02-K RECEIVED
MAR 14 2006

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
4601 N Monroe Street • Spokane, Washington 99205-1295 • (509)329-3400

March 10, 2006

Mr. Matt Blankenship
GeoEngineers, Inc.
523 E. Second Avenue
Spokane, WA 99202

Dear Mr. Blankenship:

Ecology has received your request to use contaminated soil as backfill in landscape areas at the Spokane Convention Center Expansion site. Laboratory results from soil samples collected from the stockpiled soil indicate concentrations of cPAHs exceed the cleanup levels. Based on these results, the contaminated soil should not be used in the landscape areas.

A letter from Dave Enos of GeoEngineers (September 24, 2004) was submitted to Ecology for review regarding landscaping at the site. The letter stated that only non-contaminated soil would be used in the proposed landscape areas. Other specifications regarding types of plants and irrigation systems were also included. Ecology agreed to the proposal in a letter dated September 29, 2004. These conditions are still required for the landscape areas.

Please call me at 329-3522 if you have any questions. Thank you.

Sincerely,

Patti Carter

Patti Carter
Toxics Cleanup Program

cc: Matt Walker

FILE COPY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
4601 N. Monroe Street • Spokane, Washington 99205-1295 • (509) 456-2926

329-3522

September 29, 2004

Mr. Dave Enos
Senior Environmental Geologist
GeoEngineers, Inc.
523 E. Second Avenue
Spokane, WA 99202

Dear Mr. Enos:

Ecology has received your proposal with the locations of landscape areas for the Spokane Convention Center Expansion site. Soil sample results in or near the areas marked indicate the presence of PAHs in the soil at sample location TP-C1 (north of the Doubletree) and lead at TP-F1 (west of the former Azteca). Additional sampling north of TP-C1 did not detect any contamination; results calculated with the fixed parameter three-phase partitioning model indicate that the PAH concentration in soil at that location is protective of groundwater. Although lead was detected in soil at TP-F1, TCLP analyses and calculations using the fixed parameter three-phase partitioning equation for lead indicate it is unlikely that lead will leach at concentrations exceeding the cleanup level.

The proposed landscape areas indicated on the map may be used for landscaping, with the specifications stated in your letter of September 24, 2004 regarding types of plants and irrigation systems. Please contact me at 329-3522 if you have any additional questions. Thank you.

Sincerely,

Patti Carter

Patti Carter
Toxics Cleanup Program

cc: Matt Walker

Current and Forcast PFD Exposure to Soil Issues

Estimated Tons of Soil Currently on Site		Total Off Haul Exposure	Unit Price for Off Haul (Contaminated)	Potential Off Haul Cost
1200		1200	$40.00	$48,000.00

Forecast Remaining to Excavate		Total Off Haul Exposure	Unit Price for Off Haul	Potential Screen Costs
417		417	$40.00	$16,680.00

Pool Excavation	Assume Contaminated Material of 470 Yds less rock (Converted to Tons)		Unit price for Contaminated Off-haul	
	674		$40.00	$26,960.00

Forecast Screening Yet to Complete 1/3 of pool ex (Tons)			Unit Price to Screen	Potential Screen Costs
234			$5.00	$1,170.00

Forecast Rock Off Haul 1/8 of screening (tons)			Unit Price for Rock Off Haul	Potential Rock Off Haul Costs
30			$15.00	$450.00

Concrete demo and off haul (tons)			Unit price average	
60			$33.00	$1,980.00

Clean Import Material				
None Forecast				$0.00

Backfill @ Pool Area (tons)			Unit price for Contaminated Off Haul	
310			($40.00)	($12,400.00)

Grade Change on Site	Potential grade revisons to accept an additional 250 yards. ESTIMATE ONLY			
375		375	($40.00)	($15,000.00)

Contingency line item of 10% $6,784.00

Total Potential Remaining Costs Related to Haz / Unforeseen **$74,624.00**

GeoEngineers

523 E. Second Avenue, Spokane, WA 99202, Telephone: (509) 363-3125, Fax: (509) 363-3126

www.geoengineers.com

MEMORANDUM

TO: Matt Walker – Spokane Public Facilities District

FROM: Matt Blankenship

DATE: February 21, 2006

FILE: 0110-047-07

SUBJECT: February 10, 2006 Soil Stockpile Sample Results

At the request of Don Bottom with Hoffman/Bouten, GeoEngineers collected one composite soil sample from the site of the Spokane Convention Center Expansion (CCX) project. The project site is located northwest of the intersection of Division Street and Spokane Falls Boulevard in Spokane, Washington.

Soil Sample (STK-S1) was collected from material excavated for an excavation located generally within a fenced enclosure between the Double Tree Hotel and Spokane Falls Boulevard. The soil sample collected consisted of a sand and gravel mixture and was placed in an eight ounce laboratory preserved jar and transported to Anatek Labs, Inc. under Chain of Custody. Don Bottom requested a standard, 10-day turnaround time for laboratory results. The intent of our sampling was to evaluate if the excavated soil was impacted with contaminants above the Washington State Department of Ecology Model Toxics Control Act (MTCA) Method A cleanup levels. Contaminants of concern and respective analytical methods that were utilized include:

- Diesel- and oil-range total petroleum hydrocarbons (TPH) using Northwest Method NWTPH-Dx.
- Metals using EPA Method 6000/7000 Series Methods. The target analyte metals list included arsenic, cadmium, lead, and mercury.
- Volatile organic compounds (VOCs) using EPA Method 8260B.
- Polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270M-SIM.

The results of the analyses indicated that benzo(a)pyrene was detected at 0.26 mg/kg (parts per million (ppm)) in STK-S1, which is above the MTCA Method A cleanup level of 0.1 ppm. Based on review of the remaining laboratory results, it appears that no other analyte was above the pre-described MTCA cleanup level. Based on the laboratory results, the soil stockpile from which our sample was collected is NOT suitable for reuse as structural fill and we recommend this soil be hauled off-site and properly disposed as previously recommended.

02-K

3/10/06
DOE rejected our request to spread extra soil in landscape areas.

GeoEngineers

September 24, 2004

Washington State Department of Ecology
Toxics Cleanup Program
4601 North Monroe Street
Spokane, Washington 99205

Attention: Patti Carter

Subject: Request for Opinion Letter
Convention Center Expansion Landscaped Areas
Spokane, Washington
File No. 0110-047-07

On behalf of the Spokane Public Facilities District (SPFD), we would like to request an opinion letter from the Washington State Department of Ecology (Ecology) through the existing VCP application regarding SPFD's planned landscaping of several areas at the Spokane Convention Center Expansion site. The current plan is to plant trees, ornamental shrubs, and turf grass to beautify entry and peripheral areas of the west portion of the site as shown on the attached figure. The total proposed landscaped area is approximately 21,000 square feet. Note that a portion of the landscape area, particularly the area immediately west of the existing C.I. Shenanigans building, will be underlain mostly by non-contaminated fill because a storm sewer utility will be placed at this location. Further, a portion of these areas are currently landscaped.

We sent you two emails on September 10 and 20, respectively, that included tables, figures, and laboratory reports describing the concentrations of contaminants of concern and approximate sample locations near the proposed landscape areas. This letter supplements those earlier communications.

The proposed use of these areas for landscaping is consistent with the site Cleanup Action Plan (CAP) and the intent of the Washington State Model Toxics Control Act (MTCA) for the following reasons:

1. Landscaped areas within SPFD's Convention Center Expansion site boundaries will be included in site institutional controls that will be in effect following implementation of the CAP. Six or more inches of non-contaminated topsoil will be placed over contaminated soil in areas that will be planted with turf grass and eight or more inches of soil will be placed over contaminated soil in areas where trees and shrubs will be planted. Institutional controls will limit access to soil beneath the topsoil. In addition, only non-contaminated backfill material will used in irrigation piping trenches. This will minimize potential human contact with contaminants of concern.
2. The concentrations of contaminants of concern in soil in the proposed landscaped areas, based on the available data, are protective of groundwater as predicted by the fixed parameter three-phase partitioning model described in MTCA, WAC 173-340-747, Equation 747-1. The concentration of lead in soil that is protective of the Method A Cleanup Level for Groundwater is calculated to be about 3,000 milligrams per kilogram (mg/kg). This exceeds the highest concentration of lead yet detected at the site. The benzo(a)pyrene (BaP) concentration in soil that is protective of Standard Method B Formula Values for Potable Groundwater (CLARC V3.1) is calculated to be about 0.233 mg/kg; the concentration of BaP in soil from a test pit nearest the landscaped areas

523 East Second Ave
Spokane, WA 99202
telephone 509.363.3125
facsimile 509.363.3126
website www.geoengineers.com

was 0.207. Note that the estimated BaP soil concentration protective of Method A Cleanup Levels for Groundwater is 1.09 mg/kg, approximately an order of magnitude greater than concentrations detected near the landscaped areas. Other site contaminants of concern are not suspected at concentrations exceeding Method A Cleanup Levels at proposed landscaped areas, based on existing soil sampling data. Worksheets showing lead and BaP fixed parameter three-phase partitioning model calculations are attached.

3. Low-flow irrigation systems will be used. The following systems will limit the amount of water used in landscaped areas:

   a. Turf grass will be irrigated using low-angle spray heads. This will limit over-spray and the amount of water used to meet grass irrigation demands.

   b. Irrigation timers will be used and set so that the amount of water used to irrigate grass areas will approximate the evapotranspiration rate of the downtown Spokane environment. This will limit the amount of water potentially migrating through contaminated soil.

   c. Sprinkler controls will have rain gauge sensors that will turn off the sprinkler system during periods of precipitation, further reducing the likelihood that over watering will occur.

   d. Trees and shrubs will be irrigated with low-flow drip-irrigation systems.

   e. Landscaping irrigation will only occur during the active growing season, generally between April and October.

4. A landscape maintenance plan will be prepared that will describe how irrigation schedules will be seasonally/climatically modified to match evapotranspiration rates with irrigation water application.

In our opinion, the potential aesthetic and environmental benefits of the landscaped areas and the overall site cleanup being performed by the SPFD outweighs the minimal risk to human health and the environment posed by potential leaching of contaminants. The SPFD requests concurrence by Ecology that the intended landscape plan does not significantly increase the threat to human health and the environment at these locations.

Please do not hesitate to call if you have questions regarding this letter.

Respectfully submitted,

GeoEngineers, Inc.

R. David Enos, LG, LEG
Senior Geologist

for

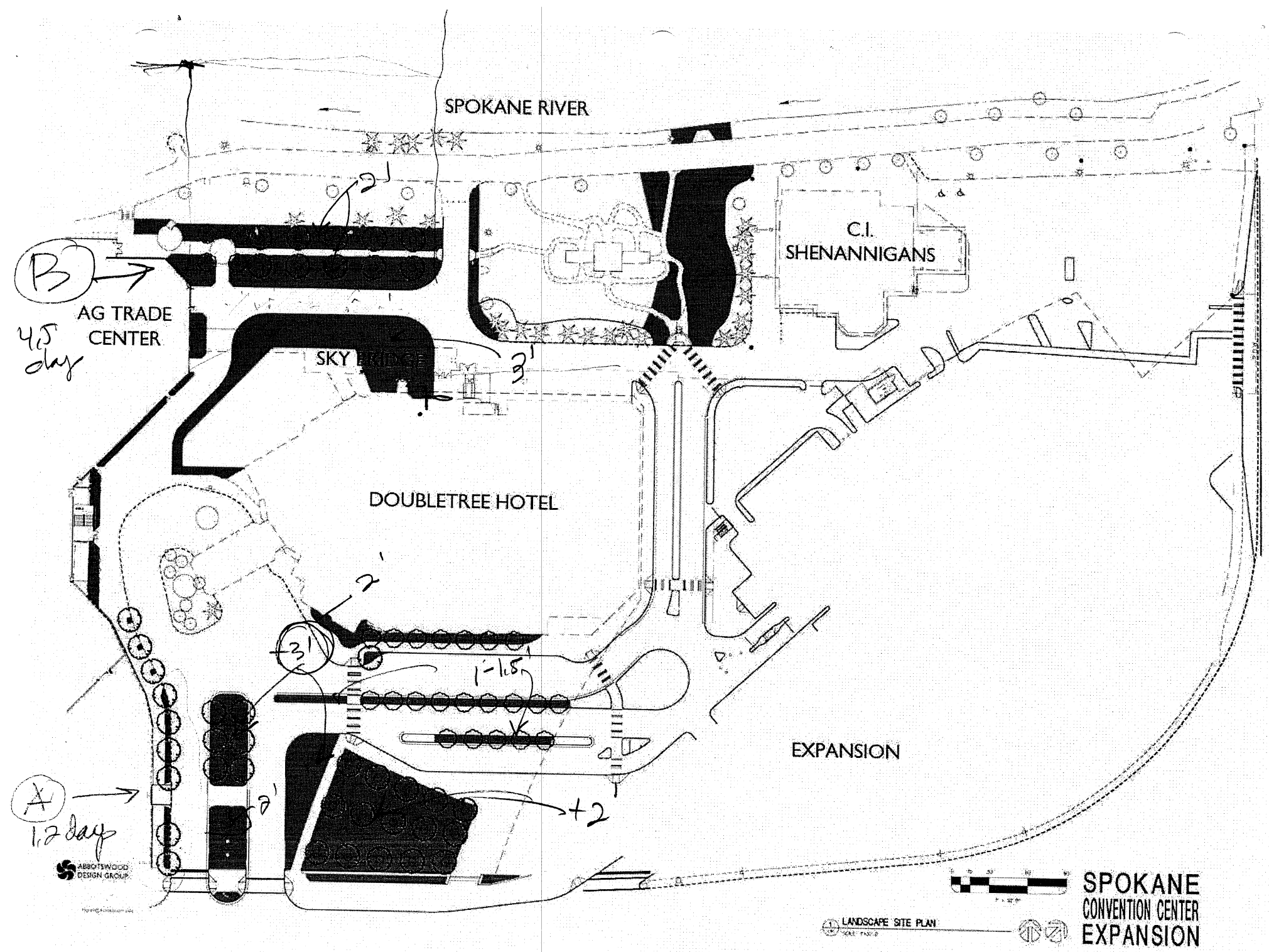
Bruce D. Williams
Principal

RDE: BDW: tlm
DocID: Spok: P:\00\0110047\07\Working\011004707ecy.doc

cc: Matt Walker, Spokane Public Facilities District
William Ogram, Abbottswood Design Group, Inc

Attachments

Spokane Convention Center Expansion Landscaped Areas
Lead in Unsaturated Soil
Benzo(a)Pyrene in Unsaturated Soil


SPOKANE RIVER
C.I.
SHENANNIGANS
B
AG TRADE
CENTER
4.5
day
SKY BRIDGE
DOUBLETREE HOTEL
EXPANSION
A
1,2 day
ABBOTSWOOD
DESIGN GROUP
LANDSCAPE SITE PLAN
SPOKANE
CONVENTION CENTER
EXPANSION

Lead in Unsaturated Soil

Equation 747-1 Fixed Parameter 3-Phase Partitioning Model

$$C_s = C_w\,(UCF)\,DF\left[K_d + \frac{(\Theta_w + \Theta_a H_{cc})}{P_b}\right]$$

	Value	Units	Comments
C_w =	15	ug/L	Method A Cleanup Level for Groundwater
C_s =	**3,000.039**	**mg/kg**	**Calculated**
UCF =	0.001	mg/ug	Equation 747-1 notes
DF =	20.0	n/a	Equation 747-1 notes
K_d =	10,000	L/kg	Table 747-3
Θ_w =	0.3	n/a	Equation 747-1 notes
Θ_a =	0.13	n/a	Equation 747-1 notes
H_{cc} =	0	n/a	WAC 173-340-747 (4)(d)
P_b =	1.5	kg/L	Equation 747-1 notes

Notes

ug = micrograms
L = liters
mg = milligrams
kg = kilograms

Benzo(a)Pyrene in Unsaturated Soil
Equation 747-1 Fixed Parameter 3-Phase Partitioning Model

$$C_s = C_w\,(UCF)\,DF\left[K_d + \frac{(\Theta_w + \Theta_a H_{cc})}{P_b}\right]$$

	Value	Units	Comments
C_w =	0.012	ug/L	CLARC Method B Potable Groundwater
C_s =	**0.233**	**mg/kg**	**Calculated**
UCF =	0.001	mg/ug	Equation 747-1 notes
DF =	20.0	n/a	Equation 747-1 notes
K_d =	969	L/kg	Calculated, Koc x foc
Θ_w =	0.3	n/a	Equation 747-1 notes
Θ_a =	0.13	n/a	Equation 747-1 notes
H_{cc} =	0.0000463	n/a	CLARC, 11/01
P_b =	1.5	kg/L	Equation 747-1 notes
K_{oc} =	968774		CLARC, 11/01
f_{oc} =	0.001	g/g	Equation 747-2 notes

Notes
ug = micrograms
L = liters
mg = milligrams
kg = kilograms