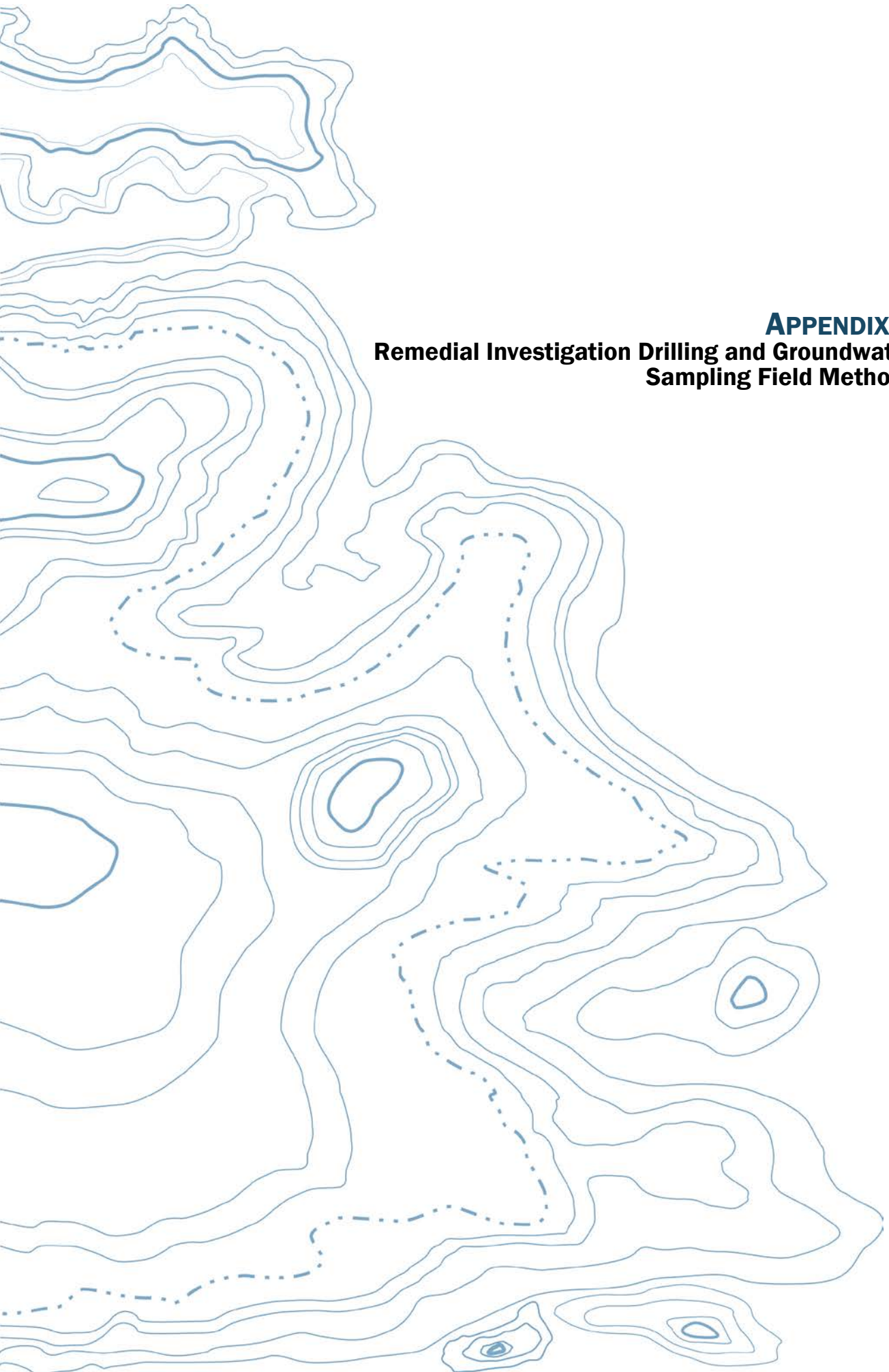
APPENDICES

GeoEngineers



APPENDIX A
Remedial Investigation Drilling and Groundwater Sampling Field Methods

APPENDIX A
REMEDIAL INVESTIGATION DRILLING AND GROUNDWATER SAMPLING FIELD METHODS

Field Explorations

Prior to completion of the subsurface explorations, GeoEngineers contacted the One-Call Utility Notification Center in accordance with Washington State law and the Pend Oreille Public Utility District.

Following clearance of utilities, subsurface conditions at the Site were explored as part of RI activities from November 29, 2011 through April 17, 2012 by:

- Drilling 15 borings using direct-push drilling methods.
- Drilling 11 borings using hollow-stem auger drilling methods.
- Installing monitoring wells in 4 of the hollow-stem auger borings.
- Installing monitoring points in 2 of the hollow-stem auger borings.
- Installing SVE test wells in 2 of the hollow-stem auger borings.
- Installing an air sparge pilot test well in one of the hollow-stem auger borings.

The approximate exploration locations are shown in Figures 3 through 5. A chronological summary of the completed RI explorations and the methods used are provided in Table A-1.

TABLE A-1. EXPLORATION SUMMARY

Exploration Number	Date Completed	Exploration Method	Notes
DP-26 through DP-29	11/29/12	Direct-push	Completed in Vacant Property downgradient of MW-15
DP-30 through DP-35	11/30/12	Direct-push	Completed at Airport Kwik Stop near fuel dispensers
DP-36 through DP-40	12/1/12	Direct-push	Completed at Airport Kwik Stop near fuel dispensers
SVE-1, SVE-2	4/12/12	Hollow-stem auger	SVE pilot test wells at Airport Kwik Stop
MP-1, MP-2, B-7	4/13/12	Hollow-stem auger	Monitoring points at Airport Kwik Stop; B-7 originally planned as AS-1, abandoned due to complications during setting of casing.
MW-16, MW-17, B-6, AS-1	4/16/12	Hollow-stem auger	MW-16 downgradient of DP-26 through DP-29; MW-17 crossgradient of MW-3 and MW-9; B-6 originally planned as MW-18, abandoned after field screening indicated contamination; AS-1 air sparge test well at Airport Kwik Stop
MW-18, MW-19	4/17/12	Hollow-stem auger	MW-18 down- crossgradient of MW-9; MW-19 downgradient of Airport Kwik Stop fuel dispensers

The direct-push borings were completed using a truck-mounted Geoprobe® drill owned and operated by Environmental West Exploration, Inc., under subcontract to GeoEngineers. The direct push borings were completed to depths in the range of 12 to 40 feet below ground surface (bgs). The hollow-stem auger borings were completed using a truck-mounted Mobile B-90 hollow-stem auger drill rig, also owned and operated by Environmental West Exploration, Inc., under subcontract to GeoEngineers. Borings for MW-16 through MW-19, AS-1, MP-1, MP-2, B-6 and B-7 were drilled with 8-inch-diameter augers. Borings for SVE-1 and SVE-2 were drilled with 10-inch-diameter augers.

Logs of explorations completed as part of RI activities and previous site characterization activities are presented in Appendix A. Logs of hollow-stem auger borings (B-1 and B-3 through B-7) are presented in Logs of Borings, Figures A-2 through A-7. Note that there is no boring designated B-2. Logs of direct-push borings (DP-1, DP-2, DP-2A, DP-3, DP-4, DP-4A and DP-5 through DP-40) are presented in Logs of Direct-push Borings, Figures A-8 through A-48. Logs of monitoring wells (MW-1 through MW-19) are presented in Logs of Monitoring Wells, Figures A-49 through Figure A-67. Logs of monitoring points (MP-1 and MP-2) are presented in Logs of Monitoring Points, Figures A-68 and A-69. Logs of SVE test wells (SVE-1 and SVE-2) are presented in Logs of SVE Wells, Figures A-70 and A-71. A log of the air sparge test well (AS-1) is presented in Log of Air Sparge Well, Figure A-72.

Soil Sampling from Borings

As discussed above, soil borings were completed using direct-push and hollow-stem auger drilling techniques by a driller licensed in the State of Washington. For direct-push drilling methods, samples were continuously obtained using 4-foot-long, 1-inch-diameter acrylic sleeves. For hollow-stem auger drilling methods, samples were collected at select sampling depths using 2-inch, outside-diameter standard penetration test (SPT) split barrel samplers.

Each boring was continuously monitored by an engineer or geologist from our firm, who observed and classified the soil encountered, and prepared a detailed log of each boring. Soil encountered in the borings was classified in the field in general accordance with ASTM International (ASTM) D 2488, the Standard Practice for Classification of Soils, Visual-Manual Procedure, which is summarized in Key to Exploration Logs, Figure A-1. Preservation of VOC samples was completed in accordance with Ecology Memo 5, document number 04-09-087. Sample containers were labeled and placed into an ice chest containing ice and/or ice packs.

Sampling equipment was decontaminated between each sampling attempt for either drilling method. Samples were obtained using either a decontaminated soil knife or new, clean nitrile glove and placed into 4- or 8-ounce glass sample jars with Teflon lids. Soil samples for volatile organic compounds (VOCs) analyses were obtained consistent with EPA Method 5035A. Chain-of-custody procedures were followed during transport of the soil samples.

Field Screening Methods

A GeoEngineers field engineer or geologist performed field screening tests on selected soil samples from the explorations. Field screening results were used to aid in the selection of soil samples for chemical analysis. Screening methods included (1) visual examination, (2) water sheen screening,

and (3) headspace vapor screening using a photo-ionization detector (PID). Field screening was completed in accordance with that described in the RI/FS Work Plan, Sampling and Analysis Plan.

Monitoring Well Construction, Development and Surveying

Monitoring wells MW-16 through MW-19, SVE-1, SVE-2, AS-1, MP-1 and MP-2 were constructed in accordance with WAC 173-160, Section 400, Washington State Resource Protection Well Construction Standards. Monitoring well records were submitted in accordance with Washington monitoring well construction standards. Monitoring well installation was be observed by a GeoEngineers field engineer or geologist, who maintained a detailed log of the materials and depths of the well. Well construction details, including the depths of the well screen and filter packs are shown on Figures A-49 through A-72.

The monitoring wells, monitoring points and air sparge test well were constructed using 2-inch-diameter polyvinyl chloride (PVC) well casing. The SVE test wells were constructed using 4-inch-diameter PVC well casing. The annular space in each well was sealed between the top of the filter pack and the ground surface with bentonite to prevent infiltration of groundwater into the well bore from shallower zones. A lockable compression-type cap was installed in the top of the PVC well casing. A flush-mount monument equipped with a watertight cover was installed to protect the PVC well casing. A concrete surface seal was placed around the monument at the ground surface to divert surface water away from the well location.

Monitoring wells MW-16 through MW-19, monitoring points MP-1 and MP-2, and air sparge well AS-1 were developed on May 3, 2012 to remove water introduced into the well during drilling, stabilize the filter pack and formation materials surrounding the well screen, and restore the hydraulic connection between the well screen and the surrounding soil. The well screens were gently surged with a decontaminated stainless steel bailer, followed by pumping with a portable submersible pump. The wells were allowed to equilibrate following development before sampling.

The elevation of the top of each monitoring well casing and the ground surface of each well was surveyed by Thomas, Dean and Hoskins, Inc., on May 7, 2012, relative to an on-site benchmark. A survey reference notch was established on the north side of each monitoring well casing.

Groundwater Sampling

The wells were allowed to equilibrate at least 72 hours after well development before initial sampling events. Each groundwater sample was obtained using low-flow purging methods. Water quality parameters were recorded during sampling and are presented in Table C-5. The groundwater samples were transferred in the field to laboratory-prepared sample containers and kept cool during transport to the testing laboratory. The sample containers were filled completely to eliminate headspace in the container. Chain-of-custody procedures were observed from the time of sample collection to delivery to the testing laboratory. Details regarding groundwater sampling from Site monitoring wells and domestic water wells are presented in the referenced groundwater monitoring reports.

Groundwater samples also were collected from direct-push borings DP-26 through DP-29 as part of RI activities. At the completion of drilling, the steel casing was removed and a temporary PVC well screen was installed in the bore-hole. Groundwater samples were obtained using low-flow purging

methods. The groundwater samples were transferred in the field to laboratory-prepared sample containers and kept cool during transport to the testing laboratory. The sample containers were filled completely to eliminate headspace in the container. Chain-of-custody procedures were observed from the time of sample collection to delivery to the testing laboratory. The intent of the groundwater samples was to provide semi-quantitative data regarding groundwater contamination at the site. Standard water quality target parameters were not achieved during groundwater sampling from temporary well screens.

Decontamination Procedures

The objective of the decontamination procedure is to minimize the potential for cross-contamination between sample locations.

A designated decontamination area was established for decontamination of drilling equipment and reusable sampling equipment. Drilling equipment was cleaned using high-pressure/low-volume cleaning equipment.

Sampling equipment was decontaminated in accordance with the following procedures before each sampling attempt or measurement.

1. Brush equipment with a nylon brush to remove large particulate matter.
2. Rinse with potable tap water.
3. Wash with non-phosphate detergent solution (Liquinox® and potable tap water).
4. Rinse with potable tap water.
5. Rinse with distilled water.

Handling of Investigation-Derived Waste

Investigation Derived Waste (IDW), which consists of mainly drill cuttings and decontamination/ purge water, typically was placed in DOT-approved 55-gallon drums. Each drum was labeled with the project name, exploration number, general contents and date. The drummed IDW was stored onsite pending analysis and disposal.

Disposable items, such as sample tubing, disposable bailers, bailer line, gloves and protective overalls, paper towels, etc., were placed in plastic bags after use and deposited in trash receptacles for disposal.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% RETAINED ON NO. 200 SIEVE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
				SP	POORLY-GRADED SANDS, GRAVELLY SAND
	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/ Quarry Spalls
	TS	Topsoil/ Forest Duff/Sod

Groundwater Contact

- **Measured groundwater level in exploration, well, or piezometer**
- **Groundwater observed at time of exploration**
- **Perched water observed at time of exploration**
- **Measured free product in well or piezometer**

Graphic Log Contact

- **Distinct contact between soil strata or geologic units**
- **Approximate location of soil strata change within a geologic soil unit**

Material Description Contact

- **Distinct contact between soil strata or geologic units**
- **Approximate location of soil strata change within a geologic soil unit**

Sampler Symbol Descriptions

- **2.4-inch I.D. split barrel**
- **Standard Penetration Test (SPT)**
- **Shelby tube**
- **Piston**
- **Direct-Push**
- **Bulk or grab**

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

A "P" indicates sampler pushed using the weight of the drill rig.

Laboratory / Field Tests

%F	Percent fines
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
OC	Organic content
PM	Permeability or hydraulic conductivity
PP	Pocket penetrometer
PPM	Parts per million
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen
NT	Not Tested

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

KEY TO EXPLORATION LOGS

GeoEngineers

FIGURE A-1

Drilled	Start 7/13/2010	End 7/13/2010	Total Depth (ft) 40	Logged By SHL / Checked By DRL	Driller GeoEngineers, Inc.	Drilling Method Hollow-Stem Auger
Surface Elevation (ft) / Vertical Datum	Undetermined / NAVD88		Hammer Data	140 (lbs) / 30 (in) Drop	Drilling Equipment	CME-75
Easting (X) / Northing (Y)	2465914 / 643665		System Datum	State Plane, Washington North Zone NAD83	Groundwater: Date Measured	Depth to Water (ft) 38.0 / Elevation (ft)
Notes:					7/13/2010	

Elevation (feet) / Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample: Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
0						SP-SM	Brown fine sand with silt (loose to medium dense, moist)			
5	12	7	1					NS	0.0	
10	12	9	2					NS	0.0	
15	12	11	3					NS	0.0	
20	12	9	4					NS	0.0	
25	12	11	5					NS	0.0	
						SW-SM	Brown fine to coarse sand with silt and occasional gravel (medium dense, moist)			
30	12	19	6					NS	0.0	
35	12	12	7					NS	8.7	
40	12	12	8	▽				HS	2147	B-1-40.0
			CA				Boring completed at approximately 40 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Boring B-1

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-2
Sheet 1 of 1

Drilled Start 7/14/2010 End 7/14/2010	Total Depth (ft) 40	Logged By SHL Checked By DRL	Driller GeoEngineers, Inc.	Drilling Method Hollow-Stem Auger	
Surface Elevation (ft) Undetermined Vertical Datum NAVD88		Hammer Data 140 (lbs) / 30 (in) Drop		Drilling Equipment CME-75	
Easting (X) 2466014 Northing (Y) 643402		System Datum State Plane, Washington North Zone NAD83		Groundwater Date Measured 7/14/2010	Depth to Water (ft) 38.0 Elevation (ft)
Notes:					

Elevation (feet) / Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample: Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
0						SP-SM	Brown fine sand with silt (loose to medium dense, moist)			
	12	4	1					NS	0.0	
5										
10										
15										
20										
25	12	13	2					NS	6.1	
						SW	Brown fine to coarse sand with occasional gravel and trace silt (medium dense, moist)			
30	12	19	3					NS	0.0	
						SP	Brown fine to medium sand with trace silt (medium dense, moist)			
	12	11	4					NS	0.0	
35						SW	Brown fine to coarse sand with trace silt and occasional gravel (medium dense, moist)			
	12	17	5					NS	0.0	
				▽						
	12	15	6					NS	6.1	Faint petroleum odor
40							Boring completed at approximately 40 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

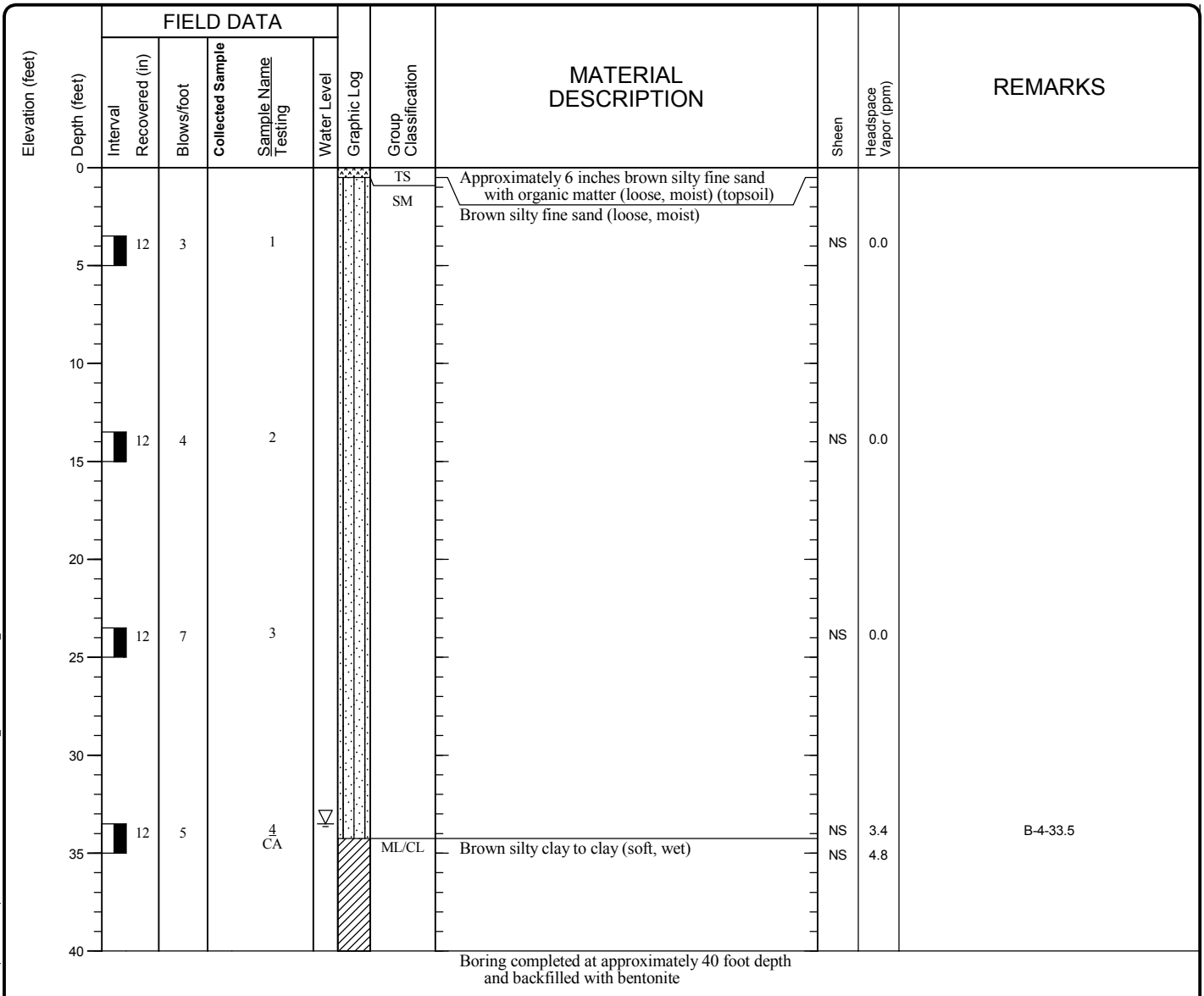
Log of Boring B-3

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-3
Sheet 1 of 1

Drilled	Start 7/21/2010	End 7/21/2010	Total Depth (ft)	40	Logged By / Checked By	KLR / DRL	Driller	GeoEngineers, Inc.	Drilling Method	Hollow-Stem Auger
Surface Elevation (ft) / Vertical Datum	Undetermined / NAVD88		Hammer Data	140 (lbs) / 30 (in) Drop			Drilling Equipment	CME-75		
Easting (X) / Northing (Y)	2465640 / 643476		System Datum	State Plane, Washington North Zone NAD83			Groundwater: Date Measured	7/21/2010	Depth to Water (ft)	33.5
Notes:									Elevation (ft)	



Note: See Figure A-1 for explanation of symbols.

Log of Boring B-4

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-4
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Driller	Drilling Method
	11/3/2010	11/3/2010	40	KLR Checked By DRL	GeoEngineers, Inc.	Hollow Stem Auger

Surface Elevation (ft) Vertical Datum	2108.5 NAVD88	Hammer Data	140 (lbs) / 30 (in) Drop	Drilling Equipment	CME 75
Easting (X) Northing (Y)	2466561 643205	System Datum	State Plane, Washington North Zone NAD83	Groundwater Date Measured: 11/3/2010	Depth to Water (ft): 38.5 Elevation (ft):

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample: Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0						SP-SM	Brown fine sand with silt (medium dense, moist)			
2105	5										
2100	10										
2095	15										
2090	20										
2085	25	15	13	1					0.0	NS	Began sampling at approximately 23½ foot depth
2080	30	16	12	2			SP	Grayish brown fine to medium sand with trace silt (medium dense, moist)	0.0	NS	
2075	35	16	9	3 CA			SP	Brown fine sand with trace silt (loose, moist)	0.0	NS	B-5@33.5
2070	40		23	4 CA	▽		SW	Grayish brown fine to coarse sand with gravel and trace silt (medium dense, wet)	0.0	NS	B-5@38.5

Note: See Figure A-1 for explanation of symbols.

Log of Boring B-5

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-5
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Driller	Drilling Method
	4/16/2012	4/16/2012	31.5	KLR Checked By DRL	Environmental West	Hollow Stem Auger

Surface Elevation (ft) Vertical Datum	Hammer Data	Drilling Equipment
Undetermined NAVD88	140 (lbs) / 30 (in) Drop	Mobile B-90

Easting (X) Northing (Y)	System Datum	Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
2466602 643776	State Plane, Washington North, NAD83		23.0	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample: Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0						SM	Brown silty fine sand (loose to medium dense, moist)			
	5										
	10						SP-SM	Brown fine to medium sand with silt (medium dense, moist)			
	15	10	15	1					NS	<1	
	20	10	19	2						<1	
					▽		SP	Grayish brown fine to coarse sand with trace silt (loose, wet)			
	25	9	7	3 CA					NS	20	
							CL	Gray clay (stiff, wet)			
	30	18	16	4							

Note: See Figure A-1 for explanation of symbols.

Log of Boring B-6

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-6
Sheet 1 of 1

Drilled Start 4/13/2012 End	Total Depth (ft) 43.5	Logged By KLR / Checked By DRL	Driller Environmental West	Drilling Method Hollow-Stem Auger
Surface Elevation (ft) 2109.0 / Vertical Datum NAVD88		Hammer Data 140 (lbs) / 30 (in) Drop		Drilling Equipment Mobile B-90
Easting (X) 2465787 / Northing (Y) 643737		System Datum NAD83, WA State Plane North		Groundwater: Date Measured / Depth to Water (ft) / Elevation (ft): Not Encountered
Notes:				

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample: Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0						AC	Approximately 2 inches asphalt concrete pavement			
							SM	Brown silty fine sand (medium dense to dense, moist)			
2105	5	12	36	1					NS	<1	
2100	10										
2095	15	14	26	2					SS	215	
2090	20										
2085	25	12	35	3					SS	1,800	
2080	30										
							SP	Brownish gray fine to coarse sand with trace silt (medium dense, wet)			
2075	35	10	30	4	▽				MS	260	
2070	40		45	5					SS	110	
			20	6			CL	Gray clay (stiff, wet)			

Note: See Figure A-1 for explanation of symbols.

Log of Boring B-7

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-7
Sheet 1 of 1

Drilled	Start 4/26/2010	End 4/26/2010	Total Depth (ft) 35	Logged By KBC / Checked By JDL	Driller Pacific Soil and Water	Drilling Method Direct Push
Surface Elevation (ft) / Vertical Datum	Undetermined / NAVD88		Hammer Data		Drilling Equipment	AMS 9500 VTR
Easting (X) / Northing (Y)	2465547 / 643572		System Datum	State Plane, Washington North Zone NAD83	Groundwater: Date Measured 4/26/2010	Depth to Water (ft) 31.0 — Elevation (ft)
Notes:						

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		45.6			1			SM	Brown silty fine sand (loose, moist)	NS	0.0	
											NS	0.0	
												0.2	
										Becomes moist to wet at approximately 3 foot depth	NS	0.3	
	5		48			2					NS	0.2	
												0.3	
											NS	0.2	
											NS	0.2	
												0.2	
											NS	0.3	
											NS	0.2	
	10		38.4			3			SP	Brown fine sand with trace silt (loose to medium dense, moist)		0.2	
											NS	0.2	
											NS	0.2	
											NS		
											NS		
	15		38.4			4					NS	0.1	
											NS	0.1	
											NS		
												0.1	
	20		30			5			SM	Brown silty fine sand (medium dense, moist)	NS		
											NS	0.1	
											NS	0.1	
									SP	Brown medium to coarse sand with gravel and trace silt (medium dense, moist)	NS		
	25		36			6					NS	0.1	
											NS	0.1	
											NS	0.1	
	30		25.2			7	▽				NS		
											NS	0.1	
									ML	Gray silt (medium stiff, wet)	NS	0.1	IADP01-31.5-32.1
						CA					NS		
	35									Boring completed at approximately 35 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-1

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Drilled	Start 4/26/2010	End 4/26/2010	Total Depth (ft)	10	Logged By	KBC	Checked By	JDL	Driller	Pacific Soil and Water	Drilling Method	Direct Push
Surface Elevation (ft) Vertical Datum	Undetermined NAVD88				Hammer Data						Drilling Equipment	AMS 9500 VTR
Easting (X) Northing (Y)	2465562 643562				System Datum	State Plane, Washington North Zone NAD83					Groundwater Date Measured	Depth to Water (ft) / Elevation (ft): Not Encountered
Notes:												

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		43.2			1			SM	Brown silty fine sand with occasional layers of medium to coarse sand and organic matter (roots) (loose to medium dense, moist)	NS	0.1	
											NS	0.1	
										Becomes loose, moist to wet at approximately 2 feet	NS	0.1	
	5		43.2			2					NS		
											NS	0.1	
											NS	0.1	
											NS	0.1	
											NS	0.1	
	10									Boring completed at approximately 10 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-2

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-9
Sheet 1 of 1

Drilled	Start 4/26/2010	End 4/26/2010	Total Depth (ft) 5	Logged By KBC / Checked By JDL	Driller Pacific Soil and Water	Drilling Method Direct Push
Surface Elevation (ft) / Vertical Datum	Undetermined / NAVD88		Hammer Data		Drilling Equipment	AMS 9500 VTR
Easting (X) / Northing (Y)	2465569 / 643561		System Datum	State Plane, Washington North Zone NAD83	Groundwater: Date Measured / Depth to Water (ft) / Elevation (ft)	Not Encountered
Notes:						

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		43.2			1			SM	Brown silty fine sand with occasional layers of medium to coarse sand and organic matter (roots) (loose to medium dense, moist)	NS NS	0.0 0.0	
	5									Boring completed at approximately 5 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-2A

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-10
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
4/27/2010	4/27/2010	35	KBC / JDL	Pacific Soil and Water	Direct Push

Surface Elevation (ft) / Vertical Datum	Undetermined / NAVD88	Hammer Data	Drilling Equipment: AMS 9500 VTR
Easting (X) / Northing (Y)	2465578 / 643563	System Datum: State Plane, Washington North Zone NAD83	Groundwater: Date Measured / Depth to Water (ft) / Elevation (ft): Not Observed

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		43.2			1			SM	Brown silty fine sand with silt (loose to medium dense, moist to wet)	NS	0.0	
											NS	0.0	
	5		48			2					NS	0.0	
											NS	0.0	
	10		40.8			3			SP	Brown fine sand with trace silt (medium dense, moist to wet)	NS	3.0	
											NS	4.0	
											NS	6.0	
	15		44.4			4						12.6	
										Slight odor	NS	13.3	
											NS	13.7	IADP03-18-18.7
						CA					NS	16.2	
	20		40.8			5					NS	13	
											NS		
									SP	Brown medium to coarse sand with gravel and trace silt (medium dense to dense, moist to wet)	NS		
	25		42			6					NS		
											NS		
											NS		
	30		44.4			7					NS		IADP03-30-31
						CA					NS		
											NS		
	35									Boring completed at approximately 35 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-3

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-11
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
4/26/2010	4/26/2010	5	KBC / JDL	Pacific Soil and Water	Direct Push

Surface Elevation (ft) / Vertical Datum	Undetermined / NAVD88	Hammer Data	Drilling Equipment: AMS 9500 VTR
Easting (X) / Northing (Y)	2465573 / 643562	System Datum: State Plane, Washington North Zone NAD83	Groundwater: Date Measured / Depth to Water (ft) / Elevation (ft): Not Encountered

Notes:

Elevation (feet) / Depth (feet)	FIELD DATA: Interval / Recovered (in)	Blows/foot	Collected Sample / Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
0	42		1			SM	Brown silty fine sand with occasional layers of black organic matter approximately 2½ inches thick (loose to medium dense, moist)	NS	0.0	
							Becomes moist to wet at approximately 2½ feet	NS		
5								NS	0.0	
							Boring completed at approximately 5 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-4

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-12
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
4/26/2010	4/26/2010	5	KBC / JDL	Pacific Soil and Water	Direct Push

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
Undetermined / NAVD88		AMS 9500 VTR

Easting (X) / Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
2465559 / 643550	State Plane, Washington North Zone NAD83	Not Encountered		

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		42			1			SM	Brown silty fine sand (loose to medium dense, moist) (fill)	NS	0.0	
										Black organic matter (woody material and charcoal)	NS	0.0	
	5									Boring completed at approximately 5 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-4A

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-13
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
4/26/2010	4/26/2010	35	KBC / JDL	Pacific Soil and Water	Direct Push

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
Undetermined / NAVD88		AMS 9500 VTR

Easting (X) / Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
2465566 / 643568	State Plane, Washington North Zone NAD83	4/26/2010	33.0	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		43.2			1			SM	Brown silty fine sand (loose, moist)	NS	0.2	
										Becomes medium dense		0.2	
											NS	0.2	
	5		49.2			2				Becomes moist to wet at approximately 5 feet	NS		
											NS		
									SP	Brown fine sand with occasional interbeds of silty sand (medium dense, moist)	NS		
	10		30			3						5.9	
												11.5	
												12.5	
										Slight petroleum odor at approximately 12½ feet		9.5	
	15		42			4				Petroleum odor at approximately 15½ feet	NS	7.7	
											NS	6.6	
						CA					NS	11.3	IADP05-17.5-18.5
												18.4	
	20		38.4			5						2.2	
											NS	2.2	
												2.1	
									SP	Brown medium sand with trace silt (medium dense, moist)	NS		
	25		38.4			6			SP	Brown medium to coarse sand with gravel and trace silt (medium dense, moist)	NS	1.2	
										Slight petroleum odor	NS	1.3	
											NS	1.2	
	30		44.4			7							
												0	
											NS		IADP05-32-33.3
						CA	▼				NS		
									CH	Gray clay (stiff, moist)		0	
	35									Boring completed at approximately 35 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-5

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-14
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
4/26/2010	4/26/2010	35	KBC / JDL	Pacific Soil and Water	Direct Push

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
Undetermined / NAVD88		AMS 9500 VTR

Easting (X) / Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
2465556 / 643549	State Plane, Washington North Zone NAD83		Not Observed	

Notes:

Elevation (feet) / Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
0		44.4			1			SM	Brown silty fine sand (loose to medium dense, moist)	NS	0.0	
									½-inch-thick woody layer at approximately 2½ feet	NS	0.0	
5		46.8			2				Becomes moist to wet at approximately 5 feet	NS	0.0	
											0.0	
10		33.6			3			SP	Brown fine sand with trace silt (loose to medium dense, moist to wet)	NS	0.0	
										NS	0.0	
15		36			4					NS	0.0	
										NS	0.0	
20		36			5						0.4	
								SP	Brown fine to medium sand with trace silt (medium dense, moist)			
25		31.2			6 CA			SP	Brown medium to coarse sand with gravel and trace silt (dense, moist)	NS	0.0	IADP06-25-26
										NS	0.0	
30		31.2			7					NS	0.0	
								CH	Gray clay (stiff, moist)	NS	0.0	
35									Boring completed at approximately 35 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-6

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-15
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Driller	Drilling Method
	4/26/2010	4/26/2010	35	KBC / JDL	Pacific Soil and Water	Direct Push

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
Undetermined / NAVD88		AMS 9500 VTR

Easting (X) / Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
2465613 / 643552	State Plane, Washington North Zone NAD83	4/26/2010	32.0	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		45.6			1			ML	Whitish brown silt (loose, dry)	NS	0.0	
									SM	Brown silty fine sand (loose, moist)			
										Becomes moist to wet at approximately 3 feet	NS	0.0	
	5		44.4			2					NS	0.0	
											NS	0.0	
											NS		
	10		32.4			3			SP	Brown fine sand with trace silt (loose to medium dense, moist)	NS	0.0	
											NS	0.0	
	15		33.6			4					NS	0.0	
											NS	0.0	
	20		34.8			5					NS	0.0	
									SP	Brown medium to coarse sand with trace silt (medium dense, moist)	NS	0.0	
	25		33.6			6 / CA				Grades with increase in fine to coarse gravel content at approximately 25 feet	NS	0.0	IADP07-25-26
											NS	0.0	
	30		42			7					NS	0.2	
							▽			Becomes wet at approximately 32 feet	NS	0.2	IADP07-32-33.3
						CA			CH	Gray fat clay (stiff, moist to wet)			
	35									Boring completed at approximately 35 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-7

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-16
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	4/26/2010	4/26/2010	35	KBC	JDL	Pacific Soil and Water	Direct Push

Surface Elevation (ft) Vertical Datum	Undetermined NAVD88	Hammer Data	Drilling Equipment: AMS 9500 VTR
Easting (X) Northing (Y)	2465606 643579	System Datum: State Plane, Washington North Zone NAD83	Groundwater: Date Measured / Depth to Water (ft) / Elevation (ft): Not Observed
Notes:			

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		44.4			1			SM	Brown silty fine sand with organic matter (roots) (loose to medium dense, moist)	NS	0.0	
											NS	0.0	
	5		46.8			2				Becomes moist to wet at approximately 5 feet	NS	0.0	
											NS	0.0	
											NS	0.0	
	10		42			3			SP	Brown fine sand with trace silt (loose to medium dense, moist to wet)	NS	0.0	
											NS	0.0	
	15		38.4			4					NS	0.0	
											NS	0.0	
	20		34.8			5					NS	0.0	
									ML	Brown silt with fine sand (stiff, moist)	NS	0.0	
									SP	Brown medium sand with trace silt (medium dense to dense, moist)			
	25		27.6			6			SP	Brown medium to coarse sand with gravel and trace silt (medium dense to dense, moist to wet)	NS	0.0	
											NS	0.0	
	30		38.4			7					NS	0.0	
						CA					NS	0.0	IADP08-31.5-32.5
	35								CH	Gray clay (medium stiff, moist to wet)	NS	0.0	

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-8

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-17
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
4/27/2010	4/27/2010	39	KBC / JDL	Pacific Soil and Water	Direct Push

Surface Elevation (ft) Vertical Datum	Hammer Data	Drilling Equipment
Undetermined NAVD88		AMS 9500 VTR

Easting (X) Northing (Y)	System Datum	Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
2465721 643542	State Plane, Washington North Zone NAD83	4/27/2010	35.5	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		45.6			1			SM	Brown silty fine sand (loose, moist to wet)	NS	0.0	
											NS	0.0	
	5		43.2			2					NS	0.0	
									SP	Brown fine to medium sand with trace silt (medium dense, moist)	NS	0.0	
	10		37.2			3				Grades to fine sand with trace silt	NS	0.0	
											NS	0.0	
	15		38.4			4					NS NS	0.0	
											NS	0.0	
	20		34.8			5					NS NS	0.0	
									SP	Brown medium sand with trace silt (loose to medium dense, moist to wet)	NS	0.0	
	25		33.6			6					NS	0.0	
									SP	Brown medium to coarse sand with gravel and trace silt (dense to medium dense, moist)	NS	0.0	
	30		42			7					NS	0.0	
						CA					NS	0.0	IADP09-32.5-33.5
	35		48			8	▽		CL	Brown clay (soft, wet)	NS	0.0	
										Becomes wet at approximately 35½ feet			
									ML	Gray silt (soft, wet)			
										Boring completed at approximately 39 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-9

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-18
Sheet 1 of 1

Drilled Start 4/27/2010 End 4/27/2010	Total Depth (ft) 36.5	Logged By KBC Checked By JDL	Driller Pacific Soil and Water	Drilling Method Direct Push	
Surface Elevation (ft) Undetermined Vertical Datum NAVD88		Hammer Data		Drilling Equipment AMS 9500 VTR	
Easting (X) 2465763 Northing (Y) 643586		System Datum State Plane, Washington North Zone NAD83		Groundwater Date Measured / Depth to Water (ft) / Elevation (ft): Not Encountered	
Notes:					

Elevation (feet) / Depth (feet)	FIELD DATA: Interval / Recovered (in)	Blows/foot	Collected Sample / Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
0	45.6		1			SM	Brown silty fine sand with organic matter (loose to medium dense, moist)	NS	0.0	
						SM	Brown silty fine sand (loose to medium dense, moist)	NS	0.0	
							Becomes moist to wet with decrease in silt content at approximately 3 to 3½ feet			
5	37.2		2					NS	0.0	
								NS	0.0	
10	43.2		3			SP	Brown fine sand with trace silt (loose to medium dense, moist)	NS	0.0	
								NS	0.0	
15	32.4		4				Grades to medium dense at approximately 15 feet	NS	0.0	
								NS	0.0	
20	40.8		5					NS	0.0	
								NS		
								NS	0.0	
25	36		6			SP	Brown medium sand with trace silt (loose, moist)	NS	0.0	
						SP	Brown medium to coarse sand with gravel and trace silt (medium dense, moist)	NS		
								NS	0.0	
30	54		7					NS	0.0	
			CA					NS	0.0	IADP10-33-34½
35								NS	0.0	
							Boring completed at approximately 36½ foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-10

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-19
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
4/27/2010	4/27/2010	5	KBC / JDL	Pacific Soil and Water	Direct Push

Surface Elevation (ft) / Vertical Datum	Undetermined / NAVD88	Hammer Data	Drilling Equipment: AMS 9500 VTR
Easting (X) / Northing (Y)	2465609 / 643688	System Datum: State Plane, Washington North Zone NAD83	Groundwater: Date Measured / Depth to Water (ft) / Elevation (ft): Not Encountered

Notes:

Elevation (feet) / Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample / Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
0		42		1			SM	Approximately 2½ inches brown silty fine sand with gravel and organic matter (roots) (loose, dry) (topsoil)	NS	0.0	
							SM		NS	0.0	
				CA				Brown silty fine sand (loose, moist to wet)	NS	0.0	IKSDP11-2.5-3.5
5								Boring completed at approximately 5 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-11

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-20
Sheet 1 of 1

Drilled Start 4/27/2010 End 4/27/2010	Total Depth (ft) 35	Logged By KBC Checked By JDL	Driller Pacific Soil and Water	Drilling Method Direct Push	
Surface Elevation (ft) Undetermined Vertical Datum NAVD88		Hammer Data		Drilling Equipment AMS 9500 VTR	
Easting (X) 2465656 Northing (Y) 643739		System Datum State Plane, Washington North Zone NAD83		Groundwater Date Measured 4/27/2010	Depth to Water (ft) 32.0 Elevation (ft)
Notes:					

Elevation (feet) / Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample / Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
0	1	44.4		1			SM	Approximately 1 inch brown silty fine sand with organic matter (roots) (loose, dry) (topsoil)	NS	0.0	
							SM	Brown silty fine sand with trace organic matter (roots) (loose, moist)	NS		
									NS	0.0	
5	2	39.6		2			SP	Brown fine sand with organic matter (loose, moist)		0.0	
									NS	0.0	
									NS	0.0	
10	3	36		3						0.0	
									NS	0.0	
									NS	0.0	
15	4	37.2		4					NS	0.0	
									NS	0.0	
									NS	0.0	
20	5	39.6		5					NS	0.0	
									NS	0.0	
25	6	38.4		6					NS	0.0	
									NS	0.0	
30	7	42		7					NS	0.0	IKSDP12-31-31.8
				CA	▽		ML/CL	Interbedded gray silt and clay (soft, wet) Becomes wet at approximately 32 feet	NS	0.0	
35									NS		
								Boring completed at approximately 35 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-12

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-21
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
4/27/2010	4/27/2010	10	KBC / JDL	Pacific Soil and Water	Direct Push

Surface Elevation (ft) Vertical Datum	Undetermined NAVD88	Hammer Data		Drilling Equipment	AMS 9500 VTR
Easting (X) Northing (Y)	2465676 643736	System Datum	State Plane, Washington North Zone NAD83	Groundwater Date Measured	Depth to Water (ft): Not Encountered
Notes:					Elevation (ft)

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		48			1			TS	Approximately 1 inch silty fine sand with organic matter (loose, moist) (topsoil)			
									SM	Brown silty fine sand with occasional organic matter (roots) (medium dense, moist)			
	5		36			2 CA			SP	Brown fine sand with trace silt (loose, moist)			IKSDP13-5-6
	10									Boring completed at approximately 10 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-13

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-22
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	4/27/2010	4/27/2010	20	KBC	JDL	Pacific Soil and Water	Direct Push

Surface Elevation (ft) Vertical Datum	Hammer Data	Drilling Equipment
Undetermined NAVD88		AMS 9500 VTR

Easting (X) Northing (Y)	System Datum	Groundwater
2465704 643727	State Plane, Washington North Zone NAD83	Date Measured / Depth to Water (ft) / Elevation (ft): Not Encountered

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		43.2			1			TS	Approximately 2½ inches silty fine sand with organic matter (loose, moist) (topsoil)		0.0	
									SM/GP/SP	Alternating layers of brown silty fine sand, medium to coarse sand and fine gravel (loose to medium dense, moist) (fill)	NS		
									SM		NS	0.0	
	5		48			2			SM	Brown silty fine sand with occasional organic matter (roots) (loose, moist)	NS		
												0.0	
										Brown silty fine sand (loose to medium dense, moist)	NS	0.0	
												0.0	
	10		40.8			3					NS		
											NS	0.0	
											NS	0.0	
												0.0	
	15		42			4					NS	0.0	
											NS		
						CA					NS	0.0	IKSDP14-17.5-18.5
	20												

Boring completed at approximately 20 foot depth and backfilled with bentonite

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-14

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-23
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Driller	Drilling Method
	4/27/2010	4/27/2010	20	KBC	Pacific Soil and Water	Direct Push
				Checked By JDL		

Surface Elevation (ft) Vertical Datum	Hammer Data	Drilling Equipment
Undetermined NAVD88		AMS 9500 VTR

Easting (X) Northing (Y)	System Datum	Groundwater
2465728 643740	State Plane, Washington North Zone NAD83	Date Measured / Depth to Water (ft) / Elevation (ft): Not Encountered

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		43.2			1			TS	Approximately 2 inches silty fine sand with organic matter (loose, moist) (topsoil)		0.0	
									SM	Brown silty fine sand (loose, moist) (fill)	NS	0.0	
											NS	0.0	
											NS	0.0	
	5		44.4			2			SP	Brown fine sand with trace silt and organic matter (roots) (loose, moist) (fill)	NS	0.0	
									SP				
									SM	Gray fine sand with occasional concrete pieces and basalt (medium dense, dry) (fill)	NS	0.0	
										Brown silty fine sand (loose, moist)			
	10		36			3 CA			SP	Brown fine sand with trace silt (loose, moist)	NS	0.0	IKSDP15-10-11
											NS	0.0	
	15		44.4			4				Becomes medium dense and moist to wet at approximately 16 feet	NS	0.0	
											NS	0.0	
											NS	0.0	
	20									Boring completed at approximately 20 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-15

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-24
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
4/27/2010	4/27/2010	25	KBC / JDL	Pacific Soil and Water	Direct Push

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
Undetermined / NAVD88		AMS 9500 VTR

Easting (X) / Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
2465764 / 643740	State Plane, Washington North Zone NAD83		Not Observed	

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		43.2			1			TS	Approximately 2½ inches silty fine sand with organic matter (loose, moist) (topsoil)	NS	0.0	
									SM		NS	0.0	
										Brown silty fine sand with trace organic matter (roots) (medium dense, moist)	NS	0.0	
											NS		
	5		42			2				Becomes moist to wet at approximately 5 feet	NS	0.0	
									SP	Brown fine sand with trace silt (loose, moist)	NS	0.0	
	10		44.4			3 / CA					NS	0.0	IKSDP16-10-11
											NS	0.0	
	15		46.8			4					NS		
												0.0	
											NS	0.0	
	20		42			5					NS	0.0	
											NS		
											NS	0.0	
	25									Boring completed at approximately 25 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-16

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-25
Sheet 1 of 1

Drilled	Start 4/28/2010	End 4/28/2010	Total Depth (ft)	45	Logged By / Checked By	KBC / JDL	Driller	Pacific Soil and Water	Drilling Method	Direct Push
Surface Elevation (ft) Vertical Datum	Undetermined NAVD88				Hammer Data				Drilling Equipment	AMS 9500 VTR
Easting (X) Northing (Y)	2465803 643669				System Datum	State Plane, Washington North Zone NAD83			Groundwater Date Measured	Depth to Water (ft) 38.0	Elevation (ft)
Notes:									4/28/2010		

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
0	0		49.2			1			SM	Gray silty sand with trace gravel (medium dense, moist) (fill)	NS	0.0	
									SM	Brown silty fine sand (loose to medium dense, moist)	NS		
										Layers of grayish brown silty fine sand with organic matter between approximately 1 foot to 2 feet	NS		
5	5		48			2					NS		
											NS		
									SP	Gray fine sand with trace silt (loose, moist)	NS		
10	10		48			3					NS		
											NS		
											NS		
											NS		
15	15		43.2			4					NS		
											NS		
									SP	Hydrocarbon odor at 17 feet	NS	24	
										Gray fine sand with trace silt (loose, moist)	NS		
20	20		42			5					NS		
											NS		
											NS		IKSDP17-22-23
						CA					NS	230	
25	25		36			6				Grades to fine to medium sand	NS		
									SP	Gray medium to coarse sand with gravel and trace silt (loose, moist)	NS	32	
											NS		
30	30		60			7					NS		
											NS	48	
											NS		
35	35					CA					NS	132	IKSDP17-34-35
			21.6			8					NS		
							▽			Becomes wet at approximately 38 feet	NS		
40	40		54			9					NS		
											NS		IKSDP17-40.5-41.5
						CA			ML	Gray silt (soft to medium stiff, moist)			
									CH	Gray fat clay (soft to medium dense, stiff, wet)	NS		
45	45									Boring completed at approximately 45 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-17

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-26
Sheet 1 of 1

Drilled: Start 4/28/2010 End 4/28/2010	Total Depth (ft): 45	Logged By: KBC Checked By: JDL	Driller: Pacific Soil and Water	Drilling Method: Direct Push	
Surface Elevation (ft) Vertical Datum: Undetermined NAVD88	Hammer Data:	Drilling Equipment: AMS 9500 VTR			
Easting (X) 2465805 Northing (Y) 643725	System Datum: State Plane, Washington North Zone NAD83	Groundwater Date Measured: 4/28/2010	Depth to Water (ft): 38.0	Elevation (ft):	
Notes:					

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		36			1			SM	Brown silty fine sand (loose, moist)			
									SM	Gray silty fine sand (loose, moist)	NS	23.2	
											NS	65.8	
	5		50.4			2					NS	219	
										Hydrocarbon odor	NS		
										Grade to loose to medium dense at approximately 6½ feet	NS	1946	
									SP	Light grayish brown fine sand with trace silt (loose, moist)	NS		
	10		40.8			3					SS	2774	
										Hydrocarbon odor	NS	303	
											NS		
											NS	276	
	15		48			4				Strong hydrocarbon odor	NS		
											NS	3482	
						CA					HS	2690	IKSDP18-18-19
	20		48			5				Strong hydrocarbon odor			
						CA					HS	2942	IKSDP18-21-22
												2731	
											MS	2237	
	25		42			6				Increase in coarse sand content at approximately 25 feet	SS	283	
										Hydrocarbon odor	SS		
									SP	Gray medium to coarse sand with gravel (loose, dry)	NS		
	30		39.6			7				Becomes moist at approximately 30 feet			
										Hydrocarbon odor	NS	340	
											NS	256	
	35		45.6			8					SS	1849	
											SS	1942	IKSDP18-36.5-37.5
						CA	▽			Becomes wet at approximately 38 feet	SS	253	
	40		60			9					NS		
									ML	Brown silt (very soft to soft, wet)		0	
												0	
									CH	Gray clay (very stiff, wet)	NS		
	45											0	
										Boring completed at approximately 45 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-18

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-27
Sheet 1 of 1

Drilled: Start 4/28/2010 End 4/28/2010	Total Depth (ft): 40	Logged By: KBC Checked By: JDL	Driller: Pacific Soil and Water	Drilling Method: Direct Push	
Surface Elevation (ft) Vertical Datum: Undetermined NAVD88		Hammer Data:		Drilling Equipment: AMS 9500 VTR	
Easting (X) 2465803 Northing (Y) 643762		System Datum: State Plane, Washington North Zone NAD83		Groundwater Date Measured: 4/28/2010	Depth to Water (ft): 38.1
Notes:					Elevation (ft):

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		48			1			SM	Gray silty fine sand with gravel (medium dense, dry)	NS	0.0	
									SM	Brown silty fine sand with trace organic matter and wood (loose to medium dense, moist)	NS	0.0	
	5		42			2			SP	Brown fine sand with trace silt (loose to medium dense, moist)	NS	0.0	
											NS	0.0	
	10		42			3					NS	0.0	
											NS	0.0	
	15		49.2			4					NS	0.0	
											NS	0.0	
											NS	0.0	
	20		43.2			5					NS	0.0	
											NS	0.0	
	25		39.6			6			ML	Brown silt with fine sand (medium stiff, moist to wet)	NS Odor	0.0	IKSDP19-26-27
						CA			SC	Brown clayey fine to medium sand (loose, wet)	NS	0.0	
									SP	Brown medium to coarse sand with gravel (medium dense, moist) Slight petroleum hydrocarbon odor			
	30		39.6			7					NS	47	
										Petroleum hydrocarbon odor at approximately 32½ feet	NS	120	
	35					8						46.2	
						CA					NS	397	IKSDP19-35.5-36.5
							▽			Becomes wet with slight petroleum hydrocarbon odor at approximately 36½ feet	SS	857	
	40										NS	406	
										Boring completed at approximately 40 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-19

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-28
Sheet 1 of 1

Drilled: Start 4/29/2010 End 4/29/2010	Total Depth (ft): 45	Logged By: KBC Checked By: JDL	Driller: Pacific Soil and Water	Drilling Method: Direct Push	
Surface Elevation (ft) Vertical Datum: Undetermined NAVD88	Hammer Data:	Drilling Equipment: AMS 9500 VTR			
Easting (X) Northing (Y): 2465929 643599	System Datum: State Plane, Washington North Zone NAD83	Groundwater: Date Measured 4/29/2010	Depth to Water (ft) 37.5	Elevation (ft)	
Notes:					

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		48			1			SM	Brown silty fine sand with organic matter (loose to medium dense, moist)	NS	0.0	
										Becomes moist to wet at approximately 3 feet	NS	0.0	
											NS	0.0	
	5		42			2					NS	0.0	
									SP	Gray to grayish brown fine sand with trace silt (loose, moist)	NS	0.0	
	10		36			3					NS	0.0	
											NS	0.0	
	15		38.4			4 CA					NS	0.0	CGDP21-15-16
	20		36			5				Slight petroleum hydrocarbon odor	NS	13.1	
											NS	1.0	
											NS	1.0	
	25		33.6			6					NS	3.2	
											NS	13.3	CGDP21-27-27.8
						CA			SW	Brown fine to coarse sand with gravel and trace silt (loose, moist to wet)	NS	15.2	
	30		45.6			7					NS	10.1	
											NS	58.2	
											NS	45.1	
											NS	80.5	
	35		39.6			8				Strong petroleum hydrocarbon odor	NS	105	
						CA				Becomes wet at approximately 37½ feet	MS	940	CGDP21-37-38
	40		54			9					NS	13.4	
											NS	11.4	CGDP21-41.5-42.5
						CA			CH	Gray clay with occasional orange mottling (soft to stiff, moist to wet)	NS	10.7	CGDP21-42.5-43.5
						CA					NS	0.0	
	45									Boring completed at approximately 45 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-21

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-29
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	4/29/2010	4/29/2010	50	KBC	JDL	Pacific Soil and Water	Direct Push

Surface Elevation (ft) Vertical Datum	Undetermined NAVD88	Hammer Data	Drilling Equipment: AMS 9500 VTR
Easting (X) Northing (Y)	2466072 643511	System Datum: State Plane, Washington North Zone NAD83	Groundwater — Date Measured: 4/29/2010; Depth to Water (ft): 41.0; Elevation (ft):
Notes:			

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
0	0		46.8			1			SM	Brown silty fine sand with occasional gravel and organic matter (roots) (medium dense, moist)	NS	0.0	
											NS	0.0	
5	5		50.4			2					NS	0.0	
											NS	0.0	
10	10		42			3					NS	0.0	
									SP	Gray to grayish brown fine sand with trace silt (loose, moist)	NS		
											NS	0.0	
15	15		40.8			4					NS	23.1	CGDP22-16-17
						CA					NS	21.1	
											NS	16.3	
20	20		44.4			5					NS	11.2	
									SM	Brown silty fine sand (medium dense, moist)	NS	12.0	
											NS	21.9	
25	25		44.4			6			SP	Gray fine sand with trace silt and occasional interbeds of medium to coarse sand (loose, moist)	NS		
											NS	18.6	
											NS	18.2	
30	30		48			7					NS	54.2	
											NS	58.8	CGDP22-32-33
						CA					NS	105	
									SP	Gray medium to coarse sand with gravel (loose, moist)	NS	58.2	
35	35		40.8			8					NS	85.3	
											NS	25.1	
											NS	35.1	
40	40		38.4			9	▽			Petroleum hydrocarbon odor at approximately 40 feet	NS	918	CGDP22-40-41
						CA				Becomes wet at approximately 41 feet		96.8	
												35.5	
45	45					10						12.5	
											NS	7.5	
											NS	29	
									CL	Brown lean clay (soft, wet)			
50	50								CH	Gray fat clay (stiff, moist to wet)			
										Boring completed at approximately 50 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-22

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-30
Sheet 1 of 1

Drilled	Start 4/29/2010	End 4/29/2010	Total Depth (ft)	45	Logged By / Checked By	KBC / JDL	Driller	Pacific Soil and Water	Drilling Method	Direct Push
Surface Elevation (ft) Vertical Datum	Undetermined NAVD88		Hammer Data				Drilling Equipment	AMS 9500 VTR		
Easting (X) Northing (Y)	2466167 643544		System Datum	State Plane, Washington North Zone NAD83			Groundwater Date Measured	4/29/2010	Depth to Water (ft)	40.0
Notes:									Elevation (ft)	

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		50.4			1			SM	Brown silty fine sand with organic matter (loose, moist)	NS	0.0	
											NS	0.0	
	5		43.2			2					NS		
											NS	0.0	
										Becomes moist to wet at approximately 7 feet	NS		
	10		39.6			3					NS	0.0	
									SP	Brown fine sand (loose to medium dense, moist)	NS		
											NS	0.0	
	15		45.6			4			SM	Brown silty fine sand (medium dense to dense, moist)	NS		
											NS	0.0	
											NS		
	20		36			5					NS	0.0	
											NS	0.0	
									SM	Brown silty fine sand (dense, moist)	NS	0.0	
	25		24			6			SP	Brown fine sand with trace silt (dense, dry)	NS	0.0	
									SM	Brown silty fine sand (dense, moist)	NS	0.0	
	30		30			7			SP	Brown medium to coarse sand with trace silt and interbeds of fine to medium sand and occasional fine gravel (loose, moist)	NS		
											NS	2.2	
												2.8	
	35		25.2			8					NS	2.3	
	40		36			9	▽			Becomes wet at approximately 40 feet	NS	11.4	
						CA					NS	15.1	CGDP23-41.5-42.3
									CL	Gray clay (soft to stiff, wet)		38.7	
	45									Boring completed at approximately 45 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

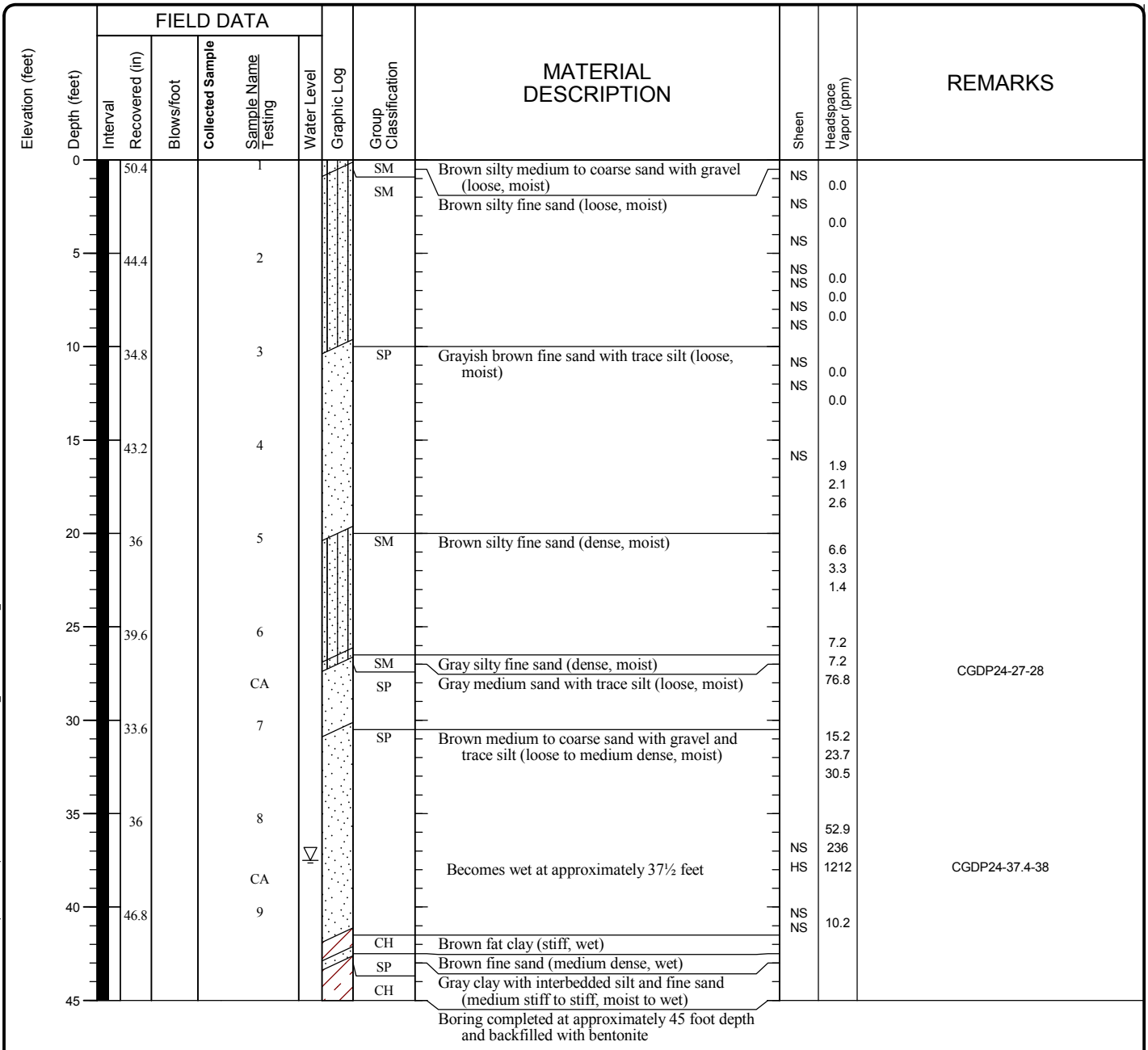
Log of Direct Push DP-23

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-31
Sheet 1 of 1

Drilled: Start 4/29/2010 End 4/29/2010	Total Depth (ft): 45	Logged By: KBC Checked By: JDL	Driller: Pacific Soil and Water	Drilling Method: Direct Push	
Surface Elevation (ft) Vertical Datum: Undetermined NAVD88	Hammer Data:	Drilling Equipment: AMS 9500 VTR			
Easting (X) Northing (Y): 2465958 643518	System Datum: State Plane, Washington North Zone NAD83	Groundwater: Date Measured 4/29/2010	Depth to Water (ft) 37.5	Elevation (ft)	
Notes:					



Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-24

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-32
Sheet 1 of 1

Drilled: Start 4/30/2010 End 4/30/2010	Total Depth (ft): 45	Logged By: KBC Checked By: JDL	Driller: Pacific Soil and Water	Drilling Method: Direct Push	
Surface Elevation (ft) Vertical Datum: Undetermined NAVD88	Hammer Data:	Drilling Equipment: AMS 9500 VTR			
Easting (X) Northing (Y): 2465984 643456	System Datum: State Plane, Washington North Zone NAD83	Groundwater: Date Measured 4/30/2010	Depth to Water (ft) 38.5	Elevation (ft)	
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		48			1			SM	Brown silty fine sand (loose to medium dense, moist)	NS	0.0	
											NS	0.0	
										Becomes moist to wet at approximately 3 feet			
	5		44.4			2					NS	0.0	
										Becomes moist and medium dense to dense at approximately 6½ feet	NS	0.0	
									SP	Brown fine sand with trace silt (loose to medium dense, moist)			
	10		32.4			3						4.0	
											NS		
											NS	2.5	
	15		42			4					NS		
											NS	2.8	
												2.0	
											NS	6.2	
	20		42			5					NS		
												13.8	
												9.2	
											NS	9.9	
	25		39.6			6							
									SP	Brown medium to coarse sand with occasional gravel, trace silt and occasional interbeds of fine sand (medium dense, moist)	NS	21.9	
											NS	13.2	
												21.3	
	30		42			7					NS		
												1	
												2	
											NS	88	
	35		45.6			8					NS		
											MS	20	CGDP25-37-38
						CA	▽					245	
										Becomes wet at approximately 38½ feet			
	40		52.8			9			SP	Brown medium to coarse sand with clay clumps and fine gravel (loose, wet)	NS	0.0	
									SP				
									CH	Brown medium to coarse sand with trace silt (loose, wet)		0.0	
										Gray with orange mottling clay with interbedded fine sand (stiff, moist to wet)	NS		
	45									Boring completed at approximately 45 foot depth and backfilled with bentonite			

Note: See Figure A-1 for explanation of symbols.

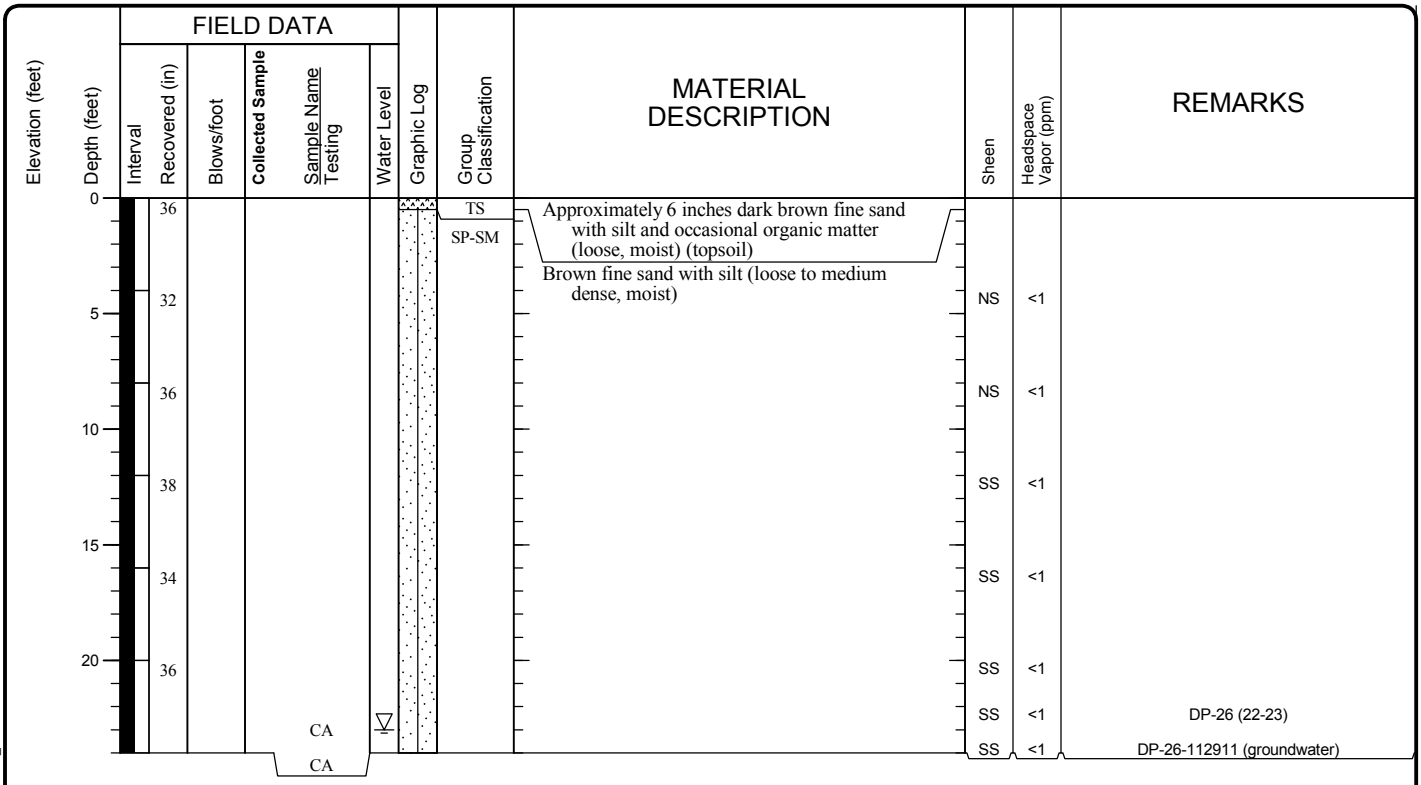
Log of Direct Push DP-25

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-33
Sheet 1 of 1

Drilled Start 11/29/2011 End 11/29/2011	Total Depth (ft) 24	Logged By / Checked By	Driller Environmental West	Drilling Method Direct Push	
Surface Elevation (ft) / Vertical Datum: Undetermined / NAVD88		Hammer Data		Drilling Equipment: Truck-mounted Geoprobe 5400	
Easting (X) / Northing (Y): 2466841 / 642763		System Datum: NAD83, WA State Plane North		Groundwater: Date Measured 11/29/2011; Depth to Water (ft) 23.0; Elevation (ft)	
Notes:					



Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-26

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-34
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
11/29/2011	11/29/2011	20		Environmental West	Direct Push

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
Undetermined NAVD88		Truck-mounted Geoprobe 5400

Easting (X) / Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
2467013 / 642615	NAD83, WA State Plane North	11/29/2011	14.5	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample / Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		46					TS	Approximately 3 inches brown silty fine sand (loose, moist) (topsoil)			
								ML	Brown silt with sand (medium stiff, moist)			
	5		48					SP-SM	Brown fine sand with silt (loose to medium dense, moist)	NS	<1	
	10		48						Grades with occasional gravel between 11 and 16 feet	NS	<1	
					CA	▽						DP-27 (13-14)
	15		48		CA					NS	<1	DP-27 (15-16)
					CA							DP-27-112911 (groundwater)
	20									NS	<1	

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-27

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-35
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
11/29/2011	11/29/2011	20		Environmental West	Direct Push

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
Undetermined / NAVD88		Truck-mounted Geoprobe 5400

Easting (X) / Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
2466924 / 642511	NAD83, WA State Plane North	11/29/2011	16.0	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		46						ML	Brown silt with sand (medium stiff, moist)			
	5		39						SP-SM	Brown fine sand with silt (loose to medium dense, moist)	NS	<1	
			40								NS	<1	
	10									Grades with occasional gravel between 10 and 11.5 feet			DP-28 (11-12)
			40			CA					SS	<1	
	15												DP-28 (15-16)
			44			CA	▽				SS	<1	DP-28-112911 (groundwater)
						CA			SW	Brown fine to coarse sand with trace silt (loose to medium dense, wet)			DP-28 (17-18)
	20					CA							

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-28

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-36
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
11/29/2011	11/29/2011	20		Environmental West	Direct Push

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
Undetermined NAVD88		Truck-mounted Geoprobe 5400

Easting (X) / Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
2467114 / 642730	NAD83, WA State Plane North	11/29/2011	13.5	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		44						TS	Approximately 6 inches dark brown silt (medium stiff, moist) (topsoil)			
									ML	Light brown silt (stiff, moist)			
	5		44						SP-SM	Brown fine sand with silt (loose to medium dense, moist)	NS	<1	
											SS	<1	
	10								SW	Brown fine to coarse sand with occasional gravel (loose to medium dense, moist)			DP-29 (11-12)
						CA					SS	<1	
						CA							DP-29-112911 (groundwater)
	15					CA							DP-29 (14-15)
											SS	<1	
	20										NS	<1	

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-29

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-37
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
11/30/2011	11/30/2011	35		Environmental West	Direct Push

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
Undetermined / NAVD88		Truck-mounted Geoprobe 5400

Easting (X) / Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
2465818 / 643749	NAD83, WA State Plane North			

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		40						SW	Brownish gray fine to coarse sand with gravel (medium dense, moist) (fill)			
									ML	Brownish gray fine sandy silt with debris (loose to medium dense, moist) (fill)			
	5		47								NS	<1	SA
									SP-SM	Brown fine sand with silt (loose to medium dense, moist)			
	10		43								NS	<1	
			36								NS	<1	
	15		40								NS	<1	
	20		39						SP	Grayish brown fine to medium sand with trace silt and gravel (loose to medium dense, moist)	NS	<1	SA
			42								NS	<1	
	25		44								SS	5.6	
	30		30			CA					SS	19.0	DP-30 (33-35)
	35										SS	92.0	SA

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-30

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-38

Drilled: Start 11/30/2011 End 11/30/2011	Total Depth (ft): 35	Logged By / Checked By:	Driller: Environmental West	Drilling Method: Direct Push	
Surface Elevation (ft) / Vertical Datum: Undetermined / NAVD88	Hammer Data:			Drilling Equipment: Truck-mounted Geoprobe 5400	
Easting (X) / Northing (Y): 2465765 / 643785	System Datum: NAD83, WA State Plane North			Groundwater: Date Measured 11/29/2011; Depth to Water (ft) 34.5; Elevation (ft)	
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		42						AC	Approximately 2 inches asphalt concrete pavement			
									SW	Approximately 6 inches fine to coarse sand with gravel (dense, moist) (base course)			
									ML	Brownish gray fine sandy silt (medium stiff, moist)			
	5		44								NS	<1	
			42								NS	<1	
	10								SP-SM	Grayish brown fine sand with silt (loose to medium dense, moist)			
			44								NS	<1	
	15		42								NS	<1	
	20										NS	<1	
	25		24								NS	<1	
									SP	Grayish brown fine to medium sand with occasional gravel and trace silt (loose to medium dense, moist)			
	30		28								NS	<1	
			31								NS	<1	
	35					CA					NS-SS	2.0	DP-31 (34-35)

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-31

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-39
Sheet 1 of 1

Drilled Start 11/30/2011 End 11/30/2011	Total Depth (ft) 40	Logged By / Checked By	Driller Environmental West	Drilling Method Direct Push
Surface Elevation (ft) Undetermined Vertical Datum NAVD88		Hammer Data		Drilling Equipment Truck-mounted Geoprobe 5400
Easting (X) 2465828 Northing (Y) 643699		System Datum NAD83, WA State Plane North		Groundwater: Date Measured 11/30/2011; Depth to Water (ft) 37.0; Elevation (ft)
Notes:				

Elevation (feet) / Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample / Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
0		38					SP	Brownish gray fine to coarse sand with gravel and trace silt (loose to medium dense, moist) (fill)			
							ML	Brownish gray fine sandy silt (medium stiff, moist)			
5		44					SP-SM	Brown fine sand with silt (loose to medium dense, moist)	NS	<1	
		44							NS	<1	
10		44							NS	<1	
15		44							NS	<1	
20		44							NS	<1	
		46							SS	15	Faint hydrocarbon odor
25		44		CA					SS	75	DP-32 (27-28)
30		45					SP	Brown to grayish brown fine to medium sand with occasional gravel and trace silt (loose to medium dense, moist)	SS	65	
35									SS	156	
				CA	▽				SS	150	DP-32 (36-40)
		44									
40										750	Strong petroleum odor

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-32

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-40
Sheet 1 of 1

Drilled: Start 11/30/2011 End 11/30/2011	Total Depth (ft): 40	Logged By / Checked By:	Driller: Environmental West	Drilling Method: Direct Push	
Surface Elevation (ft) / Vertical Datum: Undetermined / NAVD88	Hammer Data:	Drilling Equipment: Truck-mounted Geoprobe 5400			
Easting (X) / Northing (Y): 2465813 / 643657	System Datum: NAD83, WA State Plane North	Groundwater: Date Measured / Depth to Water (ft) / Elevation (ft)			
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		43						SP	Brown fine sand with gravel and trace silt (loose to medium dense, moist) (fill)			
									ML	Brownish gray to grayish-brown sandy silt (medium stiff, moist)			
	5		42								NS	<1	
									SP-SM	Brown fine sand with silt (loose to medium dense, moist)			
			46								NS	<1	
	10		45								NS	<1	
	15		47								NS	<1	
	20		42						SP	Approximately 8 inches brown fine to coarse sand with trace silt (loose to medium dense, moist)	NS	<1	
									ML	Light brown sandy silt (medium stiff, moist)			
	25		44						SP-SM	Brownish gray fine sand with silt (loose to medium dense, moist)	NS	<1	
			44			CA					NS	38.4	DP-33 (27-28) Slight hydrocarbon odor
	30		46						SP	Brown to grayish brown fine to coarse sand with trace silt and gravel (loose to medium dense, moist)	SS	52.5	Hydrocarbon odor
	35		42			CA					SS	45.8	SA DP-33 (35-37) Hydrocarbon odor
	40										NS-SS	35.0	

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-33

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

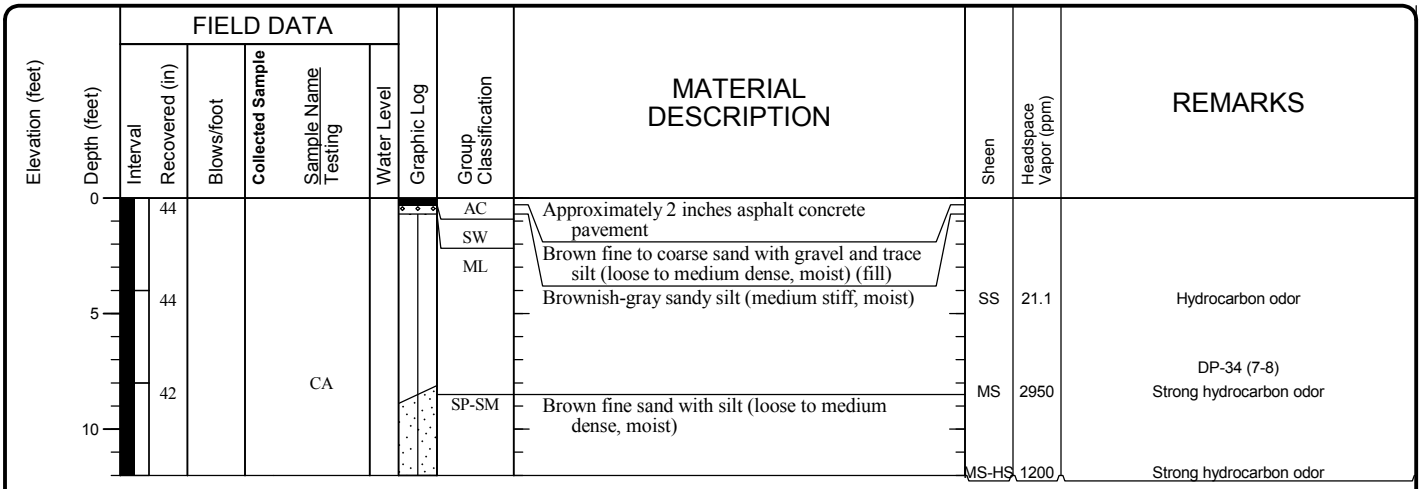
Figure A-41
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
11/30/2011	11/30/2011	12		Environmental West	Direct Push

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
Undetermined / NAVD88		Truck-mounted Geoprobe 5400

Easting (X) / Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
2465790 / 643701	NAD83, WA State Plane North			

Notes:



Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-34

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-42
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
11/30/2011	11/30/2011	20		Environmental West	Direct Push

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
Undetermined NAVD88		Truck-mounted Geoprobe 5400

Easting (X) / Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
2465753 / 643677	NAD83, WA State Plane North			

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		36						SP-SM	Gray medium to coarse sand with silt and debris (brick) (loose to medium dense, moist) (fill)			
									ML	Brown silt with sand (medium stiff, moist) (fill?)	NS	<1	
	5		36										
									SP-SM	Brown fine sand with silt (medium dense, moist)	NS	<1	
	10		38								NS	<1	
			36								NS	<1	
	15												
			36								NS	<1	
	20					CA					NS	<1	DP-35 (19-20)

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-35

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-43
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
12/1/2011	12/1/2011	24		Environmental West	Direct Push

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
Undetermined NAVD88		Truck-mounted Geoprobe 5400

Easting (X) / Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
2465783 / 643676	NAD83, WA State Plane North			

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		40						SP	Gray to brownish gray fine to coarse sand with gravel (loose to medium dense, moist) (fill)			
									ML	Brown sandy silt (medium stiff, moist)			
	5		44								NS-SS	<1	
									SP-SM	Brown fine sand with silt (loose to medium dense, moist)			
			45								NS	<1	
	10												
			43								NS	<1	
	15												
			44								NS	<1	
													DP-36 (19-20)
	20		36			CA					SS	300	Hydrocarbon odor
											SS	300	Hydrocarbon odor

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-36

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-44
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
	12/1/2011	12/1/2011	28		Environmental West	Direct Push

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
Undetermined NAVD88		Truck-mounted Geoprobe 5400

Easting (X) / Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
2465800 / 643688	NAD83, WA State Plane North			

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		46						SP	Light gray to grayish brown fine to coarse sand with gravel and trace silt (loose to medium dense, moist) (fill)			
									SM	Brown silty fine sand (loose to medium dense, moist)	NS	<1	
	5		44						SP-SM	Brownish gray fine sand with silt (loose to medium dense, moist)			
											NS	<1	
	10		44										
			42								NS	<1	
	15												
			45								NS	7	Very faint hydrocarbon odor
													DP-37 (19-20)
	20		44			CA					SS	400	Hydrocarbon odor
	25		44								SS	550	Hydrocarbon odor
						CA					SS	760	DP-37 (27-28) Strong hydrocarbon odor

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-37

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-45
Sheet 1 of 1

Drilled	Start 12/1/2011	End 12/1/2011	Total Depth (ft) 16	Logged By / Checked By	Driller Environmental West	Drilling Method Direct Push
Surface Elevation (ft) / Vertical Datum	Undetermined / NAVD88		Hammer Data		Drilling Equipment	Truck-mounted Geoprobe 5400
Easting (X) / Northing (Y)	2465801 / 643718		System Datum	NAD83, WA State Plane North	Groundwater: Date Measured	Depth to Water (ft) / Elevation (ft)
Notes:						

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		45						SP-SM	Light gray to brownish gray fine to coarse sand with silt (loose to medium dense, moist) (fill)			
									ML	Brown sandy silt (medium stiff, moist)			
	5		46								NS	1.3	
											NS	100	
										Greenish gray staining from 6.5 to 10 feet			DP-38 (7-8)
			45			CA					HS	2000	Very strong hydrocarbon odor
	10												
			44								SS	1150	Hydrocarbon odor
	15										SS-MS	700	

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-38

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-46
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
	12/1/2011	12/1/2011	12		Environmental West	Direct Push

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
Undetermined NAVD88		Truck-mounted Geoprobe 5400

Easting (X) / Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
2465777 / 643741	NAD83, WA State Plane North			

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		40						SP	Light gray to brownish gray fine to coarse sand with gravel and trace silt (medium dense, moist) (fill)			
									ML	Brown sandy silt (medium stiff, moist)			
	5		44								NS	<1	
									SP-SM	Brown fine sand with silt (loose to medium dense, moist)	NS	1.2	
	10		40			CA				Greenish gray staining below approximately 9 foot depth	HS	3600	DP-39 (10-12)

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-39

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-47
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
	12/1/2011	12/1/2011	12		Environmental West	Direct Push

Surface Elevation (ft) / Vertical Datum	Undetermined NAVD88	Hammer Data	Drilling Equipment: Truck-mounted Geoprobe 5400
Easting (X) / Northing (Y)	2465769 / 643703	System Datum: NAD83, WA State Plane North	Groundwater — Date Measured / Depth to Water (ft) / Elevation (ft)

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0								CC	Approximately 5 inches concrete			
									ML	Greenish brown to greenish gray silt with fine sand (medium stiff, moist)	HS	1400	
											HS	1700	Strong hydrocarbon odor
	5								SM	Brown silty fine sand (loose to medium dense, moist)			DP-40 (7-8)
						CA					HS	2800	
	10								SP-SM	Greenish brown fine sand with silt (loose to medium dense, moist)			
											HS	2600	

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push DP-40

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-48
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	7/12/2010	7/12/2010	32.8	SHL	DRL	GeoEngineers, Inc.	Hollow-Stem Auger

Hammer Data	140 (lbs) / 30 (in) Drop	Drilling Equipment	CME-75
Surface Elevation (ft) Vertical Datum	2106.7 NAVD88	Top of Casing Elevation (ft)	2106.5
Easting (X) Northing (Y)	2465523 643690	Horizontal Datum	State Plane, Washington North Zone NAD83

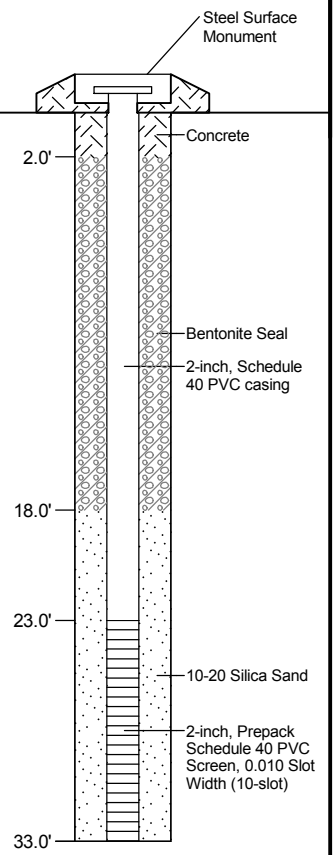
A 2 (in) well was installed on 7/12/2010 to a depth of 33 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
7/25/2010	29.5	2076.95

Notes:

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
2105	0							SM	Brown silty fine sand (loose, moist)		
	5	10	5		1					NS	0.0
2100								SP	Brown fine sand with trace silt (loose, moist)		
	10	10	5		2					NS	0.0
2095											
	15	12	6		3					NS	0.0
2090											
	20	14	5		4					NS	0.0
2085								SP	Brown fine to medium sand with trace silt and occasional gravel (medium dense, moist)		
	25	12	10		5					NS	0.0
2080											
	30	10	17		6	▽				NS	0.0
2075		18	1/18"		7			CL	Gray clay (very soft, wet)	NS	0.0

WELL LOG



Note: See Figure A-1 for explanation of symbols.

Spokane: Date:9/20/12 Path:C:\USERS\TMORRIS\DOCUMENTS\GINT TEMP\050405802.GPJ DBTemplate\LibTemplate\GEOENGINEERS8.GDT\GE18_ENVIRONMENTAL_WELL

Log of Monitoring Well MW-1

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-49
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	7/12/2010	7/13/2010	42.5	SHL	DRL	GeoEngineers, Inc.	Hollow-Stem Auger

Hammer Data	140 (lbs) / 30 (in) Drop	Drilling Equipment	CME-75
Surface Elevation (ft) Vertical Datum	2109.6 NAVD88	Top of Casing Elevation (ft)	2109.4
Easting (X) Northing (Y)	2465801 643547	Horizontal Datum	State Plane, Washington North Zone NAD83

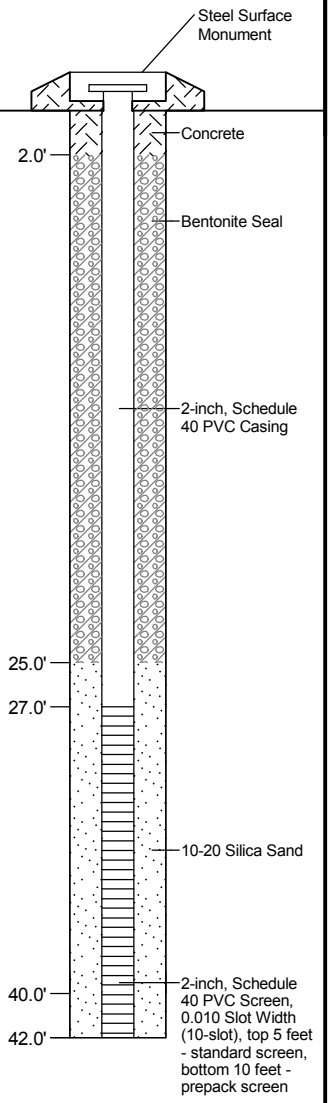
A 2 (in) well was installed on 7/13/2010 to a depth of 42 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
7/28/2010	37.5	2071.83

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
	0							SP-SM	Brown fine to medium sand with silt (loose, moist)		
2105	5	12	6		1					NS	0.0
2100	10	12	5		2					NS	0.0
2095	15	12	8		3						
2090	20	13	6		4						
2085	25	14	8		5					NS	0.0
2080	30	13	13		6					NS	0.0
		10	8		7					NS	0.0
2075	35	9	16		8					NS	0.0
		10	8		9	▽				NS	0.0
2070	40	10	2		CA 10				MW-2-37.5	NS	0.0
								SM	Brown silty fine to medium sand		
		18	1/18"		11			CL	Gray clay (soft, wet)	NS	0.0

WELL LOG



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW-2

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-50
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	7/13/2010	7/13/2010	44	SHL	DRL	GeoEngineers, Inc.	Hollow-Stem Auger

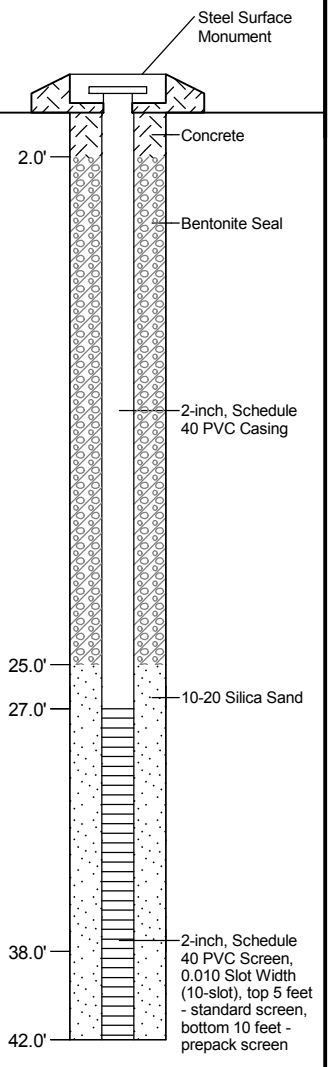
Hammer Data	140 (lbs) / 30 (in) Drop	Drilling Equipment	CME-75
Surface Elevation (ft) Vertical Datum	2110.4 NAVD88	Top of Casing Elevation (ft)	2110.2
Easting (X) Northing (Y)	2465979 643674	Horizontal Datum	State Plane, Washington North Zone NAD83

A 2 (in) well was installed on 7/13/2010 to a depth of 42 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
7/23/2010	38.7	2071.52

Notes:

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
2110	0							SP-SM	Brown fine sand with silt (loose, moist)		
2105	5										
2100	10										
2095	15										
2090	20										
2085	25	18	12		1					NS	0.0
2080	30	13	10		2					NS	0.0
								SW	Brown fine to coarse sand with occasional gravel and trace silt (medium dense, moist)		
2075	35	9	18		3					NS	0.0
		18	15		4					NS	0.0
2070	40	12	8		5	▽		SP-SM	Gray fine to medium sand with silt (wet)	NS	0.0
					CA				MW-3-40.0		
								CL	Gray clay (medium stiff, wet)		
		12	7		6					NS	0.0



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW-3

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-51
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	7/20/2010	7/20/2010	52.5	SHL	DRL	GeoEngineers, Inc.	Hollow-Stem Auger

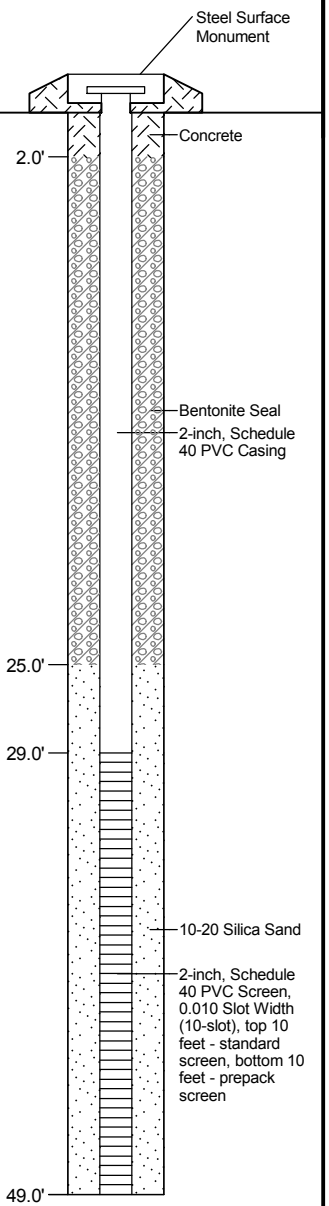
Hammer Data	140 (lbs) / 30 (in) Drop	Drilling Equipment	CME-75
Surface Elevation (ft) Vertical Datum	2109.5 NAVD88	Top of Casing Elevation (ft)	2109.3
Easting (X) Northing (Y)	2466045 643350	Horizontal Datum	State Plane, Washington North Zone NAD83

A 2 (in) well was installed on 7/20/2010 to a depth of 49 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
7/23/2010	38.2	2071.16

Notes:

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
	0							SM	Brown silty fine sand (medium dense, moist)		
2105	5	10	24		1					NS	0.0
2100	10										
2095	15	15	18		2					NS	3.8
2090	20										
2085	25	12	6		3					NS	5.1
2080	30							SW	Brown fine to coarse sand with occasional fine gravel and trace silt (medium dense, moist)		
2075	35	12	11		4					NS	4.1
		14	14		5	▽				NS	0.0
2070	40	8	7		6				MW-4-40.0	NS	0.0
					CA						
2065	45							SM	Gray silty fine sand (loose, wet)		
		12	4		7					NS	0.0
2060	50	10	9		8					NS	0.0
								CL	Gray clay (medium stiff, wet)		
		3	5		9					NS	0.0



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW-4

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-52
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	7/21/2010	7/21/2010	48.5	KLR	DRL	GeoEngineers, Inc.	Hollow-Stem Auger

Hammer Data	140 (lbs) / 30 (in) Drop	Drilling Equipment	CME-75
Surface Elevation (ft) Vertical Datum	2109.6 NAVD88	Top of Casing Elevation (ft)	2109.3
Easting (X) Northing (Y)	2466031 643501	Horizontal Datum	State Plane, Washington North Zone NAD83

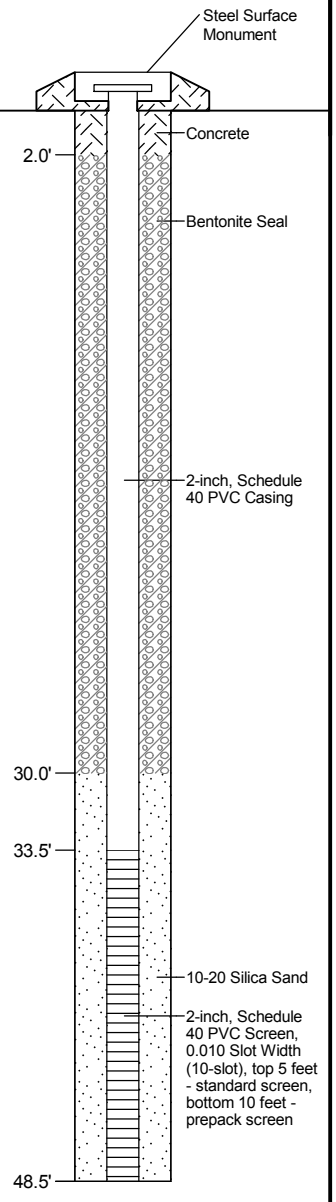
A 2 (in) well was installed on 7/21/2010 to a depth of 48.5 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
7/29/2010	38.6	2070.72

Notes:

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
	0							GP	Approximately 3 inches gray crushed fine gravel (medium dense, dry) (gravel parking lot)		
								SM	Brown silty fine sand (loose, moist)		
2105	5	17	4		1					NS	3.2
2100	10										
2095	15	10	7		2					NS	4.8
2090	20										
2085	25	16	6		3					SS	15.4
2080	30										
2075	35	14	11		4 CA			SM	MW-5-33.5 Brown silty fine to medium sand (medium dense, moist to wet)	SS	315
2070	40	13	10		5 CA	▽			MW-5-38.5	HS	2435
2065	45	13	10		6 CA				MW-5-43.5	HS	540

WELL LOG



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW-5

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-53
Sheet 1 of 1

Spokane: Date:9/20/12 Path:C:\USERS\TMORRIS\DOCUMENTS\GINT TEMP\050405802.GPJ DBTemplate\LibTemplate\GEOENGINEERS8.GDT/GE8_ENVIRONMENTAL_WELL

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	7/22/2010	7/22/2010	50	KLR	DRL	GeoEngineers, Inc.	Hollow-Stem Auger

Hammer Data	140 (lbs) / 30 (in) Drop	Drilling Equipment	CME-75
Surface Elevation (ft) Vertical Datum	2110.6 NAVD88	Top of Casing Elevation (ft)	2110.3
Easting (X) Northing (Y)	2466324 643366	Horizontal Datum	State Plane, Washington North Zone NAD83

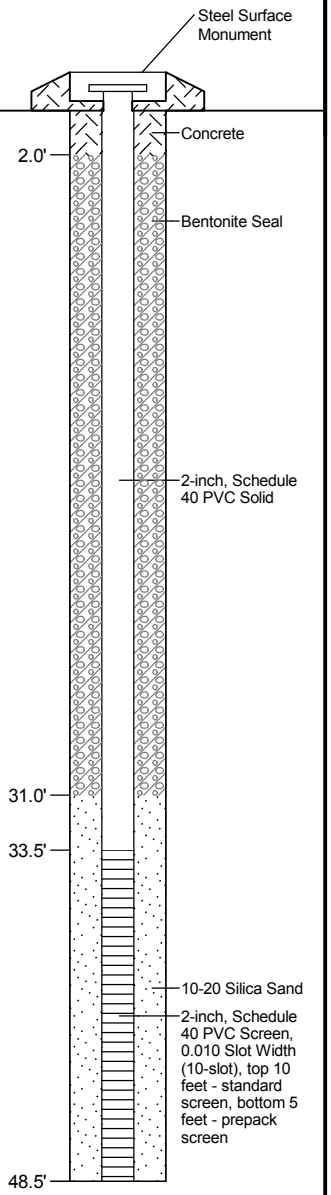
A 2 (in) well was installed on 7/22/2010 to a depth of 48.5 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
7/28/2010	39.7	2070.64

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
2110	0								SM	Brown silty fine sand (loose to medium dense, moist)		
			15	5		1					NS	0.0
2105	5											
	10		14	5		2					NS	0.0
2100												
2095	15											
	20		14	11		3					NS	0.0
2090												
2085	25											
	30											
2080												
	35		14	19		4			SW	Brown silty fine to coarse sand with occasional gravel (medium dense, moist)	NS	0.0
2075										Grades with gravel		
	40		13	21		5	▽		SM	Brown silty fine to medium sand with occasional gravel (medium dense, moist)	NS	0.2
2070												
	45		9	9		6 CA			SP	MW-6-43.5	NS	380
2065										Brown fine to medium sand with trace silt (loose, wet)		
									CL	Gray clay (soft, wet)		
	50		16	3		7					NS	0.0

WELL LOG



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW-6

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-54
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	7/23/2010	7/23/2010	45	KLR	DRL	GeoEngineers, Inc.	Hollow-Stem Auger

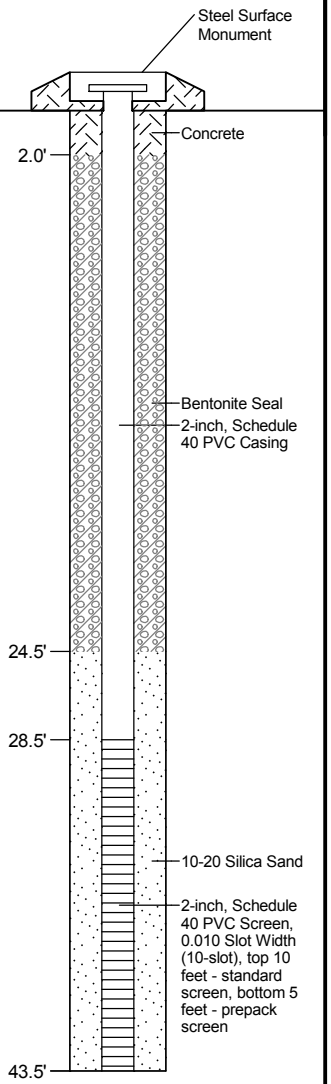
Hammer Data	140 (lbs) / 30 (in) Drop	Drilling Equipment	CME-75
Surface Elevation (ft) Vertical Datum	2109.6 NAVD88	Top of Casing Elevation (ft)	2109.3
Easting (X) Northing (Y)	2465763 643828	Horizontal Datum	State Plane, Washington North Zone NAD83

A 2 (in) well was installed on 7/23/2010 to a depth of 43.5 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
7/28/2010	36.3	2073.05

Notes:

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
	0							TS	Approximately 6 inches brown silty fine sand (loose, moist) (topsoil)		
								SM	Brown silty fine sand (loose, moist)		
2105	5	11	5		1					NS	1.0
2100	10										
2095	15	13	9		2					NS	0.0
2090	20										
2085	25	13	24		3				Grades to medium dense	NS	7.0
								GM	Gray silty gravel with sand (medium dense, moist)		
2080	30							SW	Brown fine to coarse sand with occasional gravel and trace silt (loose, moist)		
2075	35	14	9		4					SS	2.4
2070	40	8	1/12"		5 CA			SM	Brown silty fine sand (very loose, wet) MW-7-38.5	NS	4.0
								ML/CL	Gray silty clay to clay (soft, wet)		
2065	45	14	3		6					NS	1.0



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW-7

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-55
Sheet 1 of 1

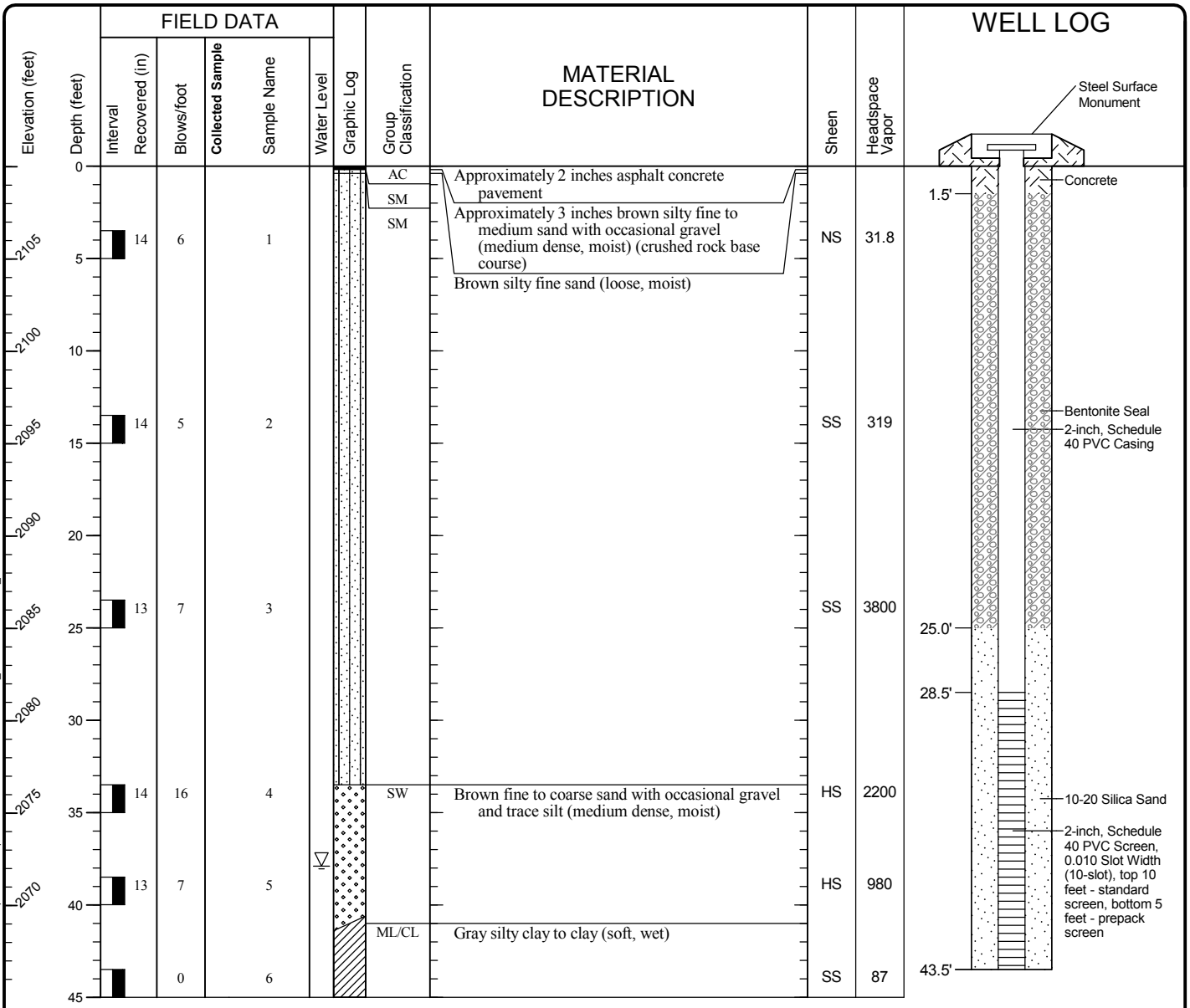
Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	7/23/2010	7/23/2010	45	KLR	DRL	GeoEngineers, Inc.	Hollow-Stem Auger

Hammer Data	140 (lbs) / 30 (in) Drop	Drilling Equipment	CME-75
Surface Elevation (ft) Vertical Datum	2110.0 NAVD88	Top of Casing Elevation (ft)	2109.7
Easting (X) Northing (Y)	2465794 643724	Horizontal Datum	State Plane, Washington North Zone NAD83

A 2 (in) well was installed on 7/23/2010 to a depth of 43.5 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
7/29/2010	37.9	2071.81

Notes:



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW-8

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-56
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	11/1/2010	11/1/2010	50	KLR	DRL	GeoEngineers, Inc.	Hollow Stem Auger

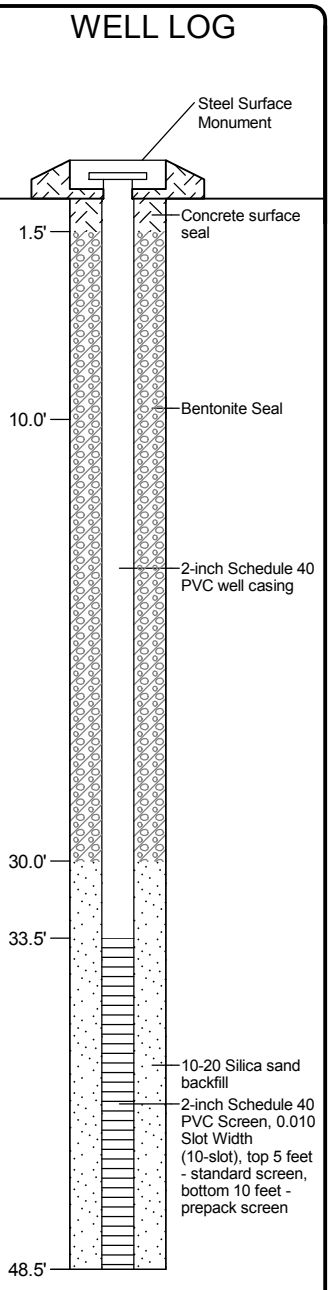
Hammer Data	Automatic 140 (lbs) / 30 (in) Drop	Drilling Equipment	CME 75
Surface Elevation (ft) Vertical Datum	2109.6 NAVD88	Top of Casing Elevation (ft)	2109.4
Easting (X) Northing (Y)	2466339 643687	Horizontal Datum	State Plane, Washington North Zone NAD83

A 2 (in) well was installed on 11/1/2010 to a depth of 48.5 (ft).

Groundwater		
Date Measured	Depth to Water (ft)	Elevation (ft)
11/10/2010	38.4	2071.17

Notes:

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
	0							SM	Brown silty fine sand (loose, moist)		
2105	5	13	6		1					NS	0.0
								SP-SM	Brown fine sand with silt (loose, moist)		
2100	10		8		2					NS	0.0
2095	15		6		3					NS	0.0
								SM	Brown silty fine sand (loose, moist)		
2090	20		5		4					NS	0.0
								SP-SM	Brown fine sand with silt (medium dense, moist)		
2085	25	14	15		5					NS	0.0
2080	30	17	12		6					NS	0.0
								SW	Grayish brown fine to coarse sand with gravel and trace silt (medium dense, moist to wet)		
2075	35	16	18		7 CA				MW-9@33.5	NS	0.0
2070	40		10		8 CA				MW-9@38.5	NS	0.0
2065	45	16	12		9					NS	0.0
								CL	Gray clay (soft, wet)		
2060	50	18	2		10					NS	0.0



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW-9

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-57
Sheet 1 of 1

Spokane: Date:9/20/12 Path:C:\USERS\TMORRIS\DOCUMENTS\GINT TEMP\050405802.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GE8_ENVIRONMENTAL_WELL

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	11/2/2010	11/2/2010	25	KLR	DRL	GeoEngineers, Inc.	Hollow Stem Auger

Hammer Data	Automatic 140 (lbs) / 30 (in) Drop	Drilling Equipment	CME 75
Surface Elevation (ft) Vertical Datum	2085.9 NAVD88	Top of Casing Elevation (ft)	2085.6
Easting (X) Northing (Y)	2467007 643101	Horizontal Datum	State Plane, Washington North Zone NAD83

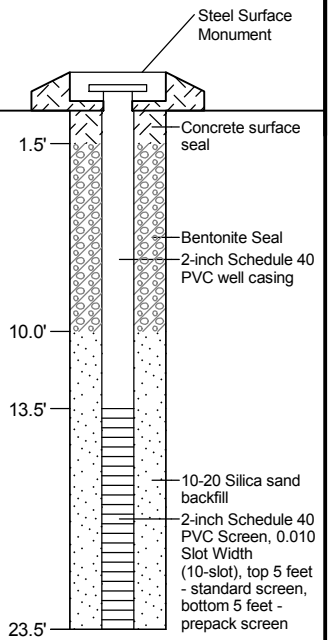
A 2 (in) well was installed on 11/2/2010 to a depth of 23.5 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
11/10/2010	16.0	2069.60

Notes:

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
2085	0							SP-SM	Brown fine sand with silt (medium dense, moist)		
	5	16	14		1					NS	0.0
2080			6		2					NS	0.1
2075	10										
		15	8		3 CA			SW-SM	Brown fine to coarse sand with silt and gravel (loose, moist) MW-10@13.5	NS	0.1
2070	15					▽					
		9	1		4 CA			ML	Gray silt with sand (soft, wet) MW-10@18.5	NS	0.0
2065	20							CL	Gray clay (soft, wet)		
	25	16	3		5					NS	0.0

WELL LOG



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW-10

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-58
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	11/2/2010	11/2/2010	30	KLR	DRL	GeoEngineers, Inc.	Hollow Stem Auger

Hammer Data	Automatic 140 (lbs) / 30 (in) Drop	Drilling Equipment	CME 75
Surface Elevation (ft) Vertical Datum	2093.6 NAVD88	Top of Casing Elevation (ft)	2093.4
Easting (X) Northing (Y)	2466808 643320	Horizontal Datum	State Plane, Washington North Zone NAD83

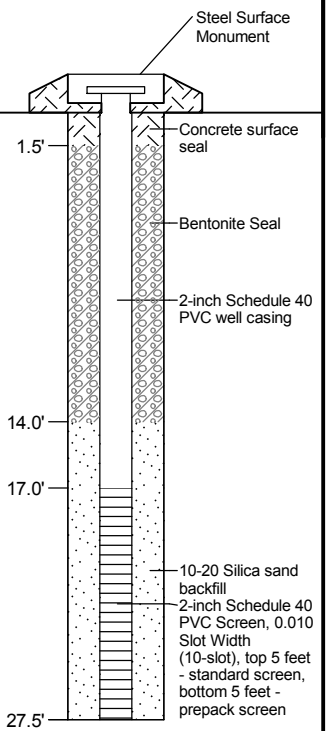
A 2 (in) well was installed on 11/2/2010 to a depth of 27.5 (ft).

Groundwater	Depth to Water (ft)	Elevation (ft)
Date Measured		
11/10/2010	23.3	2070.27

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
2090	0								SM	Silty fine sand (loose, moist)		
	5		16	6		1					NS	0.0
2085									SP-SM	Brown fine sand with silt (loose, moist)		
	10		16	4		2					NS	0.0
2080									SP	Brown fine to medium sand with trace silt (loose, moist)		
	15		8	6		3					NS	0.0
2075				12		4 CA				MW-11@18.5	NS	0.0
	20						▽					
2070							▼		SW	Brown fine to course sand with trace silt (medium dense, wet)		
	25		12	12		5 CA				MW-11@23.5	NS	0.0
2065									CL	Gray clay (soft, wet)		
	30			3		6					NS	0.0

WELL LOG



Note: See Figure A-1 for explanation of symbols.

Spokane: Date:9/20/12 Path:C:\USERS\TMORRIS\DOCUMENTS\GINT TEMP\050405802.GPJ DBTemplate\LibTemplate:GEOENGINEERS8.GDT/GE8_ENVIRONMENTAL_WELL

Log of Monitoring Well MW-11

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-59
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	11/3/2010	11/3/2010	45	KLR	DRL	GeoEngineers, Inc.	Hollow Stem Auger

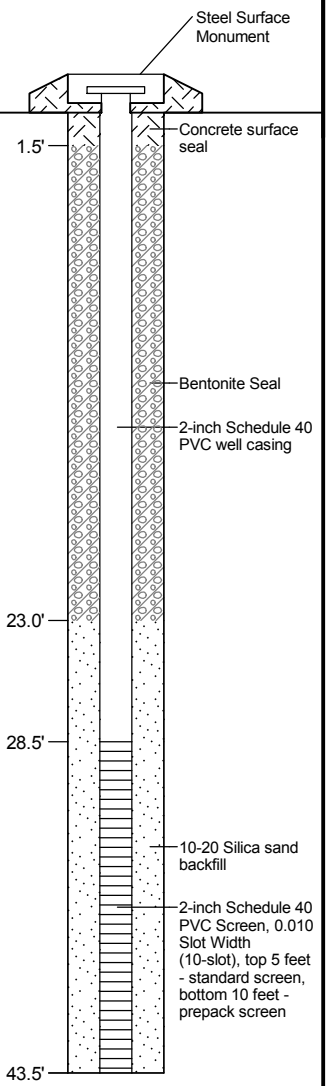
Hammer Data	Automatic 140 (lbs) / 30 (in) Drop	Drilling Equipment	CME 75
Surface Elevation (ft) Vertical Datum	2109.3 NAVD88	Top of Casing Elevation (ft)	2108.9
Easting (X) Northing (Y)	2466097 643190	Horizontal Datum	State Plane, Washington North Zone NAD83

A 2 (in) well was installed on 11/3/2010 to a depth of 43.5 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
11/10/2010	38.0	2071.32

Notes:

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
2105	0							ML	Brown silt with sand (stiff, moist)		
	5	15	12		1					NS	0.0
2100	10							SP	Grayish brown fine sand with trace silt (loose, moist)		
2095	15										
2090	20										
2085	25	16	7		2					NS	0.0
2080	30	15	14		3			SP	Grayish brown fine to medium sand with trace silt (medium dense, moist)	NS	0.0
2075	35		15		4 CA	▽			MW-12@33.5	NS	0.0
2070	40	4	20		8 CA	▼			MW-12@38.5	NS	0.0
2065	45		5		6			CL	Gray clay (medium stiff, wet)	NS	0.0



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW-12

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

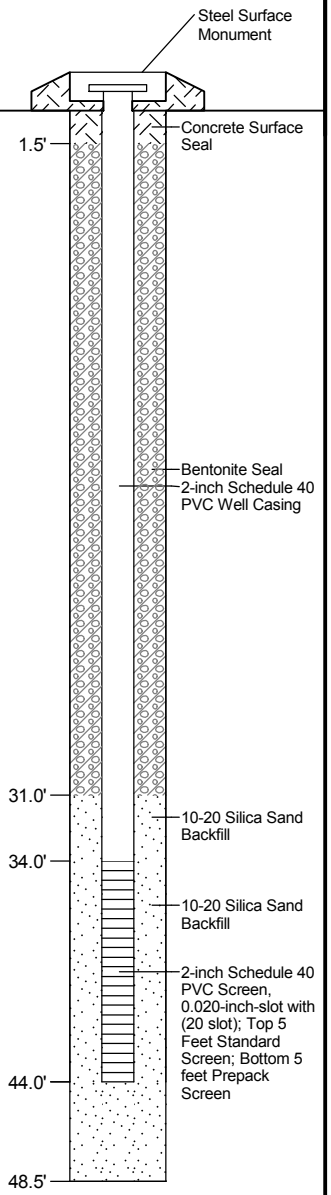
Figure A-60
Sheet 1 of 1

Drilled: Start 7/26/2011 End 7/26/2011	Total Depth (ft): 48.5	Logged By: KBR Checked By: DRL	Driller: GeoEngineers, Inc.	Drilling Method: Hollow-Stem Auger	
Hammer Data: Automatic 140 (lbs) / 30 (in) Drop		Drilling Equipment: CME 75	A 2 (in) well was installed on 7/26/2011 to a depth of 45 (ft).		
Surface Elevation (ft) Vertical Datum: 2109.5 NAVD88		Top of Casing Elevation (ft): 2109.1	Groundwater: Date Measured 8/2/2011	Depth to Water (ft) 36.8	Elevation (ft) 2072.32
Easting (X) Northing (Y): 2466245 643299		Horizontal Datum: State Plane, Washington North Zone, NAD83			

Notes:

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
2105	0										
	5										
2100	10										
2095	15										
2090	20							SP	Brown fine to medium sand with trace silt (loose to medium dense, moist)		
2085	25										
2080	30	13	18		1					NS	0.0
2075	35	14	11		2 CA				MW-13 (33.5)	NS	0.0
						▽		SW	Brown fine to coarse sand with occasional gravel and trace silt (medium dense, wet)		
2070	40	10	28		3 CA				MW-13 (38.5)	NS	0.0
2065	45	13	5		4			CL	Gray clay (medium stiff, wet)	NS	0.0

WELL LOG



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW-13

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-61
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	7/26/2011	7/26/2011	40	KBR	DRL	GeoEngineers, Inc.	Hollow-Stem Auger

Hammer Data	Automatic 140 (lbs) / 30 (in) Drop	Drilling Equipment	CME 75
Surface Elevation (ft) Vertical Datum	2103.5 NAVD88	Top of Casing Elevation (ft)	2103.2
Easting (X) Northing (Y)	2466672 643200	Horizontal Datum	State Plane, Washington North Zone, NAD83

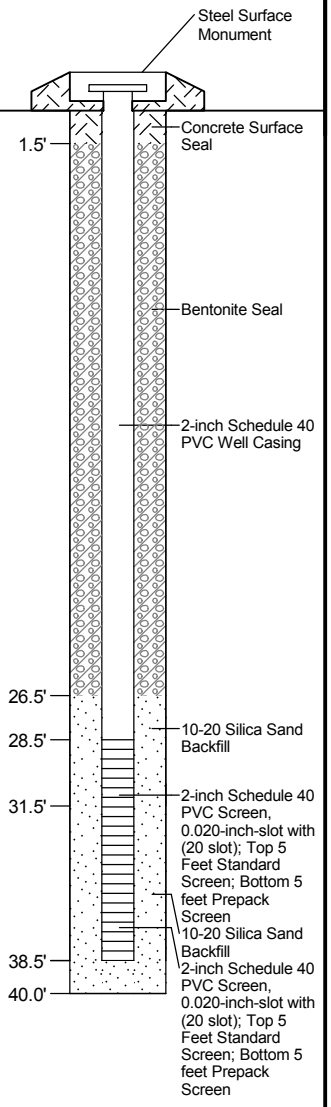
A 2 (in) well was installed on 7/26/2011 to a depth of 40 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
8/2/2011	31.6	2071.55

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
2100	0										
	5										
2095											
	10										
2090											
	15										
2085											
	20							SP	Brown fine to medium sand with occasional gravel and trace silt (loose to medium dense, moist)		
2080		15	16		1					NS	0.0
	25										
2075		14	12		2 CA				MW-14 (28.5)	NS	0.0
	30							SW-SM	Brown fine to coarse sand with silt and trace gravel (medium dense, wet)		
2070		12	15		3 CA				MW-14 (33.5)	NS	0.0
	35										
2065		12	2		4			CL	Gray clay (soft, wet)	NS	0.0
	40										

WELL LOG



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW-14

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-62
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	7/27/2011	7/27/2011	50	KBR	DRL	GeoEngineers, Inc.	Hollow-Stem Auger

Hammer Data	Automatic 140 (lbs) / 30 (in) Drop	Drilling Equipment	CME 75
Surface Elevation (ft) Vertical Datum	2113.4 NAVD88	Top of Casing Elevation (ft)	2112.9
Easting (X) Northing (Y)	2466578 642963	Horizontal Datum	State Plane, Washington North Zone, NAD83

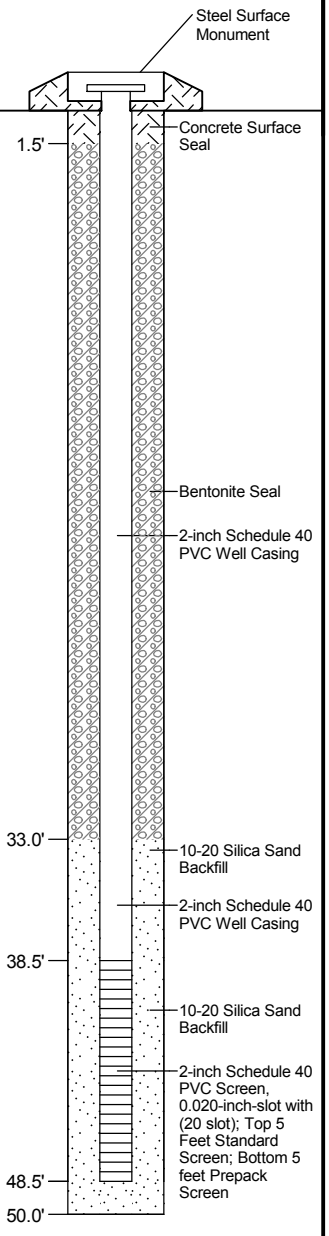
A 2 (in) well was installed on 7/27/2011 to a depth of 50 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
8/2/2011	41.6	2071.34

Notes:

Depth (feet)	Elevation (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
0	2110										
5	2105										
10	2100										
15	2095										
20	2090										
25	2085										
30	2080										
35	2075	15	9		1					NS	0.0
40	2070	15	14		2			SP	Brown fine to medium sand with trace silt (loose to medium dense, moist)	NS	0.0
45	2065	6	23		3 CA			SW	Brown fine to coarse sand with occasional gravel and trace silt (medium dense, wet) MW-15 (43.5)	NS	0.0
50		12	8		4			CL	Gray clay (medium stiff, wet)	NS	22.7

WELL LOG



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW-15

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-63
Sheet 1 of 1

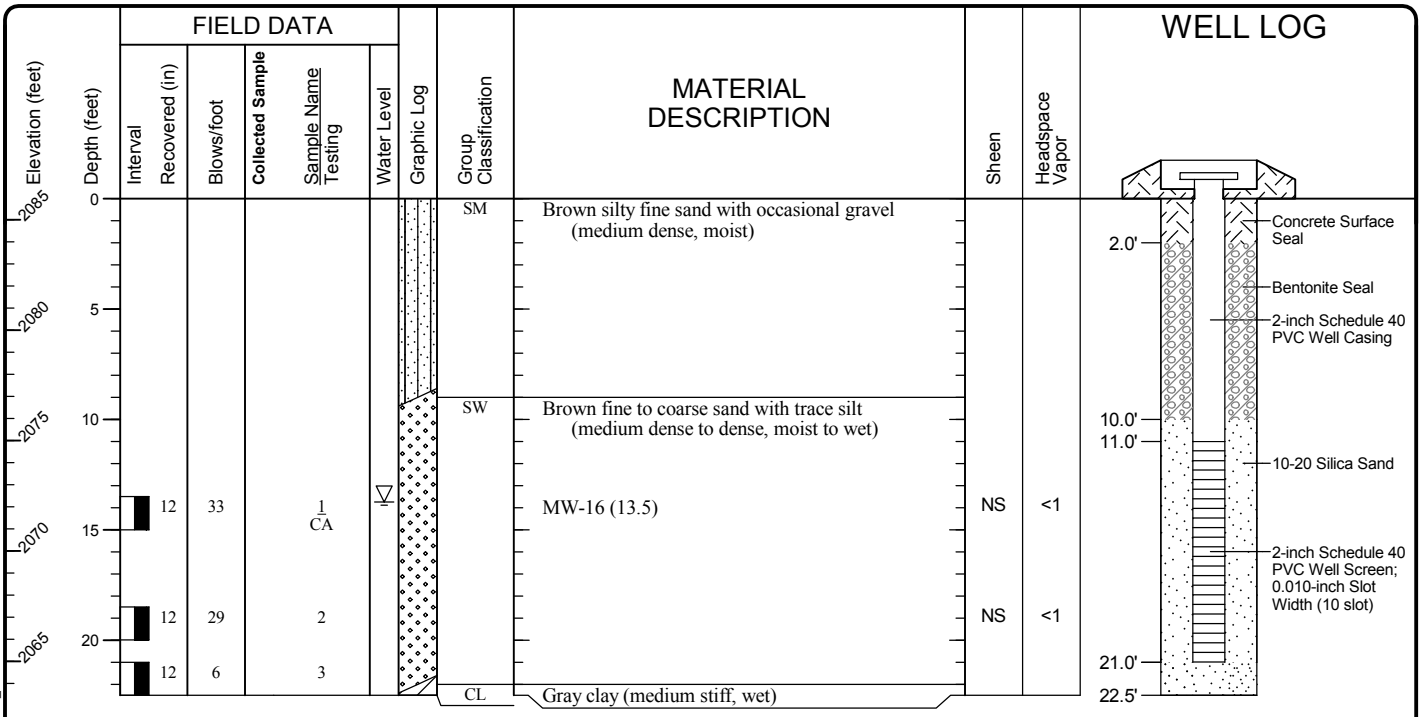
Spokane: Date:9/20/12 Path:C:\USERS\TMORRIS\DOCUMENTS\GINT TEMP\050405802.GPJ DBTemplate\LibTemplate\GEOENGINEERS8.GDT/GE18_ENVIRONMENTAL_WELL

Drilled Start 4/16/2012 End	Total Depth (ft) 22.5	Logged By KLR / Checked By DRL	Driller Environmental West	Drilling Method Hollow-Stem Auger
Hammer Data 140 (lbs) / 30 (in) Drop		Drilling Equipment Mobile B-90		
Surface Elevation (ft) 2086.0 / Vertical Datum NAVD88		Top of Casing Elevation (ft) 2085.2		
Easting (X) 2467406 / Northing (Y) 642589		Horizontal Datum NAD83, WA State Plane North		

A 2 (in) well was installed on 4/16/2012 to a depth of 21 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
4/16/2012	13.8	2071.45

Notes:



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW-16

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

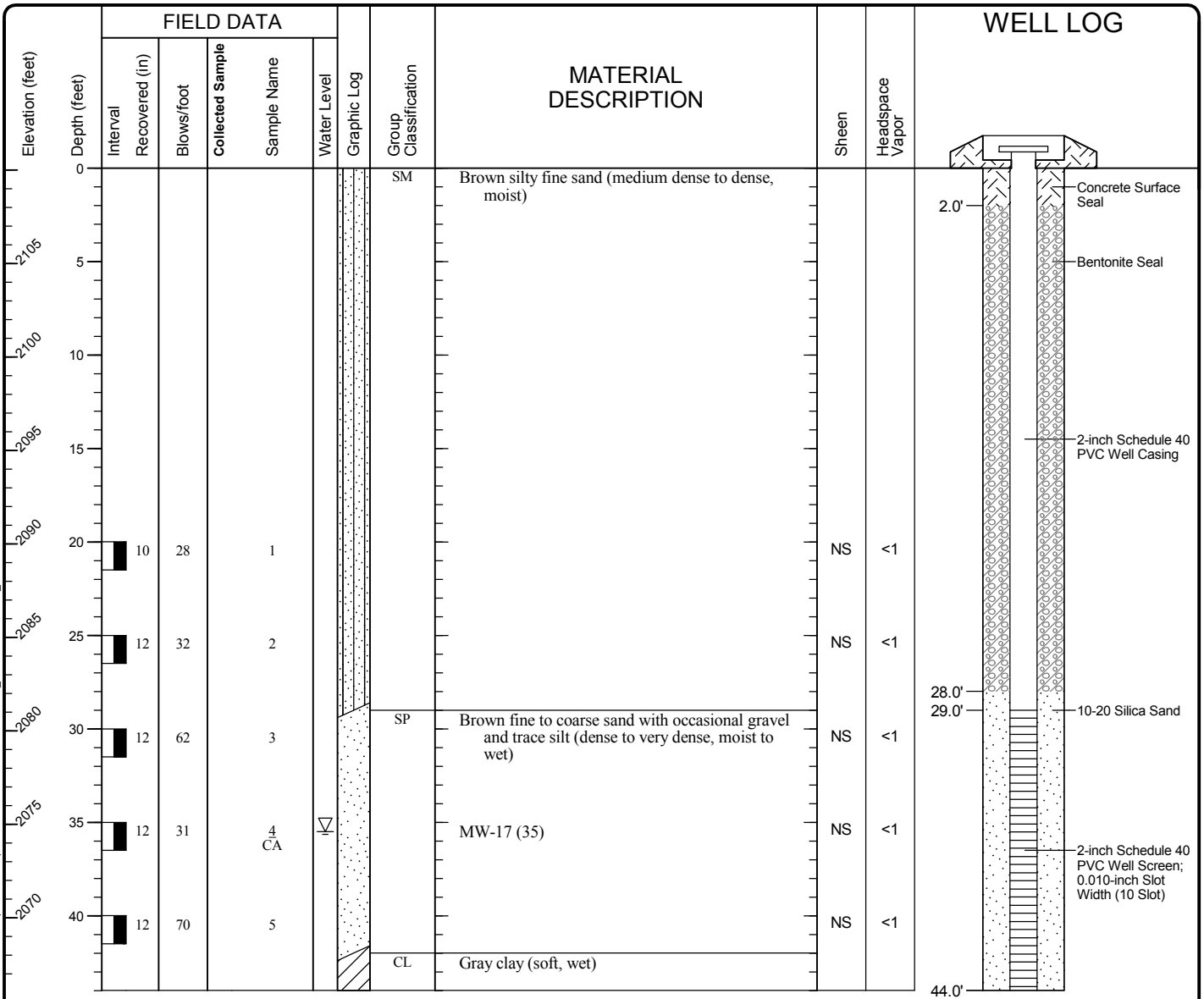
Figure A-64
Sheet 1 of 1

Drilled Start 4/16/2012 End	Total Depth (ft) 44	Logged By KLR / Checked By DRL	Driller Environmental West	Drilling Method Hollow-Stem Auger
Hammer Data 140 (lbs) / 30 (in) Drop		Drilling Equipment Mobile B-90		
Surface Elevation (ft) 2110.1 / Vertical Datum NAVD88		Top of Casing Elevation (ft) 2109.7		
Easting (X) 2466197 / Northing (Y) 643848		Horizontal Datum NAD83, WA State Plane North		

A 2 (in) well was installed on 4/16/2012 to a depth of 44 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
4/16/2012	35.5	2074.24

Notes:



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW-17

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

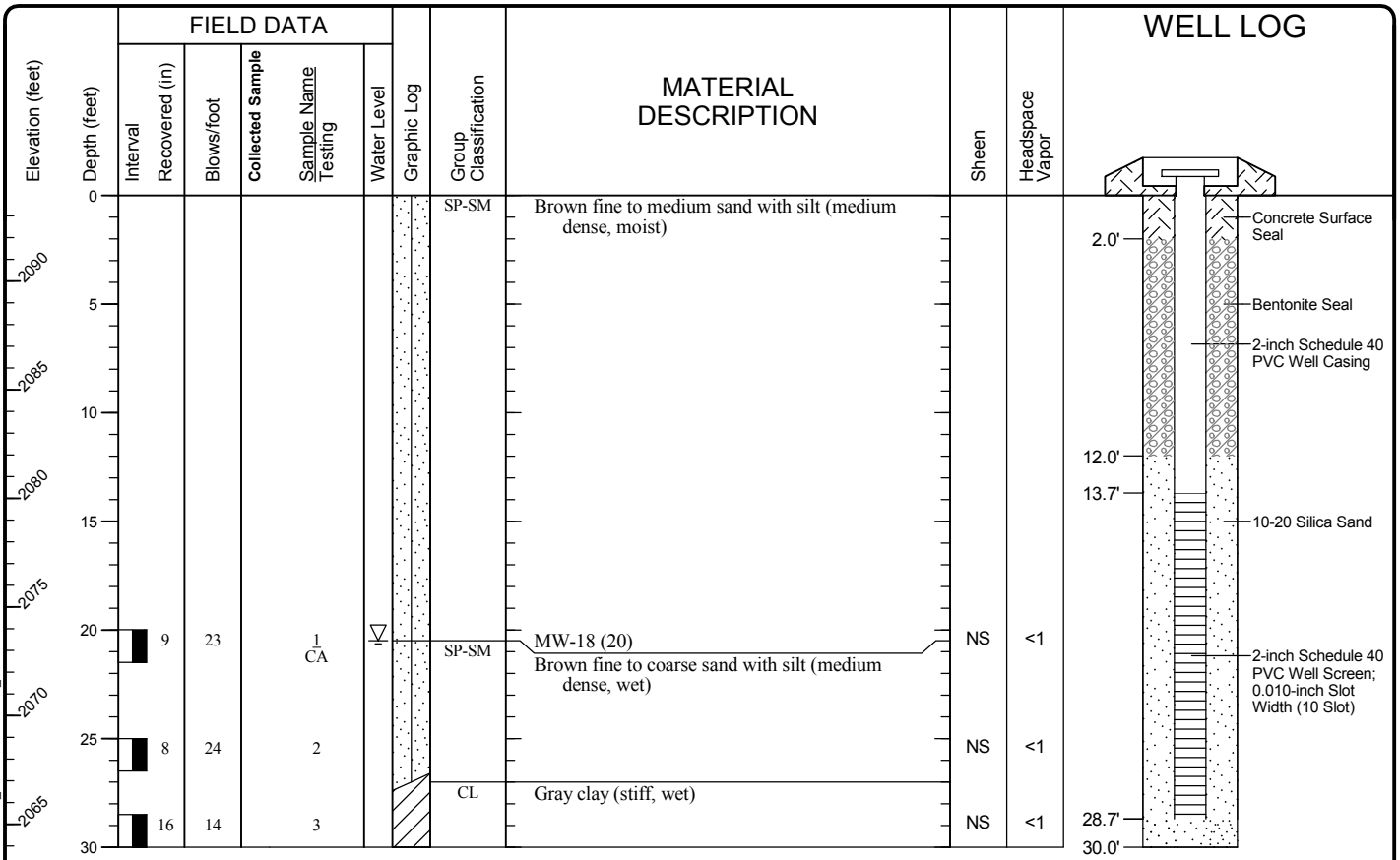
Figure A-65
Sheet 1 of 1

Drilled Start 4/17/2012 End	Total Depth (ft) 30	Logged By SHL / Checked By DRL	Driller Environmental West	Drilling Method Hollow-Stem Auger
Hammer Data 140 (lbs) / 30 (in) Drop		Drilling Equipment Mobile B-90		
Surface Elevation (ft) 2094.0 / Vertical Datum NAVD88		Top of Casing Elevation (ft) 2093.6		
Easting (X) 2466608 / Northing (Y) 643875		Horizontal Datum NAD83, WA State Plane North		

A 2 (in) well was installed on 4/17/2012 to a depth of 28.7 (ft).

Groundwater	Depth to Water (ft)	Elevation (ft)
Date Measured		
4/17/2012	20.5	2073.07

Notes:



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW-18

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

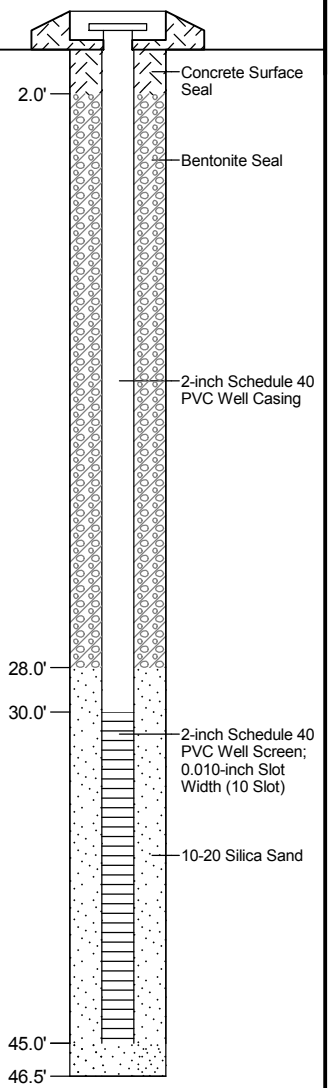
Figure A-66
Sheet 1 of 1

Drilled Start 4/17/2012 End	Total Depth (ft) 46.5	Logged By SHL Checked By DRL	Driller Environmental West	Drilling Method Hollow-Stem Auger
Hammer Data 140 (lbs) / 30 (in) Drop		Drilling Equipment Mobile B-90	A 2 (in) well was installed on 4/17/2012 to a depth of 45 (ft).	
Surface Elevation (ft) 2109.6 Vertical Datum NAVD88		Top of Casing Elevation (ft) 2109.3	Groundwater Date Measured 4/17/2012	Depth to Water (ft) 35.0 Elevation (ft) 2074.31
Easting (X) 2465934 Northing (Y) 643594		Horizontal Datum NAD83, WA State Plane North		

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
2105	0							SP-SM	Brown fine to medium sand with silt (medium dense, moist)		
	5										
2100	10										
2095	15										
2090	20	12	23		1					NS	<1
2085	25	16	35		2					NS	<1
2080	30	12	29		3			SP	Brown fine to coarse sand with occasional gravel and trace silt (medium dense, moist)	NS	<1
2075	35	9	28		4 CA	▽			MW-19 (35)	NS	2.0
2070	40	12	29		5 CA					NS	26.1
2065	45	16	12		6			CL	Gray clay (stiff, wet) MW-19 (45)	NS	<1

WELL LOG



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW-19

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-67
Sheet 1 of 1

Spokane: Date:9/20/12 Path:C:\USERS\TMORRIS\DOCUMENTS\GINT TEMP\050405802.GPJ DBTemplate\LibTemplate:GEOENGINEERS8.GDT/GE18_ENVIRONMENTAL_WELL

Drilled	Start	End	Total Depth (ft)	Logged By	Driller	Drilling Method
	4/13/2012	4/13/2012	41.5	KLR	Environmental West	Hollow-Stem Auger
				Checked By DRL		

Hammer Data	140 (lbs) / 30 (in) Drop	Drilling Equipment	Mobile B-90
Surface Elevation (ft) Vertical Datum	2109.7 NAVD88	Top of Casing Elevation (ft)	2109.5
Easting (X) Northing (Y)	2465789 643690	Horizontal Datum	NAD83, WA State Plane North

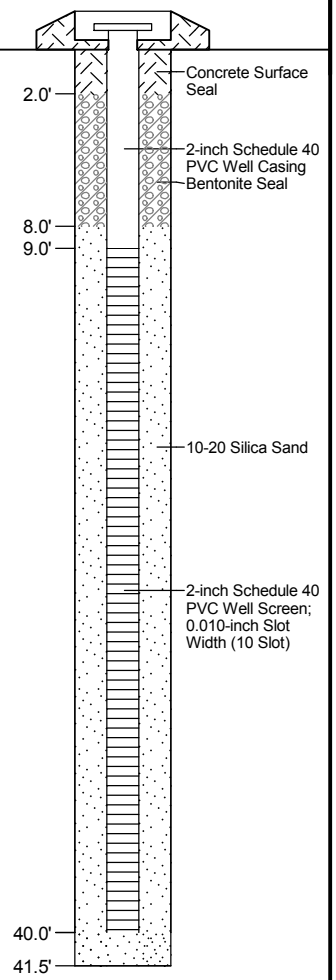
A 2 (in) well was installed on 4/13/2012 to a depth of 40 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
4/13/2012	35.0	2074.48

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
	0							AC	Approximately 2 inches asphalt concrete pavement		
								SM	Brown silty fine sand (medium dense, moist)		
2105	5	12	19		1					NS	<1
2100	10										
2095	15	12	61		2 CA				MP-1 (15) Grades to dense	SS	210
2090	20										
2085	25	12	46		3 CA				MP-1 (25)	MS	2,350
2080	30							SP	Grayish brown fine to coarse sand with occasional gravel and trace silt (medium dense, moist to wet)		
2075	35	10	34		4 CA	▽			MP-1 (35)	SS	200
2070	40	10	66/10"		5					NS	20

WELL LOG



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Point MP-1

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-68
Sheet 1 of 1

Drilled Start 4/13/2012 End	Total Depth (ft) 41.5	Logged By KLR / Checked By DRL	Driller Environmental West	Drilling Method Hollow-Stem Auger
Hammer Data 140 (lbs) / 30 (in) Drop		Drilling Equipment Mobile B-90		
Surface Elevation (ft) 2109.6 / Vertical Datum NAVD88		Top of Casing Elevation (ft) 2109.4		
Easting (X) 2465785 / Northing (Y) 643750		Horizontal Datum NAD83, WA State Plane North		

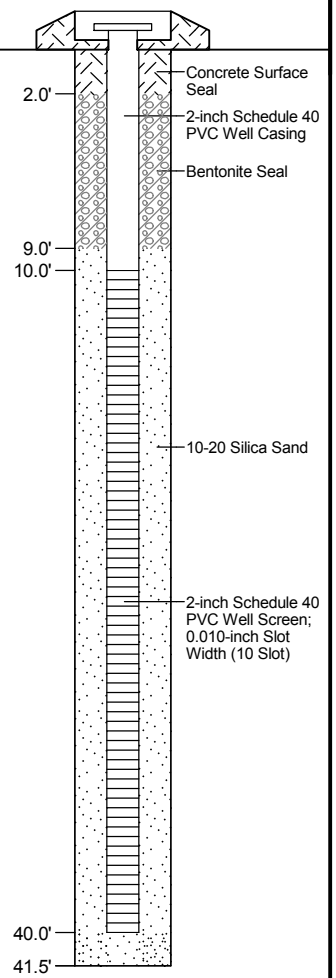
A 2 (in) well was installed on 4/13/2012 to a depth of 41.5 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
4/13/2012	34.5	2074.90

Notes:

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
	0							AC	Approximately 2 inches asphalt concrete pavement		
								SM	Brown silty fine sand (medium dense, moist)		
2105	5	12	23		1					NS	<1
2100	10										
2095	15	12	35		2 CA				MP-2 (15) Grades to dense	NS	20
2090	20										
2085	25		38		3 CA				MP-2 (25)	SS	210
2080	30										
2075	35		52		4	▽		SP	Brownish gray fine to coarse sand with gravel and trace silt (medium dense to dense, moist to wet)	SS	25
2070	40									NS	10

WELL LOG



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Point MP-2

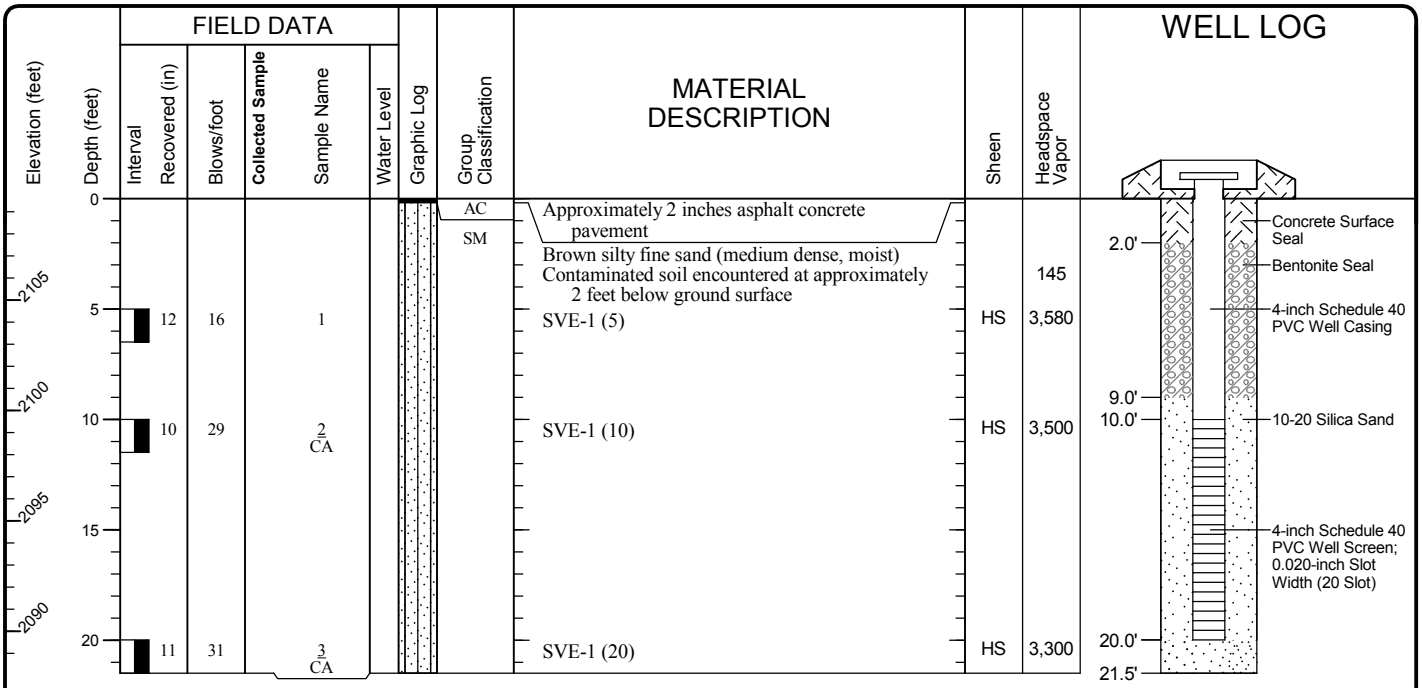
GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-69
Sheet 1 of 1

Drilled Start 4/12/2012 End	Total Depth (ft) 21.5	Logged By KLR / Checked By DRL	Driller Environmental West	Drilling Method Hollow-Stem Auger
Hammer Data 140 (lbs) / 30 (in) Drop		Drilling Equipment Mobile B-90		A 4 (in) well was installed on 4/12/2012 to a depth of 21.5 (ft).
Surface Elevation (ft) 2109.6 / Vertical Datum NAVD88		Top of Casing Elevation (ft) 2109.3		Groundwater: Date Measured / Depth to Water (ft) / Elevation (ft)
Easting (X) 2465784 / Northing (Y) 643728		Horizontal Datum NAD83, WA State Plane North		

Notes:



Note: See Figure A-1 for explanation of symbols.

Log of SVE Well SVE-1

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-70
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Driller	Drilling Method
	4/12/2012	4/12/2012	36.5	KLR / DRL	Environmental West	Hollow-Stem Auger

Hammer Data	140 (lbs) / 30 (in) Drop	Drilling Equipment	Mobile B-90
Surface Elevation (ft) / Vertical Datum	2109.9 / NAVD88	Top of Casing Elevation (ft)	2109.4
Easting (X) / Northing (Y)	2465793 / 643705	Horizontal Datum	NAD83, WA State Plane North

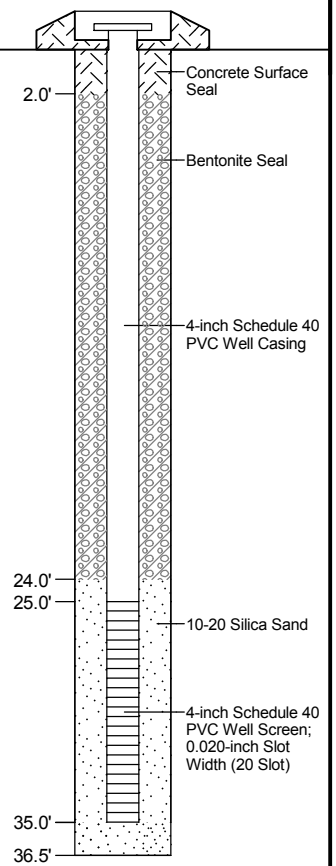
A 4 (in) well was installed on 4/12/2012 to a depth of 36.5 (ft).

Groundwater	Depth to Water (ft)	Elevation (ft)
Date Measured		
4/12/2012	35.0	2074.42

Notes:

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
	0							AC	Approximately 2 inches asphalt concrete pavement		
2105	5	12	8		1			SM	Brown silty fine sand (loose, moist) Contaminated soil encountered at approximately 3 to 4 feet below ground surface	MS	2,625
2100	10										
2095	15		48		2 CA				SVE-2 (15) Grades to dense	MS	2,650
2090	20										
2085	25	12	39		3 CA				SVE-2 (25)	HS	3,440
2080	30										
2075	35	12	52		4 CA	▽		SP	Gray fine to coarse sand with trace silt (dense, wet)	MS	950

WELL LOG



Note: See Figure A-1 for explanation of symbols.

Log of SVE Well SVE-2

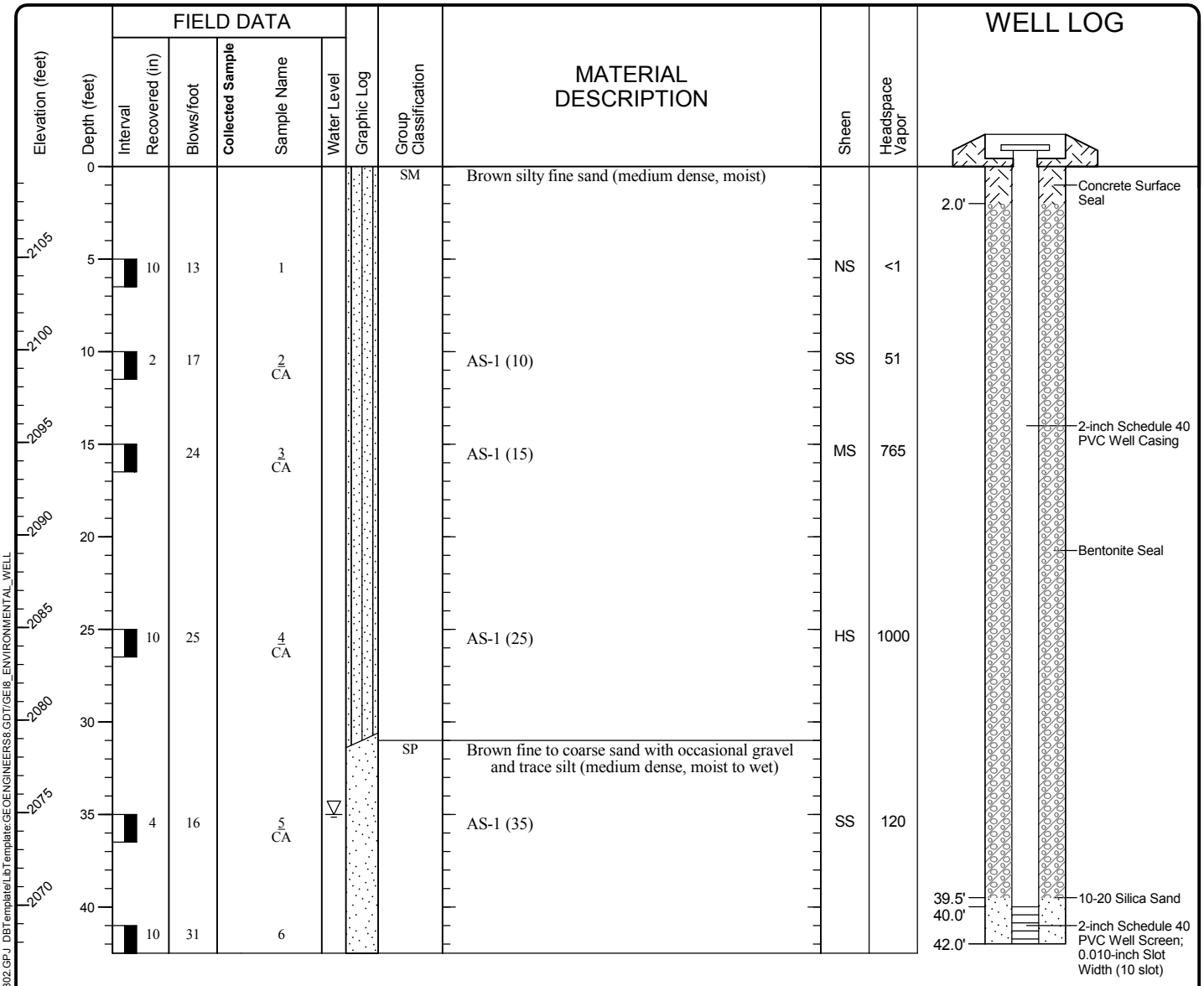
GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-71
Sheet 1 of 1

Drilled Start 4/16/2012 End	Total Depth (ft) 42.5	Logged By KLR / Checked By DRL	Driller Environmental West	Drilling Method Hollow-Stem Auger
Hammer Data 140 (lbs) / 30 (in) Drop		Drilling Equipment Mobile B-90	A 2 (in) well was installed on 4/16/2012 to a depth of 42 (ft).	
Surface Elevation (ft) 2109.9 / Vertical Datum NAVD88		Top of Casing Elevation (ft) 2109.6	Groundwater: Date Measured 4/16/2012; Depth to Water (ft) 35.0; Elevation (ft) 2074.57	
Easting (X) 2465791 / Northing (Y) 643737		Horizontal Datum NAD83, WA State Plane North		

Notes:



Note: See Figure A-1 for explanation of symbols.

Log of Air Sparge Well AS-1

GeoEngineers

Project: Airport Kwik Stop Site
Project Location: Ione, Washington
Project Number: 0504-058-02

Figure A-72
Sheet 1 of 1