

RZA AGRA, Inc.

Engineering & Environmental Services

29 September 1993

Blackstock Properties Limited
P.O. Box 9405
Seattle, Washington 98109

Attention: Mr. Jim Blackstock

Subject: Quarterly Groundwater Monitoring Status Report
Former Blackstock Lumber Property
601 Elliott Avenue West
Seattle, Washington

Dear Mr. Blackstock:

RZA AGRA, Inc. (RZA AGRA) is pleased to present this report documenting our quarterly groundwater monitoring activities performed at the above referenced site during September 1993 (see Figure 1, Vicinity Map). The report includes a description of field activities performed, the results of analytical testing of groundwater samples, and our conclusions and recommendations based upon the available data. The report also includes the analytical test results from previous sampling events on site, which took place in January, March, and June of this year.

Introduction

In July of 1991, Northwest EnviroService, Inc. excavated and removed five underground storage tanks (USTs) at this site. Soil sampling and site assessment services were provided by Earth Consultants, Inc. (ECI). The tanks ranged in capacity from 300 gallons to 10,000 gallons and contained various petroleum products including gasoline, diesel, and heating oil. Petroleum contamination was discovered in soils near a UST which was utilized to store Bunker "C" heating oil. A portion of the contaminated soil (above the water table) was excavated and placed in a stockpile. Petroleum contamination discovered beneath a historical building foundation during excavation was left in place by ECI for possible removal at a later date. Petroleum hydrocarbon concentrations detected in the site soils ranged from 150 parts per million (ppm) to 8600 ppm.

LAST INC # 1930
Blackstock Lumber
King Co

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DEPT. OF ECOLOGY

11335 NE 122nd Way
Suite 100
Kirkland, WA 98034 6918
(206) 820-4669
FAX (206) 821-3914

W-8424-1

DEPARTMENT OF ECOLOGY NWRO/TCP TANKS UNIT	
INTERIM CLEANUP REPORT	<input type="checkbox"/>
SITE CHARACTERIZATION	<input type="checkbox"/>
FINAL CLEANUP REPORT	<input type="checkbox"/>
OTHER <u>Monitoring data</u>	<input type="checkbox"/>
AFFECTED MEDIA: SOIL	<input checked="" type="checkbox"/>
OTHER _____ GW	<input type="checkbox"/>
INSPECTOR (INIT.) <u>[Signature]</u> DATE <u>10-13-93</u>	<input type="checkbox"/>

RECEIVED

OCT 12 1993

DEPT. OF ECOLOGY

<input type="checkbox"/>	INSPECTOR (INIT.)	DATE
<input type="checkbox"/>	OTHER	GW
<input type="checkbox"/>	AFFECTED MEDIA:	SOIL
<input type="checkbox"/>	OTHER	
<input type="checkbox"/>	FINAL CLEANUP REPORT	
<input type="checkbox"/>	SITE CHARACTERIZATION	
<input type="checkbox"/>	INTERIM CLEANUP REPORT	
<input type="checkbox"/>	INWRO/CTP TANKS UNIT	
<input type="checkbox"/>	DEPARTMENT OF ECOLOGY	

Independent Action Report Update

Site Name: Blackstock Lumber

Inc. #: 1456 Date of Report: 9-29-93

County: Kinn Date Report Rec'd: 10-12-93

Reviewed by: J. Hickey

Comments (please include: free prod., tank info., media, contaminant migration, GW conc. trends, PCS treated/fate?):

Consultant recommends continued
monitoring, as do I; although the
levels are now below cleanup, we
know there is still soil contamina-
tion. It is heavy 'bunker c', so
relatively immobile. Any final
review should take into account all
PCS left, which includes the PCS
left under the "historical" building
foundation found by EC I (see p. 1,
second to last sentence, this report).

During October of 1991, two groundwater monitoring wells were installed at the site under the direction of ECI, in order to assess the condition of groundwater near the historical location of three underground storage tanks. No petroleum contamination was detected in the groundwater at these locations.

RZA AGRA began work at this site in July of 1992. Our initial work consisted of separating petroleum-impacted soil stockpiled on site from "clean" soil in the stockpile. Soil impacted by petroleum at levels above the Model Toxics Control Act (MTCA) Method A cleanup action level was hauled to the Regional Disposal Company Transfer Station on 3rd Avenue in Seattle for transport to Rabanco's Regional Landfill in Roosevelt, Washington.

In December of 1992, RZA AGRA conducted a subsurface exploration program to evaluate the soil and groundwater conditions in the immediate vicinity of the Bunker C contamination discovered during previous site assessment work. The exploration program consisted of backfilling the open excavation on site and then advancing eight soil borings in or near the area where petroleum hydrocarbons were previously discovered. The borings ranged in depth from 11.5 feet to 16.5 feet. Three borings were completed as groundwater monitoring wells which are being utilized to gather data on the physical and chemical parameters of the local groundwater. The locations of borings and monitoring wells are shown on the Site and Exploration Plan, Figure 2.

Groundwater Monitoring Procedures

Fluid level measurements were performed in each monitoring well using an interface probe which measures the thickness of liquid petroleum hydrocarbons (LPH), if present, and depth to groundwater relative to the top of casing (TOC) elevations for the wells. TOC elevations, and thus groundwater elevations, are based on an arbitrary datum of 100.00 feet established at the southwest corner of the stormwater catch basin in proximity to the groundwater monitoring wells. A summary of fluid levels measurements is presented in Table 1, attached. This table contains all fluid level data collected to date. It should be noted that the top of casing elevations for the monitoring wells were reset during the June monitoring event in order to include monitoring well EC-1, which previously could not be located.

Based upon the most recent water level data, the estimated direction of groundwater flow is generally south toward Elliott Bay. The Burlington Northern railroad tracks, which are adjacent to the site on the southwest, form a natural conduit which redirects groundwater southeast along the rail line. This is a typical occurrence since railroad tracks are often constructed on a deep base of very porous, quarry spall type material. The

estimated groundwater flow direction is based upon simplified assumptions and limited data and should be considered as a generalized estimate only. This estimate may be significantly affected by factors such as changes in site use, subsurface anomalies, and seasonal variations in precipitation.

All three of the RZA AGRA groundwater monitoring wells were purged and sampled during the March monitoring event. Approximately four gallons of water was purged from each well utilizing a small capacity Honda pump. Following purging of the wells an RZA AGRA field representative used a disposable bailer to obtain a discrete, representative sample of the groundwater present in the well. No apparent signs of petroleum contamination were noted in the groundwater during sampling (petroleum odor or discoloration). The samples collected were carefully decanted into laboratory prepared, glass containers; labelled; and, placed in a chilled cooler for transport to Friedman Bruya Inc. (FBI) in Seattle, Washington. FBI analyzed all groundwater samples for total petroleum hydrocarbons utilizing the Washington Department of Ecology (Ecology) W418.1 analytical method.

Analytical results indicate that none of the samples contained detectable levels of petroleum hydrocarbons. It should be noted that the level of petroleum hydrocarbons detected in MW-2 has declined from 760 ppb during the March monitoring event and 270 ppb during the June monitoring event. Table 2 presents a summary of analytical results for groundwater testing performed during the September sampling event at the site, as well as all previous sampling events.

Conclusions and Recommendations

Although previous water samples collected from MW-2 have contained detectable petroleum hydrocarbons, the concentrations quantified have always been below the MTCA Method A cleanup action level. Initial groundwater analysis did not reveal any detectable petroleum hydrocarbons in the water from this well; however, the March sampling event detected petroleum hydrocarbons at a concentration of 760 ppb, and the June sampling event revealed that the concentration had declined to 270 ppb. No petroleum hydrocarbons were detected in the water sample collected from MW-2 in September. Since this well is located near the estimated center of the petroleum contaminated soil remaining in the subsurface at this site, it is not unexpected that some petroleum impact would be observed following disturbance of the subsurface soils during drilling. The impact observed has been minimal and continued monitoring will likely provide data supporting conditional site closure within Ecology guidelines.

We appreciate the opportunity to be of continued service to Blackstock Properties, Ltd. If you have any questions regarding this report, or any other aspect of this project, please do not hesitate to contact us at your earliest convenience.

Respectfully submitted,
RZA AGRA, Inc.



Carol A. Hutley, P.E.

Project Environmental Engineer

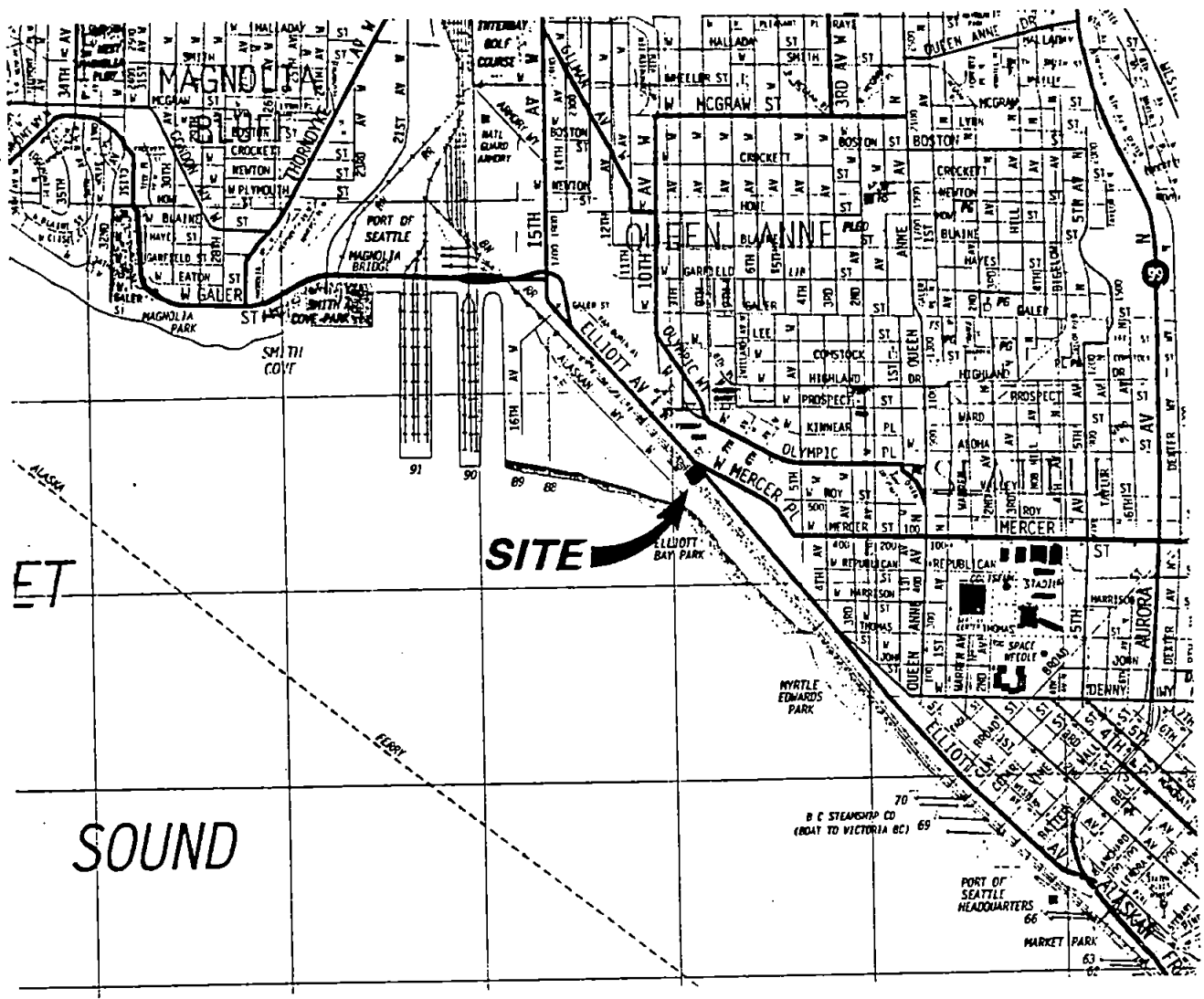


Steven M. Marczewski, P.E.

Senior Project Manager

CAH/SSM/lad

Attachments: Figure 1 - Vicinity Map
Figure 2 - Site and Exploration Plan
Figure 3 - Groundwater Surface Elevation Contour Map
Table 1 - Summary of Fluid Level Data
Table 2 - Summary of Analytical Results
Laboratory Report and Chain-of-Custody Record



RZA-AGRA

ENGINEERING & ENVIRONMENTAL SERVICES

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 Suite 100
 Kirkland, Washington
 98034-6918

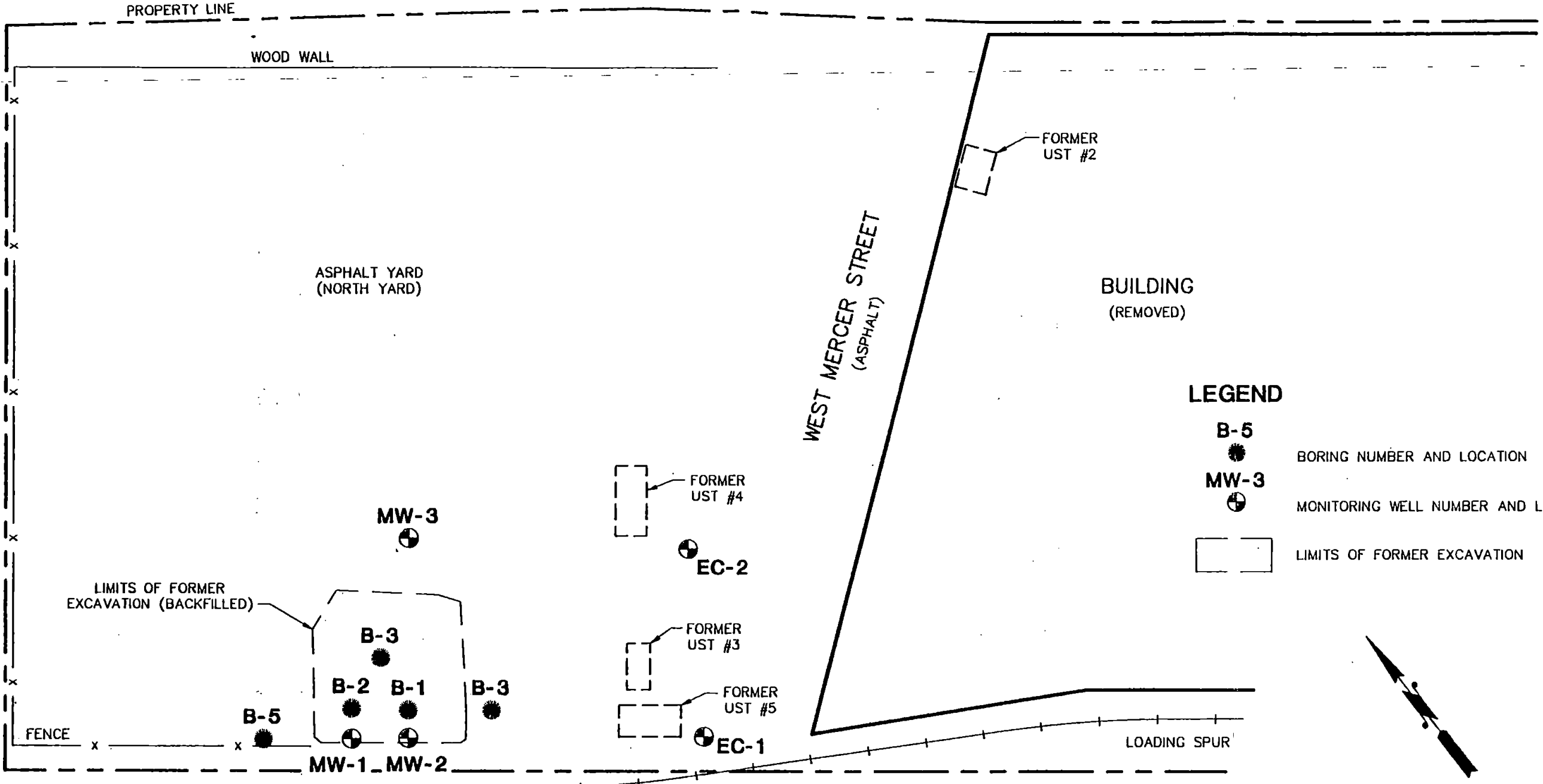
W.O.	W-8424-1
DESIGN	CAH
DRAWN	MJF
DATE	FEB 1993
SCALE	N.T.S.

BLACKSTOCK PROPERTIES LTD.
SEATTLE, WASHINGTON



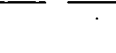
LOCATION MAP

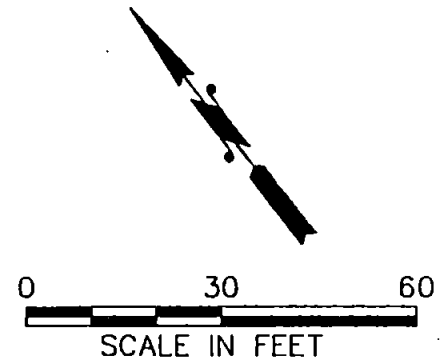
FIGURE 1

ELLIOTT AVENUE WEST



LEGEND

- B-5**  BORING NUMBER AND LOCATION
- MW-3**  MONITORING WELL NUMBER AND LOCATION
-  LIMITS OF FORMER EXCAVATION



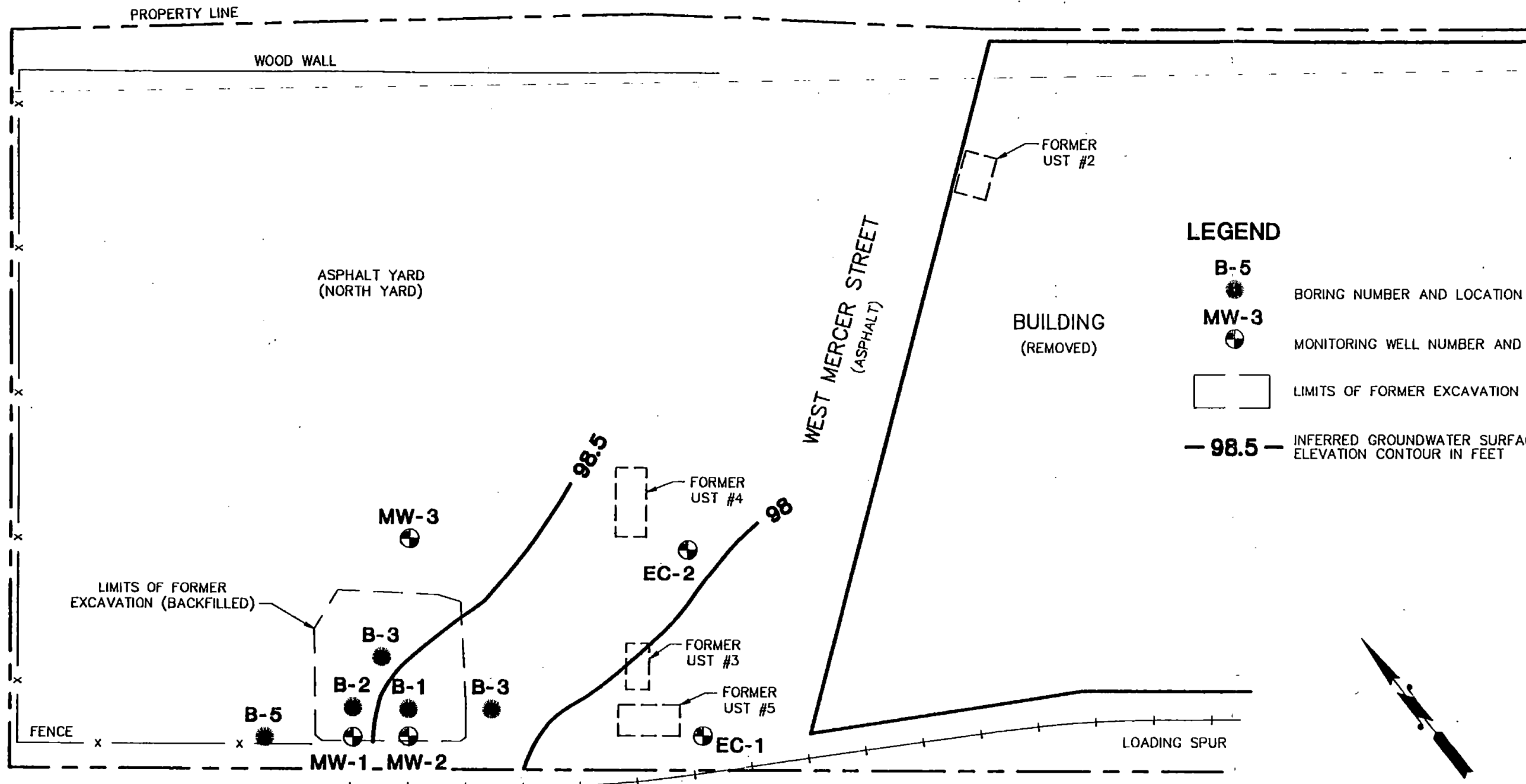
BURLINGTON NORTHERN RAILROAD LINES (NOT SHOWN)

RZA AGRA, INC.
Engineering & Environmental Services
 11335 N.E. 122nd Way
 Suite 100
 Kirkland, Washington 98034-6918

W.O. W-8424-1
 DESIGN CAH
 DRAWN MJF
 DATE JUL 1993
 SCALE 1"=30'

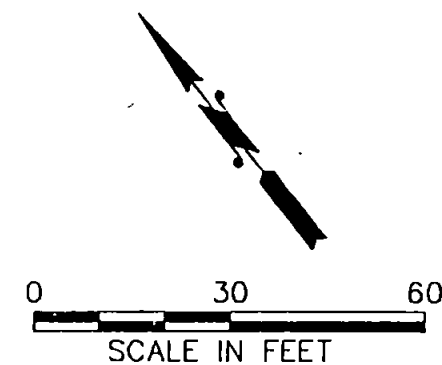
BLACKSTOCK PROPERTIES, LTD.
 SEATTLE, WASHINGTON
 SITE AND EXPLORATION PLAN
 FIGURE 2

ELLIOTT AVENUE WEST



LEGEND

- B-5** BORING NUMBER AND LOCATION
- MW-3** MONITORING WELL NUMBER AND LOCATION
- LIMITS OF FORMER EXCAVATION
- 98.5 -** INFERRED GROUNDWATER SURFACE ELEVATION CONTOUR IN FEET



BURLINGTON NORTHERN RAILROAD LINES
(NOT SHOWN)

RZA AGRA, INC.
Engineering & Environmental Services
11335 N.E. 122nd Way
Suite 100
Kirkland, Washington 98034-6918

W.O.	W-8424-1
DESIGN	CAH
DRAWN	MJF
DATE	JUL 1993
SCALE	1"=30'

BLACKSTOCK PROPERTIES, LTD.
SEATTLE, WASHINGTON
**GROUNDWATER SURFACE ELEVATION
CONTOUR MAP FOR JUNE 1993**
FIGURE 3

TABLE 1
Summary of Fluid Level Data
Blackstock Properties, Ltd.
Seattle, Washington
Project Number: W-8424-1

Date	MW-1 TOC: 101.1 100.9 ¹		MW-2 TOC: 100.9 101.0 ¹		MW-3 TOC: 100.9 100.9 ¹		ECI MW-1 TOC: 101.2 ¹		ECI MW-2 TOC: 101.2 101.7 ¹	
	Depth to Water	Groundwater Elevation	Depth to Water	Groundwater Elevation	Depth to Water	Groundwater Elevation	Depth to Water	Groundwater Elevation	Depth to Water	Groundwater Elevation
01-29-93	2.3	98.8	2.4	98.5	2.2	98.7	---	---	---	---
02-02-93	2.9	98.2	2.7	98.2	2.7	98.2	---	---	3.1	98.1
03-26-93	2.1	99.0	2.3	98.6	2.1	98.8	---	---	2.6	98.6
06-18-93	2.2	99.0	2.3	98.2	2.1	98.8	3.1	98.1	4.0	97.7
09-21-93	3.7	97.2	3.9	97.1	3.6	97.3	5.0	96.2	4.5	97.2

NOTES: 1. Top of Casing Elevations Reset 6-18-93 to Accommodate Field Location of EC-1
2. Data not obtained
3. ECI Wells were Installed by Earth Consultants, Inc.

TABLE 2
Summary of Analytical Results - Groundwater
Blackstock Properties, Ltd.
Seattle, Washington
Project Number: W-8424-1

Well Number	Date Sampled	TPH/W418.1 (ppb) ¹	Comments
MW-1	1-29-93	< 200	No Odor
	3-26-93	< 200	No Odor or Discoloration
	6-18-93	< 200	No Odor
	9-21-93	< 200	No Odor
MW-2	1-29-93	< 200	Slight Septic Odor
	3-26-93	700	No Odor or Discoloration
	6-18-93	270	Slight Septic Odor
	9-21-93	< 200	Slight Septic Odor
MW-3	1-29-93	< 200	No Odor
	3-26-93	< 200	No Odor or Discoloration
	6-18-93	< 200	No Odor
	9-21-93	< 200	No Odor
Trip Blank	1-29-92	< 200	Prepared by Lab
	3-26-93	< 200	Prepared by Lab
	6-18-93	NT ²	Not Provided
	9-21-93	< 200	Prepared by Lab

NOTES: 1. ppb = parts per billion
 2. NT = Not Tested

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3008-B 16th Avenue West
Seattle, WA 98119
FAX: (206) 283-5044

September 24, 1993

Carol Hutley, Project Manager
RZA - AGRA
11335 NE 122nd Way, Suite 100
Kirkland, WA 98034

Dear Ms Hutley:

Enclosed are the results from the testing of material submitted on September 21, 1993 from Project 11-08424-01, Black Stock Lumber.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,



Kelley Wilt
Chemist

KW/dp

Enclosures

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: September 24, 1993
Date Received: September 21, 1993
Project: 11-08424-01, Black Stock Lumber
Date Samples Extracted: September 22, 1993

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS
BY IR (METHOD 418.1)
(MODIFIED TO REPORT RESULTS AS DIESEL)
Samples Processed Using Method 3510
Results Reported as mg/L (ppm)**

<u>Sample #</u>	<u>Total Petroleum Hydrocarbons</u>
MW 1	<0.2
MW 2	<0.2
MW 3	<0.2
Trip Blank	<0.2
 <u>Quality Assurance</u>	
Tap Water Blank	<0.2
Tap Water (Matrix Spike) % Recovery	95%
Tap Water (Matrix Spike Duplicate) % Recovery	92%
Spike Level	5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3008-B 16th Avenue West
Seattle, WA 98119
FAX: (206) 283-5044

DUPLICATE COPY

September 24, 1993

INVOICE # 93RZA0924-1

RZA - AGRA
11335 NE 122nd Way, Suite 100
Kirkland, WA 98034

RE: Project 11-08424-01, Black Stock Lumber: Results of testing requested by
Carol Hutley, Project Manager and submitted on September 21, 1993.

4 water samples analyzed for Total Petroleum Hydrocarbons by Method 418.1 @ \$50 per sample	<u>\$ 200.00</u>
Amount Due	\$ 200.00

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RZA AGRA, Inc.
Engineering & Environmental Services

DEPT. OF ECOLOGY
LETTER OF TRANSMITTAL

TO Mr. Joe Hickey
Washington Dept of Ecology

DATE	10/8/93	JOB NO.	8424-1
ATTENTION			
RE:			

WE ARE SENDING YOU Attached Under separate cover via _____ the following items:

- Shop drawings
 Prints
 Plans
 Samples
 Specifications
 Copy of letter
 Change order

COPIES	DATE	NO.	DESCRIPTION
1			Quarterly Rpt for Blackstock Property

THESE ARE TRANSMITTED as checked below:

- For approval
 Approved as submitted
 Resubmit _____ copies for approval
 For your use
 Approved as noted
 Submit _____ copies for distribution
 As requested
 Returned for corrections
 Return _____ corrected prints
 For review and comment

 FOR BIDS DUE _____ 19__ PRINTS RETURNED AFTER LOAN TO US

REMARKS _____

COPY TO _____

SIGNED Carl Hickey

RZA AGRA, Inc.

Engineering & Environmental Services
 11335 N.E. 122nd Way, Suite 100
 Kirkland, Washington 98034
 (206) 820-4669 FAX (206) 821-3914

Chain of Custody Record / Analysis Request

11508

Analysis Requested: (circle, check box or write preferred method in box)

Project Name: Black Stack Lumber Job No.: 11-08424-01

Project Manager: Carol Hulley Phone #: 206 320 4669

Sampler: Mark Johnston

RZA AGRA, Inc. Sample ID	Lab Samp ID	Date Collected	Time Collected	Matrix (S=soil, W=water,A=air)	# Containers/Preservation				CHILL	BTEX by EPA 8020 Soil / EPA 602 Water	WTPH-G	BTEX / WTPH-G	WTPH-HClD	WTPH-D	TPH by EPA 8015 Mod.	WTPH-418.1 Modified	TPH by EPA 418.1	LEAD EPA 6010 7420 7421 Soil Total / Dissolved EPA 7421 Water	TOTAL METALS	TCLP EPA 1311	PCB's EPA 8080 Soil EPA 608 Water	VOC's EPA 8010 8020 Soil EPA 601 602 Water	GC/MS EPA 8240 Volatiles	GC/MS EPA 8270 Semi-volatiles	Hold for Further Analysis	RUSH (see below)	
					40 ml VOA /	1 L Glass / AmS Dr	8 oz Glass /																				
MW 1	11/2/93	9-21-93	1405	W		1									X												
MW 2	11/2/93	9-21-93	1410	W		1									X												
MW 3	11/2/93	9-21-93	1420	W		1									X												
Trip Blank	11/2/93			W		1									X												

RELINQUISHED BY SAMPLER: Signature: <u>[Signature]</u> Printed Name: <u>Mark Johnston</u> Firm: <u>RZA AGRA</u> Date/Time: <u>9-21-93 1455</u>	RELINQUISHED BY: Signature: _____ Printed Name: _____ Firm: _____ Date/Time: _____	RELINQUISHED BY: Signature: _____ Printed Name: _____ Firm: _____ Date/Time: _____	LABORATORY: Total # Containers: _____ Condition of Containers? _____ Condition of Seals? _____	Special Handling Turnaround: <input type="checkbox"/> 8 hour <input type="checkbox"/> 24 hour <input type="checkbox"/> 5 business day <input type="checkbox"/> 10 business day <input type="checkbox"/> other _____ (#) business day
RECEIVED BY: Signature: <u>[Signature]</u> Printed Name: <u>[Signature]</u> Firm: <u>F&B, INC</u> Date/Time: <u>9-21-93 3:00 PM</u>	RECEIVED BY: Signature: _____ Printed Name: _____ Firm: _____ Date/Time: _____	RECEIVED BY: Signature: _____ Printed Name: _____ Firm: _____ Date/Time: _____	PURPOSE OF SAMPLING / COMMENTS: _____ _____	