter recovery well (RW-1) was installed in the backfill of the western excavation; however, additional groundwater recovery equipment was not installed.

Between September and December 1989, 16 groundwater monitoring wells (MW-4 through MW-19) were installed at the Site. Three additional monitoring wells were installed at the Site in 1999 (well MW-17A) and in 2001 (MW-20 and MW-21). In June 2003, four air sparge wells (BS-1 through BS-4) were installed at the Site in the vicinity of wells MW-15 and MW-16. Air sparging was initiated on January 21, 2004, with the purpose of increasing dissolved oxygen concentrations in the groundwater and to enhance volatilization of BTEX constituents in the groundwater. Air sparging activities occurred on a monthly basis through August 2004. On September 2 and 17, 2004, enhanced liquid recovery (ELR) events were performed. During these events, approximately 168 gallons of groundwater was extracted. Following the ELR events, oxygen-releasing compound (ORC) socks were placed in wells MW-15 and MW-16. The purpose of the ORC socks was to increase the amount of oxygen available for microbial respiration, thus facilitating the process of natural attenuation via aerobic degradation. An evaluation of the October 2004 groundwater analytical data indicated that concentrations of petroleum hydrocarbons were not decreasing significantly. Therefore, air sparging and ORC applications were subsequently discontinued.

5.0 NATURAL CONDITIONS

5.1 Geology

The Property is located within the Green River basin of the Puget Lowlands. Local geology is classified as Quaternary Alluvium, which is classified as unconsolidated sand and silt, with varying amounts of gravel and cobbles (Washington Division of Geology and Earth Resources, 2005). Soils observed at the Site during the well installation activities generally consisted of sand and/or silty-sand underlain by sandy-silt and silt. Figure 4 shows the location of the lines of cross-sections depicting soil conditions at the Site (Figure 5, Figure 6, and Figure 7).

5.2 Surface Water

Surface water runoff from the paved portions of the Site enters existing municipal storm water drains located in many locations throughout the Site and is piped to Foster Industrial Park, which acts as a seasonal storm water retention pond (Figure 2). The Green River is the nearest surface water body and is located approximately 570 feet south of the Property. The Green River flows in a general northerly direction to Puget Sound approximately 15 miles north of the Site. The lower 12 miles of the Green River is referred to as the Duwamish River.

5.3 Groundwater

The groundwater located beneath the Site is part of the Green River watershed system. Depth to groundwater within the monitoring wells has ranged from approximately 9 feet bgs (MW-20) to 23 feet bgs (MW-19; Table 2). Groundwater flow direction is generally to the southwest (Figure 8). The average gradient is approximately 0.003 foot-per-foot. Figure 9 illustrates the direction of groundwater flow and gradient as measured during the fourth quarter of 2012.

A search completed within the Ecology Well Log database indicates two water supply wells are located within a one-mile radius of the Site. Both wells are irrigation water wells and are located approximately 4,000 feet northwest of the Site. The distance and cross-gradient nature of these wells makes impact from contaminants associated with the Site unlikely.

5.4 Natural Resources and Ecological Receptors

A Simplified TEE was completed for the Property. The simplified TEE exposure analysis indicated that due to the proximity of Foster Industrial Park and the Green River, a site-specific TEE is necessary. Antea Group is in the process of completing a site-specific TEE.

6.0 CONTAMINANT OCCURRENCE AND MOVEMENT

6.1 Waste Material

Waste associated with previous investigations was transported off-site for proper disposal. Therefore, discussion of the occurrence or movement of contaminants in this media is not applicable.

6.2 Soil

Following block valve repairs completed in August 1989, OPLC excavated approximately 30 cubic yards of hydrocarbon impacted soil from the area immediately surrounding the block valve. OPLC then contracted GeoEngineers to conduct a complete subsurface investigation to determine the extent of hydrocarbon impacts related to the release. GeoEngineers directed the excavation of test pits and trenches to depths between 7 feet and 24 feet bgs in the vicinity of the release. Soil analytical results indicated that the petroleum hydrocarbons were detected in soil samples collected from test pits and trenches located approximately 25 feet to the north-northeast, 65 feet to the west, 70 feet to the southwest, and 50 feet to the south-southeast of the block valve. Concentrations of TPH and benzene were detected up to 1,100 parts per million (ppm) in OP-6 at 5 feet bgs and 1.5 ppm in OP-24 at 24.5 feet bgs. Maximum concentrations of toluene, ethylbenzene, and total xylenes were detected at 3.1 ppm, 12 ppm, and 89 ppm, respectively, within soil sample OP-1 at 6 feet bgs. The locations of the test pits are shown on GeoEngineer's Figure 3 of Appendix E.

Following the test pit and trench investigations, approximately 1,950 tons of soils were excavated from areas east and west of the block valve and pipeline. The soil sample collected from the eastern excavation at 6 feet bgs, OP-8, contained a concentration of TPH of 1.6 ppm and was non-detect for BTEX. Soil samples collected the western excavation between 5 feet and 6 feet bgs were non-detect for BTEX but contained concentrations of TPH up to 1.6 ppm. Soil samples collected from the western excavation between 15 feet and 22.5 feet bgs contained concentrations of TPH and/or BTEX up to 4.5 ppm, 3.9 ppm, 5 ppm, 0.54 ppm, and 2.61 ppm, respectively. During excavation activities, GeoEngineers personnel observed thin zones of soil with apparent petroleum hydrocarbon contamination underlying the upper sand layer west of the pipeline. Excavation of these deeper layers of contaminated soil was discontinued due to the logistics associated with the removal of large thicknesses of overlying uncontaminated soil (up to 20 feet) in order to access a thin zone of contaminated soil.

According to GeoEngineers, field screening of soil samples collected during the drilling of wells MW-4 through MW-8 and MW-10 through MW-19 did not indicate the presence of petroleum hydrocarbons and therefore, soil samples were not submitted for laboratory analysis. However, a sample from a depth of 33 feet bgs in boring MW-9 contained a vapor concentration of 1,000 ppm. The soil analytical results of this sample indicated that concentrations of TPH and BTEX were not detected above the laboratory MRLs.

On September 7, 1999, monitoring well MW-17A was installed at the Site to a depth of 30 feet bgs. One soil sample was collected during the installation activities at a depth of 24 feet bgs. Concentrations of TPH-G, TPH-D, and TPH-O were not detected above the laboratory MRLs. On July 31, 2001, monitoring wells MW-20 and MW-21

were installed at the Site to depths of 20 feet and 30 feet bgs, respectively. One soil sample was collected from boring MW-21 at a depth of 16 feet bgs. Concentrations of TPH-G, TPH-D, TPH-O, and BTEX were not detected above the laboratory MRLs or MTCA Method A Cleanup Levels. In June 2003, four air sparge wells (BS-1 through BS-4) were installed at the Site to depths of 38 feet bgs. Composite soil samples were collected during installation of each sparge well for waste characterization purposes. Laboratory analysis indicated that concentrations of TPH-G, TPH-D, TPH-O, and BTEX were not detected above the laboratory MRLs or MTCA Method A Cleanup Levels.

All historical soil analytical data are included within Appendix C. All available boring logs are included as Appendix D. Sample locations and the extent of the excavations are shown on GeoEngineer's Figures 3 and 4 within Appendix E.

6.3 Surface Water

The Green River is the nearest surface water body and is located approximately 570 feet south of the Property. The Green River flows in a general northerly direction to Puget Sound approximately 15 miles north of the Site. With the exception of well MW-18, dissolved-phase petroleum hydrocarbons have not been detected above the MTCA Method A Cleanup Levels and/or laboratory MRLs in groundwater samples collected from monitoring wells located between the Green River and the dissolved-phase plume. Benzene was historically detected in well MW-18 above the MTCA Method A Cleanup Level, but has not been detected above MTCA Method A since 1993. Based on these results, and the fact that there have been no known surface releases near the Green River in association with this Site, a discussion of contaminant occurrence and movement within this media is not necessary.

6.4 Groundwater

Between August and December 1989, nineteen groundwater monitoring wells were installed at the Site. Historical groundwater monitoring data indicate that the dissolved-phase plume extended west of the Property to well MW-10, east of the Property to well MW-9, and down-gradient to wells MW-14 through MW-16. Concentrations of BTEX were historically detected up to 10,000 ppb, 5,000 ppb, 980 ppb, and 4,700 ppb (well MW-8), respectively. In addition, groundwater monitoring conducted between December 1990 and June 1993 indicated that concentrations of benzene exceeded the MTCA Method A Cleanup Level within well MW-18. Concentrations of benzene were detected up to 97 micrograms per liter (µg/L) within this well. However, monitoring conducted since 1999 confirms that concentrations of COCs were not detected above the laboratory MRLs and/or the MTCA Method A Cleanup Levels.

Currently, nine groundwater monitoring wells (MW-9, MW-13, MW-14, MW-16, MW-17A, MW-18 through MW-21) are present at the Site. Groundwater monitoring conducted since 1999 indicates concentrations of TPH-G were detected up to 1,090 µg/L in well MW-16. TPH-G was last detected above the MTCA Method A Cleanup Level in April 2006. TPH-D was detected above the MTCA Method A cleanup level in one sample collected from well MW-9 in 1999; however, concentration of TPH-D have not exceeded MTCA Cleanup Levels in any other groundwater samples, and have primarily remained below laboratory MRLs. Concentrations of TPH-O have not been detected above the laboratory MRLs in all wells sampled. Benzene has not been detected above the MTCA

Method A Cleanup Level since January 2009. All other COCs have been detected below the respective MTCA Method A Cleanup Levels and/or laboratory MRLs for several years.

Historical groundwater monitoring data from previous consultants is contained within Appendix C. A summary of groundwater analytical data and groundwater elevations from 1989 through September 2012 is provided in Table 2. Recent groundwater analytical results from the second half of 2012 are summarized in Table 1 and are shown on Figure 10.

6.5 Sediment

The Green River is the nearest surface water body and is located approximately 570 feet southwest of the Property. No indication of surface water impact has been identified in association with the Site; therefore, discussion of contaminant occurrence and movement within this media is not necessary.

6.6 Air/Soil Vapor

Between September 1989 and August 1990, hydrocarbon vapor concentrations were measured at the well head. Concentrations ranged from less than 100 ppm to greater than 10,000 ppm. Based on current locations and concentrations observed in groundwater, a soil vapor investigation is not warranted. A summary of hydrocarbon vapor concentrations at the well heads is included in Appendix C.

7.0 CONCEPTUAL MODEL

7.1 Contaminant Release, Fate, and Transport

The petroleum release was discovered at the Site in early August 1989, within the vicinity of an OPLC block valve and pipeline ROW. Based on the search that was completed using the Ecology LUST database to identify LUST sites, it is very unlikely that any off-site sources have impacted soil and groundwater at the Site (Section 3.8). Remedial excavation occurred at the Site immediately after discovery of the release. An approximate total of 1,950 tons of soil was excavated and removed from the Site.

Monitoring data indicate that the groundwater flow direction predominantly flows to the southwest (Section 5.3). Wells MW-9, MW-13, MW-14, MW-16, MW-17A, and wells MW-18 through MW-21 have been sampled on an annual basis since 2010 and have been below the TPH-G, TPH-D, TPH-O, and BTEX MTCA Method A Cleanup Levels. Antea Group is currently conducting quarterly sampling and is including all existing monitoring wells (MW-9, MW-13, MW-14, MW-16, MW-17A, and MW-18 through MW-21). Well MW-15 was damaged in March 2011 during sidewalk/levee improvements and may need to be replaced. Third and fourth quarter 2012 groundwater analytical data indicate that none of the wells contained concentrations of TPH-G, TPH-D, TPH-O, BTEX, EDB, EDC, MTBE, or total lead above the MTCA Method A Cleanup Levels.

7.2 Potential and Actual Receptors

A complete exposure pathway consists of: (1) an identified contaminant source, (2) a transport pathway to locations (exposure points) where potential receptors may come in contact with COCs and, (3) an exposure route (e.g., ingestion) through which potential receptors may become exposed to COCs.

Based on soil data from 1989, most of the soil impacts were excavated. However, some areas of soil known to be impacted with petroleum hydrocarbons were left in place. It is possible that future construction at the Site could encounter petroleum hydrocarbon-impacted soils, making the direct contact pathway a complete potential receptor. However, the depth to the soils with historic concentrations of COCs above MTCA Method A Cleanup Levels make this unlikely.

The adjacent Property down-gradient from the block valve Property is paved which does not allow a complete soil to outdoor air vapor exposure pathway. Other areas at the Site, including the up-gradient portion near well MW-9 and the down-gradient Foster Industrial Park are un-paved, vegetated land; therefore, it is possible a soil to outdoor air vapor exposure pathway is complete. However, present concentrations in groundwater make this pathway unlikely.

Due to the proximity of the Valley Freeway Building to the block valve Property and the location of historic impacts, the vapor intrusion pathway to indoor air may be a complete exposure pathway. Although groundwater has been in compliance with the MTCA Method A Cleanup Levels in the closest down-gradient well from the block valve Property (well MW-13) since 2010, additional assessment between the block valve Property and the Valley Freeway Building is planned to confirm current soil conditions.

A search completed within the Ecology Well Log database indicates two water supply wells are located within a one-mile radius of the Property. Both wells are irrigation water wells located approximately 4,000 feet northwest of the Site. The distance and cross-gradient nature of these wells makes impact from contaminants associated with the Property unlikely.

The Green River is the nearest surface water body and is located approximately 570 feet south of the Property. The Green River flows in a general northerly direction to Puget Sound approximately 15 miles north of the Site. The lower 12 miles of the Green River is referred to as the Duwamish River. With the exception of well MW-18, petroleum contaminants have not been detected above the MTCA Method A Cleanup Levels and/or laboratory MRLs in groundwater samples collected from monitoring wells located between the Green River and the dissolved-phase plume. Benzene has historically been detected in well MW-18 above the MTCA Method A Cleanup Levels, but has not been detected above laboratory MRLs since 1993. Therefore, the groundwater to surface water pathway is not complete and surface water is not a potential receptor.

The impacts at the Site immediately down-gradient of the release area are covered by buildings or pavement which indicates that plant and wildlife exposure to COCs is incomplete and therefore, should be excluded from further terrestrial ecological evaluation. However, up-gradient and further down-gradient areas are covered with grass. Although current concentrations of petroleum hydrocarbons are below MTCA Method A Cleanup Levels, a site-specific TEE may be warranted.

7.3 Data Gaps

The groundwater analytical data gathered from the Site indicates that the petroleum hydrocarbon concentrations previously detected in the soil have decreased and are likely present at concentrations below MTCA Method A Cleanup Levels. Confirmation soil samples may need to be collected in order to assess current soil conditions. In addition, current soil conditions between the block valve Property and the Valley Freeway Building are unknown and will be assessed in the future.

8.0 CLEANUP STANDARDS

Groundwater beneath the Site could potentially be used for drinking water. MTCA Method A Cleanup Levels for soil and groundwater are applicable for the Site. Cleanup Levels for the COCs in soil and groundwater are included in Table 4.

9.0 AREAS REQUIRING CLEANUP

9.1 Constituents of Concern

The constituents of concern associated with the Property release include TPH-G, TPH-D, TPH-O, and BTEX compounds.

9.2 Soil – Vertical and Lateral

During excavation activities following the initial response to the release, soil known to be impacted with petroleum hydrocarbons was left in place due to the impractical excavation logistics. Current groundwater analytical data suggest that petroleum hydrocarbons in soil have naturally attenuated. With the exception of limited soil data collected during the installation of air sparge wells BS-1 through BS-4, MW-17A, and MW-21 a full subsurface investigation has not been completed at the Site since 1989. Therefore, a subsurface investigation is warranted to assess current soil conditions, particularly in the area of the original release.

9.3 Groundwater – Vertical and Lateral

Monitoring data indicate that groundwater migration is predominately to the southwest. Groundwater analytical results from the most recent sampling events (September and November 2012) indicate that concentrations of COCs within all existing wells on-site were below the MTCA Method A Cleanup Levels and/or laboratory MRLs.

Antea Group has been conducting groundwater monitoring and sampling at wells MW-9, MW-13, MW-14, MW-16, MW-17A, and wells MW-18 through MW-21 on an annual basis since 2010. As concentrations of petroleum hydrocarbons in groundwater trend toward laboratory MRLs, Antea Group has transitioned to a quarterly groundwater monitoring and sampling program. To date, two consecutive quarters of groundwater concentrations below MTCA Method A Cleanup Levels has been collected from all monitoring wells associated with the Site.

9.4 Surface Water

The Green River is the nearest surface water body and is located approximately 570 feet south of the Property. No indication of surface water impact has been identified in association with the Site, and downgradient monitoring wells near the River are non-detect for petroleum constituents; therefore, impact to surface water is not likely and no action is required.

9.5 Sediment

The Green River is the nearest surface water body and is located approximately 570 feet south of the Property. No indication of surface water impact has been identified in association with the Site; therefore, impact to sediment is not likely and no action is required.

9.6 Soil Vapor/Air

Between September 1989 and August 1990 hydrocarbon vapor concentrations were measured at the well head. Concentrations ranged from less than 100 ppm to greater than 10,000 ppm. Based on current concentrations

observed in groundwater, soil vapor concentrations of petroleum hydrocarbons are not likely to pose a risk to human health an no action is required at this time.

10.0 CONCLUSIONS

Prior to a real estate transaction, GeoEngineers conducted a subsurface investigation at the Site on August 23, 1989. During the investigation, petroleum hydrocarbons were discovered in groundwater in the vicinity of an OPLC block valve and pipeline ROW. On August 24, 1989, OPLC performed an inspection of the block valve and identified and repaired a leak. The volume of the release is not known. GeoEngineers was contracted by OPLC to perform remedial excavation activities at the Site and approximately 1,950 tons of contaminated soil was removed from the Site. Areas of soil known to be impacted with petroleum hydrocarbons were left in place due to the risk of compromising the structural integrity of the pipeline and due to the impractical logistics of further excavation to the west of the block valve Property.

Following the remedial excavation, 16 groundwater monitoring wells were installed (MW-4 through MW-19). Between 1999 and 2001, three additional groundwater monitoring wells (MW-17A, MW-20, and MW-21) were installed to further delineate the extent of petroleum hydrocarbons in groundwater and subsurface soils. In 2003, four air-sparge wells (BS-1 through BS-4) were installed and sparging commenced on January 21, 2004. Additionally, ORC socks and ELR events were conducted to reduce concentrations of petroleum hydrocarbons in the subsurface. However, these remedial techniques proved to be ineffective and were ceased. Since 2004, monitored natural attenuation has been the remedial approach. As concentrations of petroleum hydrocarbons continue to trend towards laboratory MRLs, Antea Group has transitioned to quarterly groundwater monitoring and sampling. To date, two consecutive quarters of groundwater concentrations below MTCA Method A Cleanup Levels has been collected from all monitoring wells associated with the Site.

Based on remedial actions completed to date, and groundwater analytical trends, it is Antea Group's opinion that four consecutive quarters of groundwater concentrations below MTCA Method A Cleanup Levels will have been obtained following the second quarter 2013 sampling event. Subsequent to the submittal of this RI, Antea Group will submit the Site into the VCP, and request an *Opinion Letter* on additional data necessary to obtain a No Further Action determination from Ecology.

11.0 REFERENCES

Report of Geoenvironmental Services, Subsurface Contamination Study and Remedial Action Monitoring – October 1, 1990, GeoEngineers.

Results of Groundwater Monitoring and Monitoring Well Replacement – October 1, 1999, GeoEngineers

Supplemental Site Characterization –September 18, 2001, GeoEngineers

June 2003 Drilling and Quarterly Groundwater Monitoring Report – August 11, 2003, GeoEngineers

12.0 REMARKS

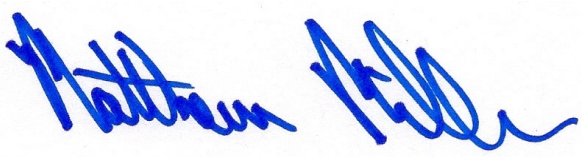
The recommendations contained in this report represent Antea USA, Inc.'s professional opinions based upon the currently available information and are arrived at in accordance with currently accepted professional standards. This report is based upon a specific scope of work requested by the client. The contract between Antea USA, Inc. and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report were performed. This report is intended only for the use of Antea USA, Inc.'s client and anyone else specifically identified in writing by Antea USA, Inc. as a user of this report. Antea USA, Inc. will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Antea USA, Inc. makes no express or implied warranty as to the contents of this report.

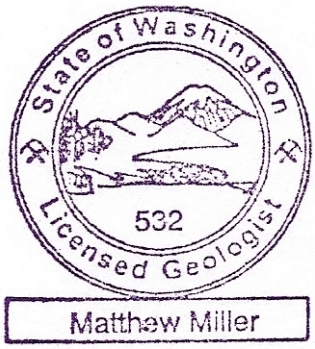
Prepared by:

Date: December 31, 2012

Megan Richard
Project Professional

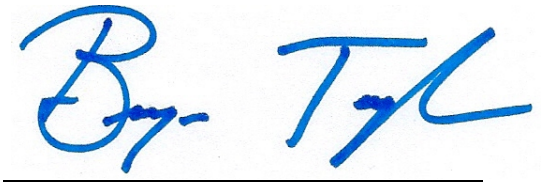
Reviewed by:





Date: December 31, 2012

Matthew Miller, LG
Project Manager



Date: December 31, 2012

Bryan Taylor
Senior Project Manager

Tables

TABLE 1
2012 GROUNDWATER GAUGING AND ANALYTICAL DATA
Olympic Pipe Line Company
Kent Block Valve
74th Ave S S 259th St
Kent, Washington

Sample I.D.	Sample Date	TOC (feet)	DTW (feet)	SPH (feet)	GWE (feet)	TPH-Gasoline (µg/l)	TPH-Diesel (µg/l)	TPH-Oil (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Xylenes (µg/l)	EDC (µg/l)	EDB (µg/l)	MTBE (µg/l)	Total Lead (µg/l)
MW-9	09/12/12	95.21	19.43	--	75.78	<50.0	<78.4	<392	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<10.0
	11/07/12	95.21	16.81	--	78.40	<100	<200	<200	<1.0	<1.0	<1.0	<3.0	--	--	--	9.4
MW-13	09/12/12	97.41	20.55	--	76.86	<50.0	<78.4	<392	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<10.0
	11/07/12	97.41	17.78	--	79.63	<100	<200	<200	<1.0	<1.0	<1.0	<3.0	--	--	--	11.3
MW-14	09/12/12	97.15	21.33	--	75.82	<50.0	131	<392	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<10.0
	11/07/12	97.15	18.31	--	78.84	<100	<200	<200	<1.0	<1.0	<1.0	<3.0	--	--	--	<3.0
MW-15	09/12/12	96.84	WD	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/07/12	96.84	WD	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-16	09/12/12	97.32	21.92	--	75.40	<50.0	<78.4	<392	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<10.0
	11/07/12	97.32	19.15	--	78.17	170	<200	<200	<1.0	<1.0	<1.0	<3.0	--	--	--	7.2
MW-17A	09/12/12	97.96	23.46	--	74.50	<50.0	<78.4	<392	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<10.0
	11/07/12	97.96	20.55	--	77.41	<100	<200	<200	<1.0	<1.0	<1.0	<3.0	--	--	--	8.0
MW-18	09/12/12	98.24	23.63	--	74.61	<50.0	<78.4	<392	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<10.0
	11/07/12	98.24	21.01	--	77.23	<100	<200	<200	<1.0	<1.0	<1.0	<3.0	--	--	--	<3.0
MW-19	09/12/12	98.45	23.68	--	74.77	<50.0	<78.4	<392	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<10.0
	11/07/12	98.45	21.15	--	77.30	<100	<200	<200	<1.0	<1.0	<1.0	<3.0	--	--	--	<3.0
MW-20	09/12/12	96.50	15.62	--	80.88	<50.0	<78.4	<392	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<10.0
	11/07/12	96.50	13.27	--	83.23	<100	<167	<167	<1.0	<1.0	<1.0	<3.0	--	--	--	<3.0
MW-21	09/12/12	96.82	21.28	--	75.54	<50.0	<78.4	<392	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<10.0
	11/07/12	96.82	18.31	--	78.51	<100	<200	<200	<1.0	<1.0	<1.0	<3.0	--	--	--	<3.0

TABLE 1
2012 GROUNDWATER GAUGING AND ANALYTICAL DATA
Olympic Pipe Line Company
Kent Block Valve
74th Ave S S 259th St
Kent, Washington

Sample I.D.	Sample Date	TOC (feet)	DTW (feet)	SPH (feet)	GWE (feet)	TPH-Gasoline (µg/l)	TPH-Diesel (µg/l)	TPH-Oil (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Xylenes (µg/l)	EDC (µg/l)	EDB (µg/l)	MTBE (µg/l)	Total Lead (µg/l)
MTCA Method A Cleanup Levels:						**800***	**500**	**500**	**5**	**1000**	**700**	**1000**	**5**	**0.01**	**20**	**15**
Laboratory Reporting Limits						***Varies - see laboratory analytical report for values.***										

Notes:
µg/l = micrograms per liter
TOC = Top of casing elevation, feet above mean sea level
DTW = Depth to water, feet below ground surface
NL = Not located
NG = Not gauged
WD = Well damaged
SPH = Separate-phase hydrocarbon thickness
GWE = Groundwater elevation, feet above mean sea level
<N = Not detected at the laboratory reporting limits
-- = Not sampled, not measured, or not analyzed
Water table elevation corrected for separate-phase hydrocarbons
TPH as Gasoline = Total petroleum hydrocarbons as gasoline by Method NWTPH-Gx
TPH as Diesel = Total petroleum hydrocarbons as diesel by Method NWTPH-Dx with silica gel cleanup
TPH as Oil = Total petroleum hydrocarbons as oil by Method NWTPH-Dx with silica gel cleanup
BTEX = Benzene, toluene, ethylbenzene, and total xylenes andalyzed by EPA Method 8260
MTBE = Methyl-tert-butyl Ether analyzed by EPA Method 8260
EDC = 1,2-Dichloroethane analyzed by EPA Method 8260
EDB = 1,2-Dibromoethane analyzed by EPA Method 8260
Total lead by EPA Method 6010
* MTCA Method A Cleanup Level for TPH-Gasoline is 1000 (µg/l) if benzene is not detectable in groundwater.

TABLE 2
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA
OPLC KENT BLOCK VALVE
74TH AVE SOUTH & SOUTH 259TH STREET
KENT, WASHINGTON

Well I.D.	Date	GROUNDWATER GAUGING DATA					GROUNDWATER ANALYTICAL DATA										
		TOC Elevation (ft)	Depth to LNAPL (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPH-G (C6-C12) (UG/L)	TPH-D (C12-C24) (UG/L)	TPH-O (C24-C40) (UG/L)	Benzene (UG/L)	Toluene (UG/L)	Ethylbenzene (UG/L)	Xylene (Total) (UG/L)	MTBE (UG/L)	EDB (UG/L)	EDC (UG/L)	TOTAL PB (UG/L)
Applied Action Level: 2007 MTCA Method A							**800**	**500**	**500**	**5**	**1000**	**700**	**1000**	**20**	**0.01**	**5**	**15**
MW-9	9/20/1989	95.21	NG	NG	NG	NG	--	--	--	ND	ND	ND	ND				
	12/20/1989	95.21	NG	NG	NG	NG	--	--	--	4.8	86	25	120				
	1/23/1990	95.21	NG	NG	NG	NG	--	--	--	4.8	85	53	240				
	2/20/1990	95.21	NG	NG	NG	NG	--	--	--	**14**	38	41	120				
	3/20/1990	95.21	NG	NG	NG	NG	--	--	--	**26**	6.3	38	110				
	4/23/1990	95.21	NG	NG	NG	NG	--	--	--	**23**	6.7	42	81				
	12/13/1990	95.21	NG	NG	NG	NG	--	--	--	0.9	1.6	15	30				
	8/26/1992	95.21	NG	NG	NG	NG	--	--	--	3.3	ND	0.9	1.3				
	6/3/1993	95.21	NG	NG	NG	NG	--	--	--	ND	ND	ND	ND				
	8/17/1999	95.21	NP	18.82	NP	76.39	<50	**530**	--	<0.5	<0.5	<0.5	<1				
	3/17/2000	95.21	NP	16.1	NP	79.11	<50	<250	--	<0.5	<0.5	<0.5	<1				
	6/22/2000	95.21	NP	16.88	NP	78.33	<80	--	--	<0.5	<0.5	<0.5	<1				
	7/31/2000	95.21	NP	19.22	NP	75.99	<50	<250	--	<0.5	<0.5	<0.5	<1				
	9/27/2000	95.21	NP	19.31	NP	75.9	<50	<250	--	<0.5	<0.5	<0.5	<1				
	12/27/2000	95.21	NP	18	NP	77.21	<50	<250	--	<0.5	<0.5	<0.5	<1				
	3/30/2001	95.21	NP	23	NP	72.21	<50	--	--	<0.5	<0.5	<0.5	<1				
	7/11/2001	95.21	NP	18.06	NP	77.15	<50	--	--	<0.5	<0.5	<0.5	<1				
	9/26/2001	95.21	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI	WI				
	12/27/2001	95.21	NP	14.41	NP	80.8	<50	--	--	<0.5	<0.5	<0.5	<1				
	3/14/2002	95.21	NP	14.5	NP	80.71	<50	--	--	<0.5	<0.5	<0.5	<1				
	6/17/2003	95.21	NP	18.04	NP	77.17	<50	--	--	<0.5	<0.5	<0.5	<1				
	3/1/2004	95.21	NP	23.05	NP	72.16	<50	--	--	<0.5	<0.5	<0.5	<1				
	6/1/2004	95.21	NP	13.82	NP	81.39	<50	--	--	<0.5	<0.5	<0.5	<1				
	9/1/2004	95.21	NP	18.37	NP	76.84	<50	--	--	<0.5	<0.5	<0.5	<1				
	10/18/2004	95.21	NP	17.38	NP	77.83	<80	--	--	<0.5	<0.5	<0.5	<1				
	7/27/2005	95.21	NP	18.63	NP	76.58	--	--	--	--	--	--	--				
	4/11/2006	95.21	NG	NG	NG	NG	--	--	--	--	--	--	--				
	5/4/2007	95.21	NG	NG	NG	NG	--	--	--	--	--	--	--				
	9/5/2007	95.21	NP	19.39	NP	75.82	--	--	--	--	--	--	--				
	2/12/2008	95.21	NG	NG	NG	NG	--	--	--	--	--	--	--				
	7/17/2008	95.21	NG	NG	NG	NG	--	--	--	--	--	--	--				
	3/3/2010	95.21	NP	17.39	NP	77.82	--	--	--	--	--	--	--				
	3/3/2011	95.21	NP	16.32	NP	78.89	--	--	--	--	--	--	--				
	9/12/2012	95.21	NP	19.43	NP	75.78	<50.0	<78.4	<392	<1	<1	<1	<3	<1.0	<1.0	<1.0	<10.0

TABLE 2
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA
OPLC KENT BLOCK VALVE
74TH AVE SOUTH & SOUTH 259TH STREET
KENT, WASHINGTON

Well I.D.	Date	GROUNDWATER GAUGING DATA					GROUNDWATER ANALYTICAL DATA										
		TOC Elevation (ft)	Depth to LNAPL (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPH-G (C6-C12) (UG/L)	TPH-D (C12-C24) (UG/L)	TPH-O (C24-C40) (UG/L)	Benzene (UG/L)	Toluene (UG/L)	Ethylbenzene (UG/L)	Xylene (Total) (UG/L)	MTBE (UG/L)	EDB (UG/L)	EDC (UG/L)	TOTAL PB (UG/L)
Applied Action Level: 2007 MTCA Method A							**800**	**500**	**500**	**5**	**1000**	**700**	**1000**	**20**	**0.01**	**5**	**15**
MW-13	10/18/1989	97.41	NG	NG	NG	NG	--	--	--	3.4	ND	ND	ND				
	12/21/1989	97.41	NG	NG	NG	NG	--	--	--	2.5	ND	ND	ND				
	1/23/1990	97.41	NG	NG	NG	NG	--	--	--	3.3	ND	ND	ND				
	2/20/1990	97.41	NG	NG	NG	NG	--	--	--	**20**	9.3	1.7	8				
	3/21/1990	97.41	NG	NG	NG	NG	--	--	--	**29**	37	13	64				
	4/23/1990	97.41	NG	NG	NG	NG	--	--	--	**49**	5.8	26	110				
	8/26/1992	97.41	NG	NG	NG	NG	--	--	--	**9.5**	0.5	1.6	3.7				
	6/3/1993	97.41	NG	NG	NG	NG	--	--	--	3.8	ND	0.6	2.1				
	8/17/1999	97.41	NP	19.5	NP	77.91	370	<250	--	**66.5**	3.45	2.63	28.8				
	3/17/2000	97.41	NP	17.72	NP	79.69	<50	<250	--	1.46	<0.5	<0.5	<1				
	6/22/2000	97.41	NP	18.38	NP	79.03	<80	--	--	1.35	<0.5	<0.5	<1				
	7/31/2000	97.41	NP	20.05	NP	77.36	222	<250	--	**40**	<1.05	<0.5	<1				
	9/27/2000	97.41	NP	20.96	NP	76.45	284	<250	--	**47.5**	<1.66	<1	8.99				
	12/27/2000	97.41	NP	20.68	NP	76.73	53.6	<250	--	<0.653	0.964	<0.5	1.61				
	3/30/2001	97.41	NP	18.77	NP	78.64	<50	--	--	1.03	<0.5	<0.5	2.89				
	7/11/2001	97.41	NP	20.91	NP	76.5	114	--	--	2.52	<0.5	<0.5	3.26				
	9/26/2001	97.41	NP	21.72	NP	75.69	144	--	--	2.66	<0.5	<0.5	3.74				
	12/27/2001	97.41	NP	17.59	NP	79.82	70.4	--	--	1.57	<0.5	<0.5	1.67				
	3/14/2002	97.41	NP	17.9	NP	79.51	<50	--	--	0.61	<0.5	<0.5	<1				
	6/17/2003	97.41	NP	20.83	NP	76.58	55	--	--	<0.5	<0.5	<0.5	<1				
	3/1/2004	97.41	NP	19.2	NP	78.21	88.5	--	--	0.574	<0.5	<0.5	1.59				
	6/1/2004	97.41	NP	16.56	NP	80.85	<50	--	--	0.574	<0.5	<0.5	<1				
	9/1/2004	97.41	NP	20.99	NP	76.42	<50	--	--	0.658	<0.5	<0.5	<1				
	10/18/2004	97.41	NP	20.18	NP	77.23	86.1	--	--	0.747	<0.5	<0.5	<1				
	7/27/2005	97.41	NP	20.92	NP	76.49	115	--	--	0.956	<0.5	<0.5	<1				
	4/11/2006	97.41	NP	17.25	NP	80.16	58.6	<243	--	0.614	<0.5	<0.5	<1				
	5/4/2007	97.41	NP	18.07	NP	79.34	65.3	<236	--	<0.5	<0.5	<0.5	<1				
	9/5/2007	97.41	NP	20.61	NP	76.8	249	<236	--	**8.4**	<0.5	<0.5	<1				
	2/12/2008	97.41	NP	14.08	NP	83.33	55	<240	--	<0.5	<0.5	<0.5	<1				
	7/17/2008	97.41	NP	18.99	NP	78.42	<50	<243	<485	0.64	<0.5	<0.5	<1				
	1/12/2009	97.41	NP	15.53	NP	81.88	550	<238	<476	**12.5**	0.94	<0.5	1.93				
	3/3/2010	97.41	NP	18.52	NP	78.89	<50	<120	260	<1	<1	<1	<2				
	3/3/2011	97.41	NP	17.22	NP	80.19	<50	<75	<380	<1	<1	<1	<3				
	9/12/2012	97.41	NP	20.55	NP	76.86	<50.0	<78.4	<392	<1	<1	<1	<3	<1.0	<1.0	<1.0	<10.0

TABLE 2
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA
OPLC KENT BLOCK VALVE
74TH AVE SOUTH & SOUTH 259TH STREET
KENT, WASHINGTON

Well I.D.	Date	GROUNDWATER GAUGING DATA					GROUNDWATER ANALYTICAL DATA										
		TOC Elevation (ft)	Depth to LNAPL (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPH-G (C6-C12) (UG/L)	TPH-D (C12-C24) (UG/L)	TPH-O (C24-C40) (UG/L)	Benzene (UG/L)	Toluene (UG/L)	Ethylbenzene (UG/L)	Xylene (Total) (UG/L)	MTBE (UG/L)	EDB (UG/L)	EDC (UG/L)	TOTAL PB (UG/L)
Applied Action Level: 2007 MTCA Method A							**800**	**500**	**500**	**5**	**1000**	**700**	**1000**	**20**	**0.01**	**5**	**15**
MW-14	11/10/1989	97.15	NG	NG	NG	NG	--	--	--	**1800**	22	41	170				
	12/20/1989	97.15	NG	NG	NG	NG	--	--	--	**160**	1.6	6.5	18				
	1/23/1990	97.15	NG	NG	NG	NG	--	--	--	**110**	1	ND	6.8				
	2/21/1990	97.15	NG	NG	NG	NG	--	--	--	**14**	ND	ND	1.3				
	3/21/1990	97.15	NG	NG	NG	NG	--	--	--	**530**	6.9	20	47				
	4/23/1990	97.15	NG	NG	NG	NG	--	--	--	**360**	2.2	1.9	7.8				
	5/18/1990	97.15	NG	NG	NG	NG	--	--	--	**500**	4.3	4.2	14				
	12/13/1990	97.15	NG	NG	NG	NG	--	--	--	**16**	ND	ND	ND				
	10/7/1991	97.15	NG	NG	NG	NG	--	--	--	**8.4**	ND	ND	ND				
	8/26/1992	97.15	NG	NG	NG	NG	--	--	--	ND	ND	ND	ND				
	6/3/1993	97.15	NG	NG	NG	NG	--	--	--	ND	ND	ND	ND				
	8/17/1999	97.15	NP	20.84	NP	76.31	<50	269	--	<0.5	<0.5	<0.5	<1				
	3/17/2000	97.15	NP	18.08	NP	79.07	<50	<250	--	<0.5	<0.5	<0.5	<1				
	6/22/2000	97.15	NP	18.86	NP	78.29	<80	--	--	1.91	0.888	<0.5	2.49				
	7/31/2000	97.15	NP	21.25	NP	75.9	<50	<250	--	<0.5	<0.5	<0.5	<1				
	9/27/2000	97.15	NP	21.45	NP	75.7	<50	<250	--	<0.5	<0.5	<0.5	<1				
	12/27/2000	97.15	NP	20.82	NP	76.33	<50	<250	--	<0.5	<0.5	<0.5	<1				
	3/30/2001	97.15	NP	18.67	NP	78.48	<50	--	--	<0.5	<0.5	<0.5	<1				
	7/11/2001	97.15	NP	20.7	NP	76.45	<50	--	--	<0.5	<0.5	<0.5	<1				
	9/26/2001	97.15	NP	21.53	NP	75.62	<50	--	--	<0.5	<0.5	<0.5	<1				
	12/27/2001	97.15	NP	17.05	NP	80.1	<50	--	--	<0.5	<0.5	<0.5	<1				
	3/14/2002	97.15	NP	17.72	NP	79.43	<50	--	--	<0.5	<0.5	<0.5	<1				
	6/17/2003	97.15	NP	20.6	NP	76.55	<50	--	--	<0.5	<0.5	<0.5	<1				
	3/1/2004	97.15	NP	19.01	NP	78.14	<50	--	--	<0.5	<0.5	<0.5	<1				
	6/1/2004	97.15	NP	16.57	NP	80.58	<50	--	--	<0.5	<0.5	<0.5	<1				
	9/1/2004	97.15	NP	20.81	NP	76.34	<50	--	--	<0.5	<0.5	<0.5	<1				
	10/18/2004	97.15	NP	20.21	NP	76.94	<80	--	--	<0.5	<0.5	<0.5	<1				
	7/27/2005	97.15	NP	21.02	NP	76.13	<80	--	--	<0.5	<0.5	<0.5	<1				
	4/11/2006	97.15	NG	NG	NG	NG	--	--	--	--	--	--	--				
	5/4/2007	97.15	NG	NG	NG	NG	--	--	--	--	--	--	--				
	9/5/2007	97.15	NG	NG	NG	NG	--	--	--	--	--	--	--				
	2/12/2008	97.15	NG	NG	NG	NG	--	--	--	--	--	--	--				
	7/17/2008	97.15	NG	NG	NG	NG	--	--	--	--	--	--	--				
	3/3/2010	97.15	NL	NL	NL	NL	--	--	--	--	--	--	--				
	3/3/2011	97.15	NP	17.99	NP	79.16	--	--	--	--	--	--	--				
	9/12/2012	97.15	NP	21.33	NP	75.82	<50.0	131	<392	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<10.0

TABLE 2
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA
OPLC KENT BLOCK VALVE
74TH AVE SOUTH & SOUTH 259TH STREET
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Well I.D.	Date	GROUNDWATER GAUGING DATA					GROUNDWATER ANALYTICAL DATA										
		TOC Elevation (ft)	Depth to LNAPL (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPH-G (C6-C12) (UG/L)	TPH-D (C12-C24) (UG/L)	TPH-O (C24-C40) (UG/L)	Benzene (UG/L)	Toluene (UG/L)	Ethylbenzene (UG/L)	Xylene (Total) (UG/L)	MTBE (UG/L)	EDB (UG/L)	EDC (UG/L)	TOTAL PB (UG/L)
Applied Action Level: 2007 MTCA Method A							**800**	**500**	**500**	**5**	**1000**	**700**	**1000**	**20**	**0.01**	**5**	**15**
MW-15	11/10/1989	96.84	NG	NG	NG	NG	--	--	--	**99**	ND	ND	1				
	12/20/1989	96.84	NG	NG	NG	NG	--	--	--	**200**	2.2	1.7	6.4				
	1/23/1990	96.84	NG	NG	NG	NG	--	--	--	**120**	1.4	ND	2.6				
	2/21/1990	96.84	NG	NG	NG	NG	--	--	--	**48**	ND	ND	0.7				
	3/21/1990	96.84	NG	NG	NG	NG	--	--	--	**53**	0.5	ND	0.5				
	4/23/1990	96.84	NG	NG	NG	NG	--	--	--	**53**	ND	ND	ND				
	5/18/1990	96.84	NG	NG	NG	NG	--	--	--	**59**	ND	ND	ND				
	12/13/1990	96.84	NG	NG	NG	NG	--	--	--	**450**	120	17	97				
	10/7/1991	96.84	NG	NG	NG	NG	--	--	--	**350**	6.6	16	50				
	8/26/1992	96.84	NG	NG	NG	NG	--	--	--	**380**	3.6	21	66				
	6/3/1993	96.84	NG	NG	NG	NG	--	--	--	**370**	4.1	15	52				
	8/17/1999	96.84	NP	21.1	NP	75.74	<50	<250	--	**611**	12	23.4	72.7				
	3/17/2000	96.84	NP	18.33	NP	78.51	140	<250	--	**300**	4.19	0.064	20.5				
	6/22/2000	96.84	NP	19.02	NP	77.82	<800	--	--	**631**	13	11.6	55.7				
	7/31/2000	96.84	NP	21.3	NP	75.54	94.7	<250	--	**72.1**	1.33	<0.5	6.59				
	9/27/2000	96.84	NP	21.6	NP	75.24	<1000	<250	--	**637**	11	41.8	64.3				
	12/27/2000	96.84	NP	20.88	NP	75.96	587	<250	--	**547**	8.72	40.2	58.5				
	3/30/2001	96.84	NP	18.59	NP	78.25	<50	--	--	<0.5	<0.5	<0.5	<1				
	7/11/2001	96.84	NP	20.72	NP	76.12	<50	--	--	<0.5	<0.5	<0.5	<1				
	9/26/2001	96.84	NP	21.54	NP	75.3	<50	--	--	<0.5	<0.5	<0.5	<1				
	12/27/2001	96.84	NP	17.73	NP	79.11	566	--	--	**212**	7.19	<2.5	16.8				
	3/14/2002	96.84	NP	17.98	NP	78.86	586	--	--	**320**	3.78	<0.5	15.5				
	6/17/2003	96.84	NP	20.83	NP	76.01	**1020**	--	--	**386**	4.86	0.555	16.8				
	3/1/2004	96.84	NP	19.29	NP	77.55	<50	--	--	<0.5	<0.5	<0.5	<1				
	6/1/2004	96.84	NP	16.27	NP	80.57	163	--	--	**59**	0.966	<0.5	2.55				
	9/1/2004	96.84	NP	20.78	NP	76.06	389	--	--	**125**	2.07	<0.5	5.52				
	10/18/2004	96.84	NP	19.99	NP	76.85	662	--	--	**253**	<2.5	<2.5	<5				
	7/27/2005	96.84	NP	21.36	NP	75.48	414	--	--	**188**	2.32	<1	9.07				
	4/11/2006	96.84	NP	19.32	NP	77.52	544	<250	--	**145**	2.28	<0.5	9.05				
	5/4/2007	96.84	NP	19.08	NP	77.76	159	<236	--	**18.8**	<0.5	<0.5	<1				
	9/5/2007	96.84	NP	21.67	NP	75.17	105	<236	--	0.99	<0.5	<0.5	1.27				
	2/12/2008	96.84	NP	14.9	NP	81.94	248	<243	--	**16.4**	0.97	<0.5	5.49				
	7/17/2008	96.84	NP	20.21	NP	76.63	384	<243	<485	**24.7**	1.54	<0.5	6.84				
	1/12/2009	96.84	NP	15.53	NP	81.31	289	<236	<472	0.829	1.01	<0.5	4.84				
	3/3/2010	96.84	NP	19.79	NP	77.05	<50	<120	<240	<1	<1	<1	<2				
	9/12/2012	96.84	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD

TABLE 2
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA
OPLC KENT BLOCK VALVE
74TH AVE SOUTH & SOUTH 259TH STREET
KENT, WASHINGTON

Well I.D.	Date	GROUNDWATER GAUGING DATA					GROUNDWATER ANALYTICAL DATA										
		TOC Elevation (ft)	Depth to LNAPL (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPH-G (C6-C12) (UG/L)	TPH-D (C12-C24) (UG/L)	TPH-O (C24-C40) (UG/L)	Benzene (UG/L)	Toluene (UG/L)	Ethylbenzene (UG/L)	Xylene (Total) (UG/L)	MTBE (UG/L)	EDB (UG/L)	EDC (UG/L)	TOTAL PB (UG/L)
Applied Action Level: 2007 MTCA Method A							**800**	**500**	**500**	**5**	**1000**	**700**	**1000**	**20**	**0.01**	**5**	**15**
MW-16	12/19/1989	97.32	NG	NG	NG	NG	--	--	--	**98**	1.1	ND	ND				
	1/23/1990	97.32	NG	NG	NG	NG	--	--	--	**560**	6.8	2.4	5.5				
	2/21/1990	97.32	NG	NG	NG	NG	--	--	--	**750**	320	64	360				
	3/21/1990	97.32	NG	NG	NG	NG	--	--	--	**720**	400	63	310				
	4/23/1990	97.32	NG	NG	NG	NG	--	--	--	**1200**	740	140	630				
	5/18/1990	97.32	NG	NG	NG	NG	--	--	--	**780**	750	97	470				
	12/13/1990	97.32	NG	NG	NG	NG	--	--	--	**590**	98	26	130				
	10/7/1991	97.32	NG	NG	NG	NG	--	--	--	**840**	180	99	400				
	8/26/1992	97.32	NG	NG	NG	NG	--	--	--	**520**	20	150	480				
	6/3/1993	97.32	NG	NG	NG	NG	--	--	--	**420**	14	170	380				
	8/17/1999	97.32	NP	21.37	NP	75.95	710	256	--	**48.6**	3.4	3.99	30.1				
	3/17/2000	97.32	NP	18.76	NP	78.56	**981**	<250	--	**168**	8	39.4	71.7				
	6/22/2000	97.32	NP	19.31	NP	78.01	132	--	--	**12.6**	1.25	<0.5	4.15				
	7/31/2000	97.32	NP	21.7	NP	75.62	580	<250	--	**61**	4.19	1.07	20.8				
	9/27/2000	97.32	NP	21.71	NP	75.61	623	<250	--	**55.4**	4.72	3.34	18.4				
	12/27/2000	97.32	NP	21.15	NP	76.17	473	<250	--	**34.7**	2.83	<0.5	9.18				
	3/30/2001	97.32	NP	18.84	NP	78.48	649	--	--	**30.6**	2.66	<0.5	4.42				
	7/11/2001	97.32	NP	21.04	NP	76.28	538	--	--	**33.8**	2.36	<0.5	6.08				
	9/26/2001	97.32	NP	21.79	NP	75.53	305	--	--	**22.1**	1.51	<0.5	3.24				
	12/27/2001	97.32	NP	17.99	NP	79.33	468	--	--	**23.7**	2.48	<0.5	5.69				
	3/14/2002	97.32	NP	18.25	NP	79.07	630	--	--	**95.7**	3.78	5.54	6.69				
	6/17/2003	97.32	NP	21.08	NP	76.24	383	--	--	**20.2**	2.29	<0.5	3.29				
	3/1/2004	97.32	NP	19.57	NP	77.75	127	--	--	**7.26**	0.68	<0.5	1.11				
	6/1/2004	97.32	NP	16.52	NP	80.8	226	--	--	**15.3**	1.2	<0.5	1.06				
	9/1/2004	97.32	NP	21.03	NP	76.29	314	--	--	**15.7**	1.58	<0.5	1.37				
	10/18/2004	97.32	NP	20.2	NP	77.12	<80	--	--	2.7	<0.5	<0.5	<1				
	7/27/2005	97.32	NP	21.65	NP	75.67	122	--	--	4.27	0.523	<0.5	1.2				
	4/11/2006	97.32	NP	19.59	NP	77.73	**1090**	<258	--	**152**	3.84	70.6	3.7				
	5/4/2007	97.32	NP	19.35	NP	77.97	578	<236	--	**22.3**	0.58	4.77	<1				
	9/5/2007	97.32	NP	21.95	NP	75.37	251	<236	--	1.18	<0.5	<0.5	<1				
	2/12/2008	97.32	NP	15.11	NP	82.21	421	<238	--	2.01	0.77	<0.5	1.56				
	7/17/2008	97.32	NP	20.48	NP	76.84	379	<243	<485	1.31	0.514	<0.5	1.13				
	1/12/2009	97.32	NP	15.61	NP	81.71	307	<236	<472	1.22	<0.5	<0.5	<1				
	3/3/2010	97.32	NP	20.05	NP	77.27	52	<120	<240	<1	<1	<1	<2				
	3/3/2011	97.32	NP	19.02	NP	78.30	<50	<75	<380	<1	<1	<1	<3				
	9/12/2012	97.32	NP	21.92	NP	75.40	<50.0	<78.4	<392	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<10.0

TABLE 2
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA
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74TH AVE SOUTH & SOUTH 259TH STREET
KENT, WASHINGTON

Well I.D.	Date	GROUNDWATER GAUGING DATA					GROUNDWATER ANALYTICAL DATA										
		TOC Elevation (ft)	Depth to LNAPL (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPH-G (C6-C12) (UG/L)	TPH-D (C12-C24) (UG/L)	TPH-O (C24-C40) (UG/L)	Benzene (UG/L)	Toluene (UG/L)	Ethylbenzene (UG/L)	Xylene (Total) (UG/L)	MTBE (UG/L)	EDB (UG/L)	EDC (UG/L)	TOTAL PB (UG/L)
Applied Action Level: 2007 MTCA Method A							**800**	**500**	**500**	**5**	**1000**	**700**	**1000**	**20**	**0.01**	**5**	**15**
MW-17A	9/19/1999	97.96	NP	23.35	NP	74.61	<50	269	--	<0.5	<0.5	<0.5	<1				
	3/17/2000	97.96	NP	20.24	NP	77.72	<50	<250	--	<0.5	<0.5	<0.5	<1				
	6/22/2000	97.96	NP	21.01	NP	76.95	<80	--	--	<0.5	<0.5	<0.5	<1				
	7/31/2000	97.96	NP	23.3	NP	74.66	<50	<250	--	<0.5	<0.5	<0.5	<1				
	9/27/2000	97.96	NP	23.09	NP	74.87	<50	<250	--	<0.5	<0.5	<0.5	<1				
	12/27/2000	97.96	NP	22.55	NP	75.41	<50	<250	--	<0.5	<0.5	<0.5	<1				
	3/30/2001	97.96	NP	19.98	NP	77.98	<50	--	--	<0.5	<0.5	<0.5	<1				
	7/11/2001	97.96	NP	22.59	NP	75.37	<50	--	--	<0.5	<0.5	<0.5	<1				
	9/26/2001	97.96	NP	23.11	NP	74.85	<50	--	--	<0.5	<0.5	<0.5	<1				
	12/27/2001	97.96	NP	19.82	NP	78.14	<50	--	--	<0.5	0.622	<0.5	1.24				
	3/14/2002	97.96	NP	19.54	NP	78.42	<50	--	--	<0.5	<0.5	<0.5	<1				
	6/17/2003	97.96	NP	22.72	NP	75.24	<50	--	--	<0.5	<0.5	<0.5	<1				
	3/1/2004	97.96	NP	21.17	NP	76.79	<50	--	--	<0.5	<0.5	<0.5	<1				
	6/1/2004	97.96	NP	17.03	NP	80.93	<50	--	--	<0.5	<0.5	<0.5	<1				
	9/1/2004	97.96	NP	22.29	NP	75.67	<50	--	--	<0.5	<0.5	<0.5	<1				
	10/18/2004	97.96	NP	20.99	NP	76.97	<80	--	--	<0.5	<0.5	<0.5	<1				
	7/27/2005	97.96	NP	23.18	NP	74.78	--	--	--	--	--	--	--				
	4/11/2006	97.96	NG	NG	NG	NG	--	--	--	--	--	--	--				
	5/4/2007	97.96	NG	NG	NG	NG	--	--	--	--	--	--	--				
	9/5/2007	97.96	NP	23.36	NP	74.6	--	--	--	--	--	--	--				
	2/12/2008	97.96	NG	NG	NG	NG	--	--	--	--	--	--	--				
	7/17/2008	97.96	NG	NG	NG	NG	--	--	--	--	--	--	--				
	3/3/2010	97.96	NL	NL	NL	NL	--	--	--	--	--	--	--				
	3/3/2011	97.96	NP	20.63	NP	77.33	--	--	--	--	--	--	--				
	9/12/2012	97.96	NP	23.46	NP	74.5	<50.0	<78.4	<392	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<10.0

TABLE 2
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA
OPLC KENT BLOCK VALVE
74TH AVE SOUTH & SOUTH 259TH STREET
KENT, WASHINGTON

Well I.D.	Date	GROUNDWATER GAUGING DATA					GROUNDWATER ANALYTICAL DATA										
		TOC Elevation (ft)	Depth to LNAPL (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPH-G (C6-C12) (UG/L)	TPH-D (C12-C24) (UG/L)	TPH-O (C24-C40) (UG/L)	Benzene (UG/L)	Toluene (UG/L)	Ethylbenzene (UG/L)	Xylene (Total) (UG/L)	MTBE (UG/L)	EDB (UG/L)	EDC (UG/L)	TOTAL PB (UG/L)
Applied Action Level: 2007 MTCA Method A							**800**	**500**	**500**	**5**	**1000**	**700**	**1000**	**20**	**0.01**	**5**	**15**
MW-18	12/20/1989	98.24	NG	NG	NG	NG	--	--	--	ND	ND	ND	ND				
	1/22/1990	98.24	NG	NG	NG	NG	--	--	--	ND	ND	ND	ND				
	2/21/1990	98.24	NG	NG	NG	NG	--	--	--	ND	ND	ND	0.5				
	3/20/1990	98.24	NG	NG	NG	NG	--	--	--	1	1	ND	0.7				
	4/23/1990	98.24	NG	NG	NG	NG	--	--	--	ND	ND	ND	ND				
	5/18/1990	98.24	NG	NG	NG	NG	--	--	--	ND	ND	ND	ND				
	12/13/1990	98.24	NL	NL	NL	NL	--	--	--	**14**	ND	ND	ND				
	1/4/1991	98.24	NG	NG	NG	NG	--	--	--	3.3	ND	ND	ND				
	10/7/1991	98.24	NG	NG	NG	NG	--	--	--	**12**	ND	ND	ND				
	8/26/1992	98.24	NG	NG	NG	NG	--	--	--	**64**	ND	1.6	6.6				
	6/3/1993	98.24	NG	NG	NG	NG	--	--	--	**97**	1.5	ND	23				
	8/17/1999	98.24	NP	23.14	NP	75.1	<50	<250	--	<0.5	<0.5	<0.5	<1				
	3/17/2000	98.24	NP	20.52	NP	77.72	<50	<250	--	<0.5	<0.5	<0.5	<1				
	6/22/2000	98.24	NP	21.3	NP	76.94	<80	--	--	<0.5	<0.5	<0.5	<1				
	7/31/2000	98.24	NP	23.43	NP	74.81	<50	<250	--	<0.5	<0.5	<0.5	<1				
	9/27/2000	98.24	NP	23.21	NP	75.03	<50	<250	--	<0.5	<0.5	<0.5	<1				
	12/27/2000	98.24	NP	22.71	NP	75.53	54.6	<250	--	<0.5	<0.5	<0.5	<1				
	3/30/2001	98.24	NP	20.24	NP	78	<50	--	--	<0.5	<0.5	<0.5	<1				
	7/11/2001	98.24	NP	22.76	NP	75.48	<50	--	--	<0.5	<0.5	<0.5	<1				
	9/26/2001	98.24	NP	23.24	NP	75	77.5	--	--	0.602	<0.5	<0.5	1.05				
	12/27/2001	98.24	NP	20.21	NP	78.03	<50	--	--	<0.5	<0.5	<0.5	<1				
	3/14/2002	98.24	NP	19.85	NP	78.39	<50	--	--	<0.5	<0.5	<0.5	<1				
	6/17/2003	98.24	NP	22.89	NP	75.35	<50	--	--	<0.5	<0.5	<0.5	<1				
	3/1/2004	98.24	NP	21.43	NP	76.81	<50	--	--	<0.5	<0.5	<0.5	<1				
	6/1/2004	98.24	NP	17.16	NP	81.08	<50	--	--	<0.5	<0.5	<0.5	<1				
	9/1/2004	98.24	NP	22.44	NP	75.8	<50	--	--	<0.5	<0.5	<0.5	<1				
	10/18/2004	98.24	NP	21.15	NP	77.09	<80	--	--	<0.5	<0.5	<0.5	<1				
	7/27/2005	98.24	NP	23.37	NP	74.87	--	--	--	--	--	--	--				
	4/11/2006	98.24	NG	NG	NG	NG	--	--	--	--	--	--	--				
	5/4/2007	98.24	NG	NG	NG	NG	--	--	--	--	--	--	--				
	9/5/2007	98.24	NG	NG	NG	NG	--	--	--	--	--	--	--				
	2/12/2008	98.24	NG	NG	NG	NG	--	--	--	--	--	--	--				
	7/17/2008	98.24	NG	NG	NG	NG	--	--	--	--	--	--	--				
	3/3/2010	98.24	NP	21.65	NP	76.59	--	--	--	--	--	--	--				
	3/3/2011	98.24	NP	21.01	NP	77.23	--	--	--	--	--	--	--				
	9/12/2012	98.24	NP	23.63	NP	74.61	<50.0	<78.4	<392	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<10.0

TABLE 2
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA
OPLC KENT BLOCK VALVE
74TH AVE SOUTH & SOUTH 259TH STREET
KENT, WASHINGTON

Well I.D.	Date	GROUNDWATER GAUGING DATA					GROUNDWATER ANALYTICAL DATA										
		TOC Elevation (ft)	Depth to LNAPL (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPH-G (C6-C12) (UG/L)	TPH-D (C12-C24) (UG/L)	TPH-O (C24-C40) (UG/L)	Benzene (UG/L)	Toluene (UG/L)	Ethylbenzene (UG/L)	Xylene (Total) (UG/L)	MTBE (UG/L)	EDB (UG/L)	EDC (UG/L)	TOTAL PB (UG/L)
Applied Action Level: 2007 MTCA Method A							**800**	**500**	**500**	**5**	**1000**	**700**	**1000**	**20**	**0.01**	**5**	**15**
MW-19	12/20/1989	98.45	NG	NG	NG	NG	--	--	--	ND	ND	ND	ND				
	4/23/1990	98.45	NG	NG	NG	NG	--	--	--	ND	ND	ND	ND				
	5/18/1990	98.45	NG	NG	NG	NG	--	--	--	ND	1.2	ND	ND				
	12/13/1990	98.45	NG	NG	NG	NG	--	--	--	ND	1.4	ND	ND				
	1/4/1991	98.45	NG	NG	NG	NG	--	--	--	ND	ND	ND	ND				
	10/7/1991	98.45	NG	NG	NG	NG	--	--	--	1.3	ND	ND	ND				
	8/26/1992	98.45	NG	NG	NG	NG	--	--	--	ND	ND	ND	ND				
	6/3/1993	98.45	NG	NG	NG	NG	--	--	--	3	ND	ND	ND				
	8/17/1999	98.45	NP	23.18	NP	75.27	<50	<250	--	<0.5	<0.5	<0.5	<1				
	3/17/2000	98.45	NP	20.65	NP	77.8	<50	<250	--	<0.5	<0.5	<0.5	<1				
	6/22/2000	98.45	NP	21.45	NP	77	<80	--	--	<0.5	<0.5	<0.5	<1				
	7/31/2000	98.45	NP	23.49	NP	74.96	<50	<250	--	<0.5	<0.5	<0.5	<1				
	9/27/2000	98.45	NP	23.27	NP	75.18	<50	<575	--	<0.5	<0.5	<0.5	<1				
	12/27/2000	98.45	NP	22.78	NP	75.67	<50	<250	--	<0.5	<0.5	<0.5	<1				
	3/30/2001	98.45	NP	20.38	NP	78.07	<50	--	--	<0.5	<0.5	<0.5	<1				
	7/11/2001	98.45	NP	22.83	NP	75.62	<50	--	--	<0.5	<0.5	<0.5	<1				
	9/26/2001	98.45	NP	23.29	NP	75.16	<50	--	--	<0.5	<0.5	<0.5	<1				
	12/27/2001	98.45	NP	20.39	NP	78.06	<50	--	--	<0.5	<0.5	<0.5	<1				
	3/14/2002	98.45	NP	19.19	NP	79.26	<50	--	--	<0.5	<0.5	<0.5	<1				
	6/17/2003	98.45	NP	22.98	NP	75.47	<50	--	--	<0.5	<0.5	<0.5	<1				
	3/1/2004	98.45	NP	21.61	NP	76.84	<50	--	--	<0.5	<0.5	<0.5	<1				
	6/1/2004	98.45	NP	17.24	NP	81.21	<50	--	--	<0.5	<0.5	<0.5	<1				
	9/1/2004	98.45	NP	22.55	NP	75.9	<50	--	--	<0.5	<0.5	<0.5	<1				
	10/18/2004	98.45	NP	21.24	NP	77.21	<80	--	--	<0.5	<0.5	<0.5	<1				
	7/27/2005	98.45	NP	23.44	NP	75.01	--	--	--	--	--	--	--				
	4/11/2006	98.45	NG	NG	NG	NG	--	--	--	--	--	--	--				
	5/4/2007	98.45	NG	NG	NG	NG	--	--	--	--	--	--	--				
	9/5/2007	98.45	NP	23.61	NP	74.84	--	--	--	--	--	--	--				
	2/12/2008	98.45	NG	NG	NG	NG	--	--	--	--	--	--	--				
	7/17/2008	98.45	NG	NG	NG	NG	--	--	--	--	--	--	--				
	3/3/2010	98.45	NP	21.96	NP	76.49	--	--	--	--	--	--	--				
	3/3/2011	98.45	NP	21.16	NP	77.29	--	--	--	--	--	--	--				
	9/12/2012	98.45	NP	23.68	NP	74.77	<50.0	<78.4	<392	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<10.0

TABLE 2
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA
OPLC KENT BLOCK VALVE
74TH AVE SOUTH & SOUTH 259TH STREET
KENT, WASHINGTON

Well I.D.	Date	GROUNDWATER GAUGING DATA					GROUNDWATER ANALYTICAL DATA										
		TOC Elevation (ft)	Depth to LNAPL (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPH-G (C6-C12) (UG/L)	TPH-D (C12-C24) (UG/L)	TPH-O (C24-C40) (UG/L)	Benzene (UG/L)	Toluene (UG/L)	Ethylbenzene (UG/L)	Xylene (Total) (UG/L)	MTBE (UG/L)	EDB (UG/L)	EDC (UG/L)	TOTAL PB (UG/L)
Applied Action Level: 2007 MTCA Method A							**800**	**500**	**500**	**5**	**1000**	**700**	**1000**	**20**	**0.01**	**5**	**15**
MW-20	8/8/2001	96.5	NP	15.91	NP	80.59	<50	<250	--	<0.5	<0.5	<0.5	<1				
	9/26/2001	96.5	NP	16.81	NP	79.69	<50	--	--	<0.5	<0.5	<0.5	<1				
	12/27/2001	96.5	NP	9.17	NP	87.33	<50	--	--	<0.5	<0.5	<0.5	<1				
	3/14/2002	96.5	NP	9.21	NP	87.29	<50	--	--	<0.5	<0.5	<0.5	<1				
	6/17/2003	96.5	NP	14.3	NP	82.2	<50	--	--	<0.5	<0.5	<0.5	<1				
	3/1/2004	96.5	NP	10.82	NP	85.68	<50	--	--	<0.5	<0.5	<0.5	<1				
	6/1/2004	96.5	NP	13.41	NP	83.09	<50	--	--	<0.5	<0.5	<0.5	<1				
	9/1/2004	96.5	NP	16.2	NP	80.3	<50	--	--	<0.5	<0.5	<0.5	<1				
	10/18/2004	96.5	NP	16.15	NP	80.35	<80	--	--	<0.5	<0.5	<0.5	<1				
	7/27/2005	96.5	NP	15.55	NP	80.95	--	--	--	--	--	--	--				
	4/11/2006	96.5	NG	NG	NG	NG	--	--	--	--	--	--	--				
	5/4/2007	96.5	NG	NG	NG	NG	--	--	--	--	--	--	--				
	9/5/2007	96.5	NG	NG	NG	NG	--	--	--	--	--	--	--				
	2/12/2008	96.5	NG	NG	NG	NG	--	--	--	--	--	--	--				
	7/17/2008	96.5	NG	NG	NG	NG	--	--	--	--	--	--	--				
	3/3/2010	96.5	NP	10.69	NP	85.81	--	--	--	--	--	--	--				
	3/3/2011	96.5	NP	9.11	NP	87.39	--	--	--	--	--	--	--				
	9/12/2012	96.5	NP	15.62	NP	80.88	<50.0	<78.4	<392	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<10.0

TABLE 2
HISTORICAL GROUNDWATER GAUGING AND ANALYTICAL DATA
OPLC KENT BLOCK VALVE
74TH AVE SOUTH & SOUTH 259TH STREET
KENT, WASHINGTON

Well I.D.	Date	GROUNDWATER GAUGING DATA					GROUNDWATER ANALYTICAL DATA										
		TOC Elevation (ft)	Depth to LNAPL (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	Water Elevation* (ft)	TPH-G (C6-C12) (UG/L)	TPH-D (C12-C24) (UG/L)	TPH-O (C24-C40) (UG/L)	Benzene (UG/L)	Toluene (UG/L)	Ethylbenzene (UG/L)	Xylene (Total) (UG/L)	MTBE (UG/L)	EDB (UG/L)	EDC (UG/L)	TOTAL PB (UG/L)
Applied Action Level: 2007 MTCA Method A							**800**	**500**	**500**	**5**	**1000**	**700**	**1000**	**20**	**0.01**	**5**	**15**
MW-21	8/8/2001	96.82	NP	21.38	NP	75.44	<50	--	--	<0.5	<0.5	<0.5	<1				
	9/26/2001	96.82	NP	21.42	NP	75.4	<50	--	--	<0.5	<0.5	<0.5	<1				
	12/27/2001	96.82	NP	17.06	NP	79.76	<50	--	--	<0.5	0.62	<0.5	1.11				
	3/14/2002	96.82	NP	17.2	NP	79.62	<50	--	--	<0.5	<0.5	<0.5	<1				
	6/17/2003	96.82	NP	20.4	NP	76.42	<50	--	--	<0.5	<0.5	<0.5	<1				
	3/1/2004	96.82	NP	18.33	NP	78.49	<50	--	--	<0.5	<0.5	<0.5	<1				
	6/1/2004	96.82	NP	16.3	NP	80.52	<50	--	--	<0.5	<0.5	<0.5	<1				
	9/1/2004	96.82	NP	20.5	NP	76.32	<50	--	--	<0.5	<0.5	<0.5	<1				
	10/18/2004	96.82	NP	19.68	NP	77.14	<80	--	--	<0.5	<0.5	<0.5	<1				
	7/27/2005	96.82	NP	20.92	NP	75.9	--	--	--	--	--	--	--				
	4/11/2006	96.82	NG	NG	NG	NG	--	--	--	--	--	--	--				
	5/4/2007	96.82	NG	NG	NG	NG	--	--	--	--	--	--	--				
	9/5/2007	96.82	NG	NG	NG	NG	--	--	--	--	--	--	--				
	2/12/2008	96.82	NG	NG	NG	NG	--	--	--	--	--	--	--				
	7/17/2008	96.82	NG	NG	NG	NG	--	--	--	--	--	--	--				
	3/3/2010	96.82	NL	NL	NL	NL	--	--	--	--	--	--	--				
	3/3/2011	96.82	NP	17.42	NP	79.40	<50	<75	<380	<1	<1	<1	<3				
	9/12/2012	96.82	NP	21.28	NP	75.54	<50.0	<78.4	<392	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<10.0

Notes:

TOC - Top of Casing
DTB from TOC - Depth to Bottom of well from Top of Casing
TOS - Top of Screen
ft - Feet
NP - LNAPL not present
LNAPL - Light non-aqueous phase liquid
* - Corrected for LNAPL if present (assumes LNAPL specific gravity = 0.75)
Feet MSL - feet above mean sea level
NG - Not Gauged
NL - Not Located
WD - Well Damaged
WI - Well Inaccessible
NSVD - Not surveyed
-- - No information available
NGV - No guidance value

Analytical Notes:

Results in Bold exceed applicable action limits
< - Not detected at or above indicated laboratory reporting limit
UG/L - micrograms/liter
NW-GRO - Northwest Gasoline Range Organics using Ecology NWTPH-Gx
NW-DRO - Northwest Diesel Range Organics
NW-ORO - Northwest Oil Range Organics
NW-DRO and NW-ORO Analyzed using Ecology Method NWTPH-Dx with silica gel cleanup
B = benzene, T = toluene, E = ethylbenzene, X = xylenes; analyzed using EPA Method 8260
MTBE = methyl tert-butyl ether analyzed using EPA Method 8260
EDB = 1,2-dibromoethane, EDC = 1,2-dichloroethane; analyzed using EPA Method 8260
Total Pb = total lead analyzed using EPA Method 6010
EPA - Environmental Protection Agency
MTCA = Model Toxics Control Act

TABLE 3
GROUNDWATER GEOCHEMICAL DATA
OPLC KENT BLOCK VALVE
74TH AVENUE SOUTH & SOUTH 259TH STREET
KENT, WASHINGTON

Well I.D.	Date	GROUNDWATER GEOCHEMICAL DATA					
		Conductivity (MS/CM)	Oxygen, Dissolved (MG/L)	Oxidation Reduction Potential (MILLIVOLTS)	pH (PH UNITS)	Temperature (Field) (DEG C)	Solids, Total Dissolved (MG/L)
MW-9	3/3/2011	--	--	--	--	--	--
	9/12/2012	0.333	4.72	-36	6.14	11.89	220
	11/7/2012	0.306	0.65	-140.3	6.30	11.00	199
MW-13	3/3/2011	0.350	0.28	-177.3	6.49	13.16	227
	9/12/2012	0.410	4.43	-21	6.61	13.73	270
	11/7/2012	0.387	1.28	-177.6	6.54	13.71	252
MW-14	3/3/2011	--	--	--	--	--	--
	9/12/2012	0.369	4.30	0	6.03	14.93	240
	11/7/2012	0.352	0.72	-23.9	6.10	14.03	229
MW-15	3/3/2011	--	--	--	--	--	--
	9/12/2012	--	--	--	--	--	--
	11/7/2012	--	--	--	--	--	--
MW-16	3/3/2011	0.381	0.33	-112.7	6.46	12.95	248
	9/12/2012	0.365	7.58	-23	6.65	18.63	240
	11/7/2012	0.340	1.04	-166.3	6.54	12.74	221
MW-17A	3/3/2011	--	--	--	--	--	--
	9/12/2012	0.339	4.49	-49	6.16	12.00	220
	11/7/2012	0.465	0.67	-189.2	6.44	11.83	302
MW-18	3/3/2011	--	--	--	--	--	--
	9/12/2012	0.283	4.51	-46	6.02	12.72	180
	11/7/2012	0.244	0.77	-137.5	6.34	11.84	159
MW-19	3/3/2011	--	--	--	--	--	--
	9/12/2012	0.259	4.94	-23	5.79	13.51	170
	11/7/2012	0.308	0.88	-160.7	6.19	12.48	200
MW-20	3/3/2011	--	--	--	--	--	--
	9/12/2012	0.433	4.45	-16	5.86	15.05	280
	11/7/2012	0.410	0.86	-77.8	5.98	14.40	266
MW-21	3/3/2011	0.239	0.28	56	6.07	13.81	155
	9/12/2012	0.328	4.42	-5	5.81	15.69	210
	11/7/2012	0.325	1.17	-73.8	6.03	14.46	211

Notes:

-- - No information available
DEG C - degrees Celsius
MG/L - milligrams per liter
MILLIVOLTS - millivolts
MS/CM - microsiemens per cen
PH UNITS - pH units

TABLE 4
SOIL AND GROUNDWATER CLEANUP LEVELS
OPLC KENT BLOCK VALVE
74th Avenue S S 259th Street
Kent, Washington

Constituent of Concern	Soil - MTCA Method A (Table Value)	Groundwater - MTCA Method A (Table Value)
	Soil (mg/kg)	*Groundwater (µg/L)*
TPH-G	30	800
TPH-D	2,000	500
TPH-O	2,000	500
Benzene	0.03	5
Toluene	7	1,000
Ethylbenzene	6	700
Xylenes	9	1,000

Notes:

MTCA = Model Toxics Control Act

TPH-G = Total Petroleum Hydrocarbons as Gasoline

TPH-D = Total Petroleum Hydrocarbons as Diesel

TPH-O = Total Petroleum Hydrocarbons as Oil

mg/kg = milligrams per kilogram

µg/L = micrograms per liter

Figures

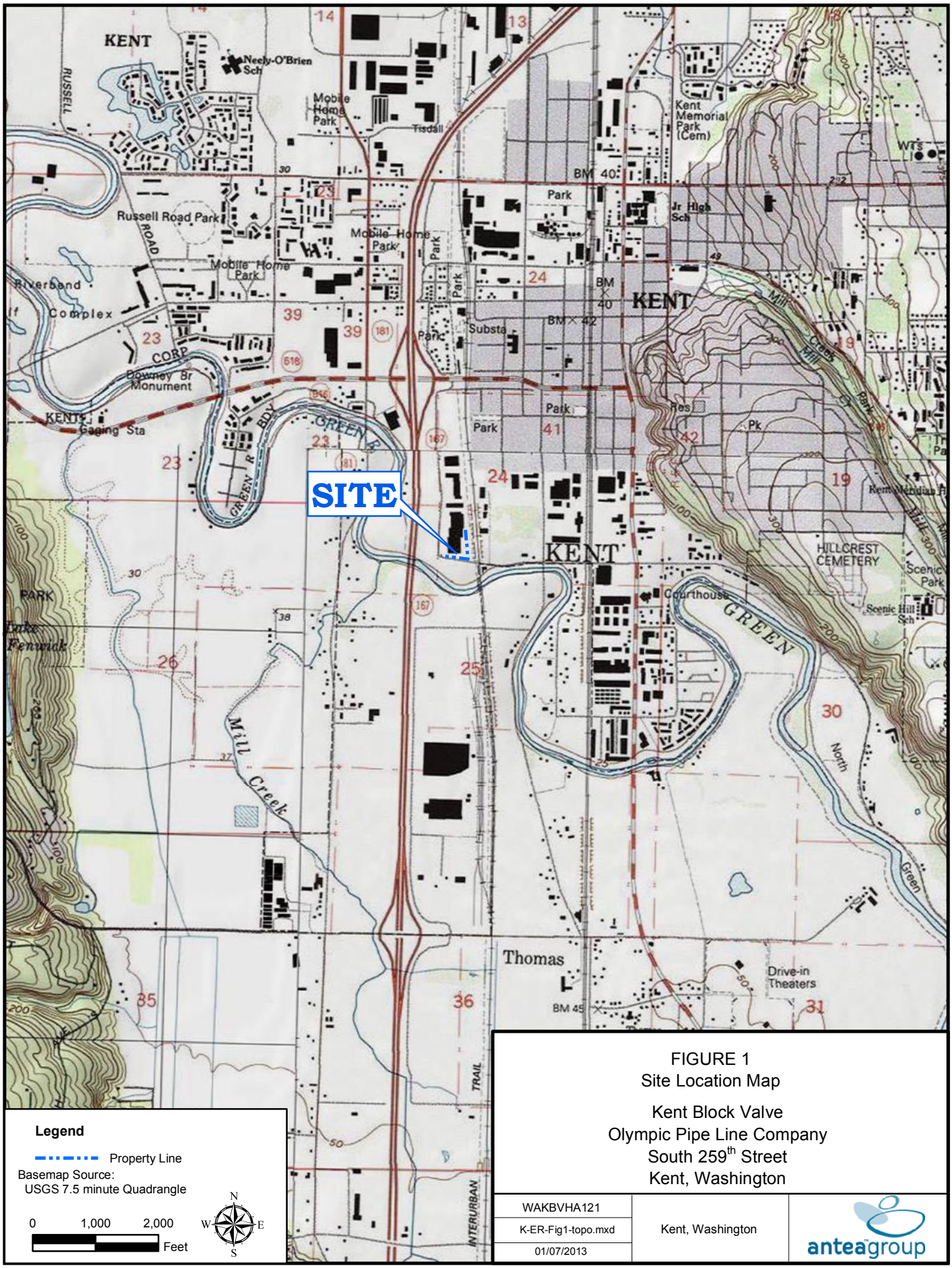


FIGURE 1
Site Location Map

Kent Block Valve
Olympic Pipe Line Company
South 259th Street
Kent, Washington

WAKBVHA121	Kent, Washington	anteagroup
K-ER-Fig1-topo.mxd		
01/07/2013		

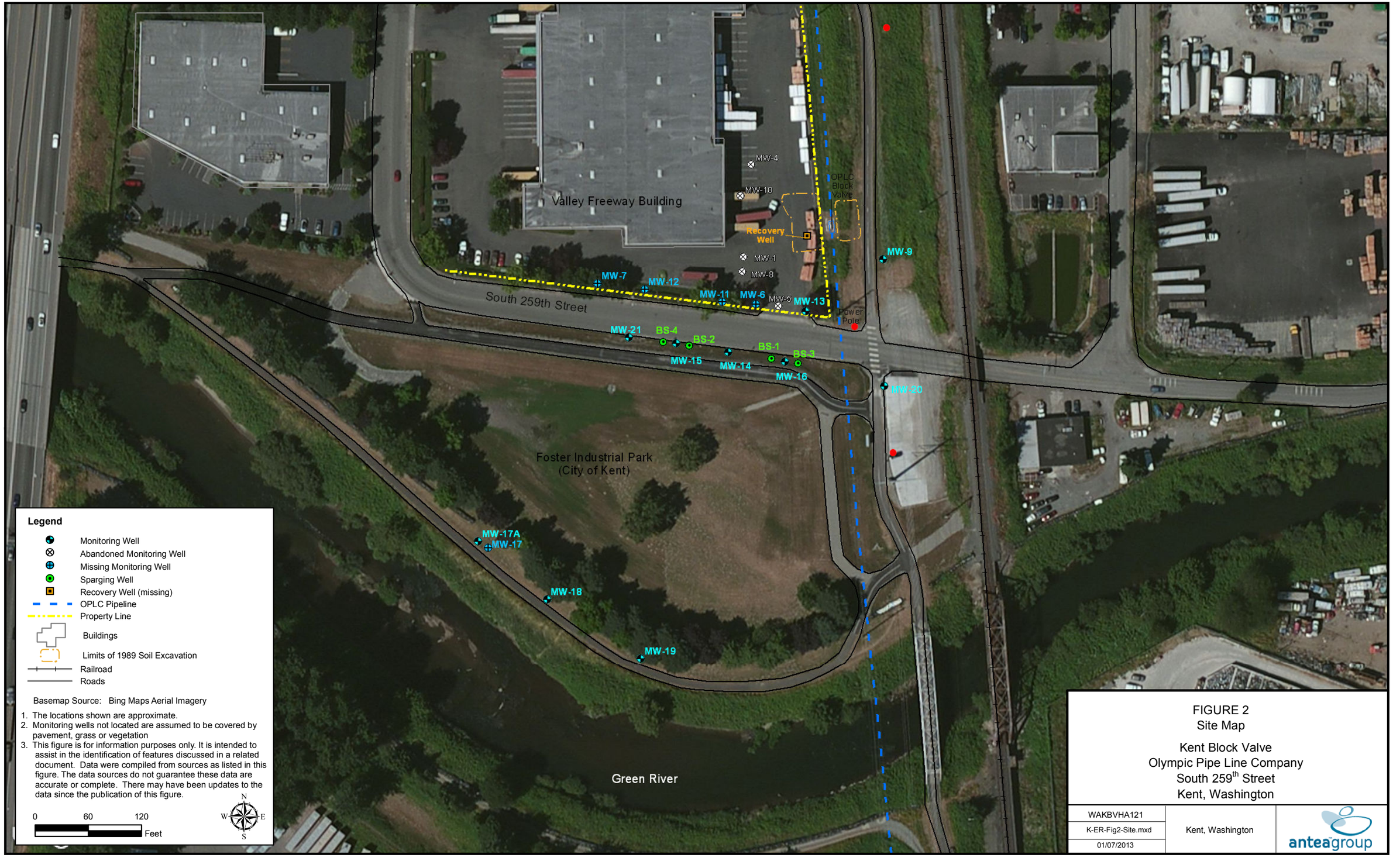


FIGURE 2
Site Map

Kent Block Valve
Olympic Pipe Line Company
South 259th Street
Kent, Washington

WAKBVHA121	Kent, Washington	anteagroup
K-ER-Fig2-Site.mxd		
01/07/2013		

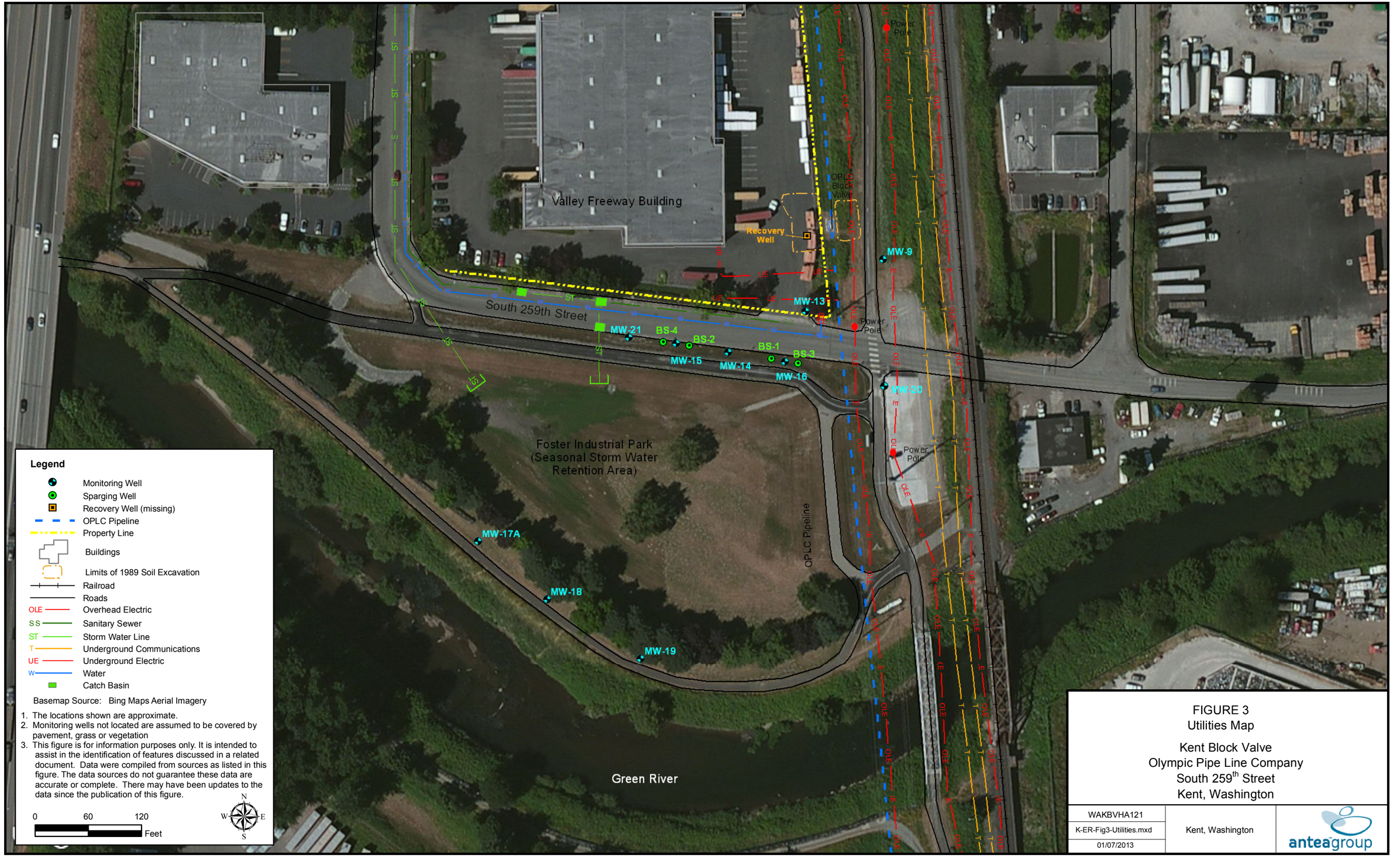


FIGURE 3
Utilities Map

Kent Block Valve
Olympic Pipe Line Company
South 259th Street
Kent, Washington

WAKBVHA121	Kent, Washington	anteagroup
K-ER-Fig3-Utilities.mxd		
01/07/2013		

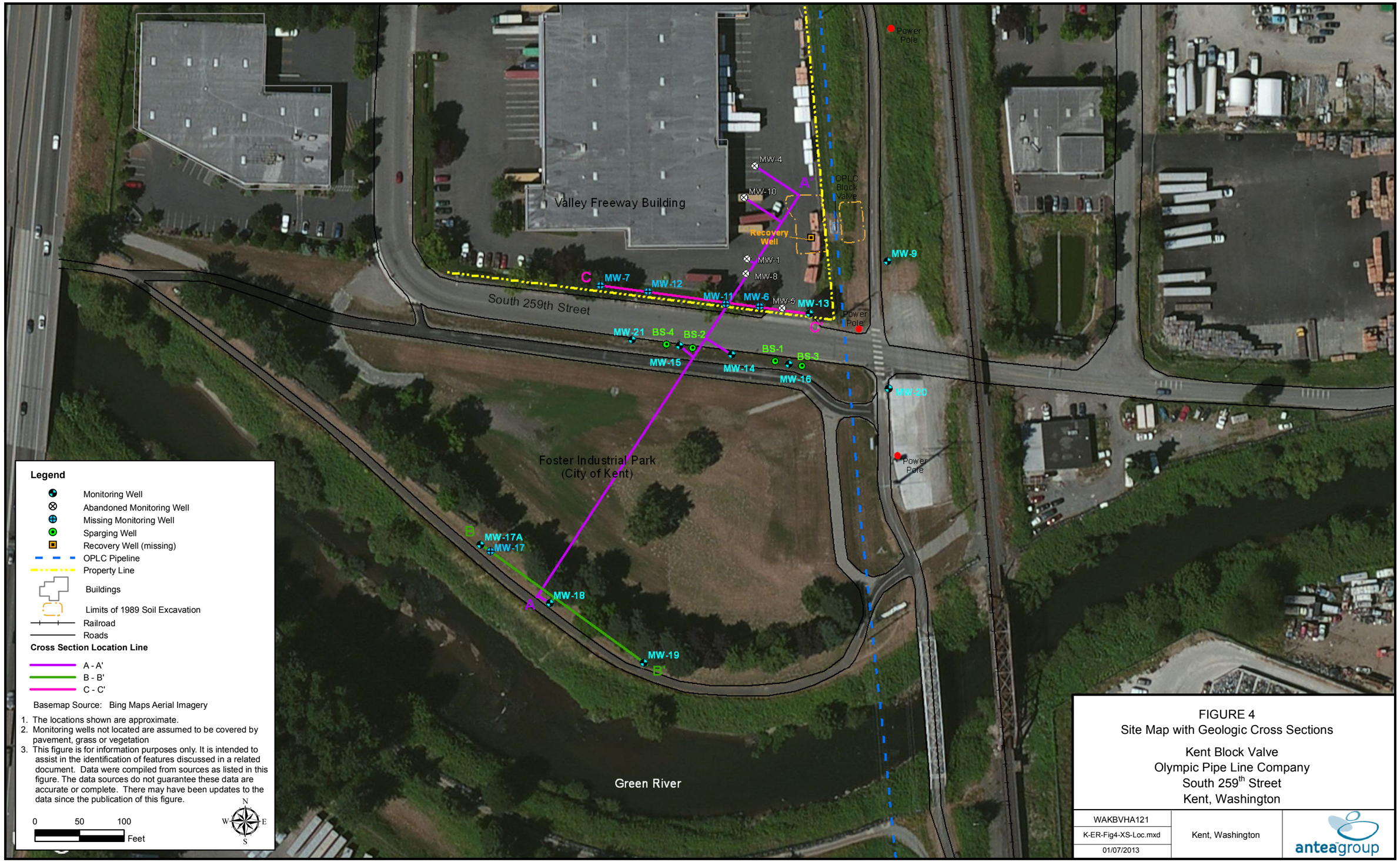
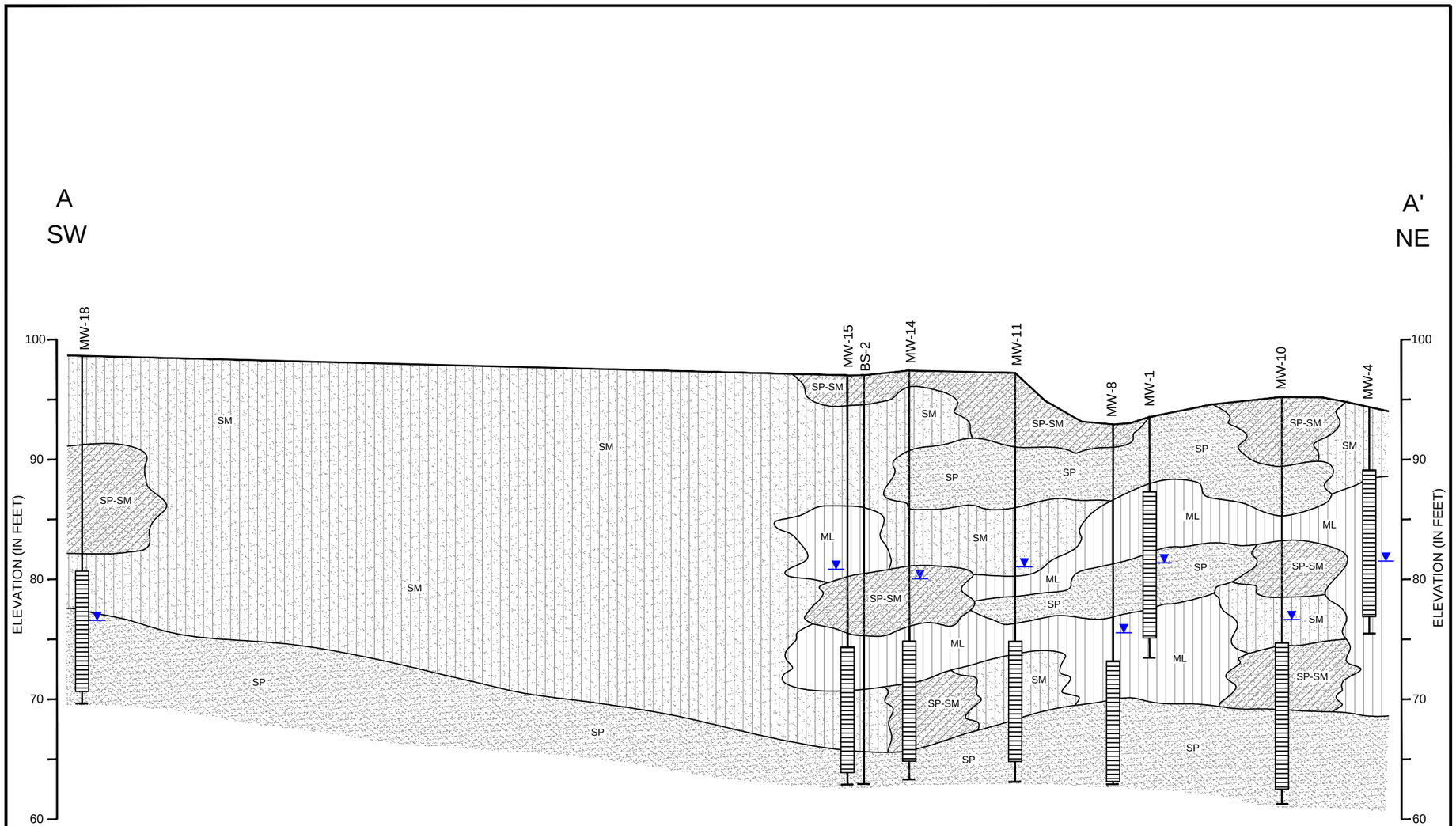


FIGURE 4
Site Map with Geologic Cross Sections

Kent Block Valve
Olympic Pipe Line Company
South 259th Street
Kent, Washington

WAKBVHA121	Kent, Washington	anteagroup
K-ER-Fig4-XS-Loc.mxd		
01/07/2013		



LEGEND

- SCREENED INTERVAL
- GROUNDWATER LEVEL AT TIME OF DRILLING
- (SP) POORLY GRADED SAND
- (SM) SILTY SAND
- (SP-SM) SAND WITH SILT
- (ML) SILT

VERTICAL SCALE (IN FEET): 10

HORIZONTAL SCALE (IN FEET): 50

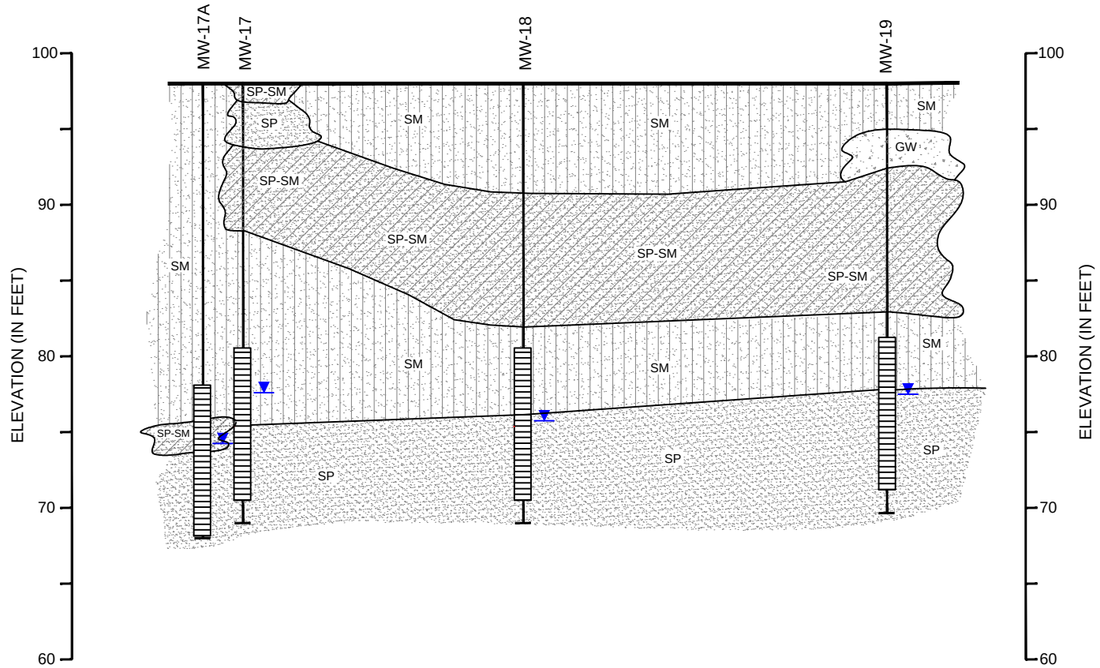
Figure 5
Geologic Cross Section A-A'
Kent Block Valve
Olympic Pipe Line Company
South 259th Street
Kent, Washington

PROJECT NO.	PREPARED BY	DRAWN BY
WAKBVHA121	J.KC	PM/ND
DATE	REVIEWED BY	FILE NAME
01/07/2013		Fig5-XSec-A.dwg

antea group

B
NW

B'
SE



LEGEND

SCREENED INTERVAL

GROUNDWATER LEVEL
AT TIME OF DRILLING

(SP) POORLY GRADED SAND

(SM) SILTY SAND

(SP-SM) SAND WITH SILT

(GW) WELL GRADED GRAVEL

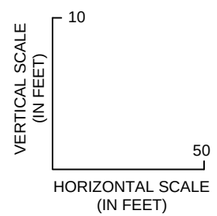
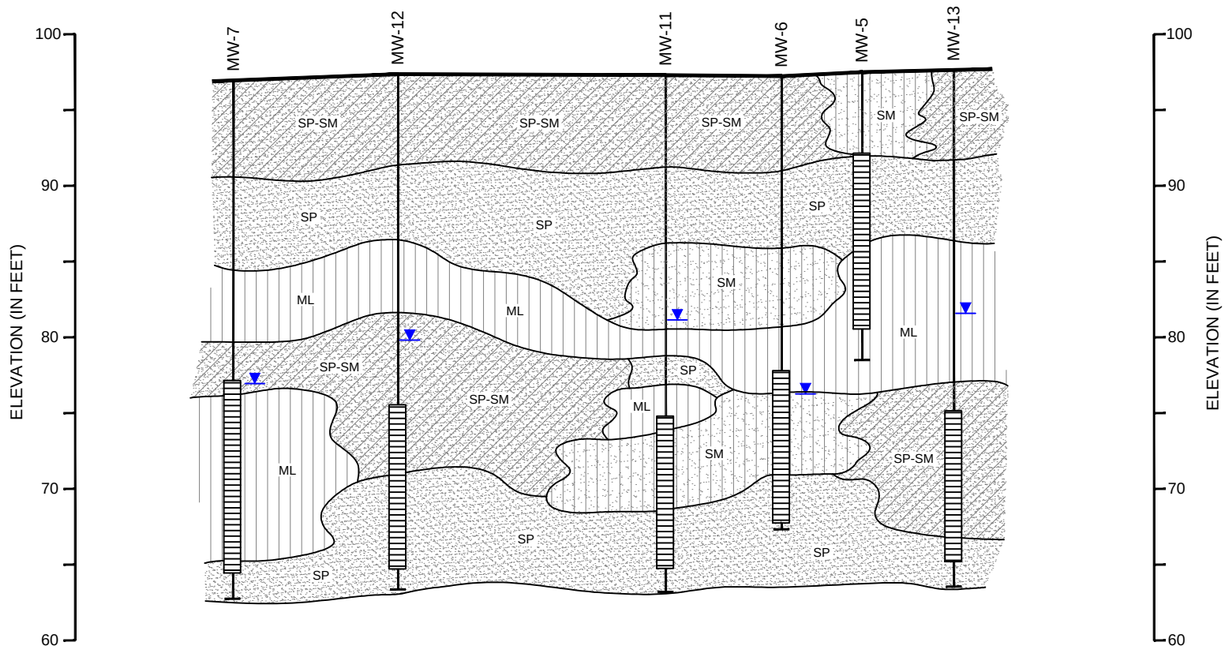


Figure 6
Geologic Cross Section B-B'
Kent Block Valve
Olympic Pipe Line Company
South 259th Street
Kent, Washington

PROJECT NO.	PREPARED BY	DRAWN BY	
WAKBVHA121	J.KC	PM/ND	antea group
DATE	REVIEWED BY	FILE NAME	
01/07/2013		Fig6-XSec-B.dwg	

C
West

C'
East



LEGEND

SCREENED INTERVAL

GROUNDWATER LEVEL
AT TIME OF DRILLING

(SP) POORLY GRADED SAND

(SM) SILTY SAND

(SP-SM) SAND WITH SILT

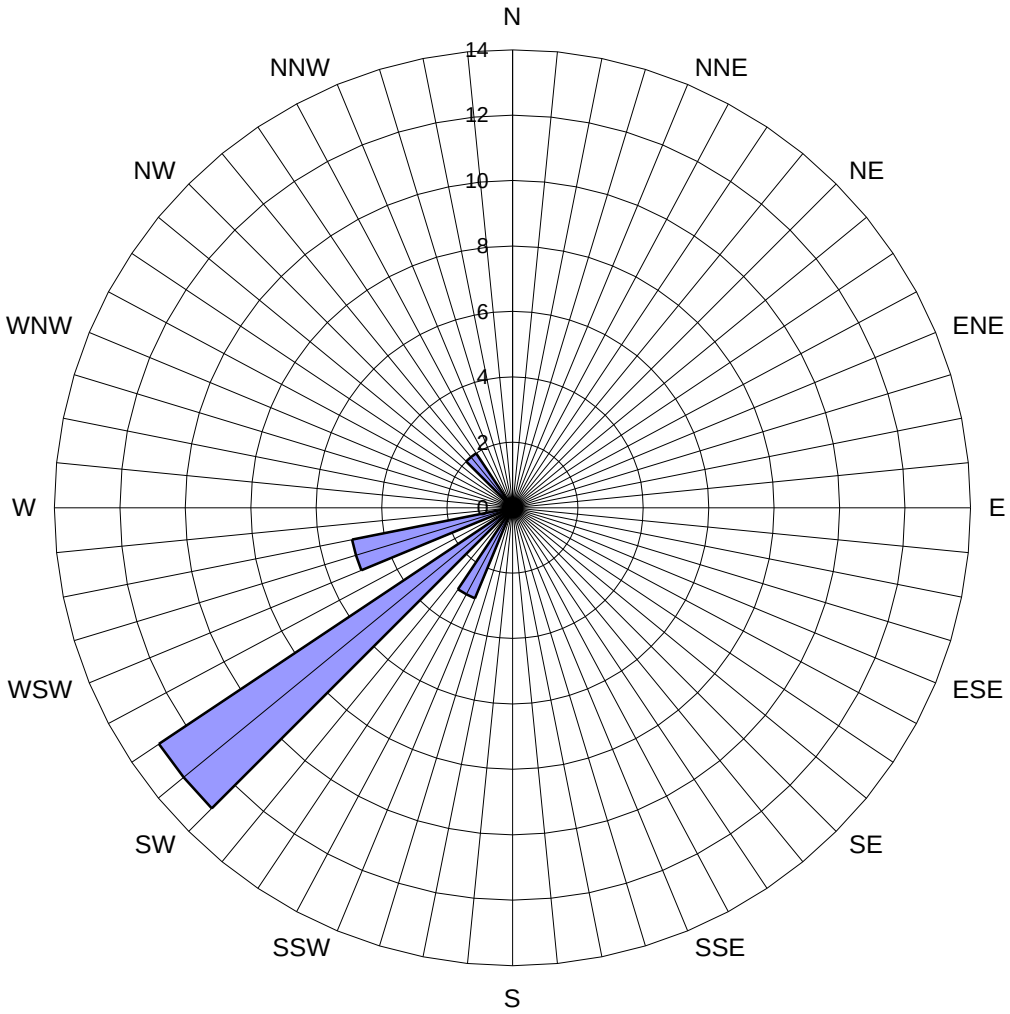
(ML) SILT

VERTICAL SCALE
(IN FEET)
10
50
HORIZONTAL SCALE
(IN FEET)

Figure 7
Geologic Cross Section C-C'
Kent Block Valve
Olympic Pipe Line Company
South 259th Street
Kent, Washington

PROJECT NO.	PREPARED BY	DRAWN BY	
WAKBVHA121	J.KC	PM/ND	antea group
DATE	REVIEWED BY	FILE NAME	
01/07/2013		Fig7-XSec-C.dwg	

Figure 8
Groundwater Flow Direction Rose Diagram
OPLC Kent Block Valve
S 259th St & 74th Ave S
Kent, Washington



Legend
Concentric Circles represent
Quarterly Montoring Events
Third Quarter 1999 through
First Quarter 2011
22 Events shown

Groundwater Flow Direction

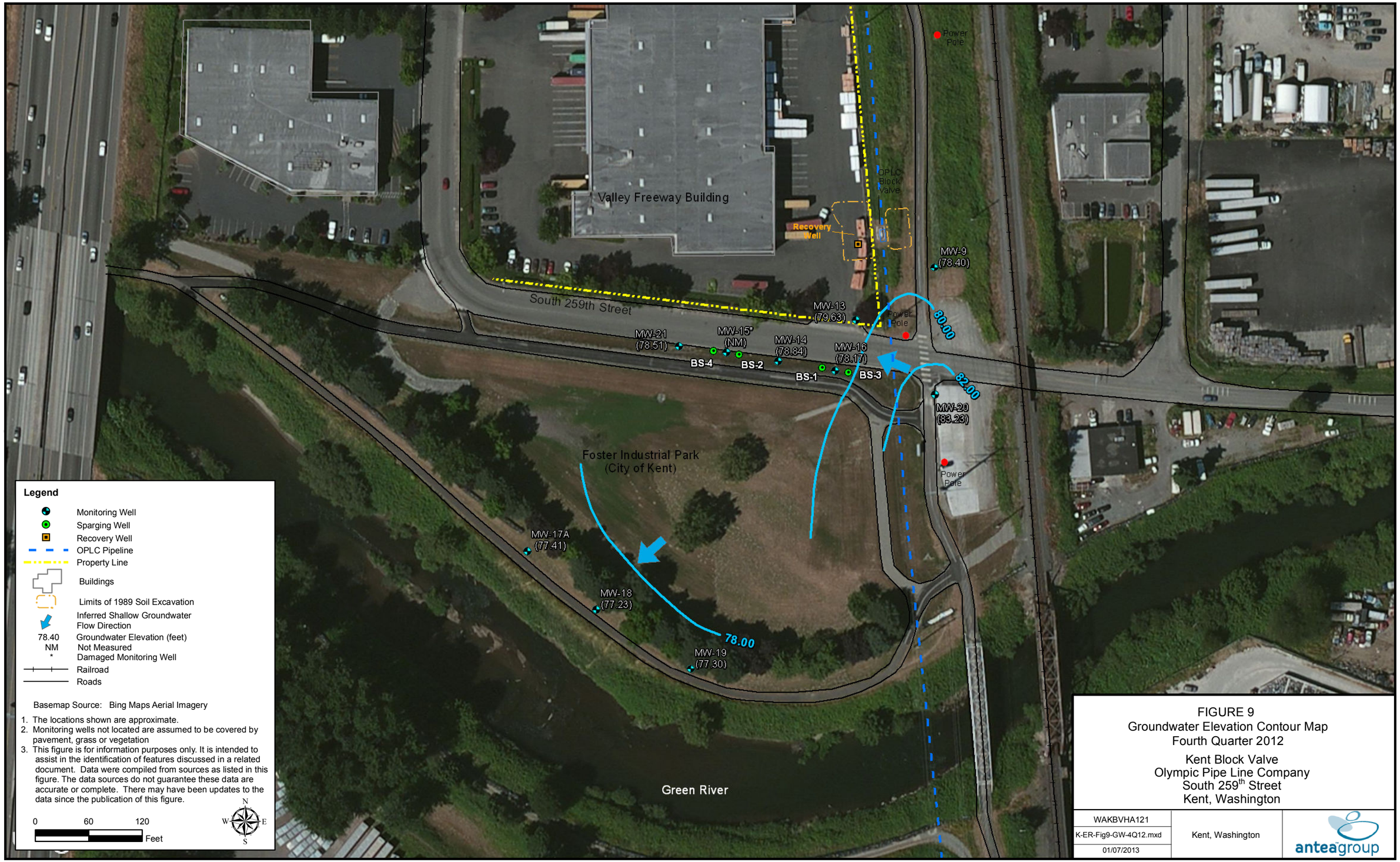


FIGURE 9
Groundwater Elevation Contour Map
Fourth Quarter 2012

Kent Block Valve
Olympic Pipe Line Company
South 259th Street
Kent, Washington

WAKBVHA121	Kent, Washington	anteagroup
K-ER-Fig9-GW-4Q12.mxd		
01/07/2013		

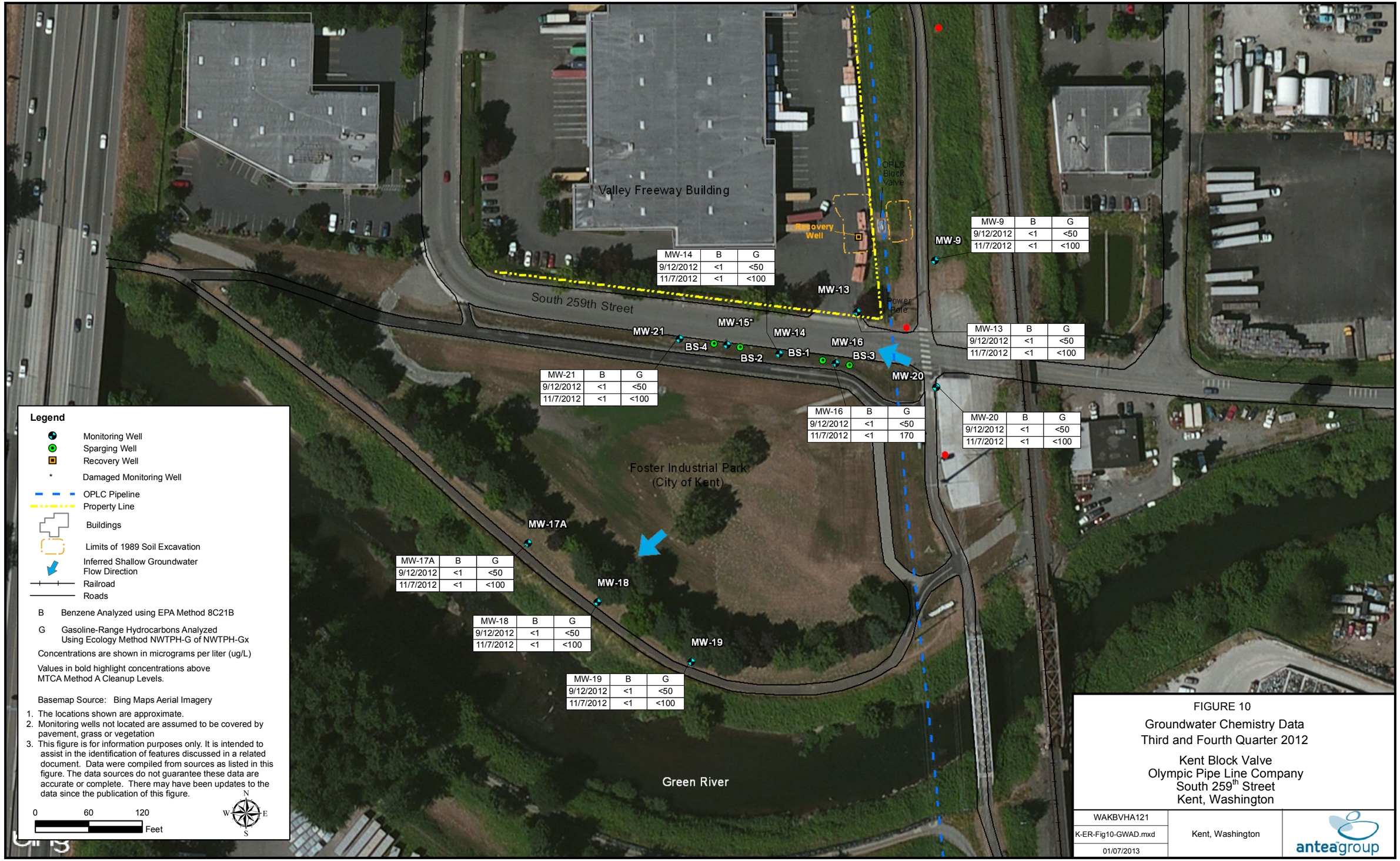


FIGURE 10

Groundwater Chemistry Data
Third and Fourth Quarter 2012

Kent Block Valve
Olympic Pipe Line Company
South 259th Street
Kent, Washington

WAKBVHA121	Kent, Washington	anteagroup
K-ER-Fig10-GWAD.mxd		
01/07/2013		

Appendix A

Legal Description of Property

New Search | Property Tax Bill | Map This Property | Glossary of Terms | Area Report | Print Property Detail

PARCEL DATA

Parcel	000660-0028	Jurisdiction	KENT
Name	PUGET SOUND ENERGY/ELEC	Levy Code	1525
Site Address	5TH AVE S 98032	Property Type	C
Geo Area	65-30	Plat Block / Building Number	
Spec Area	0-0	Plat Lot / Unit Number	
Property Name	RR R/W	Quarter-Section-Township-Range	SW-24-22-4

Legal Description

RUSSELL S W-D C # 41 100 FT R/W OVER D C TCO 17-95 & 17-96

LAND DATA

Highest & Best Use As If Vacant	REGIONAL LAND USE	Percentage Unusable	0
Highest & Best Use As Improved	(unknown)	Unbuildable	NO
Present Use	Right of Way/Utility, Road	Restrictive Size Shape	YES
Base Land Value SqFt	1	Zoning	M2
Base Land Value	394,700	Water	WATER DISTRICT
% Base Land Value Impacted	100	Sewer/Septic	PUBLIC
Base Land Valued Date	12/15/2011	Road Access	PUBLIC
Base Land Value Tax Year	2013	Parking	
Land SqFt	315,810	Street Surface	
Acres	7.25		

Views

Rainier	
Territorial	
Olympics	
Cascades	
Seattle Skyline	
Puget Sound	
Lake Washington	
Lake Sammamish	
Lake/River/Creek	
Other View	

Waterfront

Waterfront Location	
Waterfront Footage	
Lot Depth Factor	
Waterfront Bank	
Tide/Shore	
Waterfront Restricted Access	
Waterfront Access Rights	NO
Poor Quality	
Proximity Influence	NO

Designations

Historic Site	
Current Use	
Nbr Bldg Sites	
Adjacent to Golf Fairway	NO
Adjacent to Greenbelt	NO
Other Designation	NO
Deed Restrictions	NO
Development Rights Purchased	NO
Easements	NO
Native Growth Protection Easement	NO
DNR Lease	NO

Nuisances

Topography	NO
Traffic Noise	
Airport Noise	
Power Lines	NO
Other Nuisances	NO

Problems

Water Problems	NO
Transportation Concurrency	NO
Other Problems	NO

Environmental

Environmental	NO

BUILDING

Reference Links:

- King County Tax Links
- Property Tax Advisor
- Washington State Department of Revenue (External link)
- Washington State Board of Tax Appeals (External link)
- Board of Appeals/Equalization
- Districts Report
- iMap
- Recorder's Office

  Scanned images of surveys and other map documents

  Scanned images of plats

TAX ROLL HISTORY

Account	Valued Year	Tax Year	Omit Year	Levy Code	Appraised Land Value	Appraised Imps Value	Appraised Total Value	New Dollars	Taxable Land Value	Taxable Imps Value	Taxable Total Value	Tax Value Reason
000660002809	2012	2013		1525	$394,700	$0	$394,700	$0	$0	$0	$0	OP
000660002809	2011	2012		1525	$315,800	$0	$315,800	$0	$0	$0	$0	OP
000660002809	2010	2011		1525	$315,800	$0	$315,800	$0	$0	$0	$0	OP
000660002809	2009	2010		1525	$347,300	$0	$347,300	$0	$0	$0	$0	OP
000660002809	2008	2009		1525	$315,800	$0	$315,800	$0	$0	$0	$0	OP
000660002809	2007	2008		1525	$315,800	$0	$315,800	$0	$0	$0	$0	OP
000660002809	2006	2007		1525	$315,800	$0	$315,800	$0	$0	$0	$0	OP
000660002809	2005	2006		1525	$315,800	$0	$315,800	$0	$0	$0	$0	OP
000660002809	2004	2005		1525	$315,800	$0	$315,800	$0	$0	$0	$0	OP
000660002809	2003	2004		1525	$315,800	$0	$315,800	$0	$0	$0	$0	OP
000660002809	2002	2003		1525	$315,800	$0	$315,800	$0	$0	$0	$0	OP
000660002809	2001	2002		1525	$315,800	$0	$315,800	$0	$0	$0	$0	OP
000660002809	2000	2001		1525	$315,800	$0	$315,800	$0	$0	$0	$0	OP
000660002809	1999	2000		1525	$315,800	$0	$315,800	$0	$0	$0	$0	OP
000660002809	1997	1998		1525	$0	$0	$0	$0	$315,800	$0	$315,800	
000660002809	1996	1997		1525	$0	$0	$0	$0	$315,800	$0	$315,800	
000660002809	1994	1995		1525	$0	$0	$0	$0	$315,800	$0	$315,800	
000660002809	1992	1993		1525	$0	$0	$0	$0	$315,800	$0	$315,800	
000660002809	1990	1991		1525	$0	$0	$0	$0	$315,800	$0	$315,800	
000660002809	1988	1989		1525	$0	$0	$0	$0	$315,800	$0	$315,800	
000660002809	1986	1987		1525	$0	$0	$0	$0	$46,300	$0	$46,300	
000660002809	1984	1985		1525	$0	$0	$0	$0	$43,200	$0	$43,200	
000660002809	1982	1983		1525	$0	$0	$0	$0	$43,200	$0	$43,200	

SALES HISTORY

REVIEW HISTORY

PERMIT HISTORY

HOME IMPROVEMENT EXEMPTION

Appendix B

Summary of Previous Investigations and Remedial Activities

APPENDIX B – SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIVITIES

- A release of gasoline and diesel associated with the Olympic Pipe Line Company (OPLC) Kent Block Valve was discovered in August 1989. The Washington State Department of Ecology (Ecology) was involved at the time of release and subsequent remedial efforts.
- Following repair of the block valve, an estimated 1,950 tons of petroleum-contaminated soil was removed from the Site.
- Monitoring wells MW-1 through MW-19 were installed from September through December 1989. Groundwater sampling of the aforementioned monitoring wells began in December 1989.
- On March 27, 1990, monitoring wells MW-1, MW-4, MW-8 and MW-10 were abandoned. Monitoring well MW-2 was abandoned on April 4, 1990. The wells were abandoned due to the construction of the Valley Freeway Building.
- In 1993, the recovery well and monitoring wells MW-6, MW-7, MW-11 and MW-12 were found paved over. MW-17, adjacent to the Green River, could also not be located. Seven monitoring wells remained: MW-9, MW-13 through MW-16, MW-18, and MW-19.
- In 1999, the Seattle-King County Health Department, on behalf of the Ecology, conducted an Initial Site Hazard Assessment (SHA) of the Kent Block Valve site. The SHA was conducted under the Model Toxic Control Act (MTCA) Hazard Ranking program, and the process produced a ranking of "2" on a 5 point scale with 1 having the highest priority.
- In 1999, monitoring well MW-17A was installed after attempts to locate MW-6, MW-7, MW-11, MW-12 and MW-17 were unsuccessful. MW-17A was installed to a depth of 30 feet (ft) below ground surface (bgs). Analytical results from the soil samples submitted for analysis were below the laboratory method reporting limits (MRLs).
- In 2001, monitoring wells MW-20 and MW-21 were installed to depths of 20 ft bgs and 30 ft bgs, respectively. Based on field screening results, one soil sample collected from MW-21 was submitted for laboratory analysis. Analytical results from the soil sample submitted for analysis were below the laboratory method reporting limits.
- In 2003, air sparge wells BS-1 through BS-4 were installed to a depth of 40 ft bgs. Composite soil samples were collected during the installation of the sparge wells for waste disposal characterization.
- Monthly air sparging events on BS-1 through BS-4 were conducted in 2004.
- Annual groundwater sampling was initiated in 2009.
- Site characterization and remedial activities are being conducted by OPLC in accordance with the Ecology Model Toxics Control Act (MTCA) as an Independent Cleanup Action outside the Voluntary Cleanup Program (VCP).

Appendix C

Historical Soil and Groundwater Analytical Data Tables

Geo Engineers

TABLE 3
SUMMARY OF SOIL ANALYTICAL DATA

Sample Number	Sample Date	Depth (Feet)	Lithology	EPA Method 8020				EPA Method 418.1 TPH (ppm)
				Benzene (ppb)	Ethyl-benzene (ppb)	Toluene (ppb)	Total Xylenes (ppb)	
OP-1	08/28/89	6.0	Sand	760	12,000	3,100	89,000	290
OP-2	08/29/89	7.0	Silt	ND	ND	ND	ND	ND
OP-3	08/29/89	9.0	Silt	660	1,400	ND	1,940	68
OP-4	08/29/89	10.5	Silt	ND	74	36	218	ND
OP-5	08/29/89	11.5	Silt	180	1,200	84	4,400	55
OP-6	08/29/89	5.0	Sand	ND	ND	ND	ND	1,100
OP-7	08/29/89	8.0	Silt	71	260	200	1,130	1.4
OP-8	09/01/89	6.0	Sand	ND	ND	ND	ND	1.6
OP-9	09/01/89	5.0	Sand	ND	ND	ND	ND	1.7
OP-10	09/01/89	5.0	Sand	ND	ND	ND	ND	1.6
OP-11	09/05/89	5.0	Sand	ND	46	27	280	ND
OP-12	09/06/89	18.0	Sandy silt	910	390	2,300	2,060	ND
OP-13	09/06/89	16.0	Silt	ND	ND	ND	ND	1.6
OP-14	09/06/89	15.0	Silt	3,900	540	5,000	2,610	4.5
OP-16	09/07/89	16.0	Silt	880	320	1,200	1,670	ND
OP-17	09/07/89	12.0	Silt	ND	ND	ND	ND	ND
OP-18	09/07/89	12.0	Sand	ND	49	ND	158	ND
OP-19	09/07/89	24.0	Sand	ND	ND	ND	ND	ND
OP-20	09/08/89	22.0	Silt	ND	ND	ND	ND	ND
OP-21	09/08/89	17.0	Silt	ND	ND	ND	ND	ND
OP-22	09/08/89	22.0	Silty sand	ND	ND	ND	ND	ND
OP-23	09/08/89	22.5	Sand	390	530	1,200	2,840	470
OP-24	09/08/89	24.5	Sand	1,500	250	2,800	1,250	ND
OP-24B	09/11/89	22.5	Silt	180	ND	56	42	ND
OP-25	09/11/89	5.0	Sand	ND	ND	ND	ND	ND
MW-9-7	09/18/89	33.0	Sand	ND	ND	ND	ND	ND
DRAFT MTCA Compliance Cleanup Level				500	20,000	40,000	20,000	200

Notes:
"TPH" = Total petroleum hydrocarbons
"ppb" = parts per billion
"ppm" = parts per million
"ND" = not detected; see laboratory data sheets in Appendix B for analyte detection limits.
Shaded values indicate contaminant concentrations which exceed DRAFT MTCA Compliance Cleanup Levels.

TABLE 3
SUMMARY OF SOIL CHEMICAL ANALYTICAL DATA[1]
OPLC KENT BLOCK VALVE RELEASE
KENT, WASHINGTON

Sample Number[2]	Sample Date	Sample Depth (ft bgs)	Field Screening Results[3]		Total Petroleum Hydrocarbons [4]		
			Sheen	Headspace Vapor (ppm)	Gasoline-Range	Diesel-Range	Heavy Oil-Range
MW-17A-24	09/07/99	24	NS	380	<20.0	<50.0	<100
MTCA Method A Cleanup Levels					100	200	200

Notes:
[1]Chemical analyses were performed by North Creek Analytical in Bothell, Washington. Laboratory report is attached.
[2]Approximate location shown in Figure 2.
[3]Field screening procedures described in Attachment A.
[4]Analyzed by Ecology Method WTPH-HCID.
bgs = below ground surface
MTCA = Model Toxics Control Act
NS = no sheen
Chemical analysis conducted by North Creek Analytical of Bothell, Washington.
The laboratory report is presented in Attachment B.

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Geo Engineers/Olympic Pipeline Co.	Project: OPLC-Kent Block Valve	
8410 154th Ave. NE	Project Number: 0894-005-02 T2	**Reported:**
Redmond WA, 98052	Project Manager: Tina King	08/13/01 14:42

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-21-16.0	B1H0035-01	Soil	07/31/01 12:00	08/01/01 16:15

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Scott A. Woerman, Project Manager

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Geo Engineers/Olympic Pipeline Co.	Project: OPLC-Kent Block Valve	
8410 154th Ave. NE	Project Number: 0894-005-02 T2	**Reported:**
Redmond WA, 98052	Project Manager: Tina King	08/13/01 14:42

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-21-16.0 (B1H0035-01) Soil Sampled: 07/31/01 12:00 Received: 08/01/01 16:15									
Gasoline Range Hydrocarbons	ND	5.00	mg/kg dry	1	1H07028	08/07/01	08/08/01	NWTPH-Gx/8021B	
Benzene	ND	0.0300	"	"	"	"	"	"	
Toluene	ND	0.0500	"	"	"	"	"	"	
Ethylbenzene	ND	0.0500	"	"	"	"	"	"	
Xylenes (total)	ND	0.100	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*78.7 %*	*50-147*			"	"	"	"	
Surrogate: 4-BFB (PID)	*81.8 %*	*54-123*			"	"	"	"	

Scott A. Woerman, Project Manager

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Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Geo Engineers/Olympic Pipeline Co.	Project: OPLC-Kent Block Valve	
8410 154th Ave. NE	Project Number: 0894-005-02 T2	**Reported:**
Redmond WA, 98052	Project Manager: Tina King	08/13/01 14:42

Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-21-16.0 (B1H0035-01) Soil Sampled: 07/31/01 12:00 Received: 08/01/01 16:15									
Diesel Range Hydrocarbons	ND	10.0	mg/kg dry	1	1H07007	08/07/01	08/12/01	NWTPH-Dx SG	
Lube Oil Range Hydrocarbons	ND	25.0	"	"	"	"	"	"	
Surrogate: 2-FBP	*69.5 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*83.1 %*	*50-150*			"	"	"	"	

Scott A. Woerman, Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
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503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W. International Airport Road, Suite A10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

Geo Engineers/Olympic Pipeline Co.	Project: OPLC-Kent Block Valve	
8410 154th Ave NE	Project Number: 0894-005-03	**Reported:**
Redmond, WA/USA 98052	Project Manager: Tina King	07/17/03 10:29

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BS-1	B3G0264-01	Soil	06/26/03 14:40	07/10/03 17:00
BS-2	B3G0264-02	Soil	06/26/03 13:00	07/10/03 17:00
BS-3	B3G0264-03	Soil	06/26/03 11:15	07/10/03 17:00
BS-4	B3G0264-04	Soil	06/26/03 09:00	07/10/03 17:00
6/27/03 (lab composite)	B3G0264-05	Soil	06/26/03 09:00	07/10/03 17:00

North Creek Analytical - Bothell

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Jeff Gerdes

Jeff Gerdes, Project Manager

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503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W. International Airport Road, Suite A10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

Geo Engineers/Olympic Pipeline Co.	Project: OPLC-Kent Block Valve	
8410 154th Ave NE	Project Number: 0894-005-03	**Reported:**
Redmond, WA/USA 98052	Project Manager: Tina King	07/17/03 10:29

Volatile Petroleum Products by NWTPH-Gx
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BS-1 (B3G0264-01) Soil Sampled: 06/26/03 14:40 Received: 07/10/03 17:00									**I-02**
Gasoline Range Hydrocarbons	ND	5.00	mg/kg dry	1	3G14005	07/14/03	07/15/03	NWTPH-Gx	
Surrogate: 4-BFB (FID)	*87.7 %*	*52-123*			"	"	"	"	
BS-2 (B3G0264-02) Soil Sampled: 06/26/03 13:00 Received: 07/10/03 17:00									**I-02**
Gasoline Range Hydrocarbons	ND	5.00	mg/kg dry	1	3G14005	07/14/03	07/15/03	NWTPH-Gx	
Surrogate: 4-BFB (FID)	*87.7 %*	*52-123*			"	"	"	"	
BS-3 (B3G0264-03) Soil Sampled: 06/26/03 11:15 Received: 07/10/03 17:00									**I-02**
Gasoline Range Hydrocarbons	ND	5.00	mg/kg dry	1	3G14005	07/14/03	07/15/03	NWTPH-Gx	
Surrogate: 4-BFB (FID)	*86.7 %*	*52-123*			"	"	"	"	
BS-4 (B3G0264-04) Soil Sampled: 06/26/03 09:00 Received: 07/10/03 17:00									**I-02**
Gasoline Range Hydrocarbons	ND	5.00	mg/kg dry	1	3G14005	07/14/03	07/15/03	NWTPH-Gx	
Surrogate: 4-BFB (FID)	*82.8 %*	*52-123*			"	"	"	"	
6/27/03 (lab composite) (B3G0264-05) Soil Sampled: 06/26/03 09:00 Received: 07/10/03 17:00									**I-02**
Gasoline Range Hydrocarbons	ND	5.00	mg/kg dry	1	3G14005	07/14/03	07/15/03	NWTPH-Gx	
Surrogate: 4-BFB (FID)	*83.9 %*	*52-123*			"	"	"	"	

North Creek Analytical - Bothell

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Jeff Gerdes, Project Manager

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Geo Engineers/Olympic Pipeline Co.	Project: OPLC-Kent Block Valve	
8410 154th Ave NE	Project Number: 0894-005-03	**Reported:**
Redmond, WA/USA 98052	Project Manager: Tina King	07/17/03 10:29

Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up)

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BS-1 (B3G0264-01) Soil Sampled: 06/26/03 14:40 Received: 07/10/03 17:00									
Diesel Range Hydrocarbons	ND	10.0	mg/kg dry	1	3G14023	07/14/03	07/16/03	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	25.0	"	"	"	"	"	"	
Surrogate: 2-FBP	*101 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*121 %*	*57-120*			"	"	"	"	*S-03*
BS-2 (B3G0264-02) Soil Sampled: 06/26/03 13:00 Received: 07/10/03 17:00									
Diesel Range Hydrocarbons	ND	10.0	mg/kg dry	1	3G14023	07/14/03	07/15/03	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	25.0	"	"	"	"	"	"	
Surrogate: 2-FBP	*82.0 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*97.4 %*	*57-120*			"	"	"	"	
BS-3 (B3G0264-03) Soil Sampled: 06/26/03 11:15 Received: 07/10/03 17:00									
Diesel Range Hydrocarbons	ND	10.0	mg/kg dry	1	3G14023	07/14/03	07/16/03	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	25.0	"	"	"	"	"	"	
Surrogate: 2-FBP	*88.0 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*112 %*	*57-120*			"	"	"	"	
BS-4 (B3G0264-04) Soil Sampled: 06/26/03 09:00 Received: 07/10/03 17:00									
Diesel Range Hydrocarbons	ND	10.0	mg/kg dry	1	3G14023	07/14/03	07/16/03	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	25.0	"	"	"	"	"	"	
Surrogate: 2-FBP	*90.4 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*113 %*	*57-120*			"	"	"	"	
6/27/03 (lab composite) (B3G0264-05) Soil Sampled: 06/26/03 09:00 Received: 07/10/03 17:00									
Diesel Range Hydrocarbons	ND	10.0	mg/kg dry	1	3G14023	07/14/03	07/15/03	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	25.0	"	"	"	"	"	"	
Surrogate: 2-FBP	*82.6 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*95.1 %*	*57-120*			"	"	"	"	

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Geo Engineers/Olympic Pipeline Co.	Project: OPLC-Kent Block Valve	
8410 154th Ave NE	Project Number: 0894-005-03	**Reported:**
Redmond, WA/USA 98052	Project Manager: Tina King	07/17/03 10:29

BTEX by EPA Method 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BS-1 (B3G0264-01) Soil Sampled: 06/26/03 14:40 Received: 07/10/03 17:00									**I-02**
Benzene	ND	0.0300	mg/kg dry	1	3G14005	07/14/03	07/15/03	EPA 8021B	
Toluene	ND	0.0500	"	"	"	"	"	"	
Ethylbenzene	ND	0.0500	"	"	"	"	"	"	
Xylenes (total)	ND	0.100	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*78.0 %*	*60-127*			"	"	"	"	
BS-2 (B3G0264-02) Soil Sampled: 06/26/03 13:00 Received: 07/10/03 17:00									**I-02**
Benzene	ND	0.0300	mg/kg dry	1	3G14005	07/14/03	07/15/03	EPA 8021B	
Toluene	ND	0.0500	"	"	"	"	"	"	
Ethylbenzene	ND	0.0500	"	"	"	"	"	"	
Xylenes (total)	ND	0.100	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*80.8 %*	*60-127*			"	"	"	"	
BS-3 (B3G0264-03) Soil Sampled: 06/26/03 11:15 Received: 07/10/03 17:00									**I-02**
Benzene	ND	0.0300	mg/kg dry	1	3G14005	07/14/03	07/15/03	EPA 8021B	
Toluene	ND	0.0500	"	"	"	"	"	"	
Ethylbenzene	ND	0.0500	"	"	"	"	"	"	
Xylenes (total)	ND	0.100	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*99.2 %*	*60-127*			"	"	"	"	
BS-4 (B3G0264-04) Soil Sampled: 06/26/03 09:00 Received: 07/10/03 17:00									**I-02**
Benzene	ND	0.0300	mg/kg dry	1	3G14005	07/14/03	07/15/03	EPA 8021B	
Toluene	ND	0.0500	"	"	"	"	"	"	
Ethylbenzene	ND	0.0500	"	"	"	"	"	"	
Xylenes (total)	ND	0.100	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*76.8 %*	*60-127*			"	"	"	"	

North Creek Analytical - Bothell

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Jeff Gerdes

Jeff Gerdes, Project Manager

Geo Engineers

TABLE 5 (Page 1 of 3)
SUMMARY OF GR0UND WATER QUALITY DATA

Monitor Well	Sample Date	EPA Method 8020			
		Benzene (ppb)	Ethyl-benzene (ppb)	Toluene (ppb)	Total Xylenes (ppb)
MW-1	08-29-89	2,400	530	99	2,240
	12-20-89	95	34	9.5	78
MW-4	09-05-89	ND	ND	ND	ND
	12-21-89	ND	ND	ND	ND
MW-5	12-21-89	ND	ND	ND	ND
	04-23-90	ND	ND	ND	ND
MW-6	09-20-89	410	13	11	41
	12-21-89	79	2.2	1.1	11
	01-23-90	910	23	17	83
	02-20-90	950	65	190	280
	03-20-90	9.6	0.6	ND	6.7
	04-23-90	130	22	16	75
	05-18-90	220	39	20	120
MW-7	09-20-89	1.1	ND	ND	0.8
	12-20-89	ND	ND	ND	ND
	05-18-90	ND	ND	ND	ND
MW-8	09-20-89	6,400	550	840	2,170
	12-20-89	9,300	<2,500	<2,500	<2,500
	01-23-90	10,000	980	5,000	4,700
	02-20-90	2,700	500	1,900	2,200
	03-20-90	1,800	470	1,100	1,700
MW-9	09-20-89	ND	ND	ND	ND
	12-20-89	4.8	25	86	120
	01-23-90	4.8	53	85	240
	02-20-90	14	41	38	120
	03-20-90	26	38	6.3	110
	04-23-90	23	42	6.7	81
MW-10	09-20-89	29	ND	1.1	0.5
	12-20-89	74	ND	0.77	1.6
	01-23-90	140	12	87	53
	02-20-90	130	33	100	67
	03-20-90	270	58	330	220
DRAFT MTCA Compliance Cleanup Levels		5	20	40	20

Notes:
"ppb" = parts per billion
"ND" = Not detected; see laboratory data sheets in Appendix D for analyte detection limits.
Shaded values indicate BETX concentrations which exceed DRAFT MTCA Compliance Cleanup Levels.

GeoEngineers

TABLE 5 (Page 2 of 3)

Monitor Well	Sample Date	EPA Method 8020			
		Benzene (ppb)	Ethyl-benzene (ppb)	Toluene (ppb)	Total Xylenes (ppb)
MW-11	10-18-89	520	16	13	47
	12-20-89	1,200	53.9	29.6	158
	01-23-90	1,600	96	170	220
	02-20-90	1,200	56	100	240
	03-21-90	2,200	130	260	420
	04-23-90	2,000	140	180	440
	05-18-90	2,300	150	205	500
MW-12	10-18-89	ND	ND	ND	ND
	12-20-89	ND	ND	ND	ND
	01-23-90	ND	ND	ND	ND
	02-21-90	ND	ND	ND	ND
	03-21-90	ND	ND	ND	ND
	04-23-90	ND	ND	ND	ND
	05-18-90	ND	ND	ND	ND
MW-13	10-18-89	3.4	ND	ND	ND
	12-21-89	2.5	ND	ND	ND
	01-23-90	3.3	ND	ND	ND
	02-20-90	20	1.7	9.3	8.0
	03-21-90	29	13	37	64
	04-23-90	49	26	5.8	110
MW-14	11-10-89	1,800	41	22	170
	12-20-89	160	6.5	1.6	18
	01-23-90	110	ND	1.0	6.8
	02-21-90	14	ND	ND	1.3
	03-21-90	530	20	6.9	47
	04-23-90	360	1.9	2.2	7.8
	05-18-90	500	4.2	4.3	14
MW-15	11-10-89	99	ND	ND	1.0
	12-20-89	200	1.7	2.2	6.4
	01-23-90	120	ND	1.4	2.6
	02-21-90	48	ND	ND	0.7
	03-21-90	53	ND	0.5	0.5
	04-23-90	53	ND	ND	ND
	05-18-90	59	ND	ND	ND
DRAFT MTCA Compliance Cleanup Levels		5	20	40	20

Notes:
"ppb" = parts per billion
"ND" = Not detected; see laboratory data sheets in Appendix D for analyte detection limits.
Shaded values indicate BETX concentrations which exceed DRAFT MTCA Compliance Cleanup Levels.

GeoEngineers

TABLE 5 (Page 3 of 3)

Monitor Well	Sample Date	EPA Method 8020			
		Benzene (ppb)	Ethyl-benzene (ppb)	Toluene (ppb)	Total Xylenes (ppb)
MW-16	12-19-89	98	ND	1.1	ND
	01-23-90	560	2.4	6.8	5.5
	02-21-90	750	64	320	360
	03-21-90	720	63	400	310
	04-23-90	1,200	140	740	630
	05-18-90	780	97	750	470
MW-17	12-19-89	ND	ND	ND	ND
	04-23-90	ND	ND	ND	ND
	05-18-90	ND	ND	ND	ND
MW-18	12-20-89	ND	ND	ND	ND
	01-22-90	ND	ND	ND	ND
	02-21-90	ND	ND	ND	0.5
	03-20-90	1.0	ND	1.0	0.7
	04-23-90	ND	ND	ND	ND
	05-18-90	ND	ND	ND	ND
MW-19	12-20-89	ND	ND	ND	ND
	04-23-90	ND	ND	ND	ND
	05-18-90	ND	ND	1.2	ND
DRAFT MTCA Compliance Cleanup Levels		5	20	40	20

Notes:
"ppb" = parts per billion
"ND" = Not detected; see laboratory data sheets in Appendix D for analyte detection limits.
Shaded values indicate BETX concentrations which exceed DRAFT MTCA Compliance Cleanup Levels.

TABLE 1 (Page 1 of 4)
SUMMARY OF GROUND WATER MONITORING DATA
OPLC KENT BLOCK VALVE RELEASE
KENT, WASHINGTON

Monitoring Well Number	Date Sampled	BETX (EPA method 8020 and/or 8021B) (µg/l)				Petroleum Hydrocarbons (mg/l)	
		B	E	T	X	Gasoline (Ecology Method WTPH-G)	Diesel (Ecology Method WTPH-D)
MW-6	09/20/89	410	13	11	41	–	–
	12/21/89	79	2.2	1.1	11	–	–
	01/23/90	910	23	17	83	–	–
	02/20/90	950	65	190	280	–	–
	03/20/90	9.6	0.6	ND	6.7	–	–
	04/23/90	130	22	16	75	–	–
	05/18/90	220	39	20	120	–	–
	12/13/90	280	2.1	8.9	13	–	–
	10/07/91	180	4.6	5.3	12	–	–
	08/26/92	320	18	7.8	47	–	–
	06/03/93	3.0	ND	ND	0.7	–	–
MW-7	09/20/89	1.1	ND	ND	0.8	–	–
	12/20/89	ND	ND	ND	ND	–	–
	05/18/90	ND	ND	ND	ND	–	–
	12/13/90	ND	ND	ND	ND	–	–
	10/07/91	ND	ND	ND	ND	–	–
	08/26/92	ND	ND	ND	ND	–	–
	06/03/93	ND	ND	ND	ND	–	–
MW-9	09/20/89	ND	ND	ND	ND	–	–
	12/20/89	4.8	25	86	120	–	–
	01/23/90	4.8	53	85	240	–	–
	02/20/90	14	41	38	120	–	–
	03/20/90	26	38	6.3	110	–	–
	04/23/90	23	42	6.7	81	–	–
	12/13/90	0.9	15	1.6	30	–	–
	08/26/92	3.3	0.9	ND	1.3	–	–
	06/03/93	ND	ND	ND	ND	–	–
	08/17/99	<0.500	<0.500	<0.500	<1.00	<0.0500	0.530
MTCA Method A Cleanup Level		5.0	30.0	40.0	20.0	1.0	

Notes appear on page 4 of 4

TABLE 1 (Page 2 of 4)

Monitoring Well Number	Date Sampled	BETX (EPA method 8020 and/or 8021B) (µg/l)				Petroleum Hydrocarbons (mg/l)	
		B	E	T	X	Gasoline (Ecology Method WTPH-G)	Diesel (Ecology Method WTPH-D)
MW-11	10/18/89	520	16	13	47	–	–
	12/20/89	1200	53.9	29.6	158	–	–
	01/23/90	1600	96	170	220	–	–
	02/20/90	1200	56	100	240	–	–
	03/21/90	2200	130	260	420	–	–
	04/23/90	2000	140	180	440	–	–
	05/18/90	2300	150	205	500	–	–
	12/13/90	5500	340	280	1,200	–	–
	10/07/91	1100	100	21	280	–	–
	08/26/92	1400	140	28	420	–	–
	06/03/93	1000	170	25	420	–	–
MW-12	10/18/89	ND	ND	ND	ND	–	–
	12/20/89	ND	ND	ND	ND	–	–
	01/23/90	ND	ND	ND	ND	–	–
	02/21/90	ND	ND	ND	ND	–	–
	03/21/90	ND	ND	ND	ND	–	–
	04/23/90	ND	ND	ND	ND	–	–
	05/18/90	ND	ND	ND	ND	–	–
	12/13/90	ND	ND	ND	ND	–	–
	10/07/91	ND	ND	ND	ND	–	–
	08/26/92	3.9	0.5	ND	1.4	–	–
	06/03/93	ND	ND	ND	ND	–	–
MW-13	10/18/89	3.4	ND	ND	ND	–	–
	12/21/89	2.5	ND	ND	ND	–	–
	01/23/90	3.3	ND	ND	ND	–	–
	02/20/90	20	1.7	9.3	8.0	–	–
	03/21/90	29	13	37	64	–	–
	04/23/90	49	26	5.8	110	–	–
	08/26/92	9.5	1.6	0.5	3.7	–	–
	06/03/93	3.8	0.6	ND	2.1	–	–
	08/17/99	66.5	2.63	3.45	28.8	0.370	<0.250
MTCA Method A Cleanup Level		5.0	30.0	40.0	20.0	1.0	

Notes appear on page 4 of 4

TABLE 1 (Page 3 of 4)

Monitoring Well Number	Date Sampled	BETX (EPA method 8020 and/or 8021B) (µg/l)				Petroleum Hydrocarbons (mg/l)	
		B	E	T	X	Gasoline (Ecology Method WTPH-G)	Diesel (Ecology Method WTPH-D)
MW-14	11/10/89	1800	41	22	170	–	–
	12/20/89	160	6.5	1.6	18	–	–
	01/23/90	110	ND	1.0	6.8	–	–
	02/21/90	14	ND	ND	1.3	–	–
	03/21/90	530	20	6.9	47	–	–
	04/23/90	360	1.9	2.2	7.8	–	–
	05/18/90	500	4.2	4.3	14	–	–
	12/13/90	16	ND	ND	ND	–	–
	10/07/91	8.4	ND	ND	ND	–	–
	08/26/92	ND	ND	ND	ND	–	–
	06/03/93	ND	ND	ND	ND	–	–
	08/17/99	<0.500	<0.500	<0.500	<1.00	<0.0500	0.269
MW-15	11/10/89	99	ND	ND	1.0	–	–
	12/20/89	200	1.7	2.2	6.4	–	–
	01/23/90	120	ND	1.4	2.6	–	–
	02/21/90	48	ND	ND	0.7	–	–
	03/21/90	53	ND	0.5	0.5	–	–
	04/23/90	53	ND	ND	ND	–	–
	05/18/90	59	ND	ND	ND	–	–
	12/13/90	450	17	120	97	–	–
	10/07/91	350	16	6.6	50	–	–
	08/26/92	380	21	3.6	66	–	–
	06/03/93	370	15	4.1	52	–	–
	08/17/99	611	23.4	12	72.7	<0.500	<0.250
MW-16	12/19/89	98	ND	1.1	ND	–	–
	01/23/90	560	2.4	6.8	5.5	–	–
	02/21/90	750	64	320	360	–	–
	03/21/90	720	63	400	310	–	–
	04/23/90	1200	140	740	630	–	–
	05/18/90	780	97	750	470	–	–
	12/13/90	590	26	98	130	–	–
	10/07/91	840	99	180	400	–	–
	08/26/92	520	150	20	480	–	–
	06/03/93	420	170	14	380	–	–
	08/17/99	48.6	3.99	3.40	30.1	0.710	0.256
MTCA Method A Cleanup Level		5.0	30.0	40.0	20.0	1.0	

Notes appear on page 4 of 4

TABLE 1 (Page 4 of 4)

Monitoring Well Number	Date Sampled	BETX (EPA method 8020 and/or 8021B) (µg/l)				Petroleum Hydrocarbons (mg/l)	
		B	E	T	X	Gasoline (Ecology Method WTPH-G)	Diesel (Ecology Method WTPH-D)
MW-17	12/19/89	ND	ND	ND	ND	–	–
	04/23/90	ND	ND	ND	ND	–	–
	05/18/90	ND	ND	ND	ND	–	–
	12/13/90	ND	ND	ND	ND	–	–
	10/07/91	ND	ND	ND	ND	–	–
	08/26/92	ND	ND	ND	ND	–	–
MW-17A	09/10/99	<0.500	<0.500	<0.500	<1.00	<0.0500	0.269
MW-18	12/20/89	ND	ND	ND	ND	–	–
	01/22/90	ND	ND	ND	ND	–	–
	02/21/90	ND	ND	ND	0.5	–	–
	03/20/90	1.0	ND	1.0	0.7	–	–
	04/23/90	ND	ND	ND	ND	–	–
	05/18/90	ND	ND	ND	ND	–	–
	12/13/90	14	ND	ND	ND	–	–
	01/04/91	3.3	ND	ND	ND	–	–
	10/07/91	12	ND	ND	ND	–	–
	08/26/92	64	1.6	ND	6.6	–	–
	06/03/93	97	ND	1.5	23	–	–
	08/17/99	<0.500	<0.500	<0.500	<1.00	<0.0500	<0.250
MW-19	12/20/89	ND	ND	ND	ND	–	–
	04/23/90	ND	ND	ND	ND	–	–
	05/18/90	ND	ND	1.2	ND	–	–
	12/13/90	ND	ND	1.4	ND	–	–
	01/04/91	ND	ND	ND	ND	–	–
	10/07/91	1.3	ND	ND	ND	–	–
	08/26/92	ND	ND	ND	ND	–	–
	06/03/93	3.0	ND	ND	ND	–	–
	08/17/99	<0.500	<0.500	<0.500	<1.00	<0.0500	<0.250
MTCA Method A Cleanup Level		5.0	30.0	40.0	20.0	1.0	

Notes:

µg/l = micrograms per liter.

Shaded concentrations are greater than the MTCA Method A cleanup level.

mg/l = milligrams per liter.

ND = not detected; refer to laboratory reports for analyte detection limits.

– = not sampled or not tested.

p:\089005\01\finals\089400501t1.xls

TABLE 4
HYDROCARBON VAPOR CONCENTRATIONS IN GROUND WATER MONITOR WELL CASINGS SEPTEMBER 1989 THROUGH AUGUST 1990

Monitor Well	TLV Hydrocarbon Vapor Concentrations (ppm)												
	08/29/89	09/05/89	09/21/89	10/18/89	11/10/89	12/20/89	01/22/90	02/20/90	03/20/90	04/23/90	06/21/90	07/23/90	08/20/90
MW-1	100	200	100	<100	680	160	140	NM	<100	—	—	—	—
MW-4	—	200	220	360	>10,000	<100	<100	NM	<100	—	—	—	—
MW-5	—	190	800	NM	400	120	280	NM	120	660	300	—	—
MW-6	—	—	>10,000	>10,000	>10,000	>10,000	>10,000	9,900	360	>10,000	>10,000	9,000	>10,000
MW-7	—	—	>10,000	NM	8,000	>10,000	2,300	NM	280	220	120	NM	<100
MW-8	—	—	1,400	NM	NM	>10,000	1,400	850	500	—	—	—	—
MW-9	—	—	180	180	NM	4,400	1,300	100	140	2,900	930	240	2,100
MW-10	—	—	320	<100	<100	<100	600	<100	<100	—	—	—	—
MW-11	—	—	—	2,000	970	9,300	400	360	240	520	<100	NM	NM
MW-12	—	—	—	1,600	9,000	1,200	180	<100	140	<100	120	<100	<100
MW-13	—	—	—	3,800	>10,000	>10,000	2,500	760	3,000	1,800	320	<100	>10,000
MW-14	—	—	—	—	800	8,100	1,700	200	<100	6,000	1,000	<100	<100
MW-15	—	—	—	—	400	450	530	<100	120	<100	110	<100	<100
MW-16	—	—	—	—	—	2,800	1,200	420	600	920	180	100	1,400
MW-17	—	—	—	—	—	600	5,800	NM	140	<100	100	<100	2,600
MW-18	—	—	—	—	—	1,100	400	4,000	160	190	100	<100	2,100
MW-19	—	—	—	—	—	600	1,200	NM	320	<100	210	<100	110

Notes:

"ppm" = parts per million

"—" = Monitor well not yet constructed, or the monitor well was abandoned during site construction activities.

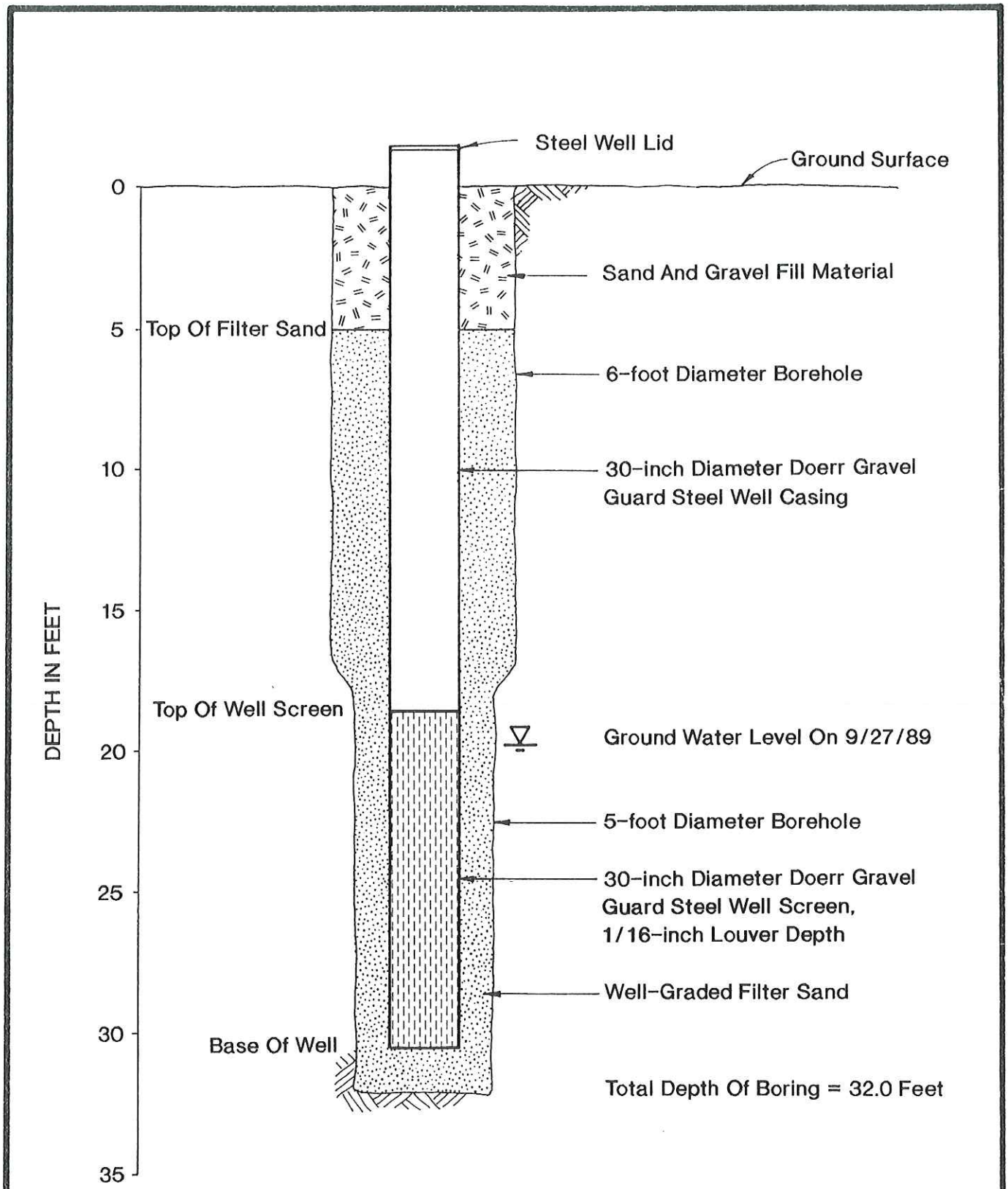
"NM" = Not measured

"NA" = Not analyzed

TLV Hydrocarbon vapor concentrations were measured in the monitor well casings using a Bacharach TLV Sniffer calibrated to hexane.

Appendix D

Soil Borings/Well Logs



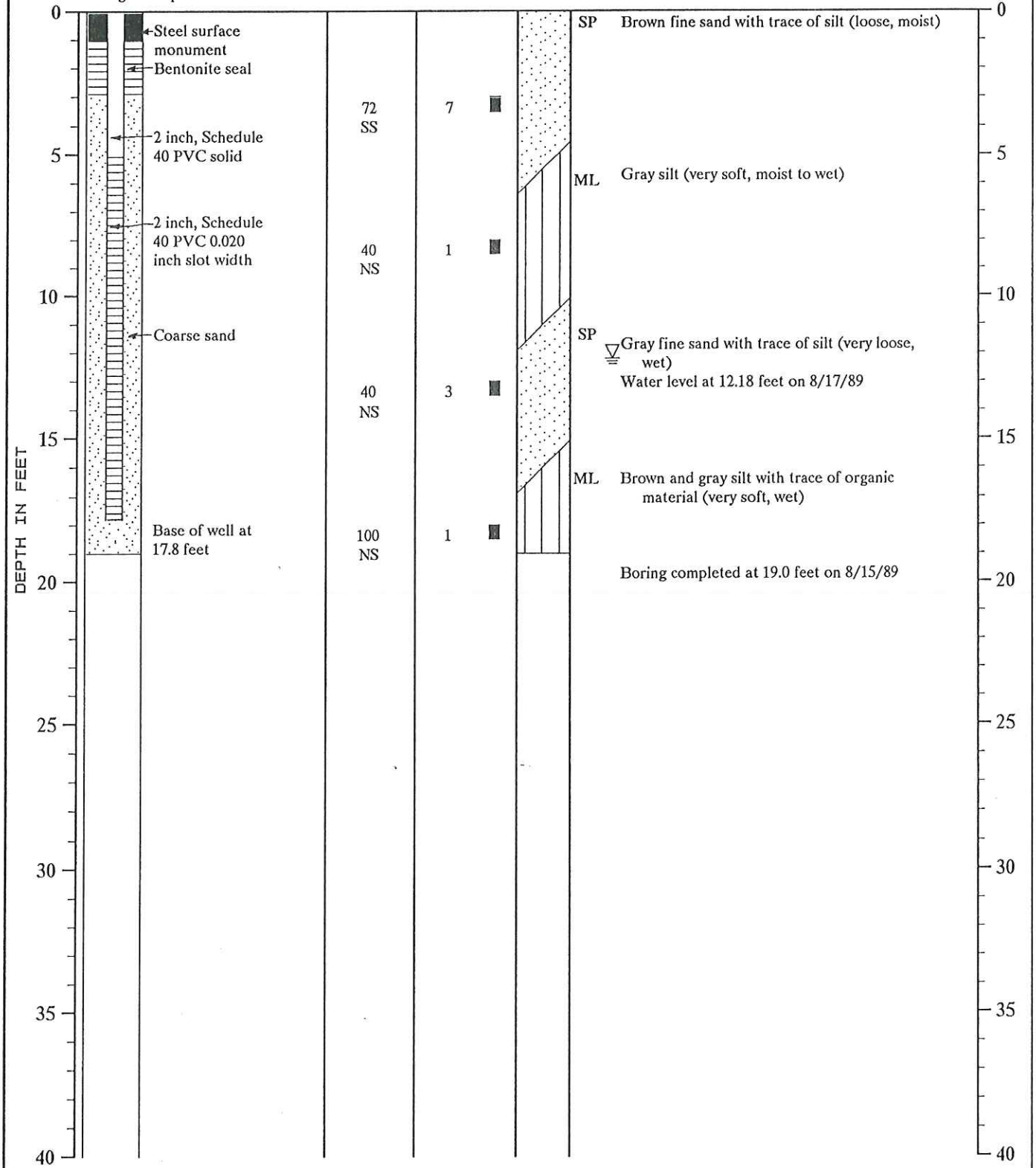
Geo Engineers

RECOVERY WELL CONSTRUCTION DETAIL

FIGURE 9

0894-05-804 OKP:KKT 12-4-89

MONITOR WELL NO. MW-1



Note: See Figure A-2 for explanation symbols

JRG:CDO 9/28/89

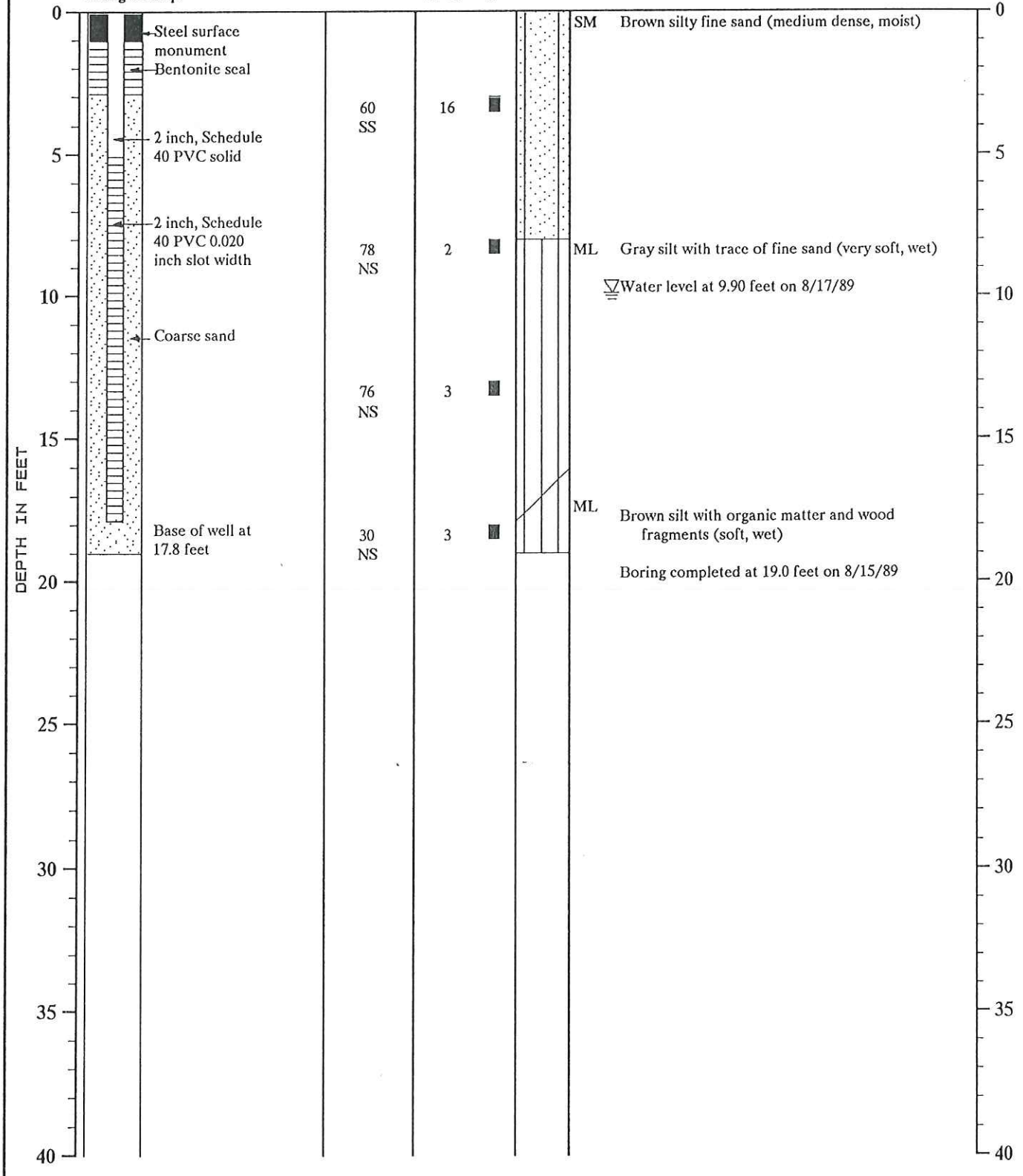
1192-046-B01

Geo Engineers

Log of Monitor Well

Figure A-3

MONITOR WELL NO. MW-2



Note: See Figure A-2 for explanation symbols

Geo Engineers

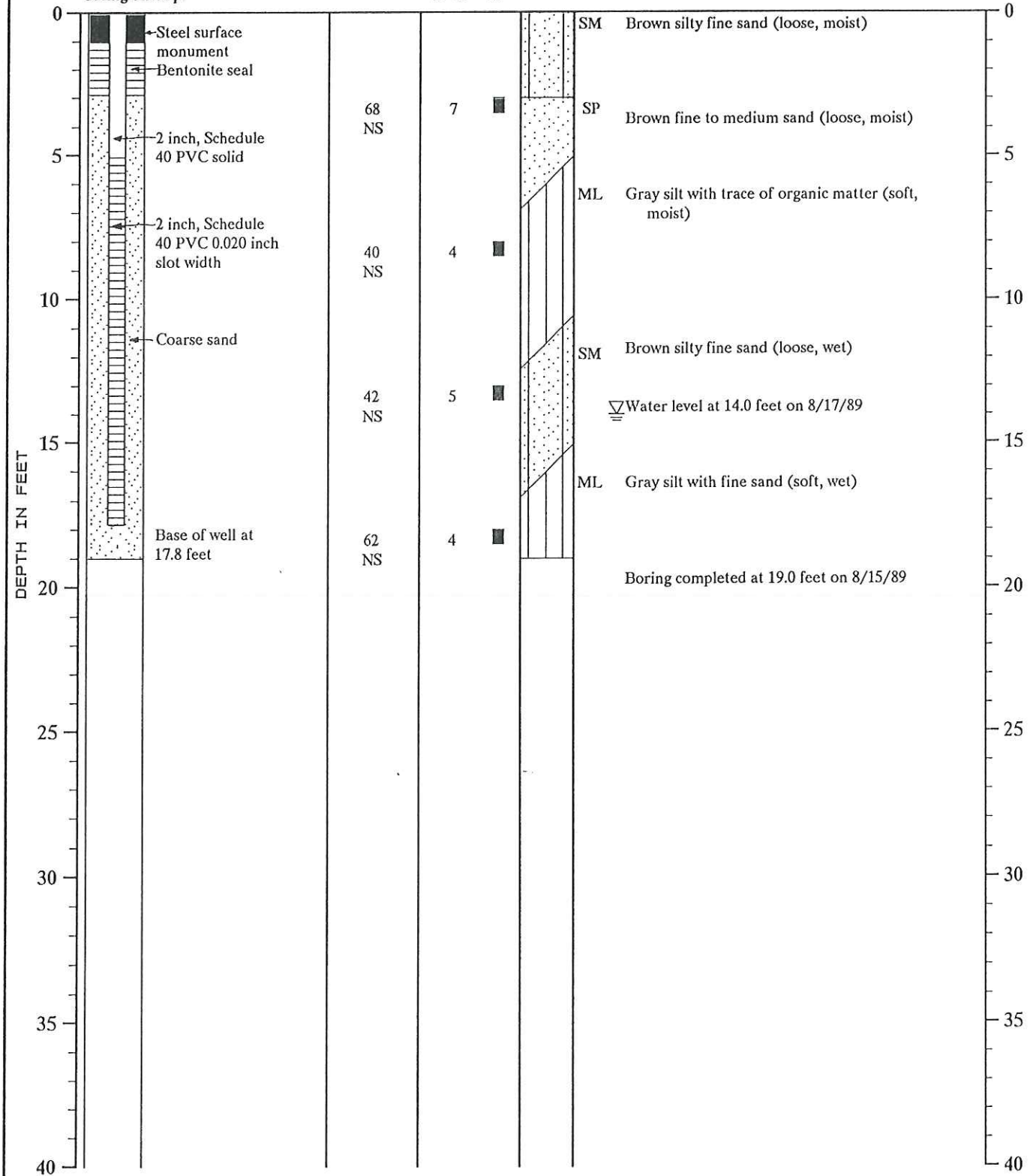
Log of Monitor Well

Figure A-4

JRG:CDO 10/6/89

1192-046-B01

MONITOR WELL NO. MW-3



Note: See Figure A-2 for explanation symbols

Geo Engineers

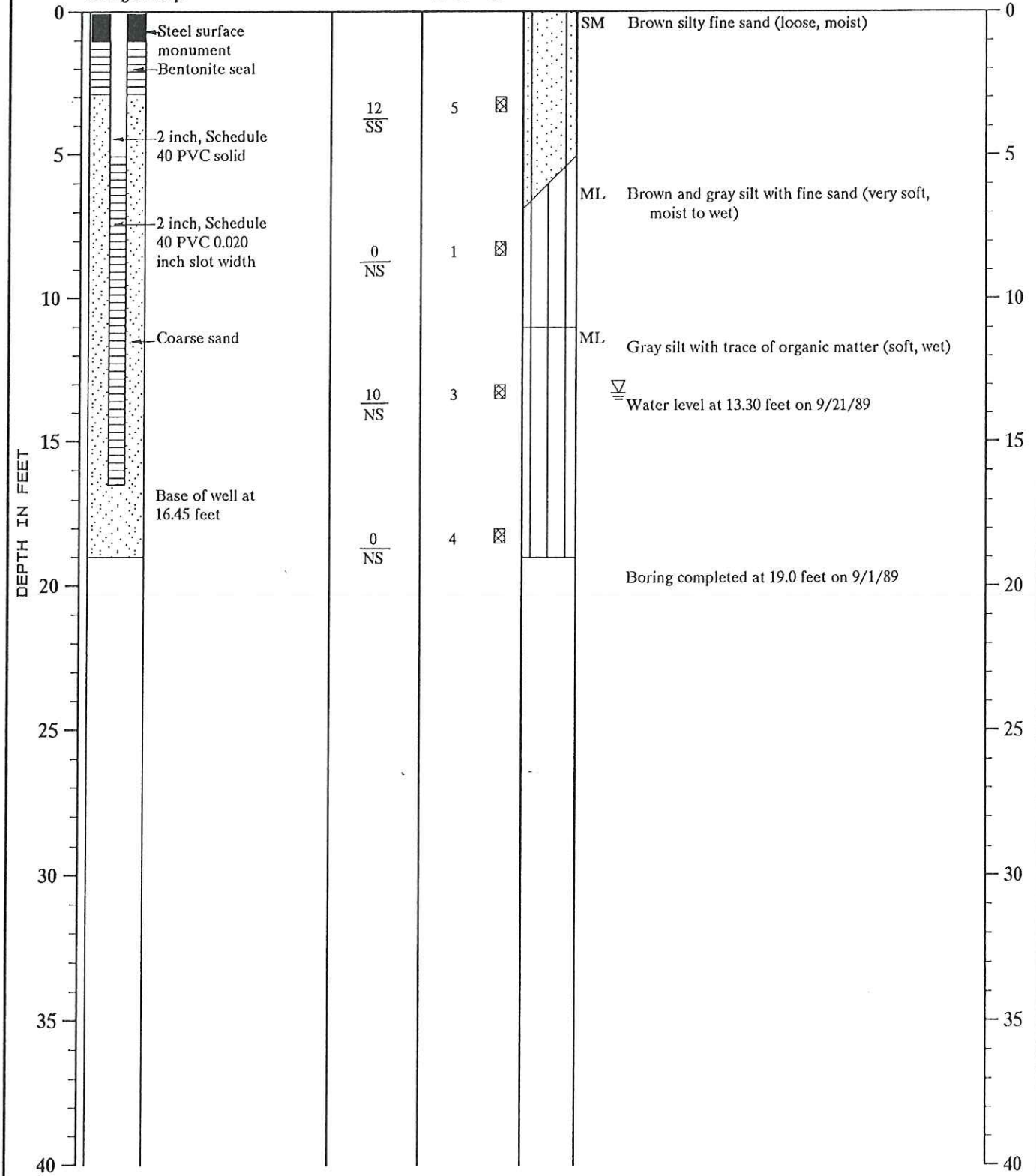
Log of Monitor Well

Figure A-5

JRG:CDO 9/28/89

1192-046-B01

MONITOR WELL NO. MW-4



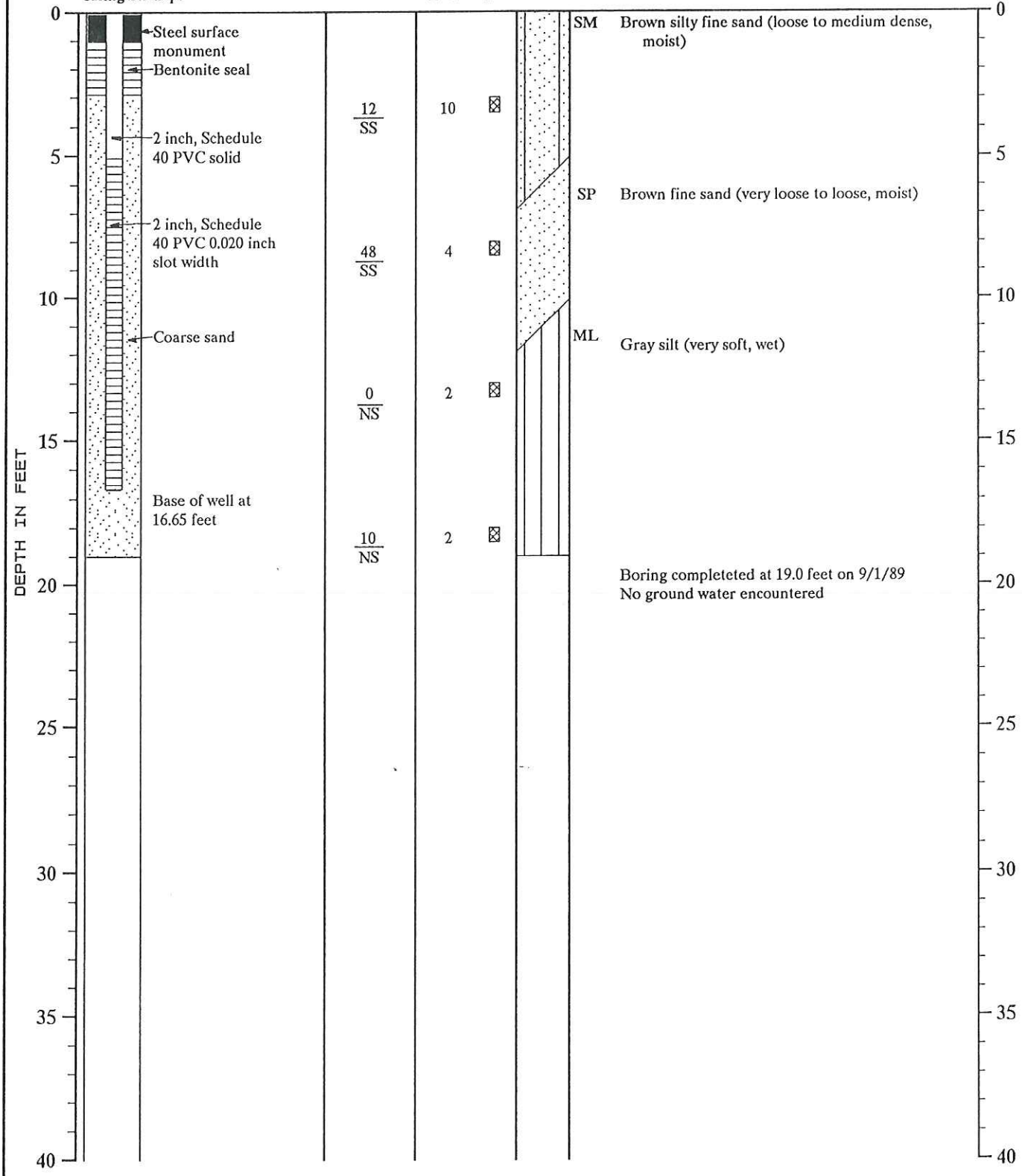
Note: See Figure A-2 for explanation symbols

Geo Engineers

Log of Monitor Well

Figure A-6

MONITOR WELL NO. MW-5



Note: See Figure A-2 for explanation symbols

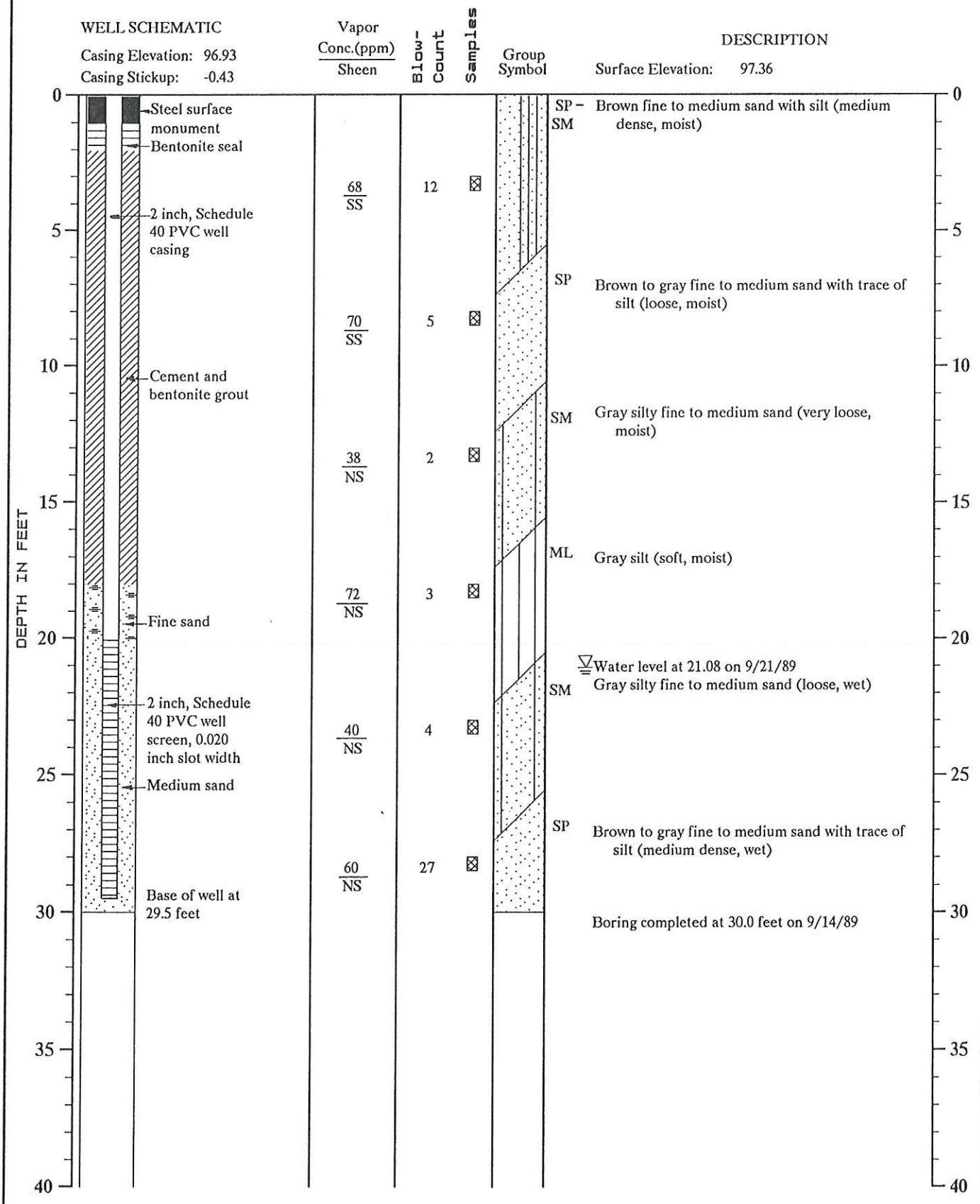
Geo Engineers

Log of Monitor Well

Figure A-7

0894-005-B04 OKP:CDO 9/28/89

MONITOR WELL NO. MW-6



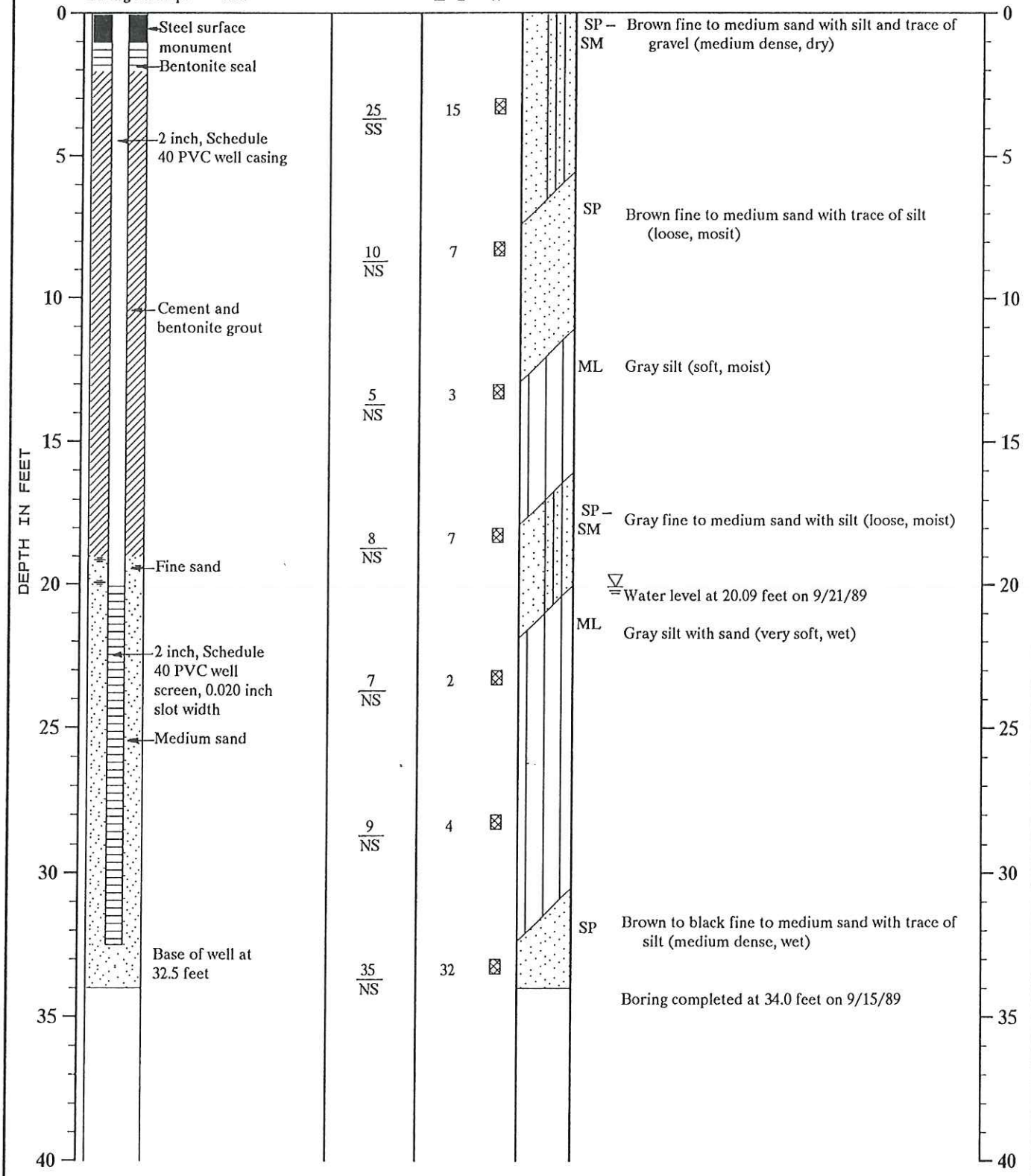
Note: See Figure A-2 for explanation symbols

Geo Engineers

Log of Monitor Well

Figure A-8

MONITOR WELL NO. MW-7



Note: See Figure A-2 for explanation symbols

Geo Engineers

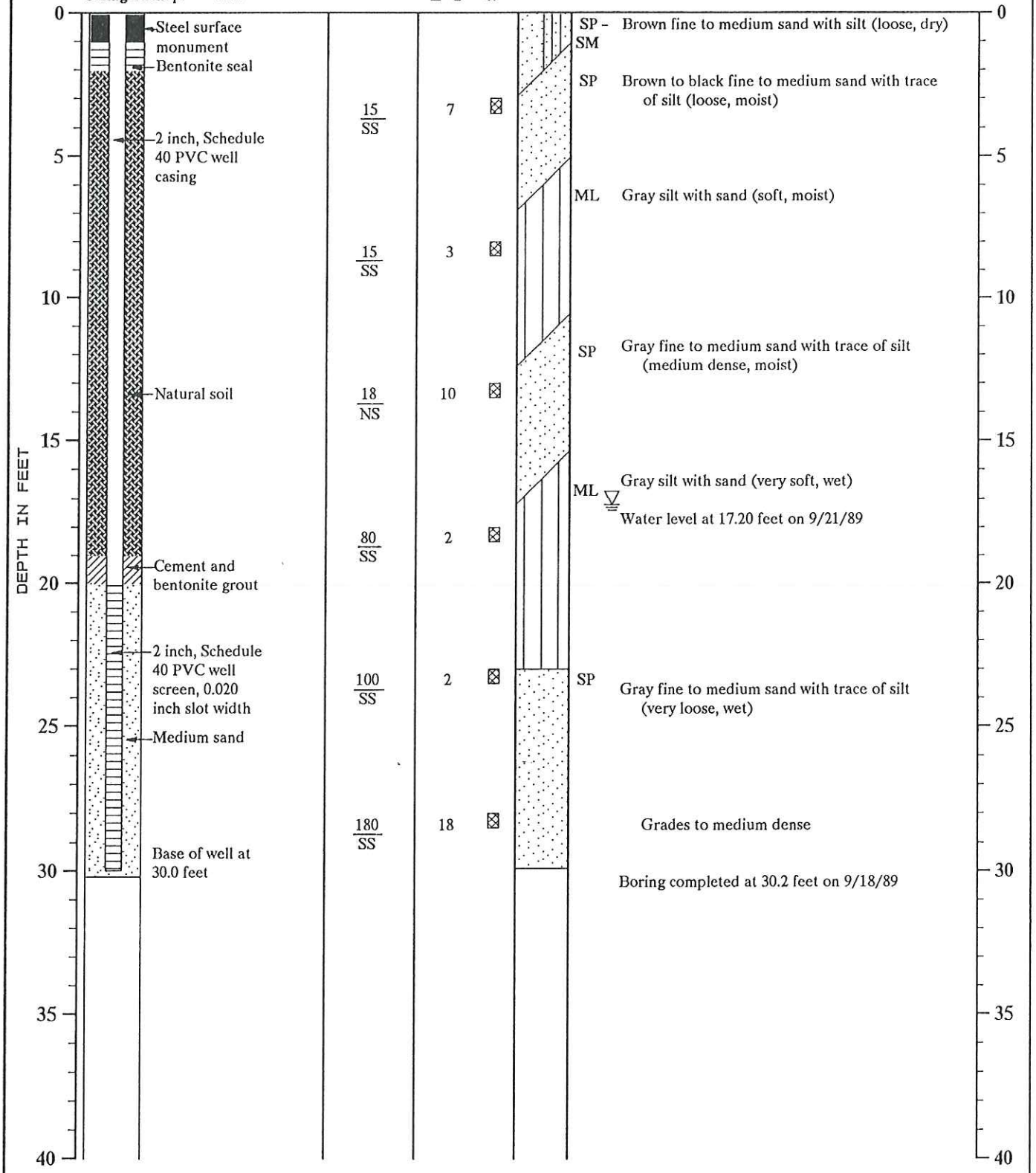
Log of Monitor Well

Figure A-9

OKP:CDO 10/4/89

0894-005-B04

MONITOR WELL NO. MW-8



Note: See Figure A-2 for explanation symbols

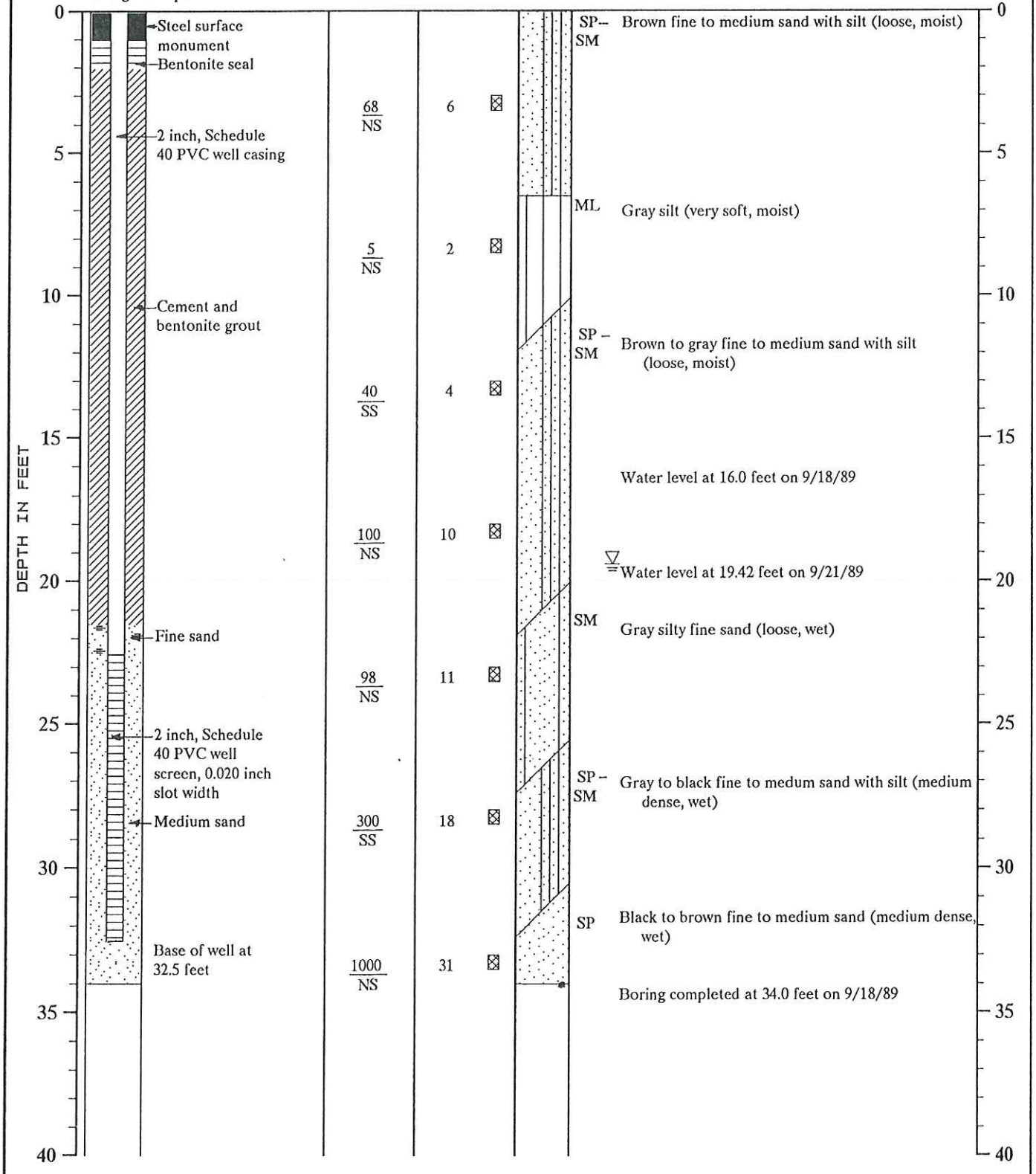
Geo Engineers

Log of Monitor Well

Figure A-10

0894-005-B04 OKP:CDO 10/4/89

MONITOR WELL NO. MW-9



Note: See Figure A-2 for explanation symbols

Geo Engineers

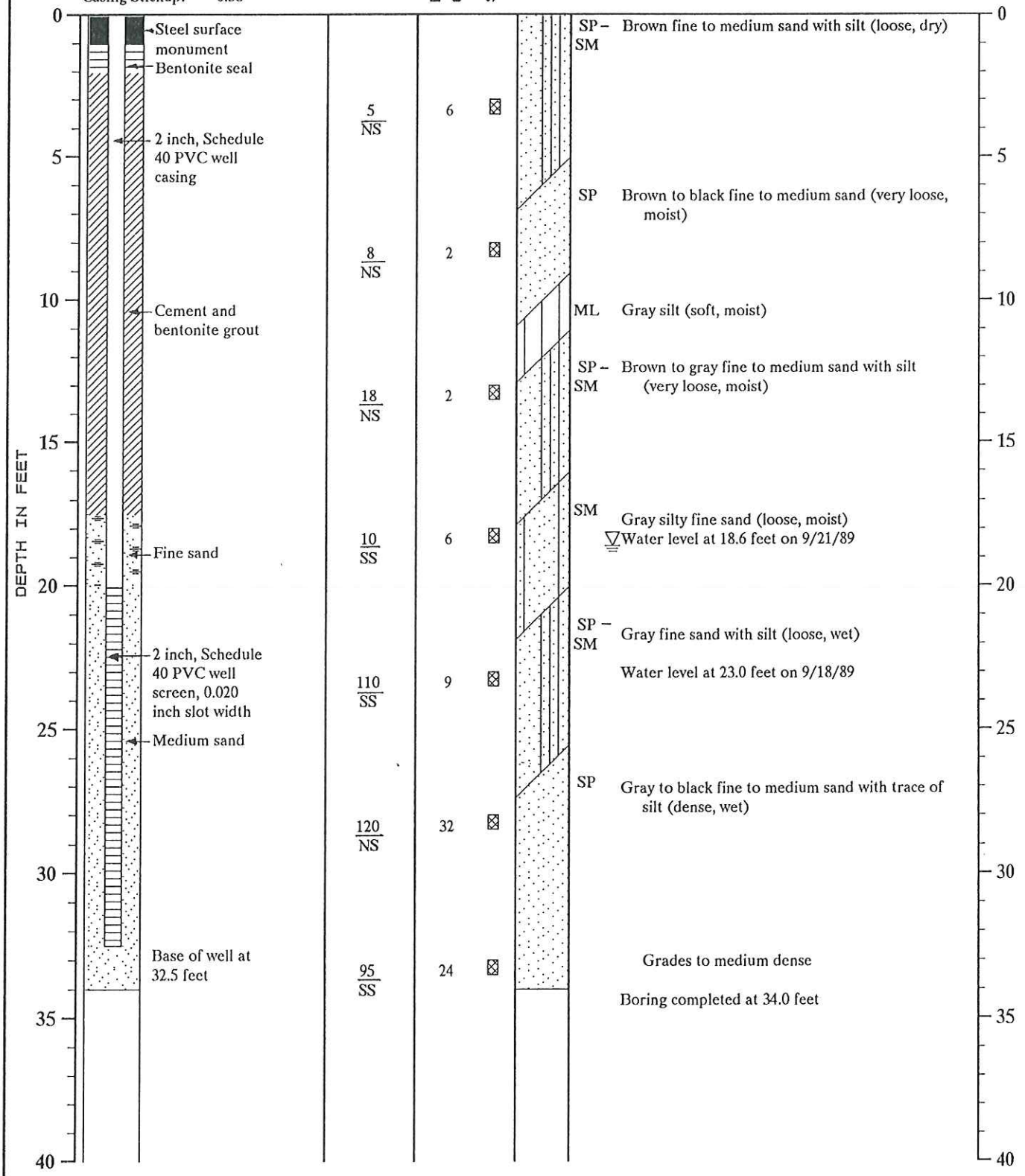
Log of Monitor Well

Figure A-11

OKP:CDO 10/4/89

0894-005-B04

MONITOR WELL NO. MW-10



Note: See Figure A-2 for explanation symbols

Geo Engineers

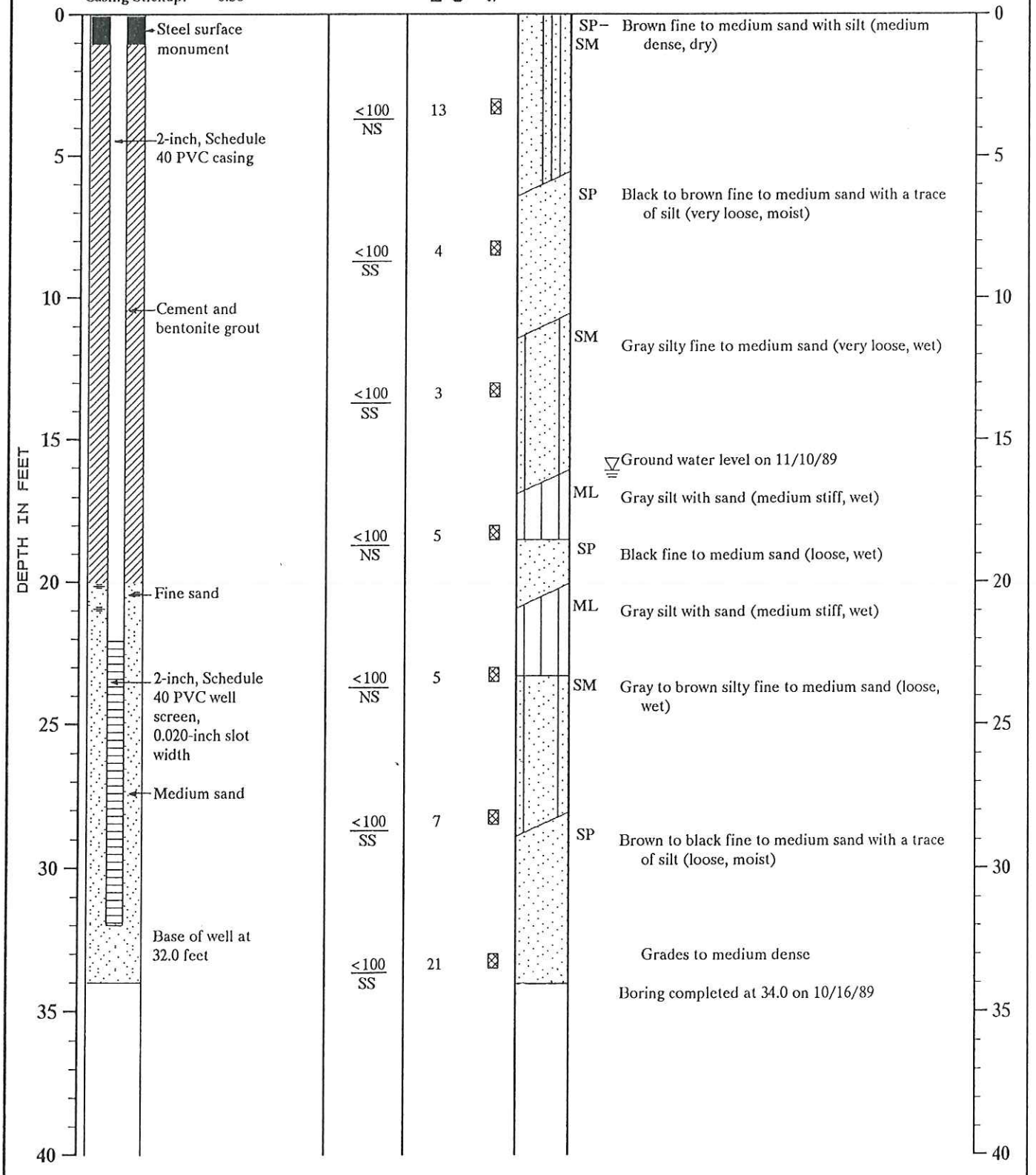
Log of Monitor Well

Figure A-12

OKP:CDO 10/5/89

0894-005-B04

MONITOR WELL NO. MW-11



Note: See Figure A-2 for explanation symbols

Geo Engineers

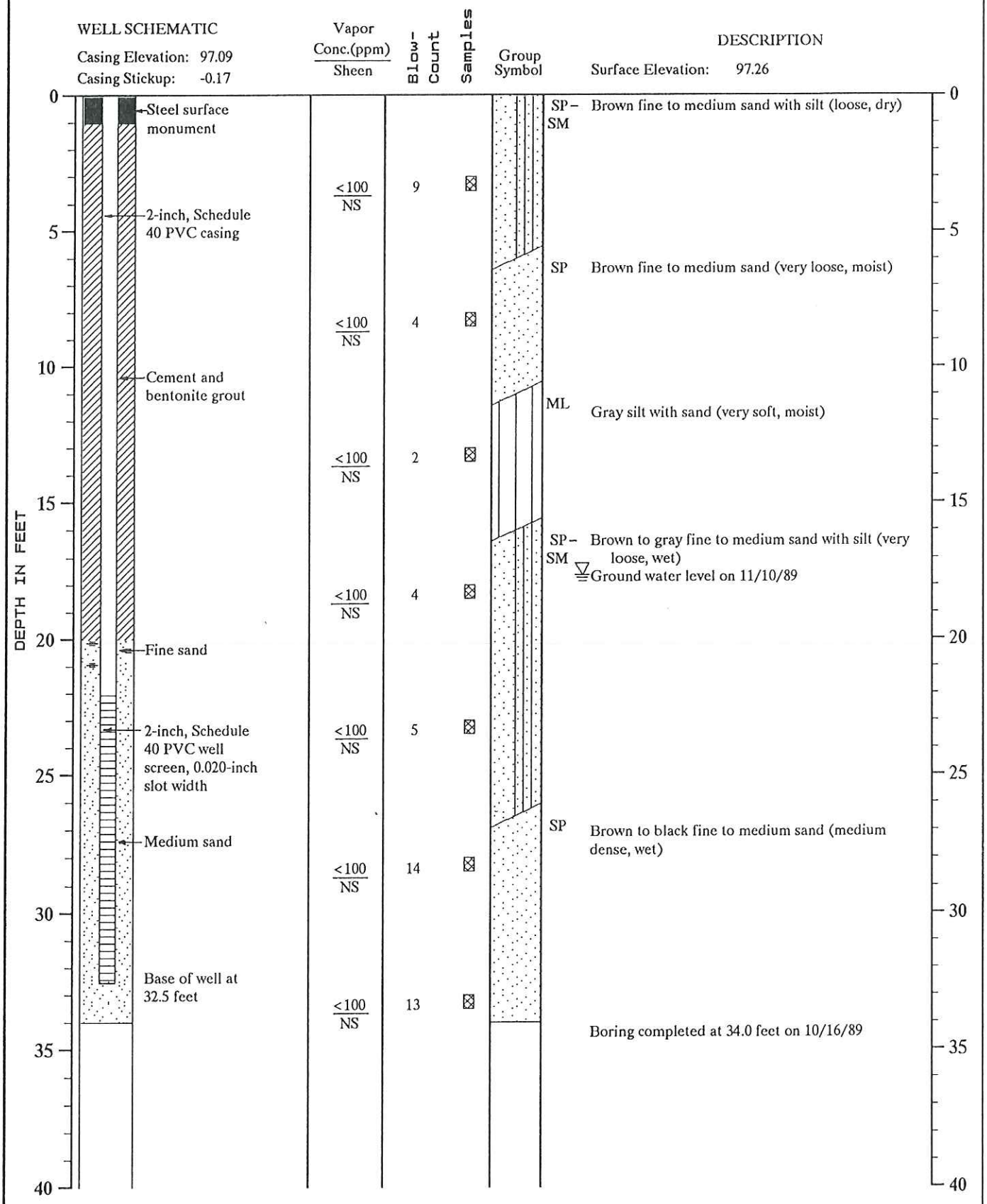
Log of Monitor Well

Figure A-13

:OKP:CDO 12/8/89

0894-005-B04

MONITOR WELL NO. MW-12



Note: See Figure A-2 for explanation symbols

Geo Engineers

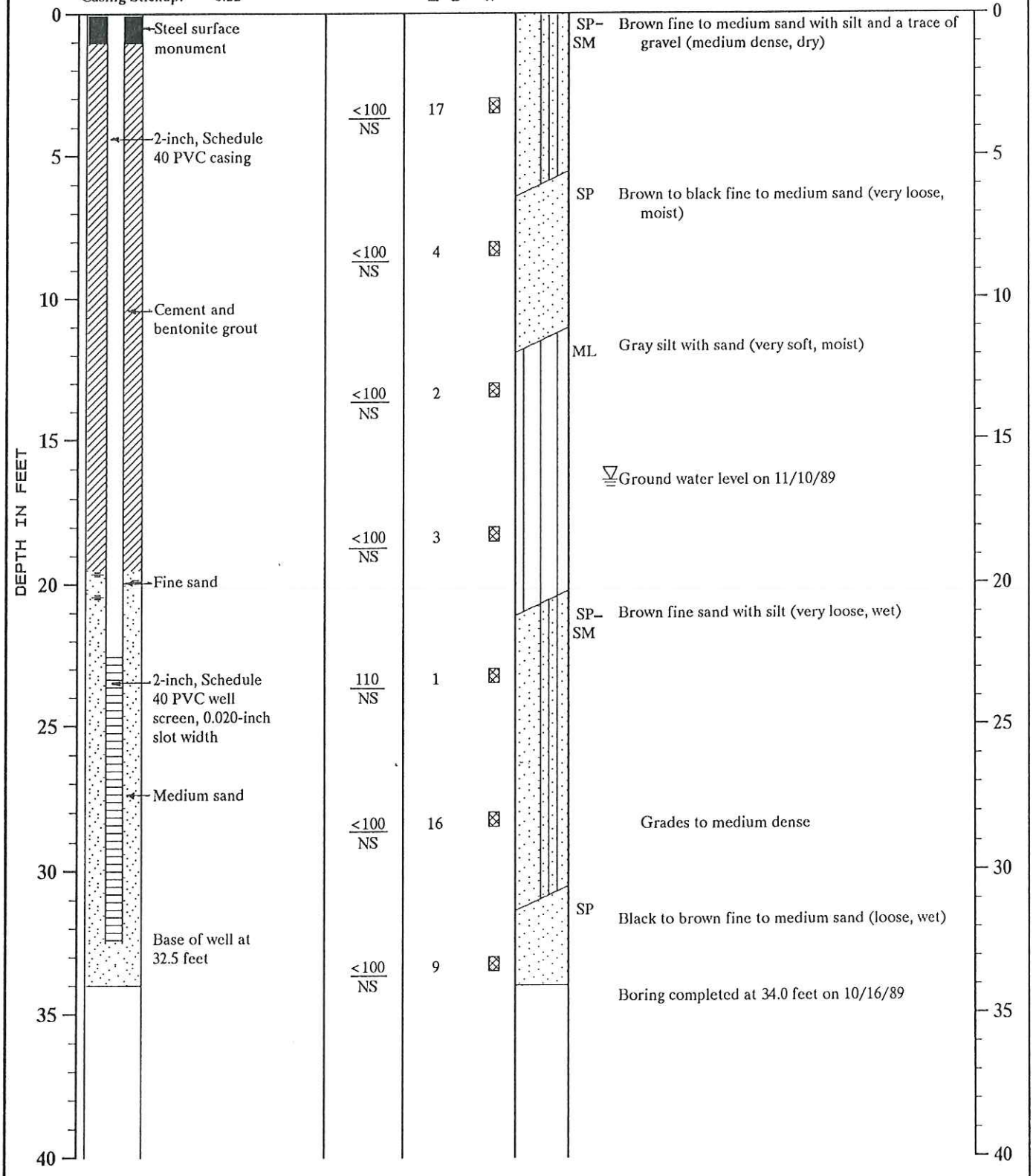
Log of Monitor Well

Figure A-14

:OKP:CDO 12/8/89

0894-005-B04

MONITOR WELL NO. MW-13



Note: See Figure A-2 for explanation symbols

Geo Engineers

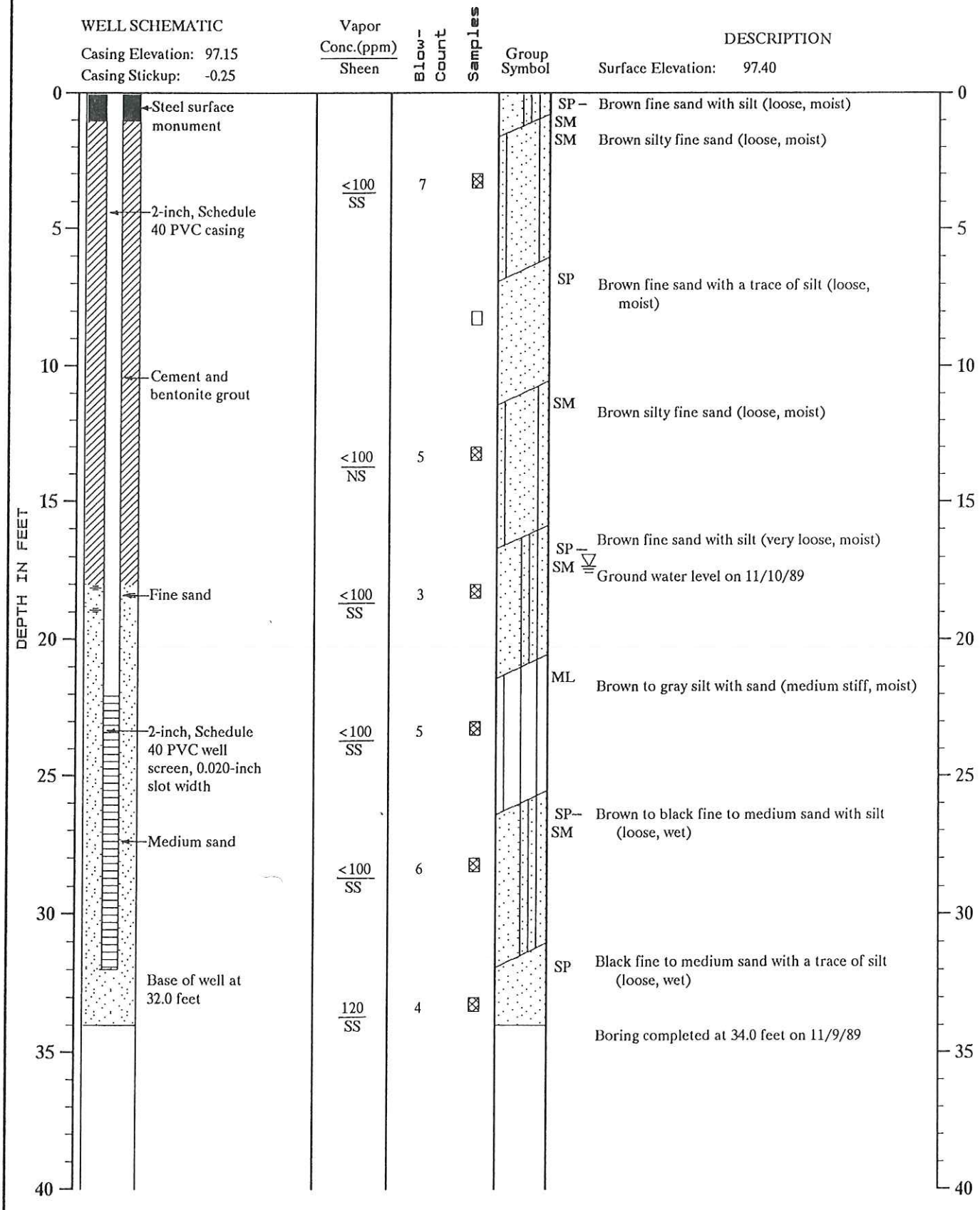
Log of Monitor Well

Figure A-15

:OKP:CDO 12/8/89

0894-005-B04

MONITOR WELL NO. MW-14



Note: See Figure A-2 for explanation symbols

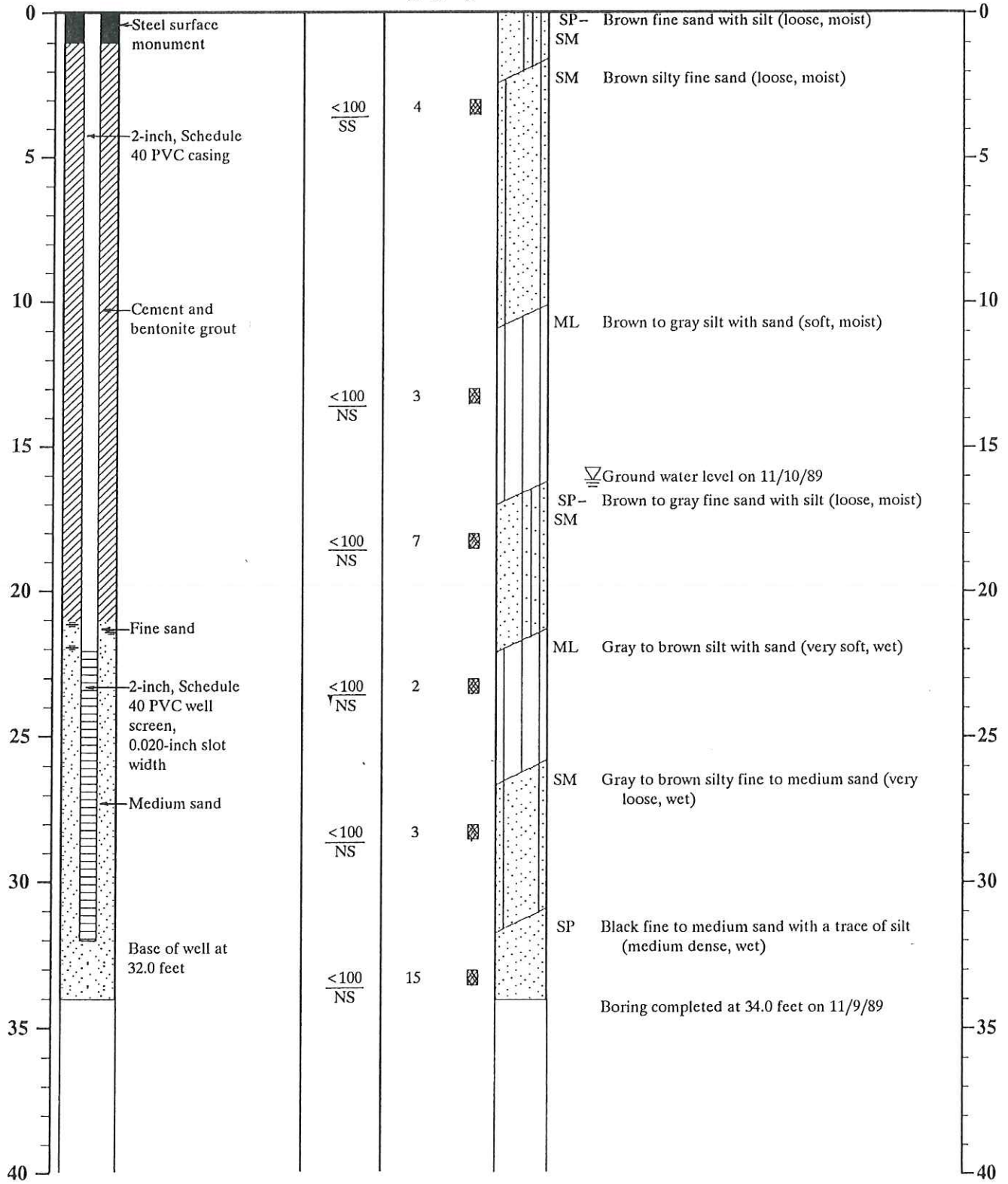
Geo Engineers

Log of Monitor Well

Figure A-16

0894-005-B04 :OKP:CDO 12/8/89

MONITOR WELL NO. MW-15



Note: See Figure A-2 for explanation of symbols

Geo Engineers

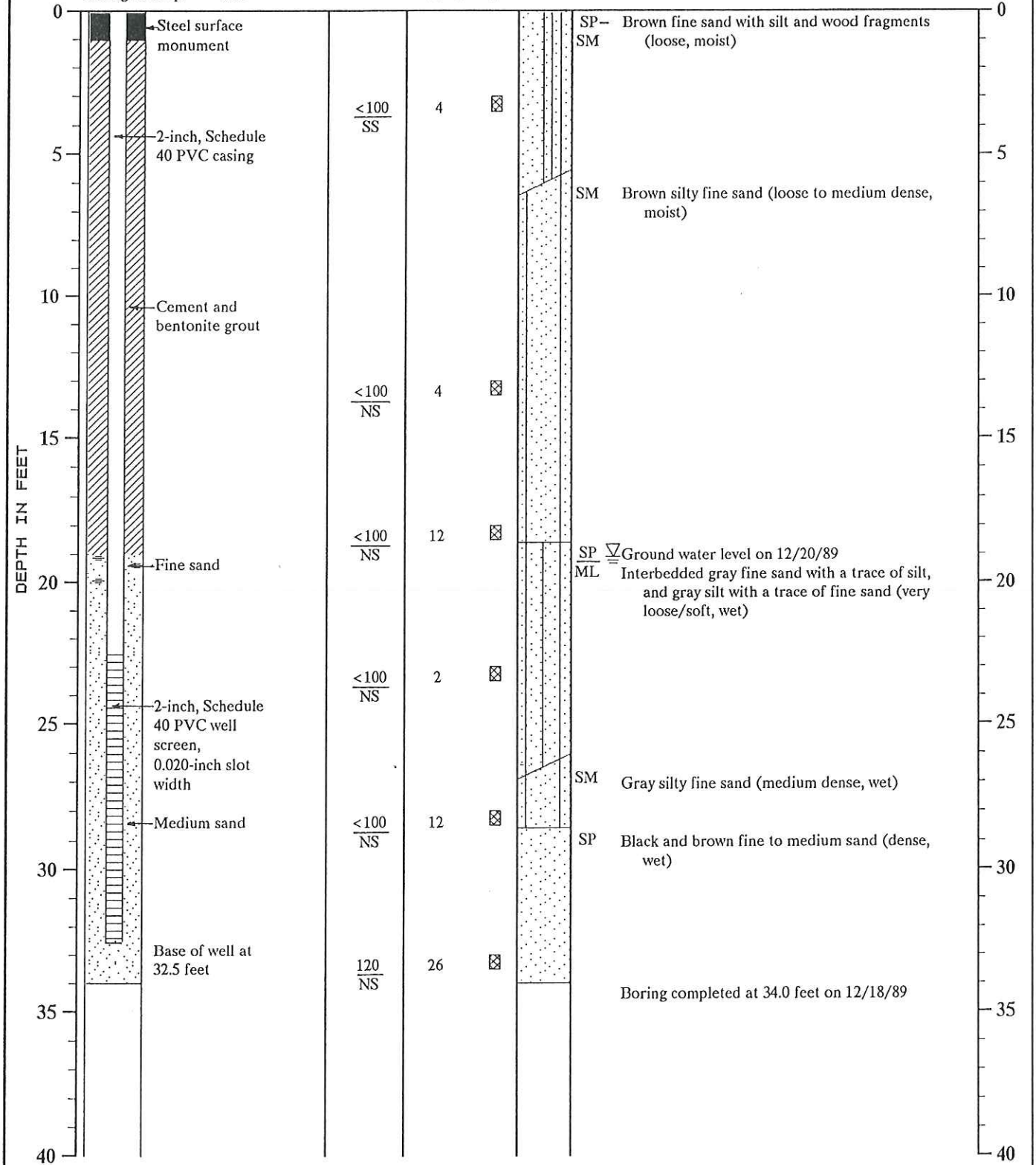
Log of Monitor Well

Figure A-17

:OKP:CDO 8/29/90

0894-005-B04

MONITOR WELL NO. MW-16



Note: See Figure A-2 for explanation symbols

Geo Engineers

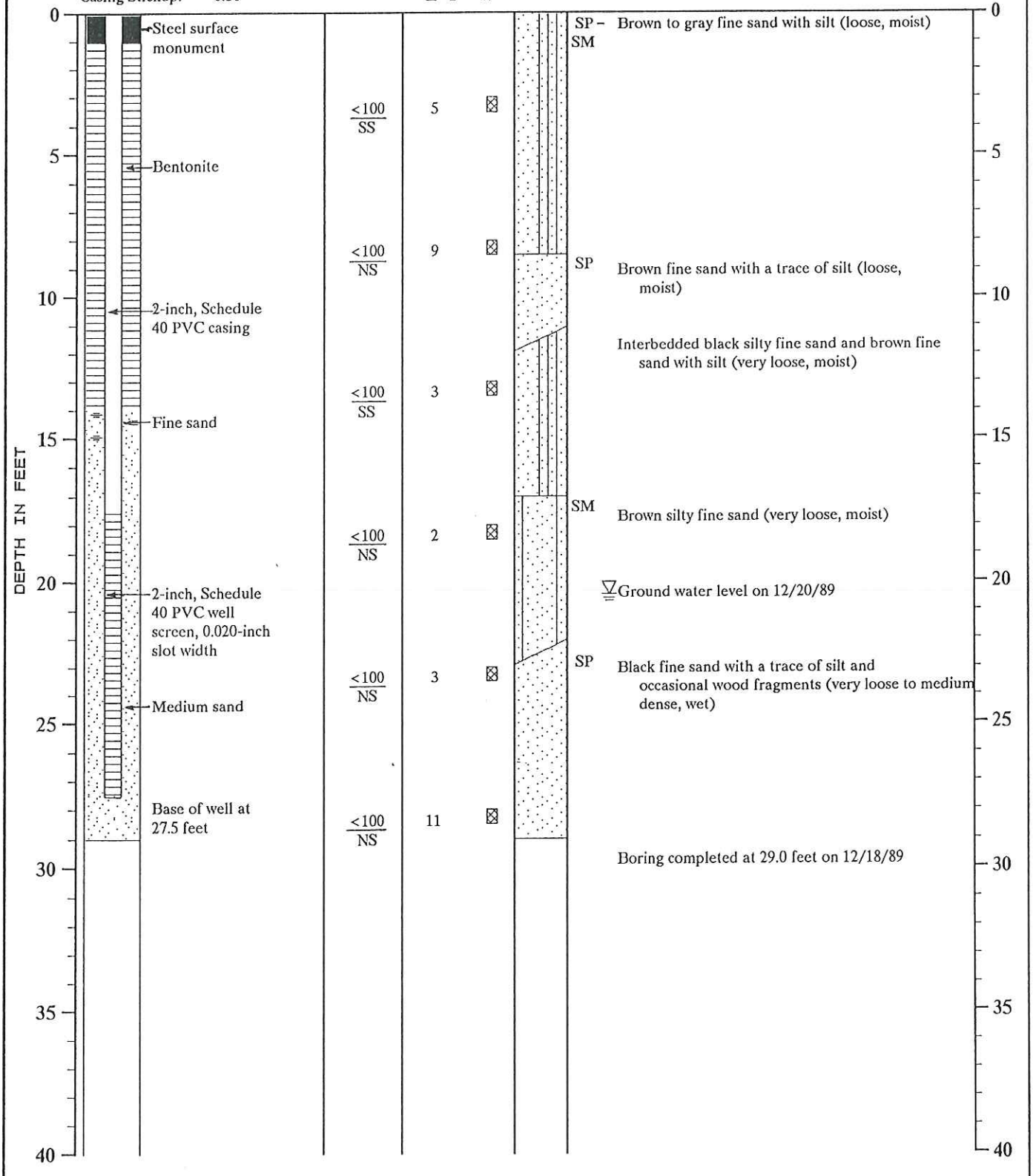
Log of Monitor Well

Figure A-18

:OKP:CDO 2/10/90

0894-005-B04

MONITOR WELL NO. MW-17



Note: See Figure A-2 for explanation symbols

Geo Engineers

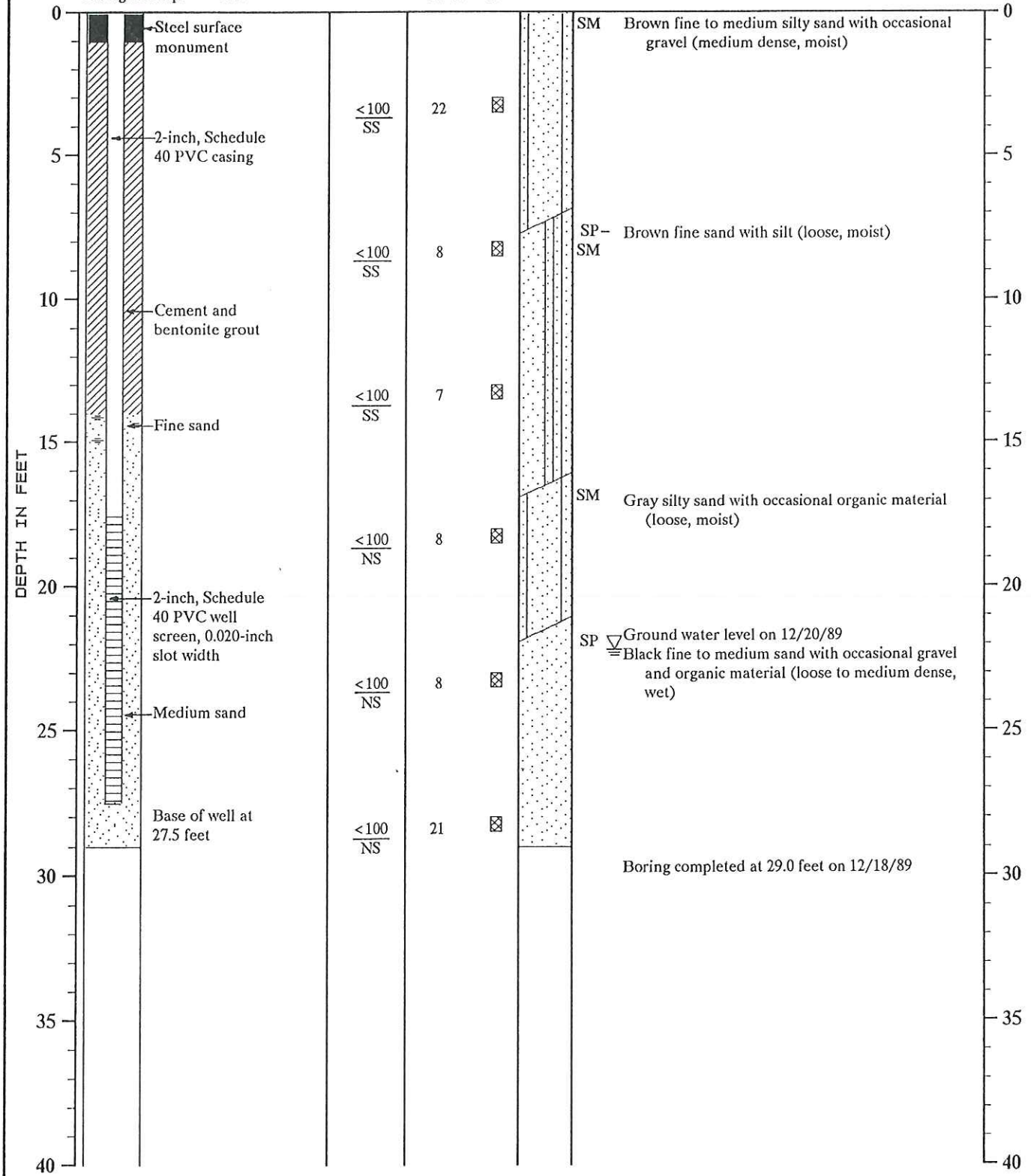
Log of Monitor Well

Figure A-19

:OKP:CDO 2/10/90

0894-005-B04

MONITOR WELL NO. MW-18



Note: See Figure A-2 for explanation symbols

Geo Engineers

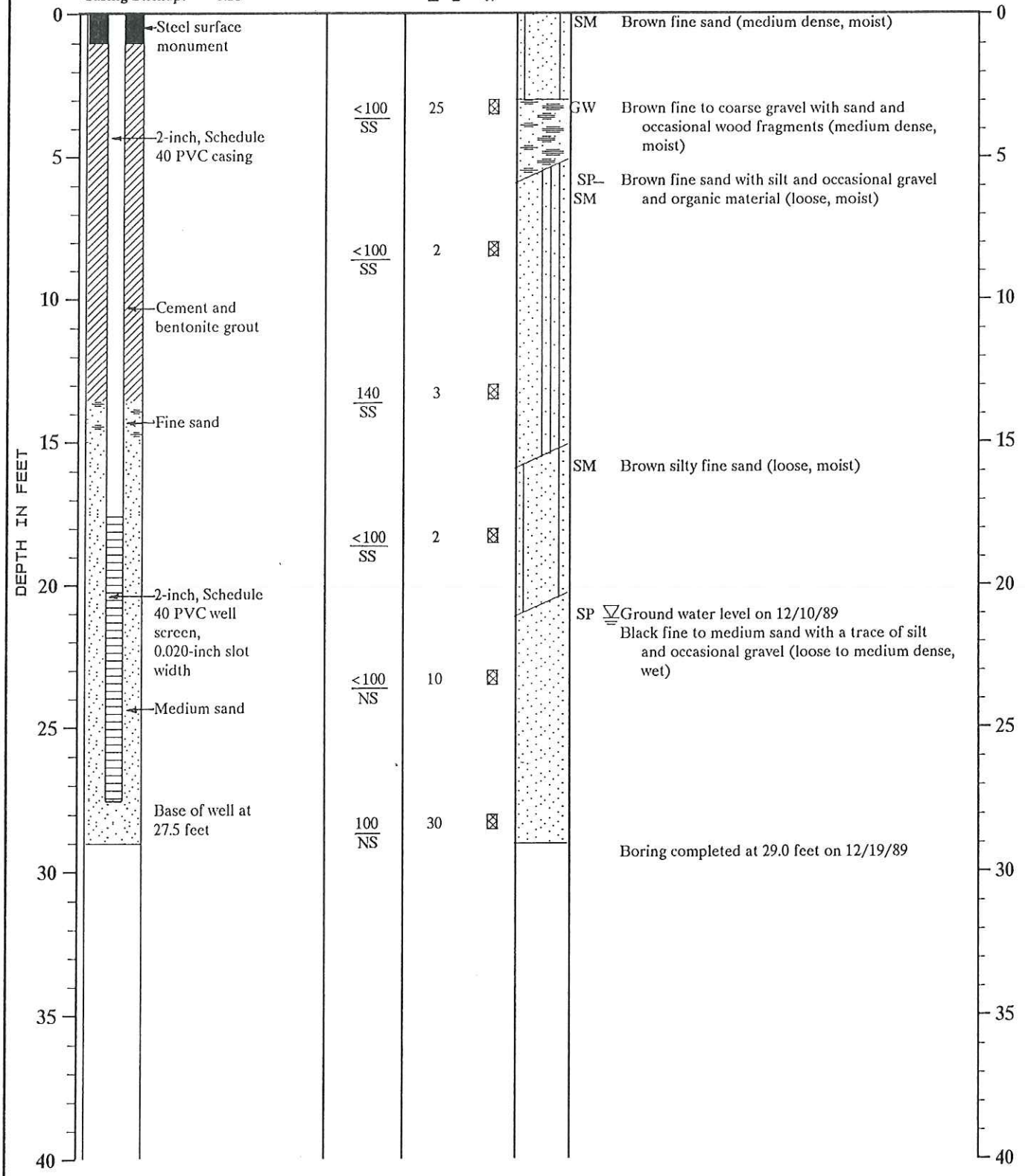
Log of Monitor Well

Figure A-20

:OKP:CDO 2/10/90

0894-005-B04

MONITOR WELL NO. MW-19



Note: See Figure A-2 for explanation symbols

Geo Engineers

Log of Monitor Well

Figure A-21

:OKP:CDO 2/19/90

0894-005-B04

Project	Job Number	Location
Olympic Pipe Line Kent Block Valve Release	0894-005-01	Kent, WA

Date Drilled	09/07/99	Logged By	BP	Contractor	Holt Drilling
Drill Method	Hollow Stem Auger 4" ID	Equipment		Drill Bit	
Sample Method	D&M	Hammer Data	300 lb hammer, 30" drop	X-coordinate: Y-coordinate:	Not Determined Not Determined
Total Depth (ft)	30	Elevation (ft)	Not Measured	Datum: System:	Not Determined Not Determined
Total Well Depth (ft)	30	Monument Elevation Stickup (ft)		Casing Elevation Stickup (ft)	97.96

DEPTH IN FEET	WELL SCHEMATIC	Sample No.	Blows per foot	Sample	Graphic Log	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes	DEPTH IN FEET
0	Steel surface monument Concrete surface seal					SM	Brown silty fine sand with occasional gravel (medium dense, moist)				0
		1	14					–	SS		
5											5
10	Bentonite seal										10
		2	9				Brown gray silty fine sand (loose, moist)	240	NS		
15											15
	2-inch Schedule 40 PVC well casing	3	4				Brown silty fine sand (very loose, moist)	400	NS		
20	Sand backfill					SP-SM	Black fine to medium sand interbedded with brown silty fine sand (very loose, wet)				20
		4	3					▽ 380	NS	CA	
25	2-inch Schedule 40 PVC screen, 0.020-inch slot width										25
		5	9				Black fine to medium sand with occasional gravel and a trace of silt (loose, wet)	250	NS		
30	Base of well at 30.0 feet						Boring completed at 30.0 feet on 07/07/99 Ground water encountered at 24.0 feet during drilling Well installed				30
35											35

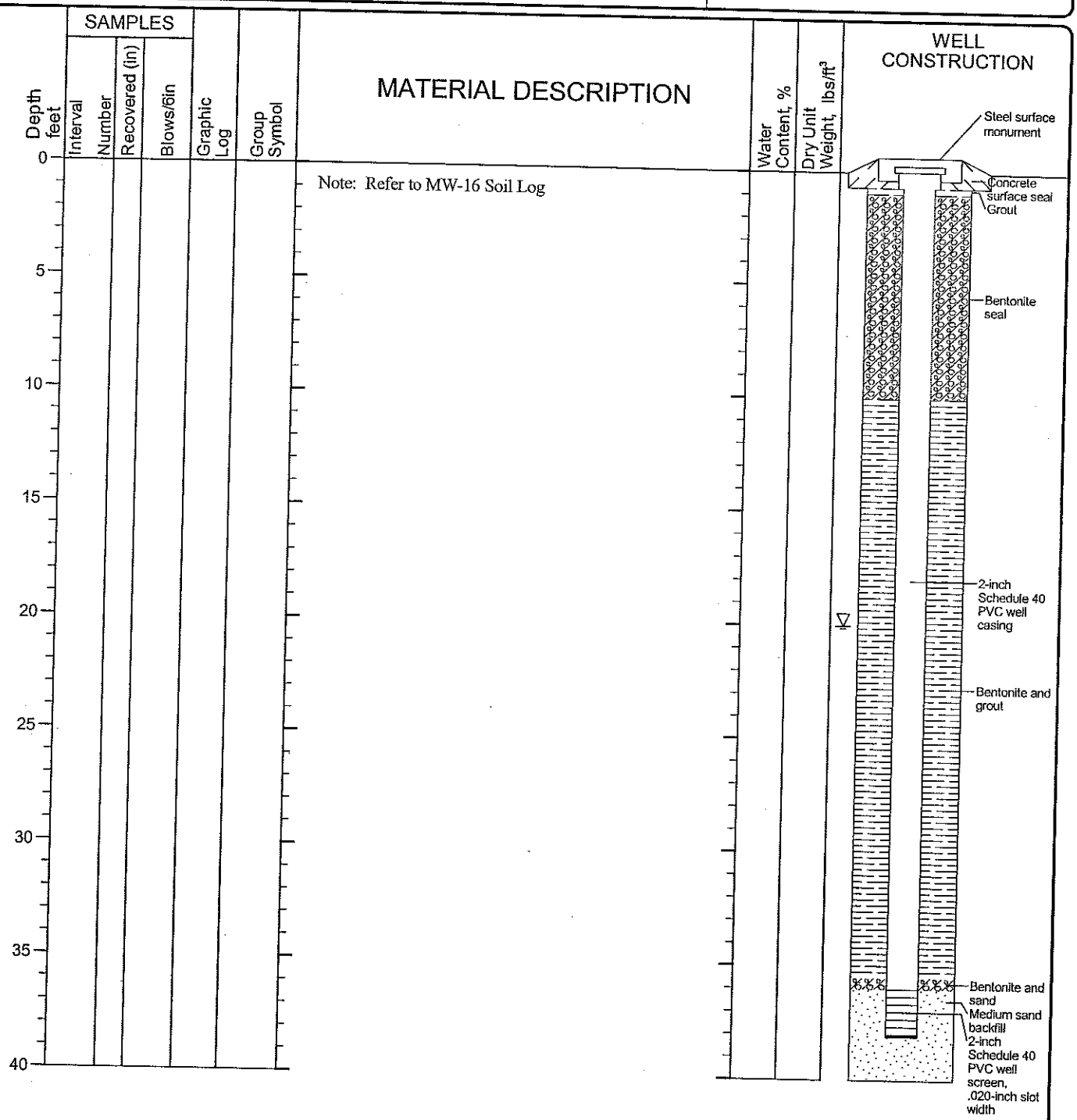
GEI WELL LOG 0894005.GPJ GEI_CORP.GDT 10/1/99 0894-005-01

Geo Engineers

LOG OF MONITORING WELL MW-17A

FIGURE A-3

Date(s) Drilled	06/26/03	Logged By	MET	Checked By	TMK
Drilling Contractor	Holt Drilling	Drilling Method	Hollow-stem Auger	Sampling Methods	N/A
Total Boring Depth (ft)	40	Hammer Data		Drilling Equipment	Truck-mounted Rig
Well Depth (ft)	38	Top of Well Elevation (ft)		Groundwater Level (ft. bgs)	
System/ Datum					



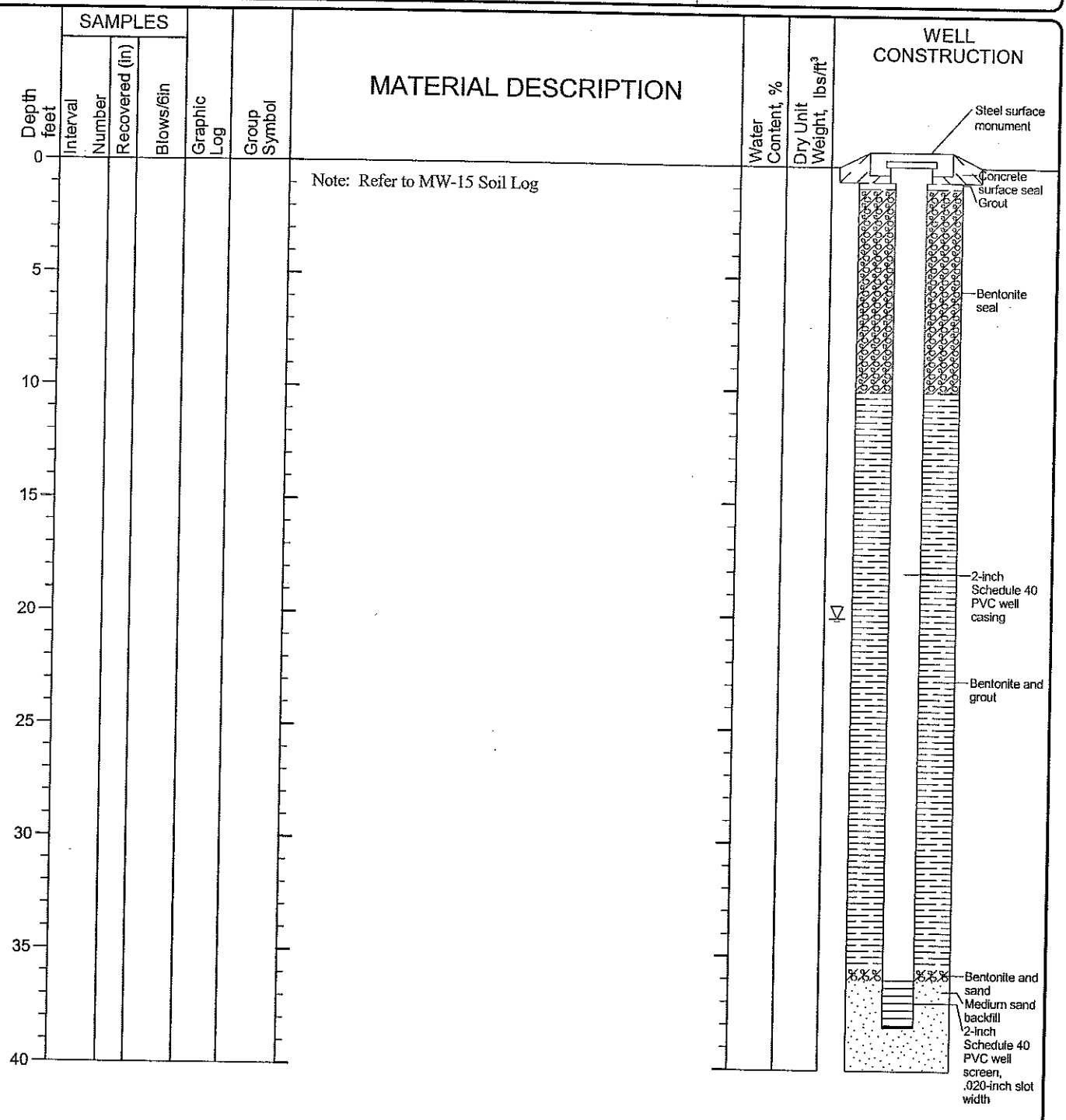
LOG OF AIR SPARGE WELL BS-1

Geo Engineers

Project: OPLC Kent Block Valve
Project Location: Kent, Washington
Project Number: 0894-005-03

Figure: C-1
Sheet 1 of 1

Date(s) Drilled	06/26/03	Logged By	MET	Checked By	TMK
Drilling Contractor	Holt Drilling	Drilling Method	Hollow-stem Auger	Sampling Methods	N/A
Total Boring Depth (ft)	40	Hammer Data		Drilling Equipment	Truck-mounted Rig
Well Depth (ft)	38	Top of Well Elevation (ft)		Groundwater Level (ft. bgs)	
System/ Datum					



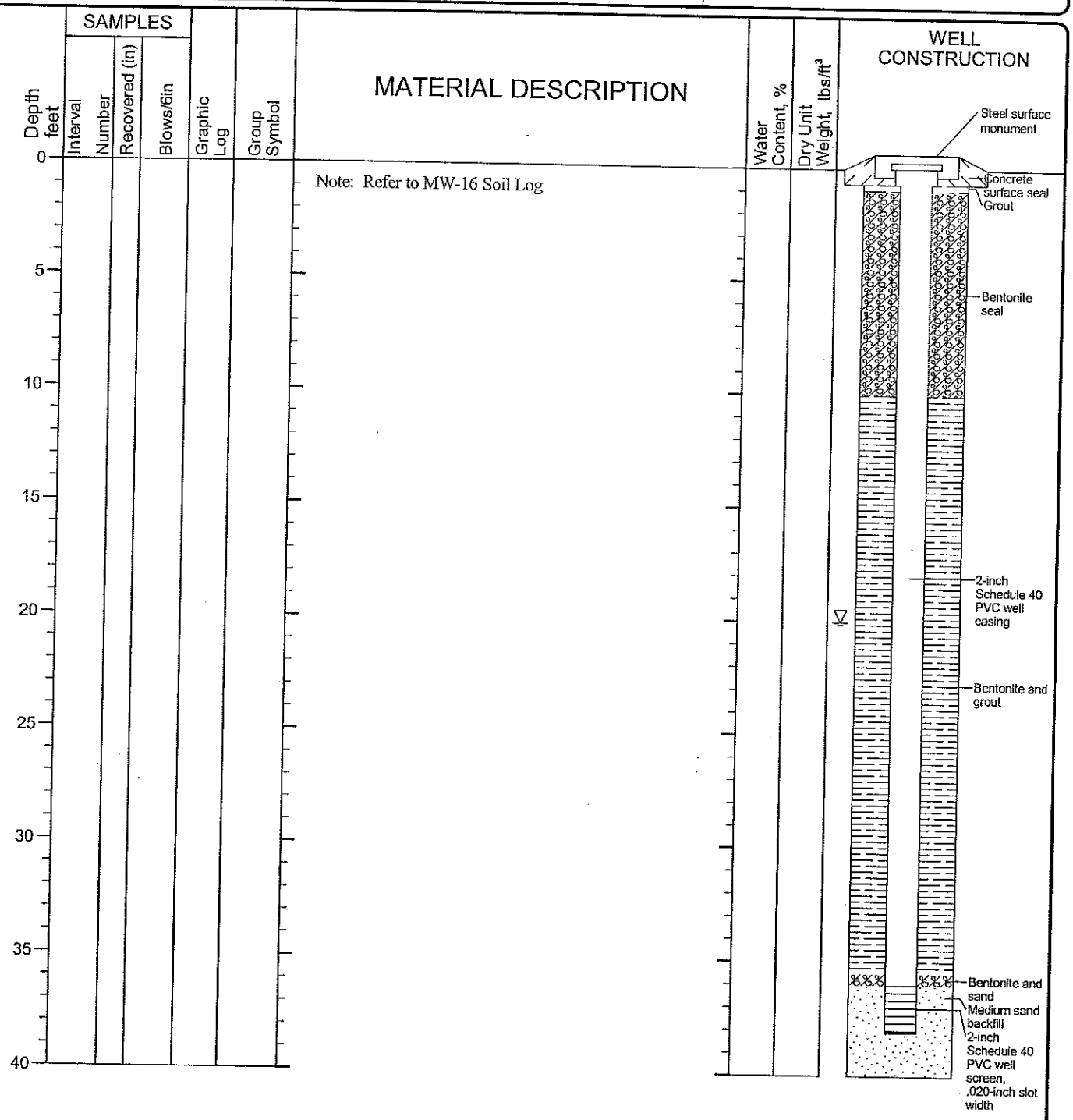
LOG OF AIR SPARGE WELL BS-2

Geo Engineers

Project: OPLC Kent Block Valve
Project Location: Kent, Washington
Project Number: 0894-005-03

Figure: C-2
Sheet 1 of 1

Date(s) Drilled	06/26/03	Logged By	MET	Checked By	TMK
Drilling Contractor	Holt Drilling	Drilling Method	Hollow-stem Auger	Sampling Methods	N/A
Total Boring Depth (ft)	40	Hammer Data		Drilling Equipment	Truck-mounted Rig
Well Depth (ft)	38	Top of Well Elevation (ft)		Groundwater Level (ft. bgs)	
System/ Datum					



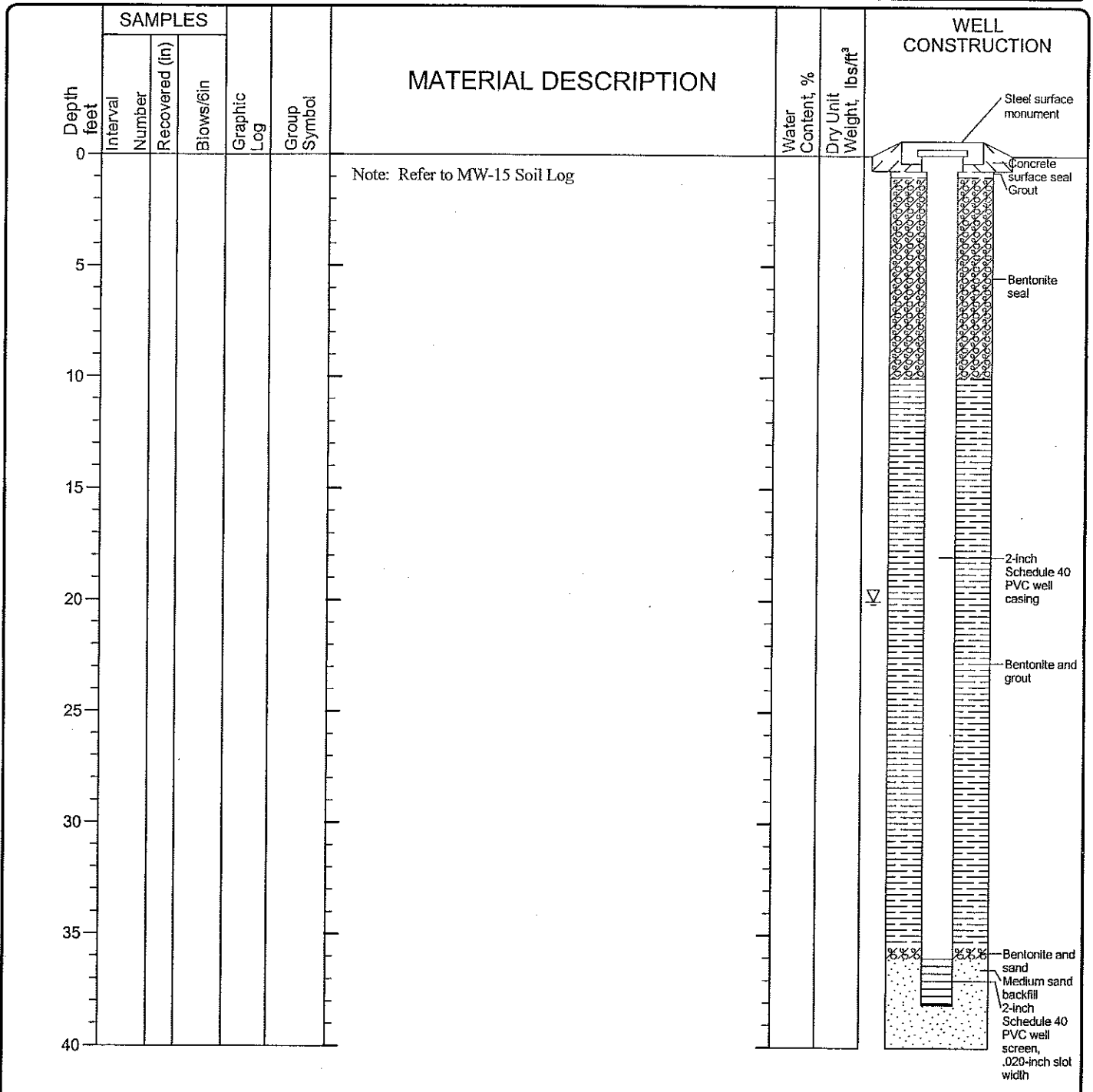
LOG OF AIR SPARGE WELL BS-3

GeoEngineers

Project: OPLC Kent Block Valve
Project Location: Kent, Washington
Project Number: 0894-005-03

Figure: C-3
Sheet 1 of 1

Date(s) Drilled	06/27/03	Logged By	MET	Checked By	TMK
Drilling Contractor	Holt Drilling	Drilling Method	Hollow-stem Auger	Sampling Methods	N/A
Total Boring Depth (ft)	40	Hammer Data		Drilling Equipment	Truck-mounted Rig
Well Depth (ft)	38	Top of Well Elevation (ft)		Groundwater Level (ft. bgs)	
System/ Datum					



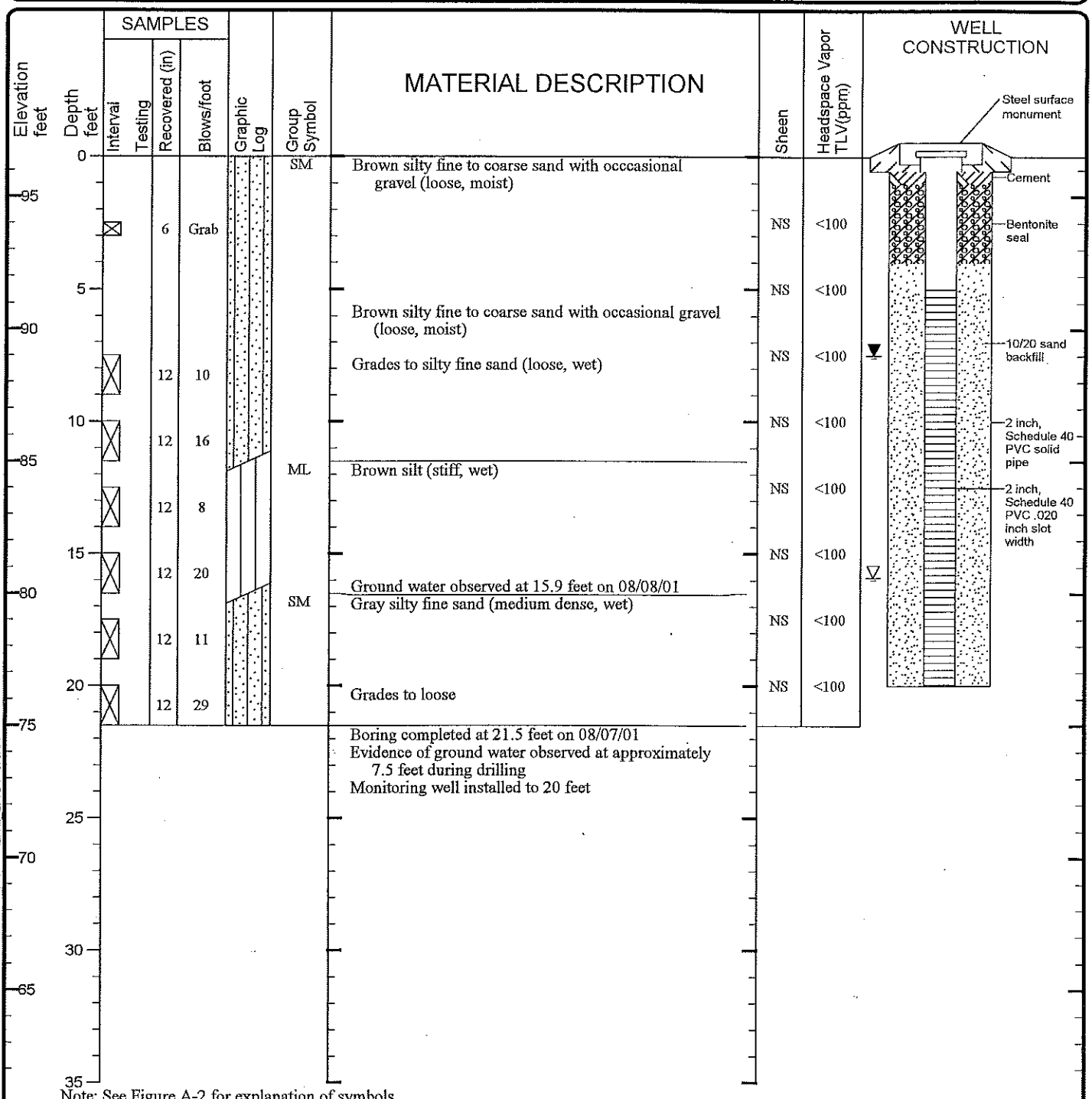
LOG OF AIR SPARGE WELL BS-4

Geo Engineers

Project: OPLC Kent Block Valve
Project Location: Kent, Washington
Project Number: 0894-005-03

Figure: C-4
Sheet 1 of 1

Date(s) Drilled	08/07/01	Logged By	GJA	Checked By	DLC
Drilling Contractor	Cascade Drilling	Drilling Method	HSA	Sampling Methods	Dames & Moore
Total Boring Depth (ft)	21.5	Hammer Data	140 (lb) hammer/ 30 (in) drop	Drilling Equipment	Limited Access Drill Rig
Well Depth (ft)	20	Top of Well Elevation (ft)	96.50	Ground Water Elevation (ft)	
System/ Datum	N/A	Easting	Not determined	Northing	Not determined



Note: See Figure A-2 for explanation of symbols

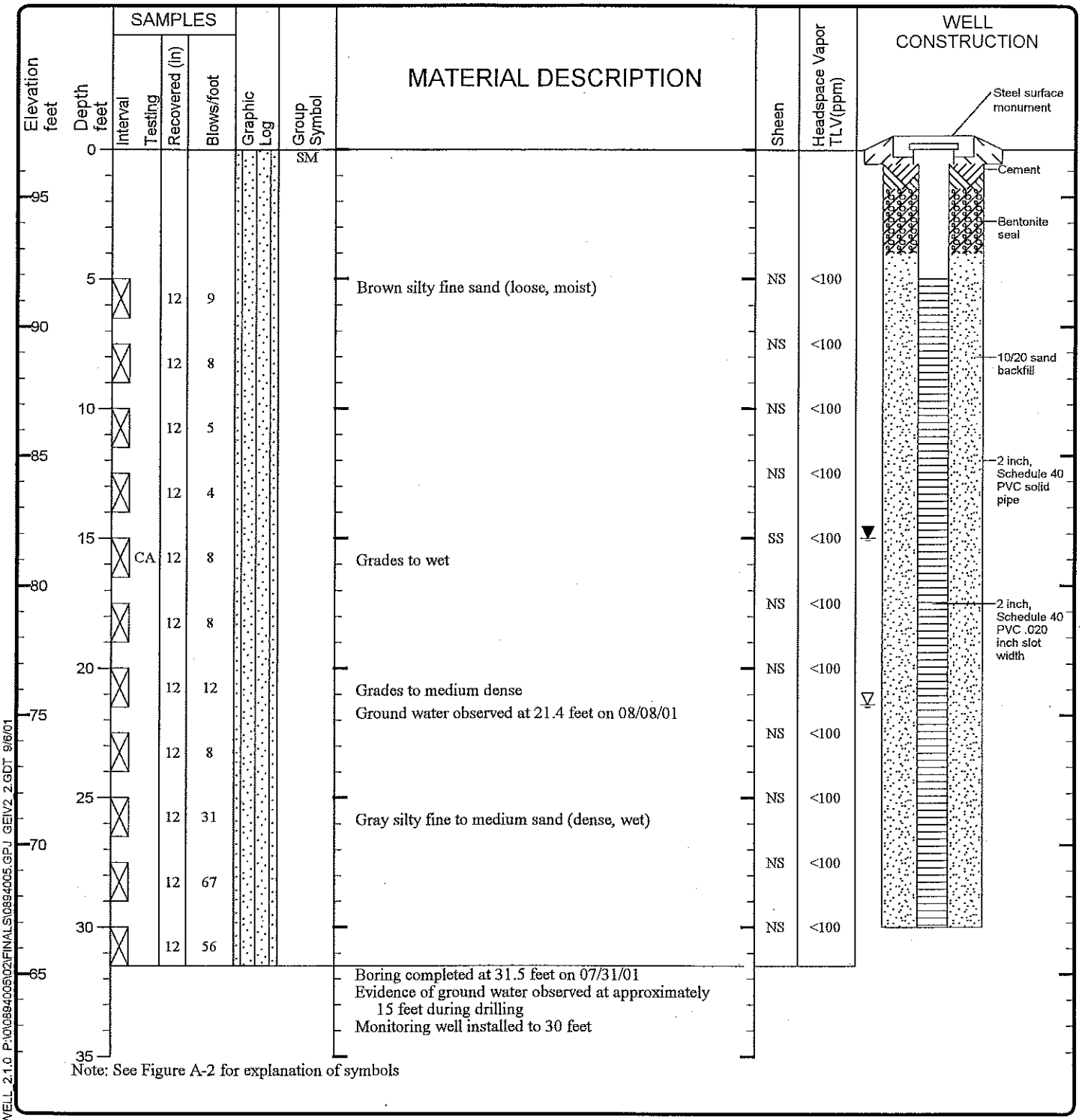
LOG OF BORING MW-20

Geo Engineers

Project: OPLC Kent Block Valve
Project Location: Kent, Washington
Project Number: 0894-005-02

Figure: A-3
Sheet 1 of 1

Date(s) Drilled	07/31/01	Logged By	GJA	Checked By	DLC
Drilling Contractor	Cascade Drilling	Drilling Method	HSA	Sampling Methods	Dames & Moore
Total Boring Depth (ft)	31.5	Hammer Data	300 (lb) hammer/ 30 (in) drop	Drilling Equipment	Truck-mounted Drill Rig
Well Depth (ft)	30	Top of Well Elevation (ft)	96.82	Ground Water Elevation (ft)	
System/ Datum	N/A	Easting	Not determined	Northing	Not determined



Note: See Figure A-2 for explanation of symbols

0894-005-02 GEI ENVWELL 2.1.0 P:\0\0894005\02\FINALS\0894005.GPJ GEIV2_2.GDT 9/6/01

LOG OF BORING MW-21

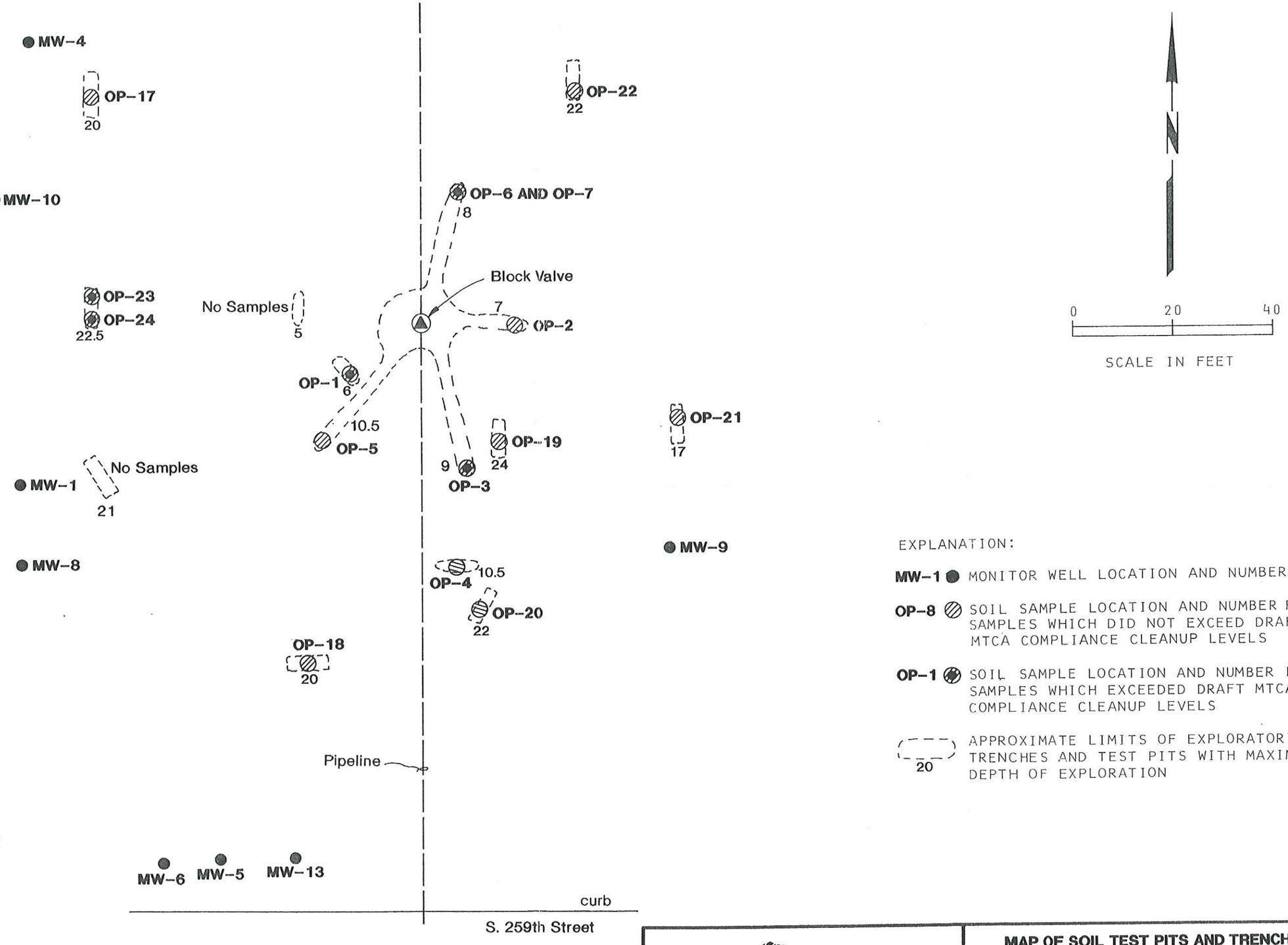
GeoEngineers

Project: OPLC Kent Block Valve
Project Location: Kent, Washington
Project Number: 0894-005-02

Figure: A-4
Sheet 1 of 1

Appendix E

Figures from Previous Consultants

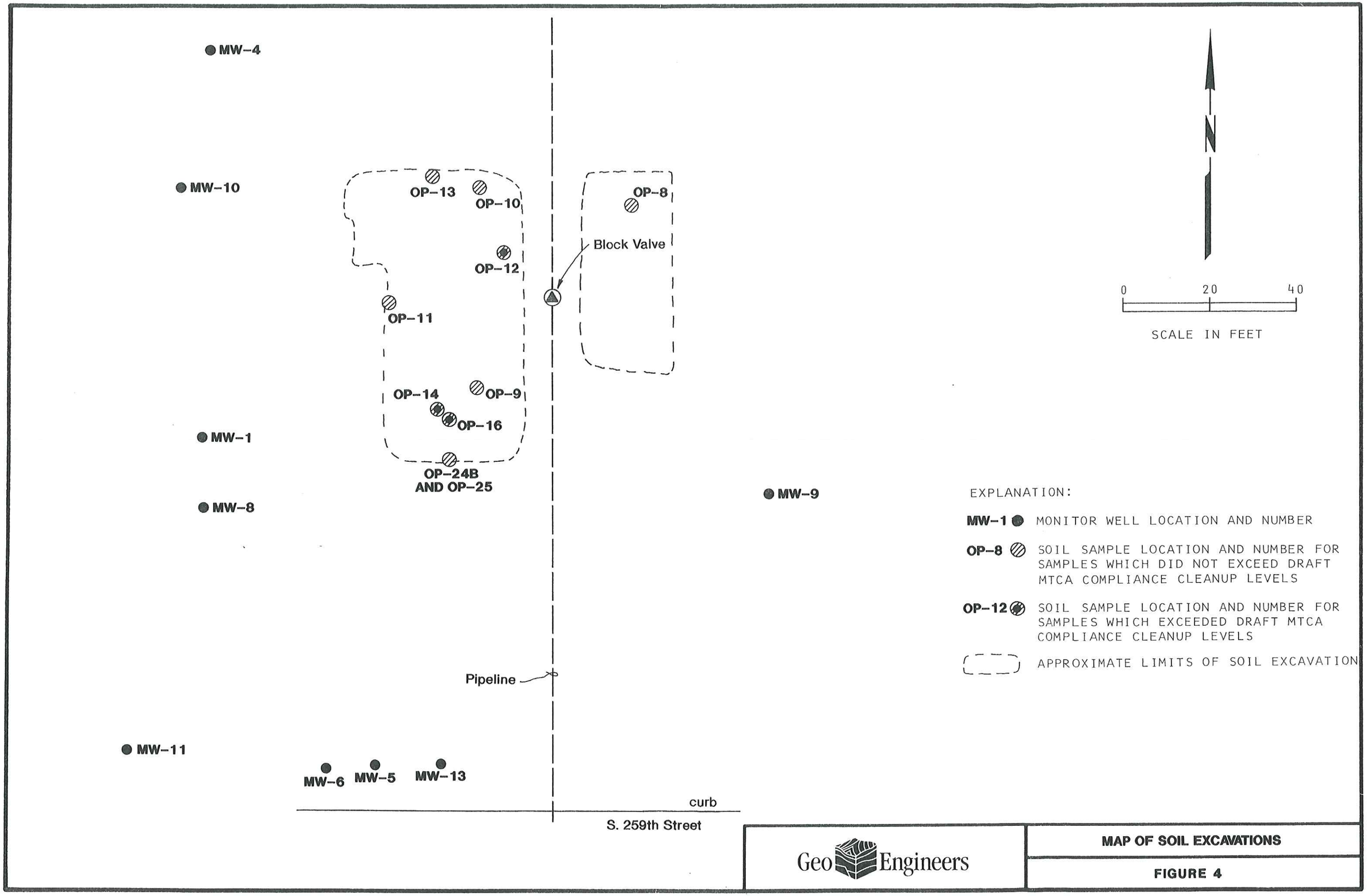


Geo Engineers

MAP OF SOIL TEST PITS AND TRENCHES

FIGURE 3

894-005-804 OKP:BDH 4/6/90



894-005-804 OKP:BDH 4/6/90