MAUL FOSTER ALONGI

400 East Mill Plain Blvd., Suite 400 | Vancouver, WA 98660 | 360 694 2691 | www.maulfoster.com

December 20, 2011
Project No. 0380.02.01

Mr. Steve King, PE
City of Wenatchee
Department of Public Works
PO Box 519
Wenatchee, Washington 98807-0519

Re: Focused Site Characterization

Dear Mr. King:

Maul Foster & Alongi, Inc. (MFA) has prepared this letter to summarize the results of a focused site characterization performed at the property located at 25 North Worthen Street, Wenatchee, Washington (the Property). The Property is the site of a former public works yard and is partially underlain by an historical municipal landfill. This was work funded through City of Wenatchee (City) waste management funds and an Integrated Planning Grant from the Washington State Department of Ecology (Ecology).

The site characterization included the following tasks:

1) Assessment to refine the understanding of the nature and extent of carcinogenic polycyclic aromatic hydrocarbon (cPAH) impacts in soil;

2) Visual assessment and confirmation of the landfill boundary; and

3) Documentation of environmental conditions and approach to cleanup and redevelopment.

Previous environmental work completed on the Property includes the following:

- Soil investigation (Budinger & Associates, 1981)
- Targeted Brownfield Assessment (E&E, 2000)

Environmental work completed by MFA as part of the Integrated Planning Grant for the Property includes the following:

- Phase I Environmental Site Assessment (MFA, 2011)
- Piezometer installation to monitor groundwater flow at the Property (MFA, 2011)
- Stained soil and combustible gas assessments (MFA, 2011)

- Geophysical survey conducted by Northwest Geophysical Associates (MFA, 2011)

- Focused soil characterization and landfill boundary confirmation (discussed below in this letter)

The data generated from the 2011 focused soil characterization efforts are included in this report. The findings and data from the other work efforts listed above were issued previously. In aggregate, the environmental studies of the Property identified several locations with contaminants above state cleanup levels (CULs). It appears that the contaminants are related to either the landfill material or historical site operations (e.g., underground storage tanks). The impacts between the landfill and the non-landfill portions of the Property are distinguishable and are described below:

- **Soil:** Elevated concentrations of arsenic and cPAHs were identified in subsurface soils (E&E, 2000). Arsenic was detected throughout the Property at levels above the estimated natural background value. However, there was only one exceedance of the Model Toxics Control Act (MTCA) Method A soil CUL for unrestricted land use[1] on the non-landfill portion of the Property At one location, cPAHs were detected at elevated concentrations (i.e., above MTCA Method A CULs); these exceedances do not appear to be related to the landfill. The source of the arsenic is unknown.

  Stained "gray soil" identified previously on the Property was sampled to confirm potential presence of contaminants. Soil analytical results indicate that the stained subsurface soil observed by the City at the Property is below the MTCA Method A soil CULs for diesel-range organics, PCBs, and cPAHs (MFA, 2011).

- **Groundwater:** Elevated metals, volatile organic compounds (VOCs), and polychlorinated biphenyls (PCBs) were identified in groundwater throughout the Property (E&E, 2000). These impacts on the non-landfill portion of the Property are similar to and likely related to those detected within the boundary of the landfill. Groundwater depth has been reported as ranging from 10 to 24 feet below ground surface (bgs) in the E&E assessment and measured between approximately 20 to 26 feet bgs in MFA's field studies. Groundwater flow has been observed to be from the northeast to southwest, with variation in flow direction over time (MFA, 2011). Based on this evidence, the groundwater beneath the non-landfill portion of the Property appears to be impacted by a groundwater plume

[1] In this report, "MTCA Method A soil CULs" refers to soil CULs for unrestricted land use.

originating from the landfill. There is no indication that groundwater impacts originated from sources on the non-landfill portion of the Property.

- **Soil Vapor:** Field screening of soil gas conducted in 2010 indicates the presence of VOCs and combustible gases characteristic of active biodegradation of refuse in the vicinity of the historical landfill. Concentrations of combustible gases were lower outside the estimated boundary of the landfill (MFA, 2011).

In September 2011, MFA conducted additional investigation on the Property to fill data gaps with respect to cPAH-impacted soil and the landfill/native soil boundary delineation. Soil samples were obtained at locations GP2 through GP10 (see Figure 1) to assess potential cPAH impacts. Soil samples obtained at one location (i.e., LF14) in the Targeted Brownfields Assessment exceeded the MTCA Method A CUL for cPAHs in soil (E&E, 2000). Test pits were advanced in TP1 through TP7 (see Figure 1) along the inferred landfill boundary to identify its location. Cleanup approaches and redevelopment strategies described below are based on MFA's assessment of subsurface environmental conditions.

CPAH SITE CHARACTERIZATION

Soil samples collected from nine soil borings (GP2 through GP10) advanced at the Property were used to define the vertical and lateral extent of cPAH impacts in the vicinity of the Targeted Brownfield Assessment sample point LF14, which was located at depths of 0 to 4 feet bgs and 8 to 12 feet bgs (see attached table). Soil boring logs for GP2 through GP10 are provided in Attachment A. Borings were advanced in a concentric ring around the LF14 location to a depth of 15 feet bgs. Soil samples were submitted for analysis from these borings, which were completed at depths that corresponded to the historical high detection (i.e., 8.0 to 12.0 feet bgs) and in one instance deeper in order to define the extent of cPAH impacts above the CUL.

Laboratory analysis detected cPAHs in all but two of the soil samples. Consistent with Washington Administrative Code 173-340-708(8), mixtures of cPAHs are considered single hazardous substances. For these mixtures, toxicity equivalent concentrations (TECs) are calculated. The toxicity of a particular cPAH is expressed relative to the most toxic cPAH (i.e., benzo[a]pyrene). To be conservative, and consistent with standard procedure, the TEC calculation substitutes half of method reporting limits if the congeners were reported as not detected. Of the soil samples collected by MFA with cPAH detections, concentrations ranged from a cPAH TEC of 6.86 micrograms per kilogram (µg/kg) (GP7 at 10.0 feet bgs) to 659 µg/kg (GP3 at 11 feet bgs). The attached table summarizes the analytical results. Four of the eight soil samples analyzed had calculated cPAH TECs above the benzo(a)pyrene Method A soil CUL of 100 µg/kg (unrestricted land use) but well below the Method A soil CUL of 2,000 µg/kg for industrial land use (see attached table). One deeper sample (14.0 feet bgs) was analyzed for cPAHs from the boring which had the highest detection between 8.0 and

12.0 feet bgs (GP3). This sample did not contain cPAHs above method reporting limits, which indicates that contaminant concentrations likely decrease rapidly with depth. In summary, soil collected from the 8.0 to 12.0 feet bgs interval in GP3, GP4, GP5, and GP8 exceeds the Method A soil CUL for unrestricted land use. Laboratory results are provided in Attachment B and a data validation memorandum is included in Attachment C. Note that soil samples were not analyzed from GP6 or GP10 because soil samples between these locations and known cPAH impacts at LF14 did not identify impacts.

The vertical and horizontal extents of cPAH impacts can be estimated based on the sampling effort. The extent of impacts to the north, east, and west has been defined by GP2, GP7, and GP9; however, it appears that the impacts continue south of GP8 toward the Property boundary. The impacts are present in the 8.0 to 12.0 feet-bgs interval, and the deeper sample from GP-3 indicates that impacts do not likely extend at depth. However, the high concentrations of cPAHs in the USEPA sample (LF14) at 8.0 to 12.0 feet bgs leaves some uncertainty regarding vertical extent of contamination.

Based on the data collected in the Targeted Brownfield Assessment, cPAHs do not appear to be impacting groundwater. A groundwater sample collected and analyzed from LF14 at 24 feet bgs, detected pesticides and metals in exceedance of Method B CULs, but did not detect cPAHs or VOCs above Method B CULs. This profile of contaminants above CULs is similar to groundwater samples collected within the landfill boundary. Based on the empirical evidence cPAHs impacts in soil are not adversely impacting groundwater.

LANDFILL DELINEATION

Seven test pits (TP1 through TP7) were advanced to document the approximate landfill/native soil boundary at the Property (see Figure 1). Based on observations from these test pits, a previous geophysical study, and anecdotal evidence (e.g. asphalt settlement cracks) the refuse boundary was estimated as shown on Figure 1. A conservative approach was followed, meaning there is high confidence that no substantive amount of refuse is present south and west of the depicted boundary. Note that this delineation does not necessarily coincide with any future development boundary. That is, some development over refuse may be appropriate (e.g. non-structural development; parking lot, open space). Test pit profiles are provided in Attachment D. The landfill is known to extend well beyond the Property boundaries to the north, east, and south (Budinger & Associates, 1981).

In test pit TP5, underground utilities were encountered in the eastern edge of the excavation and the pit was therefore not advanced any farther east. TP5 was abandoned before refuse material was encountered, indicating that the landfill material is east of this test pit. Test pit locations were chosen based on information provided by the City's Department of Public Works, a past geophysical survey completed at the Property, and visual indications of subsidence.

A site survey of sample locations was performed by Erlandsen & Associates of Wenatchee, Washington.

IMPLEMENTATION STRATEGIES FOR CLEANUP

Based on site observations and characterization, the Property has two distinguishable MTCA sites: (1) the non-landfill portion of the Property (referred to in this document as "Parcel A"), and (2) the landfill (eastern portion of Property). The proposed Parcel A could be created to have no landfill debris and limited impacts in soil that are distinct from those in the landfill. Groundwater impacts on Parcel A appear to be due solely to migration from the landfill. Based on these findings, Parcel A could potentially be cleaned up and developed separately from the landfill site.

A proposed, approximate boundary line for Parcel A is shown in Figure 2. This boundary line is based on a conservative estimate of a minimum setback of 10 feet from the inferred landfill/native soil boundary and will allow for any future development to maintain a working distance from refuse-filled areas. This is a preliminary boundary and it would be appropriate for the City to adjust it as needed to meet the needs of a future development. The setback from the landfill material should be refined for any future development on the site based on additional geotechnical engineering study to assess the structural requirements for construction of a specific type of building.

Property Division

The City could conduct a lot line adjustment to create Parcel A as a separate and distinct property. Lot dimension standards are established by zoning ordinance. The Property is located in a Waterfront Mixed Use (WMU) zone district (Wenatchee City Code [WCC] 10.32). WCC Chapter 10.46 Development Standards establishes no minimum lot dimensions/lot area and no requirements for lot width or depth in the WMU zone. No property line setbacks are required for lots in the WMU zone, other than the setback required for public right-of-way, and newly created lots must have access to public right-of-way (WCC 11.20.050).

The WCC subdivision, administration, and development standards regulations do not address the issue of underground contamination in relation to the creation of a new lot of record. Therefore, it is assumed that there is no restriction of lot configuration associated with contamination on the Property.

Landfill Parcel

The most likely action for the landfill portion of the Property includes incorporation into the existing Riverfront Park. The City is required to provide additional open space as part of an agreement with the Chelan Public Utility District. This could include the potential addition of green space and pedestrian trails on the river side of the Property and public parking on the north side that could provide shared spaces for a future development. MFA recommends maintaining the current specification of capped material incorporated into the existing park

space. The presence of refuse will be a source of combustible gas into the future, and passive gas venting is recommended for any future park development. Based on discussions with Ecology staff, it does not appear that the City would need approval under MTCA to remove existing asphalt and replace it with landscaping consistent with the landfill cap underlying Riverfront Park. The City would need to maintain the asphalt cap until the landscaping was put in place consistent with the recommended landfill cap.

Parcel A

The most likely cleanup actions for Parcel A include measures to address cPAH soil contamination and institutional controls for future use of the non-landfill parcel:

- Remedial action to address cPAH soil contamination may include one of two options: (1) institutional controls and capping, and (2) soil removal. Both remedial options would prevent direct exposure to impacted soil. Groundwater samples collected in 2000 indicated that cPAHs were not adversely impacting groundwater. Therefore, the significant exposure pathway for cPAH-impacted soil 0 to 12 feet bgs appears to be direct contact.

  Option 1, institutional controls and capping, could be established to manage future exposure to the impacted soil through a deed restriction, soil management plan, and capping, such as a building, paving, or landscaping (e.g., 6 feet of clean soil, 1 foot of clean soil underlain by a demarcation layer). The cost of preparing the soil management plan (SMP) and restrictive covenant is approximately $15,000, and the implementation would likely be marginal relative to future site grading and building construction.

  Option 2, is to remove cPAH-impacted soil from the Property. With removal, a restrictive covenant for soil and an SMP would not be necessary. Excavation and disposal of the impacted soil is disproportionately expensive because of the depth of contamination. Approximately 2,000 to 7,700 cubic yards of soil likely exceeds CULs, based on the site characterization data. The known contaminated soil is located from approximately 0 feet to 12 feet bgs, so for the purposes of cost estimating the impacted soil is assumed to extend to 14 feet bgs. Since some uncertainty remains regarding the horizontal and vertical extent of cPAH contamination, two cost estimates have been developed that provide an estimated range: $350,000 to $1.2 million (see Attachment E). Since the cPAH-contaminated soil does not appear to be impacting groundwater and an institutional controls and capping at the time of development prevents a direct-contact threat, the excavation would not significantly decrease human health or ecological risk relative to the lower-cost capping remedy.

Summary Comparison of Remedial Options for Parcel A

Remedial Options	Assumptions	Cost Estimate
Capping and Institutional Controls	- Direct contact exposure pathway is primary concern and can be mitigated by capping and institutional controls. - Cap could consist of landscaping, paving, or building.	$ 15,000 (for Soil Management Plan and deed restriction)
Limited Excavation	- Excavation area encompasses a three foot buffer around GP3, GP4, GP 5, and GP 8. - Material from 0 to 14 feet bgs disposed of at Subtitle D landfill with City covering transportation costs (Approximately 2,000 yards).	$ 350,000 (including 20% contingency and professional services costs)
Conservative Excavation	- Excavation area encompasses GP3, GP4, GP 5, and GP 8 and extends south to property boundary. - Material from 0 to 14 feet bgs disposed of at Subtitle D landfill with City covering transportation costs (Approximately 7,700 yards).	$ 1,220,000 (including 20% contingency and professional services costs)

- Institutional controls, such as deed restrictions that preclude development of groundwater wells on the Property and require vapor mitigation for new construction, may be employed. Since the site is served by municipal water, groundwater restrictions should not be a practical encumbrance. Installation of a vapor barrier or venting system in the foundation of future buildings to address potential migration of landfill gases may also be warranted.[2] Typically the cost implications to building construction might add $3.25 to $3.75 per square foot for an installed and tested vapor control system.

[2] The need for venting is a function of future use and building configuration, as well as future vapor levels.

CONCLUSIONS

The impacts on the Property are distinguishable as two separate sites: landfill and non-landfill impacts. The landfill extends well beyond the Property boundaries to the north, east, and south. The non-landfill portion of the Property has groundwater and soil vapor impacts that appear to be the result of migration from the landfill; independent sources were not identified through multiple investigations. Impacts of cPAHs in soil on the non-landfill portion of the Property are likely related to historical underground storage tanks, which have been removed from the Property. The non-landfill portion of the Property could be separated as a new parcel (Parcel A) and the impacts managed to allow development. The most likely remedial options for Parcel A would be an environmental covenant restricting groundwater use, possibly requiring vapor mitigation for buildings if further evaluation showed it is warranted (based on future use), and a soil management plan for impacted soil, including a cap.

NEXT STEPS

The next steps in the cleanup process include:

1. Separate Parcel A from the landfill, both from a regulatory perspective and a real property perspective based on the delineation described previously.

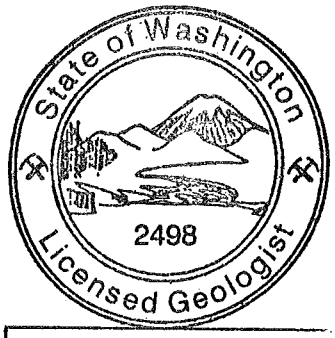
2. Conduct cleanup of Parcel A through the Voluntary Cleanup Program with the goal of obtaining a "no further action with environmental covenant" determination.

3. Seek reimbursement through state Remedial Action Grant funding after no further action determination is made.

Please note that Ecology may require more detailed site characterization and cleanup option selection details before agreeing to the approach.

Sincerely,

Maul Foster & Alongi, Inc.



Alan R. Hughes, LG
Senior Geologist

Kyle K. Roslund
Staff Geologist

Attachments: Limitations
References
Table
Figures
A—Soil boring logs
B—Laboratory analytical results
C—Data validation memorandum
D—Test pit profiles
E—Excavation Cost Estimates

LIMITATIONS

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

The excavation remedy outlined in this report is based on limited soil data. We have attempted to manage the relatively high cost-sensitivity associated with varying soil volumes through balanced assumptions. Nonetheless, the actual remedy costs may vary from those projected in this report due to future remedy negotiations with Ecology and other factors.

REFERENCES

Budinger & Associates. 1981. Soil Investigation. Prepared for Chelan County Public Utility District. Prepared by Budinger & Associates, Spokane, Washington. December 2.

E&E. 2000. Wenatchee Landfill Targeted Brownfield Assessment Report. TDD: 98-11-0007. Contract: 68-W-0008. Prepared for USEPA. Prepared by Ecology and Environment, Inc. June.

MFA. 2011. Phase I Environmental Site Assessment. Prepared for City of Wenatchee Department of Public Works. Prepared by Maul Foster & Alongi, Inc. August 31.

TABLE

Table 1
Carcinogenic Polycyclic Aromatic Hydrocarbons in Soil (µg/kg)
25 North Worthen Street
Wenatchee, Washington

Location	Sample Name	Date Collected	Depth (ft bgs)	1-Methyl-naphthalene	2-Methyl-naphthalene	Acenaph-thene	Acenaph-thylene	Anthracene	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(ghi) perylene
MTCA Method A CUL (Unrestricted Land Use)				NV	NV	NV	NV	NV	NV	100	NV	NV
MTCA Method A CUL (Industrial Land Use)				NV	NV	NV	NV	NV	NV	2000	NV	NV
2011 Focused Site Characterization												
GP2	GP2-S-10.0	09/13/2011	10.0	10.5	11.9	6.99 U	6.99 U	6.99 U	21	25.8	29.3	16.8
GP3	GP3-S-11.0	09/13/2011	11.0	7.03 U	8.43	41.4	7.03 U	202	445	**493**	571	274
	GP3-S-14.0	09/13/2011	14.0	7.21 U	7.21 U	7.21 U	7.21 U	7.21 U	7.21 U	7.21 U	7.21 U	7.21 U
GP4	GP4-S-10.0	09/13/2011	10.0	7.21 U	7.21 U	7.21 U	7.21 U	18.7	65.6	**102**	109	74.9
GP5	GP5-S-11.0	09/13/2011	11.0	13	12.3	15.9	7.96	83.9	246	**278**	310	154
GP7	GP7-S-10.0	09/13/2011	10.0	7.18 U	7.18 U	7.18 U	7.18 U	7.18 U	7.18 U	7.18 U	10.8	8.61
GP8	GP8-S-9.0	09/13/2011	9.0	72.2	102	15.9	83	147	320	**438**	475	456
GP9	GP9-S-9.5	09/13/2011	9.5	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U
2000 Targeted Brownfields Assessment												
LF14	LF14SS00	1999	0 to 4	*	350 U	350 U	*	350 U	51 J	97 J	95 J	21 J
	LF14SB08	1999	8 to 12	*	54 J	410	*	1500	3200	**2200**	1100	480

Table 1
Carcinogenic Polycyclic Aromatic Hydrocarbons in Soil (µg/kg)
25 North Worthen Street
Wenatchee, Washington

Location	Sample Name	Date Collected	Depth (ft bgs)	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3- cd) pyrene	Naph-thalene	Phen-anthrene	Pyrene	cPAH TEC
MTCA Method A CUL (Unrestricted Land Use)				NV	NV	NV	NV	NV	NV	5000	NV	NV	100
MTCA Method A CUL (Industrial Land Use)				NV	NV	NV	NV	NV	NV	5000	NV	NV	2000
2011 Focused Site Characterization													
GP2	GP2-S-10.0	09/13/2011	10.0	10.5	25.1	11.2	18.2	6.99 U	14.7	6.99 U	20.3	21	34.72
GP3	GP3-S-11.0	09/13/2011	11.0	218	479	107	949	34.4	273	8.43	775	730	**659**
	GP3-S-14.0	09/13/2011	14.0	7.21 U	7.21 U	7.21 U	7.21 U	7.21 U	7.21 U	7.21 U	7.21 U	7.21 U	5.44 U
GP4	GP4-S-10.0	09/13/2011	10.0	49	68.4	32.4	56.9	7.21 U	64.1	7.21 U	32.4	56.2	**135**
GP5	GP5-S-11.0	09/13/2011	11.0	113	253	64.4	487	15.9	150	7.24 U	320	385	**369**
GP7	GP7-S-10.0	09/13/2011	10.0	10.8	7.18 U	7.18 U	7.18 U	7.18 U	7.18 U	9.33	7.18 U	7.18 U	6.86
GP8	GP8-S-9.0	09/13/2011	9.0	195	392	104	729	39.7	343	85.1	712	636	**586**
GP9	GP9-S-9.5	09/13/2011	9.5	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	5.51 U
2000 Targeted Brownfields Assessment													
LF14	LF14SS00	1999	0 to 4	350 U	59 J	350 U	140 J	350 U	67 J	*	68 J	190 J	**154**
	LF14SB08	1999	8 to 12	1200	3200	420	6400	360	1200	*	5600	6200	**2944**

NOTES:

Bold number indicates a detected concentration that exceeds MTCA Method A CUL.

cPAH = carcinogenic polycyclic aromatic hydrocarbon.

CUL = cleanup level.

ft bgs = feet below ground surface.

MTCA = Washington State Model Toxics Control Act.

µg/kg = micrograms per kilogram (parts per billion).

NV = no value.

TEC = toxicity equivalent concentration, calculated using toxicity equivalent factors in Washington Administrative Code 173-340-900 and half of the method reporting limits for nondetect congeners.

U = not detected at or above method reporting limit.

J = estimated concentration

* = Analyte not reported.

FIGURES

Figure 1
Site Features and Investigation locations

City of Wenatchee
Wenatchee, Washington

Legend

- Sample Location
- Test Pit
- Geoprobe Boring
- Monitoring Wells
- Soil Gas Samples
- Geoprobe Boring
- Landfill Boundary (dashed where approximate)
- Measured Landfill Area
- Former UST
- Oil Water Separator
- Chelan County Taxlots
- Limited Excavation Extent
- Conservative Excavation Extent

0 50 100
Feet

Source: Aerial photograph obtained from ArcGIS Online/Bing Maps.

MAUL FOSTER ALONGI
p. 971 544 2139 | www.maulfoster.com

Path: X:\0380.02\Projects\Fig1. Site Features and Investigation Locations.mxd
Print Date: 12-12-2011
Approved By: K. Roslund
Produced By: J. Schane
Project: 0380.02

Figure 2
Proposed
Parcel A Configuration

City of Wenatchee
Wenatchee, Washington

Legend

- Landfill Boundary (dashed where approximate)
- Measured Landfill Area
- Parcel A
- Chelan County Taxlots

0 50 100
Feet

Source: Aerial photograph obtained from ArcGIS Online/Bing Maps.

MAUL FOSTER ALONGI
p. 971 544 2139 | www.maulfoster.com

Path: X:\0380.02\Projects\Fig2_Proposed Parcel A Configuration.mxd
Print Date: 12/1/2011
Approved By: K. Roslund
Produced By: J. Schane
Project: 0380.02

ATTACHMENT A

SOIL BORING LOGS

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0380.02.01	**GP02**	**1 of 1**

Project Name	**City of Wenatchee**	TOC Elevation (feet)	**NA**
Project Location	**25 North Worthen St**	Surface Elevation (feet)	**NA**
Start/End Date	**9/13/2011 to 9/13/2011**	Northing	
Driller/Equipment	**C Watson/6600 truck mounted Geoprobe**	Easting	
Geologist/Engineer	**Kyle Roslund**	Hole Depth	**15.0-feet**
Sample Method	**Macrocore**	Outer Hole Diam	**3.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**100%**	**GP**	**1**				*0.0 to 0.2 feet: ASPHALT; black.*
									0.2 to 2.3 feet: SANDY SILT (ML); dark brown; 50% fines, medium plasticity; 40% sand, subrounded; 10% gravel; dry.
2									
3									*2.3 to 5.5 feet: SILTY SAND (SM); tan; 40% fines; 50% sand, angular; 10% gravel; dry.*
4									
5									
			60%	**GP**	**2**				
6									*5.5 to 7.5 feet: GRAVELLY SAND (SW); gray; 10% fines; 70% sand, subangular and fine; 20% gravel; dry.*
7									
8									*7.5 to 10.6 feet: SILTY SAND (SM); tan; 40% fines; 50% sand, subangular; 10% gravel; dry.*
9									
10									
			10%	**GP**	**3**	**GP2-S-10.0**			
11									*10.6 to 15.0 feet: SANDY GRAVEL (GW); dark brown; 10% fines; 30% sand, fine; 60% gravel, subangular; dry.*
12									
13									
14									
15									

Total depth: 15.0 feet bgs.

NOTES: *1) Boring backfilled with bentonite chips hydrated with potable water. 2) bgs = below ground surface. 3) NA = not applicable.*

GBLWC W:\GINT\GINTW\PROJECTS\0380.02\0380.02.01.GPJ 11/7/11

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0380.02.01	**GP03**	**1 of 1**

Project Name	**City of Wenatchee**	TOC Elevation (feet)	**NA**
Project Location	**25 North Worthen St**	Surface Elevation (feet)	**NA**
Start/End Date	**9/13/2011 to 9/13/2011**	Northing	
Driller/Equipment	**C Watson/6600 truck mounted Geoprobe**	Easting	
Geologist/Engineer	**Kyle Roslund**	Hole Depth	**15.0-feet**
Sample Method	**Macrocore**	Outer Hole Diam	**3.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**75%**	**GP**	**1**				*0.0 to 0.2 feet: ASPHALT; black.*
									0.2 to 2.3 feet: SANDY SILT (ML); dark brown; 70% fines, medium plasticity; 30% sand, rounded; trace brick; moist.
2									
3									*2.3 to 9.4 feet: SILTY SAND (SM); gray; 40% fines; 50% sand, fine to medium; 10% gravel, subangular; dry.*
4									
5			**50%**	**GP**	**2**				
6									
7									
8									
9									
10			**75%**	**GP**	**3**				*9.4 to 13.1 feet: SILTY SAND (SM); reddish brown; 40% fines; 40% sand, subangular and fine; 20% gravel, subangular; moist.*
11						**GP3-S-11.0**			
12									
13									*13.1 to 15.0 feet: SAND with SILT (SW); tan; 10% fines; 85% sand, subangular; 5% gravel; dry.*
14						**GP3-S-14.0**			
15									

Total depth: 15.0 feet bgs.

NOTES: *1) Boring backfilled with bentonite chips hydrated with potable water. 2) bgs = below ground surface. 3) NA = not applicable.*

GBLWC W:\GINT\GINTW\PROJECTS\0380.02\0380.02.01.GPJ 11/7/11

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0380.02.01	**GP04**	**1 of 1**

Project Name	**City of Wenatchee**	TOC Elevation (feet)	**NA**
Project Location	**25 North Worthen St**	Surface Elevation (feet)	**NA**
Start/End Date	**9/13/2011 to 9/13/2011**	Northing	
Driller/Equipment	**C Watson/6600 truck mounted Geoprobe**	Easting	
Geologist/Engineer	**Kyle Roslund**	Hole Depth	**15.0-feet**
Sample Method	**Macrocore**	Outer Hole Diam	**3.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**100%**	**GP**	**1**				*0.0 to 0.3 feet: ASPHALT; black.*
									0.3 to 1.4 feet: SILTY SAND (SM); reddish brown; 40% fines; 60% sand, fine to medium; dry.
2									*1.4 to 9.5 feet: SILTY SAND (SM); tan to reddish brown; 30% fines; 60% sand, medium, subangular; 10% gravel, subangular; black stain and organic odor; dry.*
3									
4									
5			**100%**	**GP**	**2**				
6									
7									
8						**GP4-S-8.0**			
9									*@ 8.5 feet bgs: unit becomes moist.*
10			**0%**	**GP**	**3**	**GP3-S-10.0**			*9.5 to 10.0 feet: SILTY SAND (SM); tan; 30% fines; 70% sand, coarse, subrounded; dry.*
									10 to 15 feet: NO RECOVERY.
11									
12									
13									
14									
15									

Total depth: 15.0 feet bgs.

NOTES: *1) Boring backfilled with bentonite chips hydrated with potable water. 2) bgs = below ground surface. 3) NA = not applicable.*

GBLWC W:\GINT\GINTW\PROJECTS\0380.02\0380.02.01.GPJ 11/7/11

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0380.02.01	**GP05**	**1 of 1**

Project Name	**City of Wenatchee**	TOC Elevation (feet)	**NA**
Project Location	**25 North Worthen St**	Surface Elevation (feet)	**NA**
Start/End Date	**9/13/2011 to 9/13/2011**	Northing	
Driller/Equipment	**C Watson/6600 truck mounted Geoprobe**	Easting	
Geologist/Engineer	**Kyle Roslund**	Hole Depth	**15.0-feet**
Sample Method	**Macrocore**	Outer Hole Diam	**3.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**100%**	**GP**	**1**				*0.0 to 0.2 feet: ASPHALT; black.*
									0.2 to 6.4 feet: SILTY SAND (SM); brown; 30% fines; 60% sand, medium, subangular; 10% gravel; trace brick and rock fragments; dry.
5			**100%**	**GP**	**2**				
7						**GP5-S-7.0**			*6.4 to 7.9 feet: SAND with SILT AND GRAVEL (SP); medium brown; 10% fines; 80% sand, medium, subrounded; 10% gravel; wet.*
8									*7.9 to 15 feet: GRAVELLY SAND (SP); grayish brown; 20% fines; 50% sand; 30% gravel; trace brick, mica; possibly a piece of brick at 14.5 feet below ground surface; dry.*
10			**100%**	**GP**	**3**				
11						**GP5-S-11.0**			
15									

Total depth: 15.0 feet bgs.

NOTES: *1) Boring backfilled with bentonite chips hydrated with potable water. 2) bgs = below ground surface. 3) NA = not applicable.*

GBLWC W:\GINT\GINTW\PROJECTS\0380.02\0380.02.01.GPJ 11/7/11

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0380.02.01	**GP06**	**1 of 1**

Project Name	**City of Wenatchee**	TOC Elevation (feet)	**NA**
Project Location	**25 North Worthen St**	Surface Elevation (feet)	**NA**
Start/End Date	**9/13/2011 to 9/13/2011**	Northing	
Driller/Equipment	**C Watson/6600 truck mounted Geoprobe**	Easting	
Geologist/Engineer	**Kyle Roslund**	Hole Depth	**15.0-feet**
Sample Method	**Macrocore**	Outer Hole Diam	**3.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**50%**	**GP**	**1**				*0.0 to 0.3 feet: ASPHALT; black.*
									0.3 to 5.0 feet: SILTY SAND (SM); tan; 30% fines; 60% sand, fine to medium, subrounded; 10% gravel; dry.
5			**10%**	**GP**	**2**				*5.0 to 10.0 feet: SILTY SAND (SM); grayish brown; 30% fines; 50% sand, fine to medium, subangular; 20% gravel; trace mica; poor recovery; dry.*
9						**GP6-S-9.0**			
10			**100%**	**GP**	**3**				*10.0 to 14.4 feet: SILTY SAND (SM); brown; 40% fines; 60% sand, fine to medium, subrounded; trace mica; dry.*
11						**GP6-S-11.0**			
14									*14.4 to 15.0 feet: SANDY SILT; reddish brown; 60% fines; 40% sand; trace mica; dry.*
15									

Total depth: 15.0 feet bgs.

NOTES: *1) Boring backfilled with bentonite chips hydrated with potable water. 2) bgs = below ground surface. 3) NA = not applicable.*

GBLWC W:\GINT\GINTW\PROJECTS\0380.02\0380.02.01.GPJ 11/7/11

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0380.02.01	**GP07**	**1 of 1**

Project Name	**City of Wenatchee**	TOC Elevation (feet)	**NA**
Project Location	**25 North Worthen St**	Surface Elevation (feet)	**NA**
Start/End Date	**9/13/2011 to 9/13/2011**	Northing	
Driller/Equipment	**C Watson/6600 truck mounted Geoprobe**	Easting	
Geologist/Engineer	**Kyle Roslund**	Hole Depth	**15.0-feet**
Sample Method	**Macrocore**	Outer Hole Diam	**3.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**100%**	**GP**	**1**				*0.0 to 0.2 feet: ASPHALT; black.*
									0.2 to 2.3 feet: SANDY SILT (ML); dark brown; 60% fines, medium plasticity; 30% sand; 10% gravel; dry.
2									
3									*2.3 to 8.3 feet: SILTY SAND (SM); grayish brown; 30% fines; 60% sand, fine to medium, subrounded; 10% gravel; trace mica; dry.*
4									
5			**60%**	**GP**	**2**				
6									
7									
8						**GP7-S-8.0**			
9									*8.3 to 12.4 feet: SILTY SAND (SM); dark brown; 20% fines; 80% sand, medium to coarse, subrounded; dry.*
									@ 9.0 feet bgs: unit becomes moist.
10			**75%**	**GP**	**3**	**GP7-S-10.0**			
11									
12									
13									*12.4 to 15.0 feet: SANDY SILT (ML); tan; 60% fines, medium plasticity; 40% sand, fine; trace mica and gravel; dry.*
14									
15									

Total depth: 15.0 feet bgs.

NOTES: *1) Boring backfilled with bentonite chips hydrated with potable water. 2) bgs = below ground surface. 3) NA = not applicable.*

GBLWC W:\GINT\GINTW\PROJECTS\0380.02\0380.02.01.GPJ 11/7/11

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0380.02.01	**GP08**	**1 of 1**

Project Name	**City of Wenatchee**	TOC Elevation (feet)	**NA**
Project Location	**25 North Worthen St**	Surface Elevation (feet)	**NA**
Start/End Date	**9/13/2011 to 9/13/2011**	Northing	
Driller/Equipment	**C Watson/6600 truck mounted Geoprobe**	Easting	
Geologist/Engineer	**Kyle Roslund**	Hole Depth	**15.0-feet**
Sample Method	**Macrocore**	Outer Hole Diam	**3.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**80%**	**GP**	**1**				*0.0 to 0.2 feet: ASPHALT; black.*
									0.2 to 2.4 feet: GRAVELLY SAND (SP); gray; 10% fines; 70% sand, fine to medium, subangular; 20% gravel; dry.
2									
3									*2.4 to 7.5 feet: SILTY SAND (SM); reddish brown; 30% fines; 60% sand, fine, subrounded; 10% gravel; dry.*
4									
5			**75%**	**GP**	**2**				
6									
7									
8									*7.5 to 9.6 feet: SILTY SAND (SM); black to reddish brown; 40% fines; 60% sand, fine, subrounded; trace brick; dry.*
9						**GP8-S-9.0**			
10			**100%**	**GP**	**3**				*9.6 to 15.0 feet: SANDY SILT (ML); dark brown; 60% fines, medium plasticity; 40% sand; trace mica.*
11						**GP8-S-11.0**			
12									
13									
14									
15									

Total depth: 15.0 feet bgs.

NOTES: *1) Boring backfilled with bentonite chips hydrated with potable water. 2) bgs = below ground surface. 3) NA = not applicable.*

GBLWC W:\GINT\GINTW\PROJECTS\0380.02\0380.02.01.GPJ 11/7/11

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0380.02.01	**GP09**	**1 of 1**

Project Name	**City of Wenatchee**	TOC Elevation (feet)	**NA**
Project Location	**25 North Worthen St**	Surface Elevation (feet)	**NA**
Start/End Date	**9/13/2011 to 9/13/2011**	Northing	
Driller/Equipment	**C Watson/6600 truck mounted Geoprobe**	Easting	
Geologist/Engineer	**Kyle Roslund**	Hole Depth	**15.0-feet**
Sample Method	**Macrocore**	Outer Hole Diam	**3.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**100%**	**GP**	**1**				*0.0 to 0.2 feet: ASPHALT; black.*
									0.2 to 2.4 feet: SANDY SILT (ML); grayish tan; 60% fines, medium plasticity; 40% sand, fine; trace mica; dry.
2									
3									*2.4 to 5.0 feet: SILTY SAND (SM); gray to reddish brown; 30% fines; 60% sand, fine to medium, subrounded; 10% gravel; trace rock fragments; dry.*
4									
5									
			50%	**GP**	**2**				*5.0 to 10.0 feet: SILTY SAND (SM); dark gray; 30% fines; 60% sand; 10% gravel; possible organic odor; dry.*
6									
7									
8									
9									
10						**GP9-S-9.5**			*@ 9.5 feet bgs: unit becomes moist.*
			25%	**GP**	**3**				*10.0 to 15.0 feet: SAND; gray; 20% fines; 60% sand; 20% gravel; trace brick and mica; dry.*
11									
12									
13						**GP9-S-13.0**			
14									
15									

Total depth: 15.0 feet bgs.

NOTES: *1) Boring backfilled with bentonite chips hydrated with potable water. 2) bgs = below ground surface. 3) NA = not applicable.*

GBLWC W:\GINT\GINTW\PROJECTS\0380.02\0380.02.01.GPJ 11/7/11

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet
0380.02.01	**GP10**	**1 of 1**

Project Name	**City of Wenatchee**	TOC Elevation (feet)	**NA**
Project Location	**25 North Worthen St**	Surface Elevation (feet)	**NA**
Start/End Date	**9/13/2011 to 9/13/2011**	Northing	
Driller/Equipment	**C Watson/6600 truck mounted Geoprobe**	Easting	
Geologist/Engineer	**Kyle Roslund**	Hole Depth	**15.0-feet**
Sample Method	**Macrocore**	Outer Hole Diam	**3.25-inch**

Depth (feet, BGS)	Well Details	Sample Data: Interval	Percent Recovery	Collection Method	Number	Name (Type)	Blows/6"	Lithologic Column	Soil Description
1			**100%**	**GP**	**1**				*0.0 to 0.2 feet: ASPHALT; black.*
									0.2 to 6.9 feet: SANDY SILT (ML); yellowish brown; 50% fines, medium plasticity; 40% sand, fine, subangular; 10% gravel; trace mica; dry.
5			**100%**	**GP**	**2**				
7									*6.9 to 10.5 feet: SILTY SAND (SM); black to gray; 40% fines; 50% sand, fine, subrounded; 10% gravel; trace mica; dry.*
8						**GP10-S-8.0**			
10			**75%**	**GP**	**3**				
11						**GP10-S-11.0**			*10.5 to 15.0 feet: SILTY SAND (SM); grayish black; 30% fines; 70% sand; trace mica; dry.*
15									

Total depth: 15.0 feet bgs.

NOTES: *1) Boring backfilled with bentonite chips hydrated with potable water. 2) bgs = below ground surface. 3) NA = not applicable.*

GBLWC W:\GINT\GINTW\PROJECTS\0380.02\0380.02.01.GPJ 11/7/11

ATTACHMENT B

LABORATORY ANALYTICAL RESULTS

Specialty Analytical

11711 SE Capps Road
Clackamas, OR 97015
(503) 607-1331
Fax (503) 607-1336

October 03, 2011

Alan Hughes
Maul, Foster & Alongi
7223 NE Hazel Dell Avenue
Suite B
Vancouver, WA 98665

TEL: (360) 694-2691
FAX: (360) 906-1958

RE: Wenatchee Public Works / 0380.02.01

Order No.: 1109110

Dear Alan Hughes:

Specialty Analytical received 17 samples on 9/15/2011 for the analyses presented in the following report.

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

If you have any questions regarding these tests, please feel free to call.

Sincerely,

Cindy Hillyard
Project Manager

Technical Review

Specialty Analytical

Date: *03-Oct-11*

CLIENT: Maul, Foster & Alongi
Project: Wenatchee Public Works / 0380.02.01
Lab Order: 1109110

Lab ID: 1109110-01
Collection Date: 9/13/2011 8:54:00 AM
Client Sample ID: GP2-S-10.0
Matrix: SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL PAH BY GC/MS		**8270SIM**				Analyst: **bda**
1-Methylnaphthalene	10.5	6.99		µg/Kg-dry	1	9/19/2011 6:37:00 PM
2-Methylnaphthalene	11.9	6.99		µg/Kg-dry	1	9/19/2011 6:37:00 PM
Acenaphthene	ND	6.99		µg/Kg-dry	1	9/19/2011 6:37:00 PM
Acenaphthylene	ND	6.99		µg/Kg-dry	1	9/19/2011 6:37:00 PM
Anthracene	ND	6.99		µg/Kg-dry	1	9/19/2011 6:37:00 PM
Benz(a)anthracene	21.0	6.99		µg/Kg-dry	1	9/19/2011 6:37:00 PM
Benzo(a)pyrene	25.8	6.99		µg/Kg-dry	1	9/19/2011 6:37:00 PM
Benzo(b)fluoranthene	29.3	6.99		µg/Kg-dry	1	9/19/2011 6:37:00 PM
Benzo(g,h,i)perylene	16.8	6.99		µg/Kg-dry	1	9/19/2011 6:37:00 PM
Benzo(k)fluoranthene	10.5	6.99		µg/Kg-dry	1	9/19/2011 6:37:00 PM
Chrysene	25.1	6.99		µg/Kg-dry	1	9/19/2011 6:37:00 PM
Dibenz(a,h)anthracene	11.2	6.99		µg/Kg-dry	1	9/19/2011 6:37:00 PM
Fluoranthene	18.2	6.99		µg/Kg-dry	1	9/19/2011 6:37:00 PM
Fluorene	ND	6.99		µg/Kg-dry	1	9/19/2011 6:37:00 PM
Indeno(1,2,3-cd)pyrene	14.7	6.99		µg/Kg-dry	1	9/19/2011 6:37:00 PM
Naphthalene	ND	6.99		µg/Kg-dry	1	9/19/2011 6:37:00 PM
Phenanthrene	20.3	6.99		µg/Kg-dry	1	9/19/2011 6:37:00 PM
Pyrene	21.0	6.99		µg/Kg-dry	1	9/19/2011 6:37:00 PM
Surr: 2-Fluorobiphenyl	50.2	42.6-128		%REC	1	9/19/2011 6:37:00 PM
Surr: Nitrobenzene-d5	47.8	21.7-155		%REC	1	9/19/2011 6:37:00 PM
Surr: p-Terphenyl-d14	73.7	44.9-155		%REC	1	9/19/2011 6:37:00 PM

Specialty Analytical

Date: *03-Oct-11*

CLIENT: Maul, Foster & Alongi
Project: Wenatchee Public Works / 0380.02.01
Lab Order: 1109110

Lab ID: 1109110-02
Collection Date: 9/13/2011 9:13:00 AM
Client Sample ID: GP3-S-11.0
Matrix: SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL PAH BY GC/MS		**8270SIM**				Analyst: **bda**
1-Methylnaphthalene	ND	7.03		µg/Kg-dry	1	9/19/2011 7:03:00 PM
2-Methylnaphthalene	8.43	7.03		µg/Kg-dry	1	9/19/2011 7:03:00 PM
Acenaphthene	41.4	7.03		µg/Kg-dry	1	9/19/2011 7:03:00 PM
Acenaphthylene	ND	7.03		µg/Kg-dry	1	9/19/2011 7:03:00 PM
Anthracene	202	7.03		µg/Kg-dry	1	9/19/2011 7:03:00 PM
Benz(a)anthracene	445	7.03		µg/Kg-dry	1	9/19/2011 7:03:00 PM
Benzo(a)pyrene	493	7.03		µg/Kg-dry	1	9/19/2011 7:03:00 PM
Benzo(b)fluoranthene	571	7.03		µg/Kg-dry	1	9/19/2011 7:03:00 PM
Benzo(g,h,i)perylene	274	7.03		µg/Kg-dry	1	9/19/2011 7:03:00 PM
Benzo(k)fluoranthene	218	7.03		µg/Kg-dry	1	9/19/2011 7:03:00 PM
Chrysene	479	7.03		µg/Kg-dry	1	9/19/2011 7:03:00 PM
Dibenz(a,h)anthracene	107	7.03		µg/Kg-dry	1	9/19/2011 7:03:00 PM
Fluoranthene	949	7.03		µg/Kg-dry	1	9/19/2011 7:03:00 PM
Fluorene	34.4	7.03		µg/Kg-dry	1	9/19/2011 7:03:00 PM
Indeno(1,2,3-cd)pyrene	273	7.03		µg/Kg-dry	1	9/19/2011 7:03:00 PM
Naphthalene	8.43	7.03		µg/Kg-dry	1	9/19/2011 7:03:00 PM
Phenanthrene	775	7.03		µg/Kg-dry	1	9/19/2011 7:03:00 PM
Pyrene	730	7.03		µg/Kg-dry	1	9/19/2011 7:03:00 PM
Surr: 2-Fluorobiphenyl	60.3	42.6-128		%REC	1	9/19/2011 7:03:00 PM
Surr: Nitrobenzene-d5	61.9	21.7-155		%REC	1	9/19/2011 7:03:00 PM
Surr: p-Terphenyl-d14	78.3	44.9-155		%REC	1	9/19/2011 7:03:00 PM

CLIENT: Maul, Foster & Alongi **Lab Order:** 1109110
Project: Wenatchee Public Works / 0380.02.01

Lab ID: 1109110-03 **Collection Date:** 9/13/2011 9:20:00 AM
Client Sample ID: GP3-S-14.0 **Matrix:** SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL PAH BY GC/MS		**8270SIM**				Analyst: **bda**
1-Methylnaphthalene	ND	7.21	HT	µg/Kg-dry	1	9/29/2011 11:55:00 AM
2-Methylnaphthalene	ND	7.21	HT	µg/Kg-dry	1	9/29/2011 11:55:00 AM
Acenaphthene	ND	7.21	HT	µg/Kg-dry	1	9/29/2011 11:55:00 AM
Acenaphthylene	ND	7.21	HT	µg/Kg-dry	1	9/29/2011 11:55:00 AM
Anthracene	ND	7.21	HT	µg/Kg-dry	1	9/29/2011 11:55:00 AM
Benz(a)anthracene	ND	7.21	HT	µg/Kg-dry	1	9/29/2011 11:55:00 AM
Benzo(a)pyrene	ND	7.21	HT	µg/Kg-dry	1	9/29/2011 11:55:00 AM
Benzo(b)fluoranthene	ND	7.21	HT	µg/Kg-dry	1	9/29/2011 11:55:00 AM
Benzo(g,h,i)perylene	ND	7.21	HT	µg/Kg-dry	1	9/29/2011 11:55:00 AM
Benzo(k)fluoranthene	ND	7.21	HT	µg/Kg-dry	1	9/29/2011 11:55:00 AM
Chrysene	ND	7.21	HT	µg/Kg-dry	1	9/29/2011 11:55:00 AM
Dibenz(a,h)anthracene	ND	7.21	HT	µg/Kg-dry	1	9/29/2011 11:55:00 AM
Fluoranthene	ND	7.21	HT	µg/Kg-dry	1	9/29/2011 11:55:00 AM
Fluorene	ND	7.21	HT	µg/Kg-dry	1	9/29/2011 11:55:00 AM
Indeno(1,2,3-cd)pyrene	ND	7.21	HT	µg/Kg-dry	1	9/29/2011 11:55:00 AM
Naphthalene	ND	7.21	HT	µg/Kg-dry	1	9/29/2011 11:55:00 AM
Phenanthrene	ND	7.21	HT	µg/Kg-dry	1	9/29/2011 11:55:00 AM
Pyrene	ND	7.21	HT	µg/Kg-dry	1	9/29/2011 11:55:00 AM
Surr: 2-Fluorobiphenyl	69.7	42.6-128		%REC	1	9/29/2011 11:55:00 AM
Surr: Nitrobenzene-d5	99.2	21.7-155		%REC	1	9/29/2011 11:55:00 AM
Surr: p-Terphenyl-d14	91.8	44.9-155		%REC	1	9/29/2011 11:55:00 AM

Lab ID: 1109110-04 **Collection Date:** 9/13/2011 9:35:00 AM
Client Sample ID: GP4-S-8.0 **Matrix:** SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
HOLD PER CLIENT REQUEST		**PER CLIENT**				Analyst: **ADM**
Hold	Hold				1	10/3/2011

CLIENT: Maul, Foster & Alongi **Lab Order:** 1109110
Project: Wenatchee Public Works / 0380.02.01

Lab ID: 1109110-05 **Collection Date:** 9/13/2011 9:39:00 AM
Client Sample ID: GP4-S-10.0 **Matrix:** SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL PAH BY GC/MS		**8270SIM**				Analyst: **bda**
1-Methylnaphthalene	ND	7.21		µg/Kg-dry	1	9/19/2011 6:11:00 PM
2-Methylnaphthalene	ND	7.21		µg/Kg-dry	1	9/19/2011 6:11:00 PM
Acenaphthene	ND	7.21		µg/Kg-dry	1	9/19/2011 6:11:00 PM
Acenaphthylene	ND	7.21		µg/Kg-dry	1	9/19/2011 6:11:00 PM
Anthracene	18.7	7.21		µg/Kg-dry	1	9/19/2011 6:11:00 PM
Benz(a)anthracene	65.6	7.21		µg/Kg-dry	1	9/19/2011 6:11:00 PM
Benzo(a)pyrene	102	7.21		µg/Kg-dry	1	9/19/2011 6:11:00 PM
Benzo(b)fluoranthene	109	7.21		µg/Kg-dry	1	9/19/2011 6:11:00 PM
Benzo(g,h,i)perylene	74.9	7.21		µg/Kg-dry	1	9/19/2011 6:11:00 PM
Benzo(k)fluoranthene	49.0	7.21		µg/Kg-dry	1	9/19/2011 6:11:00 PM
Chrysene	68.4	7.21		µg/Kg-dry	1	9/19/2011 6:11:00 PM
Dibenz(a,h)anthracene	32.4	7.21		µg/Kg-dry	1	9/19/2011 6:11:00 PM
Fluoranthene	56.9	7.21		µg/Kg-dry	1	9/19/2011 6:11:00 PM
Fluorene	ND	7.21		µg/Kg-dry	1	9/19/2011 6:11:00 PM
Indeno(1,2,3-cd)pyrene	64.1	7.21		µg/Kg-dry	1	9/19/2011 6:11:00 PM
Naphthalene	ND	7.21		µg/Kg-dry	1	9/19/2011 6:11:00 PM
Phenanthrene	32.4	7.21		µg/Kg-dry	1	9/19/2011 6:11:00 PM
Pyrene	56.2	7.21		µg/Kg-dry	1	9/19/2011 6:11:00 PM
Surr: 2-Fluorobiphenyl	59.0	42.6-128		%REC	1	9/19/2011 6:11:00 PM
Surr: Nitrobenzene-d5	81.8	21.7-155		%REC	1	9/19/2011 6:11:00 PM
Surr: p-Terphenyl-d14	103	44.9-155		%REC	1	9/19/2011 6:11:00 PM

Lab ID: 1109110-06 **Collection Date:** 9/13/2011 10:07:00 AM
Client Sample ID: GP5-S-7.0 **Matrix:** SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
HOLD PER CLIENT REQUEST		**PER CLIENT**				Analyst: **ADM**
Hold	Hold				1	10/3/2011

CLIENT: Maul, Foster & Alongi **Lab Order:** 1109110
Project: Wenatchee Public Works / 0380.02.01

Lab ID: 1109110-07 **Collection Date:** 9/13/2011 10:07:00 AM
Client Sample ID: GP5-S-11.0 **Matrix:** SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL PAH BY GC/MS		**8270SIM**				Analyst: **bda**
1-Methylnaphthalene	13.0	7.24		µg/Kg-dry	1	9/19/2011 7:30:00 PM
2-Methylnaphthalene	12.3	7.24		µg/Kg-dry	1	9/19/2011 7:30:00 PM
Acenaphthene	15.9	7.24		µg/Kg-dry	1	9/19/2011 7:30:00 PM
Acenaphthylene	7.96	7.24		µg/Kg-dry	1	9/19/2011 7:30:00 PM
Anthracene	83.9	7.24		µg/Kg-dry	1	9/19/2011 7:30:00 PM
Benz(a)anthracene	246	7.24		µg/Kg-dry	1	9/19/2011 7:30:00 PM
Benzo(a)pyrene	278	7.24		µg/Kg-dry	1	9/19/2011 7:30:00 PM
Benzo(b)fluoranthene	310	7.24		µg/Kg-dry	1	9/19/2011 7:30:00 PM
Benzo(g,h,i)perylene	154	7.24		µg/Kg-dry	1	9/19/2011 7:30:00 PM
Benzo(k)fluoranthene	113	7.24		µg/Kg-dry	1	9/19/2011 7:30:00 PM
Chrysene	253	7.24		µg/Kg-dry	1	9/19/2011 7:30:00 PM
Dibenz(a,h)anthracene	64.4	7.24		µg/Kg-dry	1	9/19/2011 7:30:00 PM
Fluoranthene	487	7.24		µg/Kg-dry	1	9/19/2011 7:30:00 PM
Fluorene	15.9	7.24		µg/Kg-dry	1	9/19/2011 7:30:00 PM
Indeno(1,2,3-cd)pyrene	150	7.24		µg/Kg-dry	1	9/19/2011 7:30:00 PM
Naphthalene	ND	7.24		µg/Kg-dry	1	9/19/2011 7:30:00 PM
Phenanthrene	320	7.24		µg/Kg-dry	1	9/19/2011 7:30:00 PM
Pyrene	385	7.24		µg/Kg-dry	1	9/19/2011 7:30:00 PM
Surr: 2-Fluorobiphenyl	55.4	42.6-128		%REC	1	9/19/2011 7:30:00 PM
Surr: Nitrobenzene-d5	60.2	21.7-155		%REC	1	9/19/2011 7:30:00 PM
Surr: p-Terphenyl-d14	83.1	44.9-155		%REC	1	9/19/2011 7:30:00 PM

Lab ID: 1109110-08 **Collection Date:** 9/13/2011 10:39:00 AM
Client Sample ID: GP6-S-9.0 **Matrix:** SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
HOLD PER CLIENT REQUEST		**PER CLIENT**				Analyst: **ADM**
Hold	Hold				1	10/3/2011

Lab ID: 1109110-09 **Collection Date:** 9/13/2011 10:44:00 AM
Client Sample ID: GP6-S-11.0 **Matrix:** SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
HOLD PER CLIENT REQUEST		**PER CLIENT**				Analyst: **ADM**
Hold	Hold				1	10/3/2011

CLIENT: Maul, Foster & Alongi **Lab Order:** 1109110
Project: Wenatchee Public Works / 0380.02.01

Lab ID: 1109110-10 **Collection Date:** 9/13/2011 10:57:00 AM
Client Sample ID: GP7-S-10.0 **Matrix:** SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL PAH BY GC/MS		**8270SIM**				Analyst: **bda**
1-Methylnaphthalene	ND	7.18	HT	µg/Kg-dry	1	9/29/2011 12:48:00 PM
2-Methylnaphthalene	ND	7.18	HT	µg/Kg-dry	1	9/29/2011 12:48:00 PM
Acenaphthene	ND	7.18	HT	µg/Kg-dry	1	9/29/2011 12:48:00 PM
Acenaphthylene	ND	7.18	HT	µg/Kg-dry	1	9/29/2011 12:48:00 PM
Anthracene	ND	7.18	HT	µg/Kg-dry	1	9/29/2011 12:48:00 PM
Benz(a)anthracene	ND	7.18	HT	µg/Kg-dry	1	9/29/2011 12:48:00 PM
Benzo(a)pyrene	ND	7.18	HT	µg/Kg-dry	1	9/29/2011 12:48:00 PM
Benzo(b)fluoranthene	10.8	7.18	HT	µg/Kg-dry	1	9/29/2011 12:48:00 PM
Benzo(g,h,i)perylene	8.61	7.18	HT	µg/Kg-dry	1	9/29/2011 12:48:00 PM
Benzo(k)fluoranthene	10.8	7.18	HT	µg/Kg-dry	1	9/29/2011 12:48:00 PM
Chrysene	ND	7.18	HT	µg/Kg-dry	1	9/29/2011 12:48:00 PM
Dibenz(a,h)anthracene	ND	7.18	HT	µg/Kg-dry	1	9/29/2011 12:48:00 PM
Fluoranthene	ND	7.18	HT	µg/Kg-dry	1	9/29/2011 12:48:00 PM
Fluorene	ND	7.18	HT	µg/Kg-dry	1	9/29/2011 12:48:00 PM
Indeno(1,2,3-cd)pyrene	ND	7.18	HT	µg/Kg-dry	1	9/29/2011 12:48:00 PM
Naphthalene	9.33	7.18	HT	µg/Kg-dry	1	9/29/2011 12:48:00 PM
Phenanthrene	ND	7.18	HT	µg/Kg-dry	1	9/29/2011 12:48:00 PM
Pyrene	ND	7.18	HT	µg/Kg-dry	1	9/29/2011 12:48:00 PM
Surr: 2-Fluorobiphenyl	65.3	42.6-128		%REC	1	9/29/2011 12:48:00 PM
Surr: Nitrobenzene-d5	73.2	21.7-155		%REC	1	9/29/2011 12:48:00 PM
Surr: p-Terphenyl-d14	91.6	44.9-155		%REC	1	9/29/2011 12:48:00 PM

Lab ID: 1109110-11 **Collection Date:** 9/13/2011 10:54:00 AM
Client Sample ID: GP7-S-8.0 **Matrix:** SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
HOLD PER CLIENT REQUEST		**PER CLIENT**				Analyst: **ADM**
Hold	Hold				1	10/3/2011

CLIENT: Maul, Foster & Alongi **Lab Order:** 1109110
Project: Wenatchee Public Works / 0380.02.01

Lab ID: 1109110-12 **Collection Date:** 9/13/2011 11:44:00 AM
Client Sample ID: GP8-S-9.0 **Matrix:** SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL PAH BY GC/MS		**8270SIM**				Analyst: **bda**
1-Methylnaphthalene	72.2	7.22	HT	µg/Kg-dry	1	9/29/2011 1:14:00 PM
2-Methylnaphthalene	102	7.22	HT	µg/Kg-dry	1	9/29/2011 1:14:00 PM
Acenaphthene	15.9	7.22	HT	µg/Kg-dry	1	9/29/2011 1:14:00 PM
Acenaphthylene	83.0	7.22	HT	µg/Kg-dry	1	9/29/2011 1:14:00 PM
Anthracene	147	7.22	HT	µg/Kg-dry	1	9/29/2011 1:14:00 PM
Benz(a)anthracene	320	7.22	HT	µg/Kg-dry	1	9/29/2011 1:14:00 PM
Benzo(a)pyrene	438	7.22	HT	µg/Kg-dry	1	9/29/2011 1:14:00 PM
Benzo(b)fluoranthene	475	7.22	HT	µg/Kg-dry	1	9/29/2011 1:14:00 PM
Benzo(g,h,i)perylene	456	7.22	HT	µg/Kg-dry	1	9/29/2011 1:14:00 PM
Benzo(k)fluoranthene	195	7.22	HT	µg/Kg-dry	1	9/29/2011 1:14:00 PM
Chrysene	392	7.22	HT	µg/Kg-dry	1	9/29/2011 1:14:00 PM
Dibenz(a,h)anthracene	104	7.22	HT	µg/Kg-dry	1	9/29/2011 1:14:00 PM
Fluoranthene	729	7.22	HT	µg/Kg-dry	1	9/29/2011 1:14:00 PM
Fluorene	39.7	7.22	HT	µg/Kg-dry	1	9/29/2011 1:14:00 PM
Indeno(1,2,3-cd)pyrene	343	7.22	HT	µg/Kg-dry	1	9/29/2011 1:14:00 PM
Naphthalene	85.1	7.22	HT	µg/Kg-dry	1	9/29/2011 1:14:00 PM
Phenanthrene	712	7.22	HT	µg/Kg-dry	1	9/29/2011 1:14:00 PM
Pyrene	636	7.22	HT	µg/Kg-dry	1	9/29/2011 1:14:00 PM
Surr: 2-Fluorobiphenyl	74.3	42.6-128		%REC	1	9/29/2011 1:14:00 PM
Surr: Nitrobenzene-d5	98.1	21.7-155		%REC	1	9/29/2011 1:14:00 PM
Surr: p-Terphenyl-d14	82.1	44.9-155		%REC	1	9/29/2011 1:14:00 PM

Lab ID: 1109110-13 **Collection Date:** 9/13/2011 11:53:00 AM
Client Sample ID: GP8-S-11.0 **Matrix:** SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
HOLD PER CLIENT REQUEST		**PER CLIENT**				Analyst: **ADM**
Hold	Hold				1	10/3/2011

CLIENT: Maul, Foster & Alongi **Lab Order:** 1109110
Project: Wenatchee Public Works / 0380.02.01

Lab ID: 1109110-14 **Collection Date:** 9/13/2011 12:25:00 PM
Client Sample ID: GP9-S-9.5 **Matrix:** SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
LOW LEVEL PAH BY GC/MS		**8270SIM**				Analyst: **bda**
1-Methylnaphthalene	ND	7.30	HT	µg/Kg-dry	1	9/29/2011 12:21:00 PM
2-Methylnaphthalene	ND	7.30	HT	µg/Kg-dry	1	9/29/2011 12:21:00 PM
Acenaphthene	ND	7.30	HT	µg/Kg-dry	1	9/29/2011 12:21:00 PM
Acenaphthylene	ND	7.30	HT	µg/Kg-dry	1	9/29/2011 12:21:00 PM
Anthracene	ND	7.30	HT	µg/Kg-dry	1	9/29/2011 12:21:00 PM
Benz(a)anthracene	ND	7.30	HT	µg/Kg-dry	1	9/29/2011 12:21:00 PM
Benzo(a)pyrene	ND	7.30	HT	µg/Kg-dry	1	9/29/2011 12:21:00 PM
Benzo(b)fluoranthene	ND	7.30	HT	µg/Kg-dry	1	9/29/2011 12:21:00 PM
Benzo(g,h,i)perylene	ND	7.30	HT	µg/Kg-dry	1	9/29/2011 12:21:00 PM
Benzo(k)fluoranthene	ND	7.30	HT	µg/Kg-dry	1	9/29/2011 12:21:00 PM
Chrysene	ND	7.30	HT	µg/Kg-dry	1	9/29/2011 12:21:00 PM
Dibenz(a,h)anthracene	ND	7.30	HT	µg/Kg-dry	1	9/29/2011 12:21:00 PM
Fluoranthene	ND	7.30	HT	µg/Kg-dry	1	9/29/2011 12:21:00 PM
Fluorene	ND	7.30	HT	µg/Kg-dry	1	9/29/2011 12:21:00 PM
Indeno(1,2,3-cd)pyrene	ND	7.30	HT	µg/Kg-dry	1	9/29/2011 12:21:00 PM
Naphthalene	ND	7.30	HT	µg/Kg-dry	1	9/29/2011 12:21:00 PM
Phenanthrene	ND	7.30	HT	µg/Kg-dry	1	9/29/2011 12:21:00 PM
Pyrene	ND	7.30	HT	µg/Kg-dry	1	9/29/2011 12:21:00 PM
Surr: 2-Fluorobiphenyl	75.6	42.6-128		%REC	1	9/29/2011 12:21:00 PM
Surr: Nitrobenzene-d5	87.9	21.7-155		%REC	1	9/29/2011 12:21:00 PM
Surr: p-Terphenyl-d14	90.1	44.9-155		%REC	1	9/29/2011 12:21:00 PM

Lab ID: 1109110-15 **Collection Date:** 9/13/2011 12:37:00 PM
Client Sample ID: GP9-S-13.0 **Matrix:** SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
HOLD PER CLIENT REQUEST		**PER CLIENT**				Analyst: **ADM**
Hold	Hold				1	10/3/2011

Lab ID: 1109110-16 **Collection Date:** 9/13/2011 1:10:00 PM
Client Sample ID: GP10-S-8.0 **Matrix:** SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
HOLD PER CLIENT REQUEST		**PER CLIENT**				Analyst: **ADM**
Hold	Hold				1	10/3/2011

Specialty Analytical

Date: *03-Oct-11*

CLIENT: Maul, Foster & Alongi
Project: Wenatchee Public Works / 0380.02.01

Lab Order: 1109110

Lab ID: 1109110-17
Client Sample ID: GP10-S-11.0

Collection Date: 9/13/2011 1:23:00 PM
Matrix: SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
HOLD PER CLIENT REQUEST		**PER CLIENT**				Analyst: **ADM**
Hold	Hold				1	10/3/2011

CLIENT: Maul, Foster & Alongi
Work Order: 1109110
Project: Wenatchee Public Works / 0380.02.01

ANALYTICAL QC SUMMARY REPORT

TestCode: PAHLL_S

Sample ID: **MB-29448**	SampType: **MBLK**	TestCode: **PAHLL_S**	Units: **µg/Kg**	Prep Date: **9/16/2011**	Run ID: **5975Q_110919A**
Client ID: **ZZZZZ**	Batch ID: **29448**	TestNo: **8270SIM**		Analysis Date: **9/19/2011**	SeqNo: **777665**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-Methylnaphthalene	ND	6.67									
2-Methylnaphthalene	ND	6.67									
Acenaphthene	ND	6.67									
Acenaphthylene	ND	6.67									
Anthracene	0.6667	6.67									J
Benz(a)anthracene	3.333	6.67									J
Benzo(a)pyrene	2.667	6.67									J
Benzo(b)fluoranthene	3.333	6.67									J
Benzo(g,h,i)perylene	3.333	6.67									J
Benzo(k)fluoranthene	2.667	6.67									J
Chrysene	2.667	6.67									J
Dibenz(a,h)anthracene	4.667	6.67									J
Fluoranthene	2.667	6.67									J
Fluorene	ND	6.67									
Indeno(1,2,3-cd)pyrene	4	6.67									J
Naphthalene	2	6.67									J
Phenanthrene	2	6.67									J
Pyrene	3.333	6.67									J
Surr: 2-Fluorobiphenyl	4296	0	6667	0	64.4	42.6	128	0	0		
Surr: Nitrobenzene-d5	6031	0	6667	0	90.5	21.7	155	0	0		
Surr: p-Terphenyl-d14	7745	0	6667	0	116	44.9	155	0	0		

Sample ID: **MB-29546**	SampType: **MBLK**	TestCode: **PAHLL_S**	Units: **µg/Kg**	Prep Date: **9/28/2011**	Run ID: **5975Q_110929A**
Client ID: **ZZZZZ**	Batch ID: **29546**	TestNo: **8270SIM**		Analysis Date: **9/29/2011**	SeqNo: **780491**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-Methylnaphthalene	1.333	6.67									J
2-Methylnaphthalene	1.333	6.67									J
Acenaphthene	ND	6.67									
Acenaphthylene	ND	6.67									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Maul, Foster & Alongi
Work Order: 1109110
Project: Wenatchee Public Works / 0380.02.01

ANALYTICAL QC SUMMARY REPORT

TestCode: PAHLL_S

Sample ID: **MB-29546** SampType: **MBLK** TestCode: **PAHLL_S** Units: **µg/Kg** Prep Date: **9/28/2011** Run ID: **5975Q_110929A**
Client ID: **ZZZZZ** Batch ID: **29546** TestNo: **8270SIM** Analysis Date: **9/29/2011** SeqNo: **780491**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Anthracene	ND	6.67									
Benz(a)anthracene	4	6.67									J
Benzo(a)pyrene	2	6.67									J
Benzo(b)fluoranthene	3.333	6.67									J
Benzo(g,h,i)perylene	2.667	6.67									J
Benzo(k)fluoranthene	2.667	6.67									J
Chrysene	3.333	6.67									J
Dibenz(a,h)anthracene	2.667	6.67									J
Fluoranthene	ND	6.67									
Fluorene	ND	6.67									
Indeno(1,2,3-cd)pyrene	4	6.67									J
Naphthalene	4	6.67									J
Phenanthrene	0.6667	6.67									J
Pyrene	2.667	6.67									J
Surr: 2-Fluorobiphenyl	5819	0	6667	0	87.3	42.6	128	0	0		
Surr: Nitrobenzene-d5	7570	0	6667	0	114	21.7	155	0	0		
Surr: p-Terphenyl-d14	6786	0	6667	0	102	44.9	155	0	0		

Sample ID: **LCS-29448** SampType: **LCS** TestCode: **PAHLL_S** Units: **µg/Kg** Prep Date: **9/16/2011** Run ID: **5975Q_110919A**
Client ID: **ZZZZZ** Batch ID: **29448** TestNo: **8270SIM** Analysis Date: **9/19/2011** SeqNo: **777832**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	270.7	6.67	333.3	0	81.2	39.6	107	0	0		
Benzo(g,h,i)perylene	313.3	6.67	333.3	0	94	49.7	135	0	0		
Chrysene	316.7	6.67	333.3	0	95	57.1	130	0	0		
Naphthalene	253.3	6.67	333.3	0	76	29.1	109	0	0		
Phenanthrene	322.7	6.67	333.3	0	96.8	48.4	115	0	0		
Pyrene	301.3	6.67	333.3	0	90.4	47.2	134	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Maul, Foster & Alongi
Work Order: 1109110
Project: Wenatchee Public Works / 0380.02.01

ANALYTICAL QC SUMMARY REPORT

TestCode: PAHLL_S

Sample ID: **LCS-29546** SampType: **LCS** TestCode: **PAHLL_S** Units: **µg/Kg** Prep Date: **9/28/2011** Run ID: **5975Q_110929A**
Client ID: **ZZZZZ** Batch ID: **29546** TestNo: **8270SIM** Analysis Date: **9/29/2011** SeqNo: **780496**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	302.7	6.67	333.3	0	90.8	39.6	107	0	0		
Benzo(g,h,i)perylene	366.7	6.67	333.3	0	110	49.7	135	0	0		
Chrysene	377.3	6.67	333.3	0	113	57.1	130	0	0		
Naphthalene	274	6.67	333.3	0	82.2	29.1	109	0	0		
Phenanthrene	382	6.67	333.3	0	115	48.4	115	0	0		
Pyrene	314.7	6.67	333.3	0	94.4	47.2	134	0	0		

Sample ID: **1109110-05AMS** SampType: **MS** TestCode: **PAHLL_S** Units: **µg/Kg-dry** Prep Date: **9/16/2011** Run ID: **5975Q_110919A**
Client ID: **GP4-S-10.0** Batch ID: **29448** TestNo: **8270SIM** Analysis Date: **9/19/2011** SeqNo: **777833**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	233.4	7.21	360.2	2	64.2	33.7	111	0	0		
Benzo(g,h,i)perylene	338.6	7.21	360.2	69.33	74.7	15	128	0	0		
Chrysene	365.2	7.21	360.2	63.33	83.8	37.5	125	0	0		
Naphthalene	213.9	7.21	360.2	4.667	58.1	27.7	108	0	0		
Phenanthrene	362.3	7.21	360.2	30	92.3	20.2	139	0	0		
Pyrene	335	7.21	360.2	52	78.6	26.8	142	0	0		

Sample ID: **1109110-03AMS** SampType: **MS** TestCode: **PAHLL_S** Units: **µg/Kg-dry** Prep Date: **9/28/2011** Run ID: **5975Q_110929A**
Client ID: **GP3-S-14.0** Batch ID: **29546** TestNo: **8270SIM** Analysis Date: **9/29/2011** SeqNo: **780497**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	305.6	7.21	360.4	0	84.8	33.7	111	0	0		
Benzo(g,h,i)perylene	335.9	7.21	360.4	1.441	92.8	15	128	0	0		
Chrysene	360.4	7.21	360.4	2.162	99.4	37.5	125	0	0		
Naphthalene	286.1	7.21	360.4	5.766	77.8	27.7	108	0	0		
Phenanthrene	387	7.21	360.4	0.7207	107	20.2	139	0	0		
Pyrene	342.3	7.21	360.4	2.162	94.4	26.8	142	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Maul, Foster & Alongi
Work Order: 1109110
Project: Wenatchee Public Works / 0380.02.01

ANALYTICAL QC SUMMARY REPORT

TestCode: PAHLL_S

Sample ID: **1109110-05AMSD**	SampType: **MSD**	TestCode: **PAHLL_S**	Units: **µg/Kg-dry**	Prep Date: **9/16/2011**	Run ID: **5975Q_110919A**
Client ID: **GP4-S-10.0**	Batch ID: **29448**	TestNo: **8270SIM**		Analysis Date: **9/19/2011**	SeqNo: **777834**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	219	7.21	360.2	2	60.2	33.7	111	233.4	6.37	20	
Benzo(g,h,i)perylene	307.6	7.21	360.2	69.33	66.1	15	128	338.6	9.59	20	
Chrysene	338.6	7.21	360.2	63.33	76.4	37.5	125	365.2	7.57	20	
Naphthalene	194.5	7.21	360.2	4.667	52.7	27.7	108	213.9	9.52	20	
Phenanthrene	332.8	7.21	360.2	30	84.1	20.2	139	362.3	8.50	20	
Pyrene	287.4	7.21	360.2	52	65.4	26.8	142	335	15.3	20	

Sample ID: **1109110-03AMSD**	SampType: **MSD**	TestCode: **PAHLL_S**	Units: **µg/Kg-dry**	Prep Date: **9/28/2011**	Run ID: **5975Q_110929A**
Client ID: **GP3-S-14.0**	Batch ID: **29546**	TestNo: **8270SIM**		Analysis Date: **9/29/2011**	SeqNo: **780498**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	255.1	7.21	360.4	0	70.8	33.7	111	305.6	18.0	20	
Benzo(g,h,i)perylene	318.6	7.21	360.4	1.441	88	15	128	335.9	5.29	20	
Chrysene	309.9	7.21	360.4	2.162	85.4	37.5	125	360.4	15.1	20	
Naphthalene	242.9	7.21	360.4	5.766	65.8	27.7	108	286.1	16.3	20	
Phenanthrene	316.4	7.21	360.4	0.7207	87.6	20.2	139	387	20.1	20	R
Pyrene	277.5	7.21	360.4	2.162	76.4	26.8	142	342.3	20.9	20	R

Sample ID: **CCV-29448**	SampType: **CCV**	TestCode: **PAHLL_S**	Units: **µg/Kg**	Prep Date:	Run ID: **5975Q_110919A**
Client ID: **ZZZZZ**	Batch ID: **29448**	TestNo: **8270SIM**		Analysis Date: **9/19/2011**	SeqNo: **777664**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-Methylnaphthalene	74	6.67	66.67	0	111	70	130	0	0		
2-Methylnaphthalene	70.67	6.67	66.67	0	106	70	130	0	0		
Acenaphthene	68.67	6.67	66.67	0	103	70	130	0	0		
Acenaphthylene	64.67	6.67	66.67	0	97	70	130	0	0		
Anthracene	69.33	6.67	66.67	0	104	70	130	0	0		
Benz(a)anthracene	65.33	6.67	66.67	0	98	70	130	0	0		
Benzo(a)pyrene	73.33	6.67	66.67	0	110	70	130	0	0		
Benzo(b)fluoranthene	74	6.67	66.67	0	111	70	130	0	0		
Benzo(g,h,i)perylene	59.33	6.67	66.67	0	89	70	130	0	0		

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; B - Analyte detected in the associated Method Blank; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits

CLIENT: Maul, Foster & Alongi
Work Order: 1109110
Project: Wenatchee Public Works / 0380.02.01

ANALYTICAL QC SUMMARY REPORT

TestCode: PAHLL_S

Sample ID: **CCV-29448** SampType: **CCV** TestCode: **PAHLL_S** Units: **µg/Kg** Prep Date: Run ID: **5975Q_110919A**
Client ID: **ZZZZZ** Batch ID: **29448** TestNo: **8270SIM** Analysis Date: **9/19/2011** SeqNo: **777664**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	76	6.67	66.67	0	114	70	130	0	0		
Chrysene	69.33	6.67	66.67	0	104	70	130	0	0		
Dibenz(a,h)anthracene	63.33	6.67	66.67	0	95	70	130	0	0		
Fluoranthene	76	6.67	66.67	0	114	70	130	0	0		
Fluorene	70.67	6.67	66.67	0	106	70	130	0	0		
Indeno(1,2,3-cd)pyrene	65.33	6.67	66.67	0	98	70	130	0	0		
Naphthalene	70.67	6.67	66.67	0	106	70	130	0	0		
Phenanthrene	72	6.67	66.67	0	108	70	130	0	0		
Pyrene	76	6.67	66.67	0	114	70	130	0	0		

Sample ID: **CCV-29546** SampType: **CCV** TestCode: **PAHLL_S** Units: **µg/Kg** Prep Date: Run ID: **5975Q_110929A**
Client ID: **ZZZZZ** Batch ID: **29546** TestNo: **8270SIM** Analysis Date: **9/29/2011** SeqNo: **780490**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-Methylnaphthalene	74	6.67	66.67	0	111	70	130	0	0		
2-Methylnaphthalene	78	6.67	66.67	0	117	70	130	0	0		
Acenaphthene	73.33	6.67	66.67	0	110	70	130	0	0		
Acenaphthylene	70	6.67	66.67	0	105	70	130	0	0		
Anthracene	67.33	6.67	66.67	0	101	70	130	0	0		
Benz(a)anthracene	70.67	6.67	66.67	0	106	70	130	0	0		
Benzo(a)pyrene	75.33	6.67	66.67	0	113	70	130	0	0		
Benzo(b)fluoranthene	73.33	6.67	66.67	0	110	70	130	0	0		
Benzo(g,h,i)perylene	74.67	6.67	66.67	0	112	70	130	0	0		
Benzo(k)fluoranthene	77.33	6.67	66.67	0	116	70	130	0	0		
Chrysene	77.33	6.67	66.67	0	116	70	130	0	0		
Dibenz(a,h)anthracene	78	6.67	66.67	0	117	70	130	0	0		
Fluoranthene	72.67	6.67	66.67	0	109	70	130	0	0		
Fluorene	76.67	6.67	66.67	0	115	70	130	0	0		
Indeno(1,2,3-cd)pyrene	78	6.67	66.67	0	117	70	130	0	0		
Naphthalene	73.33	6.67	66.67	0	110	70	130	0	0		
Phenanthrene	79.33	6.67	66.67	0	119	70	130	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Maul, Foster & Alongi
Work Order: 1109110
Project: Wenatchee Public Works / 0380.02.01

ANALYTICAL QC SUMMARY REPORT

TestCode: PAHLL_S

Sample ID: **CCV-29546** SampType: **CCV** TestCode: **PAHLL_S** Units: **µg/Kg** Prep Date: Run ID: **5975Q_110929A**
Client ID: **ZZZZZ** Batch ID: **29546** TestNo: **8270SIM** Analysis Date: **9/29/2011** SeqNo: **780490**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pyrene	67.33	6.67	66.67	0	101	70	130	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

KEY TO FLAGS

Rev. May 12, 2010

A	This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was quantified against gasoline calibration standards
A1	This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was quantified against diesel calibration standards.
A2	This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was quantified against a lube oil calibration standard.
A3	The result was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.
A4	The product appears to be aged or degraded diesel.
B	The blank exhibited a positive result great than the reporting limit for this compound.
CN	See Case Narrative.
D	Result is based from a dilution.
E	Result exceeds the calibration range for this compound. The result should be considered as estimate.
F	The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.
G	Result may be biased high due to biogenic interferences. Clean up is recommended.
H	Sample was analyzed outside recommended holding time.
HT	At clients request, samples was analyzed outside of recommended holding time.
J	The result for this analyte is between the MDL and the PQL and should be considered as estimated concentration.
K	Diesel result is biased high due to amount of Oil contained in the sample.
L	Diesel result is biased high due to amount of Gasoline contained in the sample.
M	Oil result is biased high due to amount of Diesel contained in the sample.
MC	Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.
MI	Result is outside control limits due to matrix interference.
MSA	Value determined by Method of Standard Addition.
O	Laboratory Control Standard (LCS) exceeded laboratory control limits, but meets CCV criteria. Data meets EPA requirements.
Q	Detection levels elevated due to sample matrix.
R	RPD control limits were exceeded.
RF	Duplicate failed due to result being at or near the method-reporting limit.
RP	Matrix spike values exceed established QC limits; post digestion spike is in control.
S	Recovery is outside control limits.
SC	Closing CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data meets EPA requirements.
*	The result for this parameter was greater that the maximum contaminant level of the TCLP regulatory limit.

CHAIN OF CUSTODY RECORD

Specialty Analytical
11711 SE Capps Road
Clackamas, OR 97015
Phone: 503-607-1331
Fax: 503-607-1336

Contact Person/Project Manager: Alan Hughes
Company: Maul Foster Alongi
Address: 400 E. Mill Plain Blvd, Ste 400
Vancouver WA
Phone: 360.694.2691 Fax:
Project No. 0380.02.01 Project Name: Wenatchee Public Works
Project Site Location OR ____ WA X Other ____
Invoice To: MFA P.O. No. 0380.02.01 / 05

Collected By:
Signature:
Printed: Kyle Rosland

Signature:
Printed:

Turn Around Time
☒ Normal 5-7 Business Days
☐ Rush _____
Specify
Rush Analyses Must Be Scheduled With The Lab In Advance

For Laboratory Use
Lab Job No. 1109110
Shipped Via: Specialty
Air Bill No. —
Temperature On Receipt 7 °C
Specialty Analytical Containers? Y / N
Specialty Analytical Trip Blanks? Y / N

Date	Time	Sample I.D.	Matrix	No. of Containers	Analyses: 8270 SIM	Comments	Lab I.D.
9/13/11	0954	GP2-5-10.0	S	2	X		
	0913	GP3-5-11.0			X		
	0920	GP3-5-14.0			⊗	Hold	
	0935	GP4-5-8.0			⊗	Hold	
	0939	GP4-5-10.0			X		
	1007	GP5-5-7.0			⊗	Hold	
	1007	GP5-5-11.0			X		
	1039	GP6-5-9.0			⊗	Hold	
	1044	GP6-5-11.0			⊗		
	1057	GP7-5-10.0			⊗		
	1054	GP7-5-8.0			⊗		
	1144	GP8-5-9.0			⊗		

Relinquished By:	Company:	Date	Time	Received By:	Company:
	MFA	9/15/11	1600		Specialty

Relinquished By:	Company:	Date	Time	Received For Lab By:	Date	Time
	Specialty	9/15/11	1330	Nikki Bapper	9/15/11	1330

Unless Reclaimed, Samples Will Be Disposed of 60 Days After Receipt.
Samples held beyond 60 days subject to storage fee(s)

Copies: White-Original Yellow-Project File Pink-Customer Copy

CHAIN OF CUSTODY RECORD

Specialty Analytical
11711 SE Capps Road
Clackamas, OR 97015
Phone: 503-607-1331
Fax: 503-607-1336

Contact Person/Project Manager: SAME
Company:
Address:
Phone: Fax:
Project No.: Project Name:
Project Site Location OR: WA: Other:
Invoice To: P.O. No.:

Collected By:
Signature: Kyle Rostlund
Printed:

Signature:
Printed:

Turn Around Time
☑ Normal 5-7 Business Days
☐ Rush _____
Specify
Rush Analyses Must Be Scheduled With The Lab In Advance

For Laboratory Use
Lab Job No. 1109110
Shipped Via Specialty
Air Bill No. —
Temperature On Receipt 7 °C
Specialty Analytical Containers? Y / N
Specialty Analytical Trip Blanks? Y / N

Date	Time	Sample I.D.	Matrix	No. of Containers	Analyses: PAH	Comments	Lab I.D.
9/13/11	1153	GP8-S-11.0	S	2	⊗	Hold	
	1225	GP9-S-9.5		1			
	1237	GP9-S-13.0					
	1310	GP10-S-8.0					
	1323	GP10-S-11.0					

Relinquished By: / Company:	Date	Time	Received By: / Company:	Relinquished By: / Company:	Date	Time
MEA	9/15/11	1000	Specialty	Specialty	9/15/11	1330

Unless Reclaimed, Samples Will Be Disposed of 60 Days After Receipt.
Samples held beyond 60 days subject to storage fee(s)

Received For Lab By: Nikki Bippus — Date 9/15/11 — Time 1330

Copies: White-Original Yellow-Project File Pink-Customer Copy

ATTACHMENT C

DATA VALIDATION MEMORANDUM

DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. 0380.02.01 | OCTOBER 15, 2011 | CITY OF WENATCHEE

This report reviews the analytical results for soil samples collected by the Maul Foster & Alongi, Inc., project team on the property located at 25 North Worthen Street in Wenatchee, Washington. The samples were collected in September 2011.

Specialty Analytical (SA) in Clackamas, Oregon performed the analyses. SA report number 1109110 was reviewed. The analyses performed are listed below.

Analysis	Reference
Polycyclic aromatic hydrocarbons	USEPA 8270 SIM

SIM = Selective Ion Monitoring
USEPA = U.S. Environmental Protection Agency.

DATA QUALIFICATIONS

Analytical results were evaluated according to applicable sections of U.S. Environmental Protection Agency (USEPA) procedures (USEPA, 2008), and appropriate laboratory and method-specific guidelines (SA, 2011; USEPA, 1986).

The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

HOLDING TIMES, PRESERVATION, AND SAMPLE STORAGE

Holding Times

Extractions and analyses were performed within the recommended holding time criteria, with a few minor exceptions. Because the samples were analyzed for compounds that are relatively stable in soil (i.e., semivolatile organic compounds), the minor hold-time exceedances did not require qualification of the data.

Preservation and Sample Storage

The samples were preserved and stored appropriately.

BLANKS

Method Blanks

Laboratory method blank analyses were performed at the required frequencies. Except for the NWTPH-Dx method blank associated with the water samples, no analytes were detected above the reporting limit. The contaminant in the NWTPH-Dx method blank is single

component in nature and does not appear in any of the associated samples. The reviewer took no further action.

Equipment Rinsate Blanks

Equipment rinsate blanks were not required for this sampling event, as all samples were collected using dedicated, single-use equipment.

SURROGATE RECOVERY RESULTS

The samples were spiked with surrogate compounds to evaluate laboratory performance on individual samples. All surrogate percent recoveries were within acceptance limits.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

Matrix spike and matrix spike duplicate (MS/MSD) results are used to evaluate laboratory precision and accuracy. All MS/MSD samples were extracted and analyzed at the required frequency. All recoveries were within acceptance limits for percent recovery and relative percent differences.

LABORATORY CONTROL SAMPLE RESULTS

A laboratory control sample (LCS) is spiked with target analytes to provide information on laboratory accuracy. The LCS sample was extracted and analyzed at the required frequency. All LCS analytes were within acceptance limits for percent recovery.

REPORTING LIMITS

SA used routine reporting limits for non-detect results, except for samples requiring dilutions because of high analyte concentrations and/or matrix interferences.

DATA PACKAGE

The data package was reviewed for transcription errors, omissions, and anomalies. None were found.

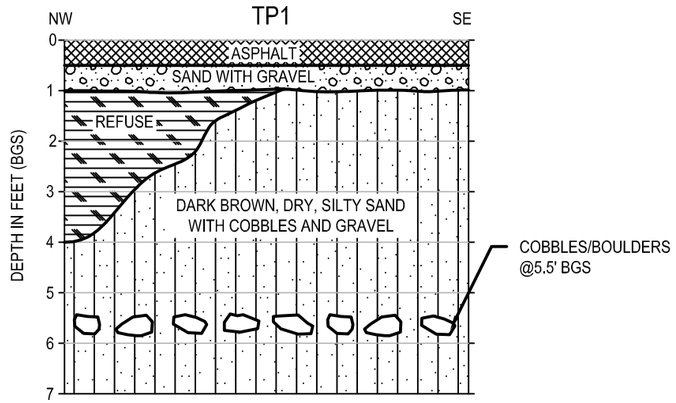
SA. 2011. Quality assurance manual. Specialty Analytical, Clackamas, Oregon.

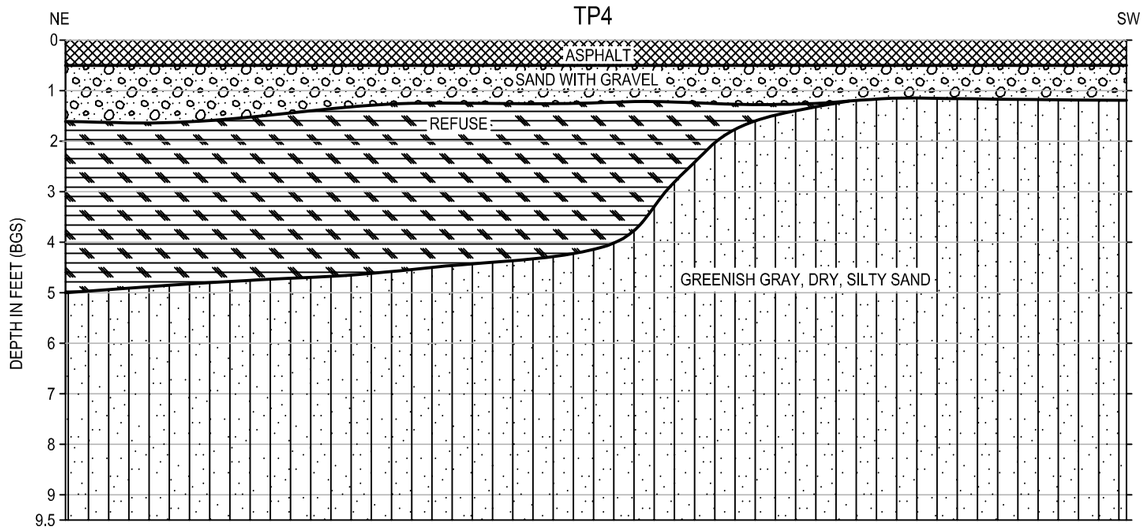
USEPA. 1986. Test methods for evaluating solid waste: physical/chemical methods. EPA 530/SW-846. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. September (Revision 6, February 2007).

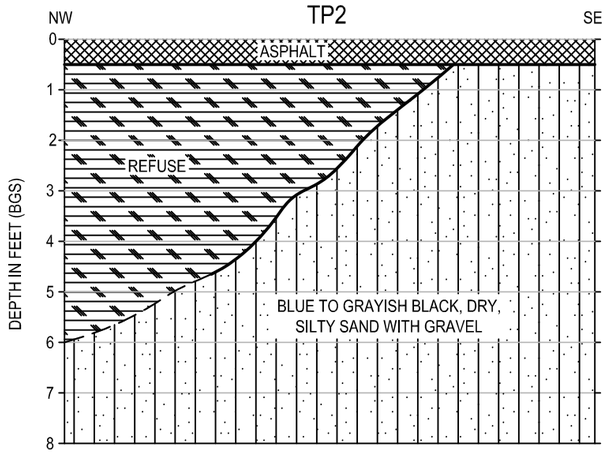
USEPA. 2008. USEPA contract laboratory program, national functional guidelines for organics data review. EPA 540/R-08/01. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. June.

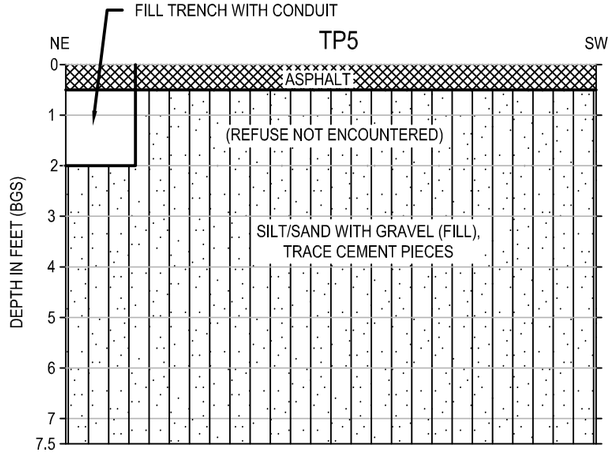
ATTACHMENT D

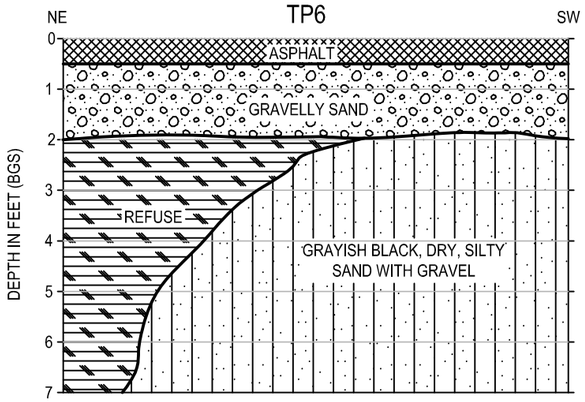
TEST PIT PROFILES

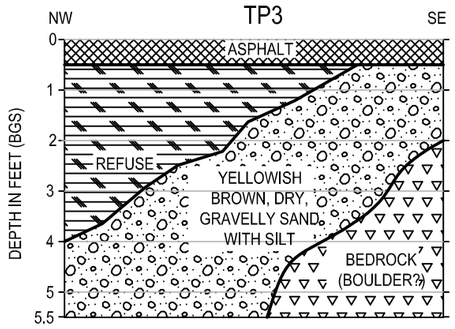












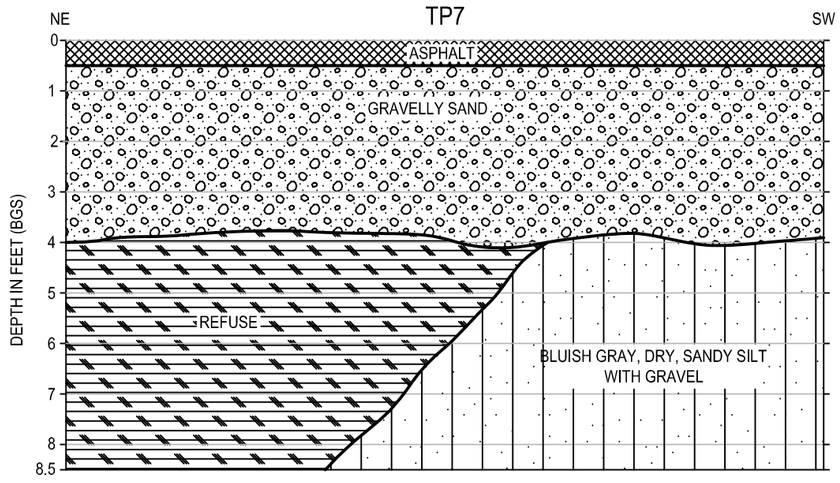


Figure
Test Pit Profiles

City of Wenatchee
Wenatchee, Washington

GEOLOGIST: K. ROSLUND
DATE: 9/14/2011
EXCAVATOR: CATERPILLAR 308B
OPERATOR: RAM CONSTRUCTION-L. IVCEVIC

LEGEND:
TP TEST PIT
BGS BELOW GROUND SURFACE

0 3 6
FEET

MAUL FOSTER ALONGI

Layout: 1 Project: 0380.02.01 Drawn By: J. Fisher Approved By: K. Roslund

ATTACHMENT E

EXCAVATION COST ESTIMATES

Title: City of Wenatchee
Project: Landfill Integrated Redevelopment Plan
Alternative 2, Large Excavation Extent
Client: City of Wenatchee
Project #: 0380.02.01
Prepared By: Connor Lamb, EIT
Checked By: Ted Wall, PE
Date: 12/6/2011

MAUL FOSTER ALONGI

2001 NW 19th Avenue, Suite 200
Portland, OR 97209
971.544.2139 (p)
971.544.2140 (f)
www.maulfoster.com

Remedy Components

1 Excavation of PAH exceedance soils in area of old UST.
2 Soil disposal of contaminated material at a Subtitle D Landfill.
3 Backfill of excavated material to be composed of structural fill.

Primary Assumptions

1 Mobilization is assumed to be 5% of construction cost.
2 Excavation extent assumed to be 80-ft x 185-ft x 14 feet deep
3 Use of the Subtitle D landfill in Wenatchee, WA is assumed.
4 Transport to landfill to be completed by the City of Wenatchee

	Remedial Action Component	Units	No. of Units	Unit Cost	Cost	Total Cost
	Stabilized Entrance	EA	1	$1,500.00	$1,500	
	Sediment Fence	LF	200	$1.5	$306	
	Concrete Demo	CY	26	$198.5	$5,146	
	Paving Demo	SY	1271	$9.3	$11,756	
	Excavation	CY	7,674	$5.5	$42,131	
	Loading onto Trucks	CY	7,674	$5.9	$45,652	
	Transport (Wenatchee Municipal)	TON	12,279	$0.0	$0	
	Off-site Disposal	TON	12,279			
100%	%Solid waste (Subtitle D)	TON	12,279	$56.0	$687,597	
0%	%Hazardous Waste	TON	0	$187.5	$0	
	Backfill - New Material	CY	7,674	$18.88	$144,887	
	Sampling and Analytical	LS	1	$1,000.00	$1,000	
						$939,974
Additional construction items						
	Mobilization	LS		5%	$47,000	
CONSTRUCTION SUBTOTAL						*$986,974*
Professional Services:						
	Remedy, ROD, Consent Judgment Negotiations	LS			$5,000	
	Work Plan, HASP, SAP, Plans & Specs, Bid Support	LS			$10,000	
	Construction Oversite	LS			$10,000	
	Reporting	LS			$5,000	
	Waste Profiling	LS			$1,000	
PROFESSIONAL SERVICES SUBTOTAL						$31,000
Contingency				20%		$203,394.81
REMEDIAL ACTION ESTIMATED TOTAL (rounded to nearest $1,000)						**$1,220,000**

Title: City of Wenatchee
Project: Landfill Integrated Redevelopment Plan
Alternative 1, Small Excavation Extent
Client: City of Wenatchee
Project #: 0380.02.01
Prepared By: Connor Lamb, EIT
Checked By: Ted Wall, PE
Date: 12/6/2011

MAUL FOSTER ALONGI

2001 NW 19th Avenue, Suite 200
Portland, OR 97209
971.544.2139 (p)
971.544.2140 (f)
www.maulfoster.com

Remedy Components

1. Excavation of PAH exceedance soils in area of old UST.
2. Soil disposal of contaminated material at a Subtitle D Landfill.
3. Backfill of excavated material to be composed of structural fill.

Primary Assumptions

1. Mobilization is assumed to be 5% of construction cost.
2. Excavation extent assumed only to encompass GP3, 4, 5, and 8.
3. Use of the Subtitle D landfill in Wenatchee, WA is assumed.
4. Transport to landfill to be completed by the City of Wenatchee

	Remedial Action Component	Units	No. of Units	Unit Cost	Cost	Total Cost
Construction:						
	Stabilized Entrance	EA	1	$1,500.00	$1,500	
	Sediment Fence	LF	200	$1.53	$306	
	Paving Demo	SY	1257	$9.25	$11,624	
	Excavation	CY	1,955	$5.49	$10,732	
	Loading onto Trucks	CY	1,955	$5.95	$11,629	
	Transport (Wenatchee Municipal)	TON	3,128	$0.00	$0	
	Off-site Disposal	TON	3,128			
100%	%Solid waste (Subtitle D)	TON	3,128	$56.00	$175,147	
0%	%Hazardous Waste	TON	0	$187.50	$0	
	Backfill - New Material	CY	1,955	$18.88	$36,906	
	Sampling and Analytical	LS	1	$1,000.00	$1,000	
						$248,844
Additional construction items						
	Mobilization	LS		5%	$12,440	
CONSTRUCTION SUBTOTAL						*$261,284*
Professional Services:						
	Remedy, ROD, Consent Judgment Negotiations	LS			$5,000	
	Work Plan, HASP, SAP, Plans & Specs, Bid Support	LS			$10,000	
	Construction Oversite	LS			$10,000	
	Reporting	LS			$5,000	
	Waste Profiling	LS			$1,000	
PROFESSIONAL SERVICES SUBTOTAL						$31,000
Contingency				20%		$58,456.72
REMEDIAL ACTION ESTIMATED TOTAL (rounded to nearest $1,000)						**$350,000**