



June 10, 2015

Mr. Nicholas Acklam
Washington Department of Ecology
300 Desmond Drive
Lacey, WA 98503-1274

**Re: 2nd Amendment to the Phase 2 Remedial Investigation Work Plan,
Addendum to Final Work Plan for Remedial Investigation/Feasibility Study and
Draft Cleanup Action Plan, JELD-WEN inc. Former Nord Door Site,
300 West Marine View Drive, Everett, Washington**

Dear Mr. Acklam,

SLR International Corporation is pleased to present this 2nd Amendment to the Phase 2 Remedial Investigation Work Plan. This is an Addendum to the Final Work Plan for Remedial Investigation/Feasibility Study (RI/FS) and Draft Cleanup Action Plan (CAP) (Phase 2 RI Work Plan, SLR 2011) for the JELD-WEN inc. former EA Nord Site located at 300 West Marine View Drive in Everett, Washington (Site). This amendment presents a scope of work for additional assessment activities based on discussions with the Washington Department of Ecology (Ecology) regarding the interim draft Remedial Investigation / Feasibility Study (RI/FS) report that was submitted to Ecology in December 2013. In general, the additional assessment proposed under this Amendment has been designed to further assess three items: 1) the vertical extent of contamination in the historical fuel oil/pole treating area, 2) the extent of the fuel oil/pole treating area impacts to the north and south to support the RI/FS, and 3) the vapor intrusion pathway using soil gas sampling.

BACKGROUND

The initial RI was completed between May and October 2009 and was performed in general conformance with the Ecology approved 2008 RI Work Plan. The work was conducted under an Agreed Order with Ecology for Remedial Investigation/Feasibility Study (RI/FS) and Draft Cleanup Action Plan (CAP), dated January 2, 2008. SLR completed additional upland sampling and analysis from May 2012 to December 2013. The findings of these investigations were included in the interim draft RI/FS which was submitted to Ecology in December 2013.

SCOPE OF WORK

The purpose of the proposed additional assessment activities is to evaluate the vertical extent of soil and groundwater impacts in the historical fuel oil/pole treating area, the extent of the fuel oil/pole treating impacts to the north and south to support the RI/FS, and the vapor intrusion pathway using soil gas sampling. The proposed additional assessment activities are described below:

Soil Gas Investigation

Soil gas samples from beneath and adjacent to the existing main manufacturing building will be collected to support the assessment of the vapor intrusion pathway. Nine locations are proposed for shallow soil gas sample collection from the area below the existing surface (concrete or asphalt). Soil gas samples will be collected above the groundwater table encountered at the time of the field work (estimated to be approximately three and a half feet below ground surface [bgs]). Soil gas sample points will be installed by a subcontractor with a Geoprobe direct push drilling rig utilizing a post-run tubing (PRT) system designed for collection of soil gas samples. The PRT system will be installed once the desired sample depth has been obtained. A leak check will be conducted at each sample location by constructing a vapor shroud around the sample location, filling the shroud with helium, and monitoring for the presence of helium in the sample tubing with a hand-held helium detector. After completion of the leak check, the soil gas samples will be drawn through the point holder and adapter of the PRT system and into a dedicated section of sample tubing connected to the sample vessel (Summa canister) provided by the analytical laboratory.

Soil gas samples will be analyzed for petroleum fraction and selected volatile organic compounds (VOCs) per Massachusetts Department of Environmental Protection (MassDEP) Air Phase Petroleum Hydrocarbons (APH) method. The target compound list will consist of benzene, toluene, ethylbenzene, and xylenes (BTEX), naphthalene, aliphatic hydrocarbons (C5-C8 and C9-C12 ranges) and aromatic hydrocarbons (C9-C10 range). In addition, field measurements for O₂ and CO₂ will be recorded using a hand-held multi-gas meter. These measurements will be made after soil gas sampling with the Summa canisters. Upon completion of soil gas sampling activities at the selected sample locations, five soil gas sample locations will be extended for collection of soil and groundwater samples as part of the Geoprobe Soil and Groundwater Investigation and one of the soil gas sample locations will be completed as a groundwater monitoring well (as described in following sections). The remaining three soil gas sample locations will be abandoned with bentonite. The proposed soil gas sampling locations are shown on **Figure 1**. The proposed sample analyses are provided on **Table 1**.

Geoprobe Soil and Groundwater Investigation

Soil and groundwater samples will be collected from temporary Geoprobe locations completed by a drilling subcontractor to assess the depth and extent of impacts to the east of the Site (four deep borings adjacent to West Marine View Drive), underneath the existing main manufacturing building (three deep borings and two shallow borings), and to the southeast of the existing main manufacturing building (three shallow borings). Deep borings will be extended to an estimated depth of approximately 35 feet bgs and shallow borings will be extended to an estimated depth of approximately five feet bgs. The actual completed depth will be based on field conditions encountered at the time of the investigation.

Continuous core soil borings will be screened with a photoionization detector (PID) for the presence of volatile compounds. Up to two soil samples will be collected from each location from areas of observed impact (i.e. odors, staining, elevated PID measurements) and/or from the soil-groundwater interface, and one groundwater sample will be collected from each location

for laboratory analysis of total petroleum hydrocarbons (TPH) gasoline range per NWTPH-Gx method, TPH diesel and heavy oil range per NWTPH-Dx method, carcinogenic polynuclear aromatic hydrocarbons (cPAHs) per 8270C-SIM method, and select VOCs, including BTEX, naphthalene, and 1,2,4-trimethylbenzene per 8260B method.

Following completion of soil and groundwater sampling activities the Geoprobe borings will be abandoned with bentonite. The proposed Geoprobe sampling locations are shown on **Figure 1** and a cross section depicting former boring locations and the proposed boring locations is included as **Figure 2**. The proposed sample analyses are provided on **Table 1**.

Groundwater Monitoring Well Installation and Sampling

Following completion of the Geoprobe Soil and Groundwater Investigation, seven groundwater monitoring wells will be installed with a hollow-stem auger drilling rig operated by a drilling subcontractor. One set of nested groundwater monitoring wells are proposed for inside the existing main manufacturing building, with one well completed in the shallow zone (screened across the water table which ranges between approximately three and a half and five feet bgs) and one well completed in the deeper zone (screened between approximately 25 to 35 feet bgs). Two additional sets of nested monitoring wells are proposed for the area east of the Site adjacent to West Marine View Drive. In addition, one groundwater monitoring well is proposed to the north of the existing main manufacturing building and west of the north entrance to the property to assess groundwater impacts adjacent to surface water.

Following completion of the groundwater monitoring well installation the groundwater monitoring wells will be developed. The approximate locations of the groundwater monitoring wells are shown on **Figure 1**. The locations may be adjusted based on field conditions and observations during the Geoprobe assessment. The proposed sample analyses are provided on **Table 1**.

Upon completion of the groundwater monitoring well installation and development, groundwater samples will be collected and analyzed for TPH-gasoline range per NWTPH-Gx method, TPH-diesel and heavy oil range per NWTPH-Dx method, cPAHs per 8270C-SIM, and selected VOCs (BTEX, naphthalene, and 1,2,4-trimethylbenzene) per 8260B method.

Sampling and Field Procedures

The one-call public utility notification center will be contacted to mark the presence of any publically-owned utilities in the proposed work areas. In addition, a private utility locating service will be contacted to mark the presence of any privately-owned utilities in the proposed work areas.

Completion of some Geoprobe borings and groundwater monitoring wells will necessitate the closure of portions of West Marine View Drive which will require a permit from the City of Everett Public Works Department and the need for a traffic control subcontractor.

A sampling and analysis plan (SAP) for the upland investigation and a site-specific Health and Safety Plan were included as appendices to the Phase 2 RI Work Plan. The methods and procedures described in these plans for soil and groundwater sample collection will be utilized

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during the proposed sampling. Soil gas sampling activities will be completed as described above and per Ecology's *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*.

Reporting

Laboratory analytical results from the proposed additional assessment activities will be submitted to Ecology's Environmental Information Management (EIM) database. A summary of laboratory analytical results and findings from the proposed additional assessment activities will be incorporated into a revised RI/FS report. Screening levels will be the revised RI/FS tables submitted via email to Ecology on February 6, 2015 for soil and groundwater and Washington State Model Toxics Control Act (MTCA) Method C industrial cleanup levels for soil gas.

Sincerely,
SLR International Corporation



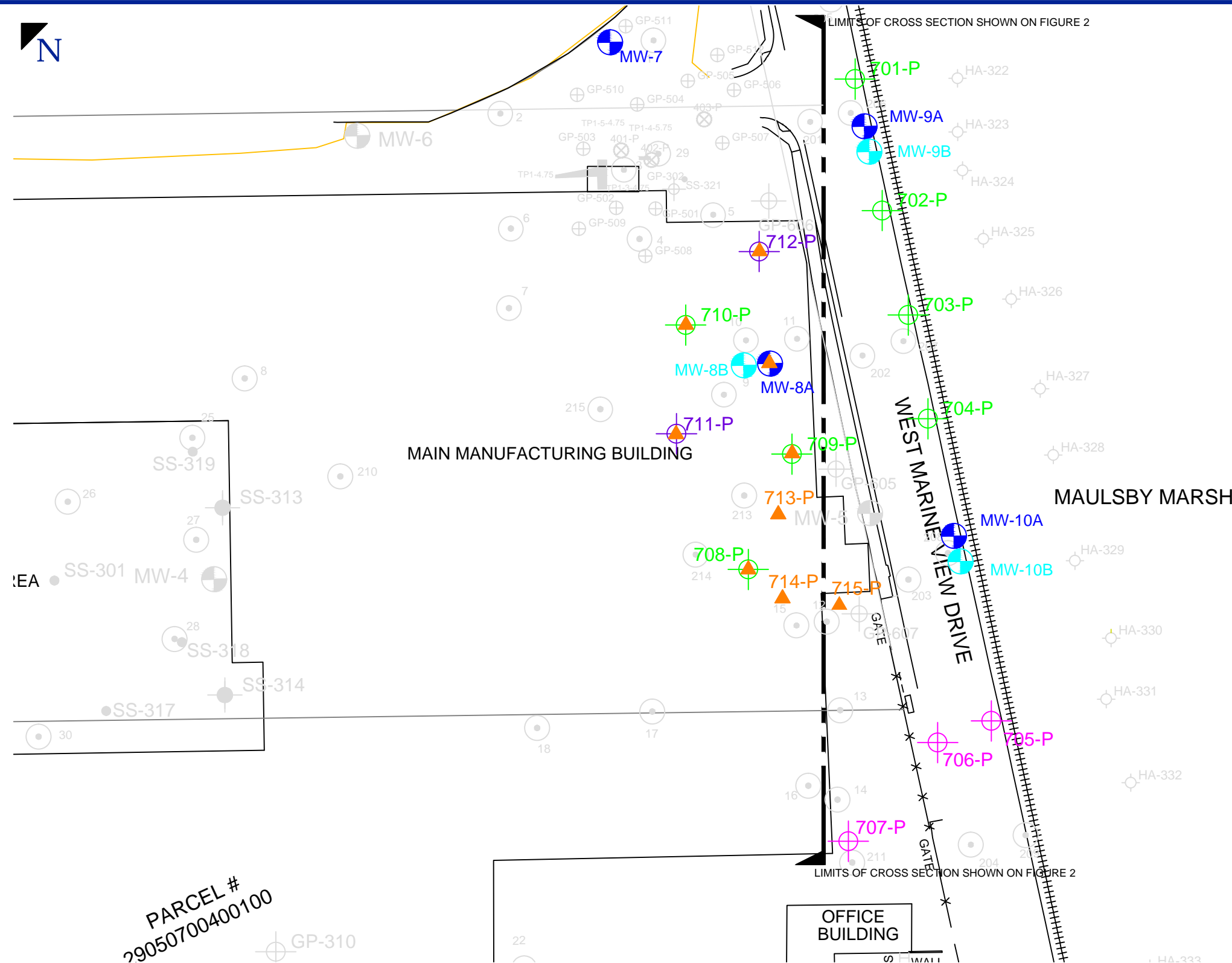
Megan S. Coracci
Principal Scientist



R. Scott Miller, P.E.
Principal Engineer

cc Dwayne Arino – JELD-WEN, inc.
Andy Kallus – Ecology

Attachments: Figure 1 and 2
Table 1



- LEGEND**
- PROPOSED SHALLOW MONITORING WELL (APPROXIMATELY 10 FEET BGS)
 - PROPOSED DEEP MONITORING WELL LOCATION (APPROXIMATELY 35 FEET BGS)
 - PROPOSED DEEP GEOPROBE BORING
 - PROPOSED SHALLOW GEOPROBE BORING
 - PROPOSED SHALLOW GEOPROBE BORINGS TO BE EXTENDED TO DEEP ZONE BASED ON OBSERVATION OF IMPACTS AT ADJACENT BORINGS
 - PROPOSED SOIL GAS SAMPLE LOCATION

- TEST PITS, SLR 2013
- GEOPROBE SAMPLE LOCATION, SLR 2009-2013
- SURFACE SOIL SAMPLE LOCATION, SLR 2009
- BNSF HAND AUGER SAMPLE LOCATION, SLR 2009
- NEAR SURFACE SOIL SAMPLE LOCATION, SLR 2009
- EXISTING MONITORING WELL
- GEOPROBE, SLR 2006-2007
- SEDIMENT SAMPLE, PARAMETRIX 1991
- SURFACE SOIL SAMPLES, PARAMETRIX 1991
- TEST PITS, SLR 2007
- SOIL AND GROUNDWATER SAMPLES, RZA AGRA 1994

PARCEL #
29050700400100

NOTES
THE BUILDINGS, SURFACE UTILITIES, EDGE OF PAVEMENT, AND APPROXIMATE SHORELINE SHOWN ON THIS MAP ARE BASED ON A 2006 SURVEY PERFORMED BY WH PACIFIC.



FORMER E.A. NORD 300 WEST MARINE VIEW DRIVE EVERETT, WASHINGTON		
Report	2nd AMENDMENT TO PHASE II RI WORK PLAN, ADDENDUM TO FINAL WORK PLAN FOR RI/FS AND CAP	
Drawing	PROPOSED SAMPLE LOCATIONS	
Date	MAY 2015	Scale AS SHOWN
File Name	Project No. 108.00228.00048	Fig. No. 1



Last Saved: June 05, 2015 8:24:37 AM by dbobosh Drawing path: N:\Portland\Projects\JELD-WEN\JELD-WEN NORD DOOR\IR+FS Report\Data Tables\UPDATED NOV2014\APRIL2015\X SECTION_041415.dwg

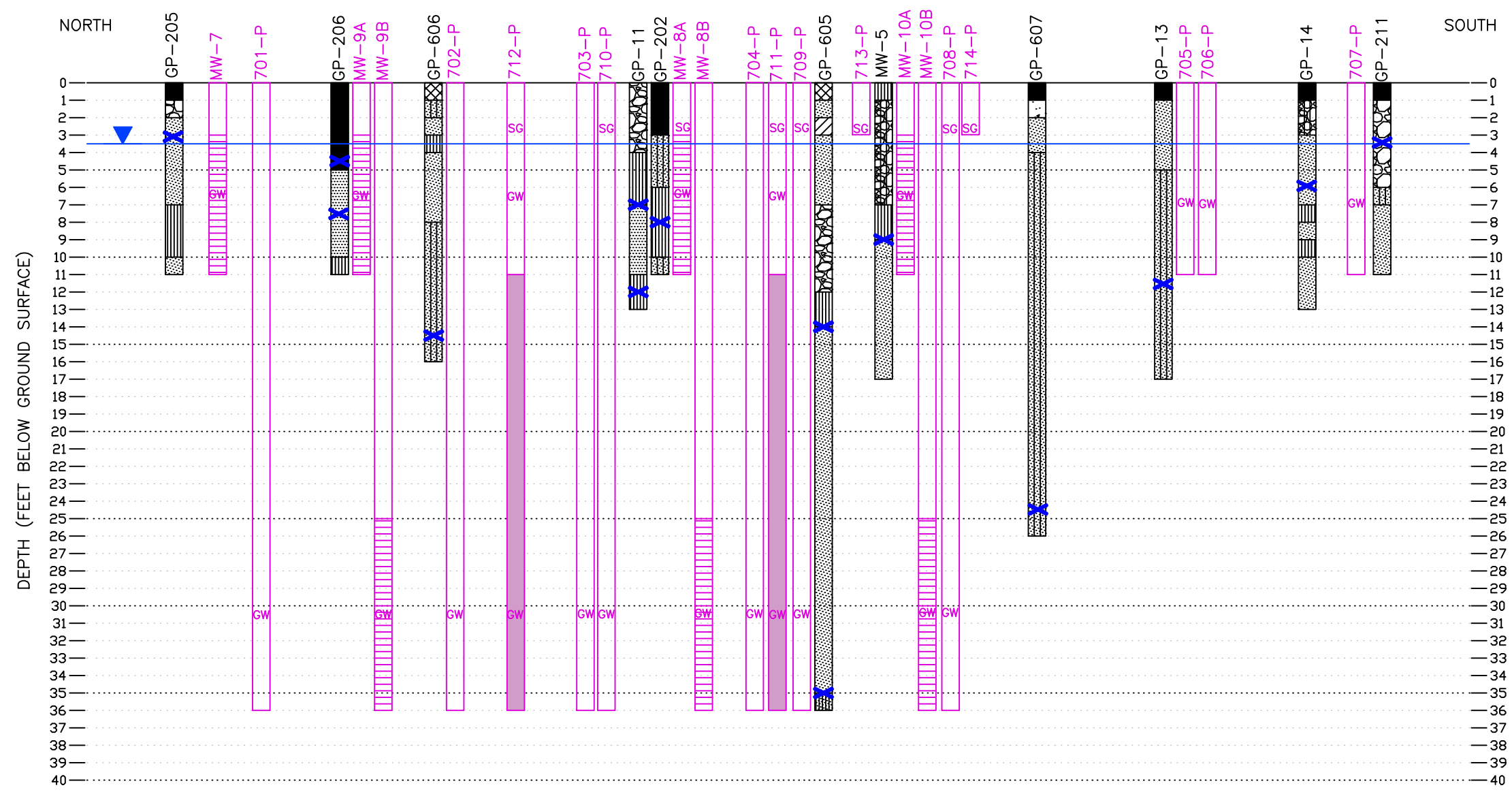


NOTES

NOT ALL SAMPLE LOCATIONS PRESENTED ON THIS CROSS SECTION

NOT ALL SAMPLE ANALYTICAL RESULTS PRESENTED ON TABLE (LIMITED TO SOIL SAMPLES FOR TPH-Dx (DIESEL RANGE) AND cPAHs)

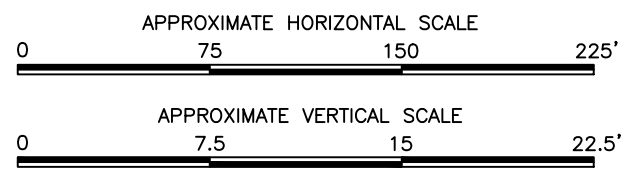
SOIL SAMPLE LOCATIONS FOR PROPOSED BORINGS WILL BE COLLECTED AT EVIDENCE OF IMPACTS AND/OR AT SOIL-GROUNDWATER INTERFACE ENCOUNTERED AT TIME OF DRILLING



LEGEND

- APPROXIMATE GROUNDWATER LEVEL
- AS ASPHALT
- CL CLAY
- CONCRETE
- GM GRAVEL WITH SILT
- GP GRAVEL AND SAND
- ML SILT
- SM SILTY SAND
- SP SAND
- TOPSOIL
- PROPOSED GROUNDWATER MONITORING WELL
- PROPOSED GEOPROBE BORING
- POTENTIAL EXTENSION OF SHALLOW GEOPROBE BORINGS
- SOIL SAMPLE LOCATION
- PROPOSED GROUNDWATER SAMPLE LOCATION
- PROPOSED SUB-SLAB SOIL GAS SAMPLE LOCATION

Sample	Unit	2015 PCLs	GP-205	GP-206			GP-606	GP-11		GP-202	GP-605	MW-5	GP-607	GP-13	GP-14
Depth	feet bgs	-	3.0	4.5	8.5	14.5	6.0	12.0	7.5	13.5	34.5	8.5	24.5	11.5	6.0
TPH-Dx	mg/kg	2,000	<14.6	104	15,500	<5.1	60,400	225	30,200	<4.9	810	43.7	<4.6	<16	1,460
cPAHs	mg/kg	0.42	-	ND	337	0.012	-	28.4	258	10	0.15	0.364	0.011	ND	3.73



FORMER E.A. NORD
300 WEST MARINE VIEW DRIVE
EVERETT, WASHINGTON

Report 2nd AMENDMENT TO PHASE II RI WORK PLAN, ADDENDUM TO FINAL WORK PLAN FOR RI/FS AND CAP

Drawing CROSS SECTION WITH PROPOSED SAMPLE LOCATIONS

Date June 5, 2015 Scale AS SHOWN Fig. No. 2

File Name X SECTION_041415-3 Project No. 108.00228.00048

Table 1
Summary of Assessment Areas and Proposed Sample Analysis
Former Nord Door, Everett, Washington

Area	Investigation	Proposed	Laboratory Analyses			
			TPH-Gx	TPH-Dx	cPAHs	VOCs
West Marine View Drive (adjacent to Maulsby Marsh)	Deep Geoprobe borings for soil and groundwater samples (701-P to 704-P) to further assess depth and extent to the east	8 Soil	8	8	8	8
		4 GW	4	4	4	4
	Installation of shallow groundwater monitoring wells (MW-9A and MW-10A) adjacent to former borings GP-206 and GP-208)	2 Soil	2	2	2	2
		2 GW	2	2	2	2
	Installation of deep groundwater monitoring wells adjacent to shallow monitoring wells (MW-9B and MW-10B). Actual depth to be determined by field conditions encountered during drilling	2 Soil	2	2	2	2
		2 GW	2	2	2	2
North Entrance to Main Manufacturing Building	Installation of shallow groundwater monitoring well (MW-7) north of main manufacturing building to expand existing monitoring well network and to assess groundwater impacts near surface water	1 Soil	1	1	1	1
		1 GW	1	1	1	1
Interior of Main Manufacturing Building	Deep Geoprobe borings for soil and groundwater samples (708-P to 710-P) to further assess depth and extent to the west	6 Soil	6	6	6	6
		3 GW	3	3	3	3
	Shallow Geoprobe borings for soil and groundwater samples (711-P and 712-P) to further assess extent to the west (borings may be extended to deep zone based on findings of deep Geoprobe boring 710-P)	4 Soil	4	4	4	4
		2 GW	2	2	2	2
	Installation of shallow groundwater monitoring well (MW-8A) and adjacent deep groundwater monitoring well (MW-8B)	2 Soil	2	2	2	2
		2 GW	2	2	2	2
	Soil gas sampling co-located with Geoprobe borings 708-P to 712-P and MW-8A, two additional locations (713-P and 714-P) outside of existing office area inside main manufacturing building and one location (715-P) outside of the building footprint to assess vapor intrusion pathway	9 Soil Gas	0	0	0	9
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Southeast corner of Main Manufacturing Building	Shallow Geoprobe borings for soil and groundwater samples (705-P to 707-P) to further assess extent to the south	3 Soil	3	3	3	3
		3 GW	3	3	3	3
Total		28 Soil				
		19 GW				
		9 SG				

Notes

Total Petroleum Hydrocarbons - Gasoline Range (TPH-Gx) per NWTPH-Gx Method
 Total Petroleum Hydrocarbons - Diesel and Heavy Oil Range (TPH-Dx) per NWTPH-Dx Method
 Carcinogenic Polynuclear Aromatic Hydrocarbons (cPAHs) per 8270-SIM Method
 VOCs for soil and groundwater analysis are limited to Benzene, Toluene, Ethylbenzene, Xylenes (BTEX), naphthalene, and 1,2,4-Trimethylbenzene (TMB) per 8260 Method
 Petroleum fraction and VOCs (BTEX and naphthalene) for Soil Gas samples per MassDEP APH method