PHASE II INVESTIGATION
OF CONTAMINATED SOILS AT THE
U S WEST SERVICE OPERATING CENTER
1709 AIRPORT WAY
SEATTLE, WA

Prepared For:

U S WEST Business Resources, Inc.
1600 Seventh Avenue, Room 1501
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Prepared By:

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December 1993

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ENVIRONMENTAL SCIENTISTS

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0004-19-02-01

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1. INTRODUCTION

This Phase II Investigation report documents the field activities, analytical results and conclusions from sampling petroleum-contaminated soils following the site assessment and removal of two underground storage tank (UST) systems at the U S WEST Service Operating Center (SOC) located at 1709 Airport Way, Seattle, Washington. The purpose of this investigation was to document the excavation, removal, and disposal of petroleum-contaminated soils encountered during the initial UST site assessment.

Work was performed in accordance with Boateng & Associates, Inc.'s (BOATENG) proposal dated March 17, 1993, and included the following tasks:

- Monitoring excavated soils for volatile organic vapors with a photoionization detector (PID);
- Collecting a soil sample from the Tank 1 excavation;
- Submitting the soil sample to an analytical laboratory for chemical analysis for petroleum hydrocarbons;
- Arranging for the transportation and disposal of petroleum-contaminated soils from Tank 1 and Tank 2 soil stockpiles; and
- Evaluating laboratory data and preparing this report.

The initial tank decommissioning and site assessment activities were conducted by BOATENG in May 1993 in accordance with the Washington State Department of Ecology's (ECOLOGY) *Guidance for Site Checks and Site Assessments for Underground Storage Tanks*, dated February 1991 and revised October 1992. This included removal of a 300-gallon used motor oil UST (Tank 1) and a 1,760-gallon heating oil UST (Tank 2). Tank removal activities were performed by Pemco, Inc. (PEMCO) of Federal Way, Washington. The Tank 1 excavation and soil

stockpile was located at the southwest corner of the building along the southern property line, and the Tank 2 excavation and soil stockpile was located near the northwest corner of the building. The initial site assessment and Phase II Investigation were performed by a BOATENG geologist registered with ECOLOGY to perform site assessments under Washington Administrative Code (WAC) 173-360-610.

2. SITE DESCRIPTION

The U S WEST Airport Way Service Operating Center is located at 1709 Airport Way, Seattle, Washington (Figure 2). The subject property is in an industrial area on the west side of Airport Way. The ground surface at the site is relatively flat with a gentle slope to the west. The adjoining building immediately to the south consists of a medical laboratory and business offices.

3. FIELD ACTIVITIES

On July 30, 1993, BOATENG revisited the site to monitor additional excavation of petroleum-contaminated soils from the Tank 1 excavation, observe the loading of petroleum-contaminated soils from the Tank 1 and Tank 2 soil stockpiles into a storage container for temporary on-site storage, and collect a representative soil sample for laboratory analysis.

3.1 Soil Excavation

Tank 2 was taken out of service in the early 1970s and abandoned in-place by filling with approximately 8 cubic yards of sand. During the recent removal and permanent closure of Tank 2, the sand and residual product were removed from the UST and stockpiled on site in a bermed, Visqueen-lined area. The cleaned and cut tank was disposed of off-site by PEMCO. In addition, approximately 6 cubic yards of soil containing petroleum hydrocarbons that were

excavated from immediately above Tank 2 were loaded into a 20 cubic yard storage container using a rubber-tired backhoe operated by a representative of PEMCO. In general, the shallow depth and localized area of contamination may be attributed to poor tank filling practices or a minor leak in tank piping. Tank 2 decommissioning and soil excavation was performed during the initial site assessment in May 1993.

Analytical results of soil sample T1-2, obtained from the south wall and base of the Tank 1 excavation, indicated the presence of heavier-than-diesel petroleum hydrocarbons above State clean-up levels; therefore, further excavation is required at this location. An additional 6 cubic yards of soil was removed from the south wall and base of the Tank 1 excavation on July 30, 1993. These soils were also loaded into a storage container for later disposal. Soils were disposed of at the Regional Disposal Company's landfill in Roosevelt, Washington. An invoice documenting the disposal of 20.12 tons of petroleum-contaminated soil is presented in Appendix A.

Subsurface and stockpile soils consisted of gray grading to brown, gravelly, sandy silt fill (disturbed glacial till) to a depth of approximately 7.5 feet. The native soil below the fill consisted of gray-brown medium sand with silt.

Soil removed during excavation and sampling activities for both Tank 1 and 2 tank cavities was field screened for the presence of volatile organic compounds (VOCs) using a portable photoionization detector (PID) equipped with an 11.7 electron-volt lamp and calibrated with 100 parts per million (ppm) isobutylene standard gas. VOC concentrations were estimated by holding the PID near the stockpiled soil surface and by placing soil samples in plastic bags and analyzing the vapor headspace within the bag with the PID. No hydrocarbon odors or visible signs of staining were noticed by BOATENG field personal in soils surrounding either tank, nor were any VOCs detected by the PID in these soils.

3.2 Sample Collection: Tank 1 Excavation

Subsequent to overexcavation, one discrete soil sample (T1-2A) was collected at a depth of approximately 7.5 feet near the base of the south wall of the Tank 1 cavity (Figure 1). This sample was obtained to evaluate the limits of the overexcavation for the presence of petroleum hydrocarbons. The sample was obtained by carefully excavating a backhoe bucket volume of soil from the subject sampling location. The sample was collected from the middle of the bucket using a decontaminated stainless steel spoon. The samples were immediately transferred to clean glass jars supplied by On-Site Environmental, Inc. (On-Site) of Redmond, Washington. Each sample jar was completely filled with soil to eliminate headspace and sealed with a Teflon-lined screw cap. The sample jar was then labeled and placed in a chilled cooler. Before collecting each sample, the sampling equipment was decontaminated with a laboratory-grade detergent (Liqui-Nox), rinsed with water, then rinsed a second time with a 1:1 solution of deionized water and methanol, then triple-rinsed with deionized water to reduce the possibility of cross-contamination between samples.

4. LABORATORY ANALYSIS AND RESULTS

Soil sample T1-2A was submitted to On-Site under chain-of-custody protocol for analysis of total heavier-than-diesel-range petroleum hydrocarbons by Washington State Method WTPH-D (418.1). Results of the laboratory analysis for Tank 1 is summarized in Table 1. Laboratory data sheets and chain-of-custody records are presented in Appendix B.

Soil sample T1-2, collected from the Tank 1 excavation during the May site assessment, contained heavier than diesel range petroleum hydrocarbons at a concentration of 220 mg/kg. Soil sample T1-2A, collected during this Phase II investigation from approximately the same

location as soil sample T1-2, contained less than the Method detection limit of 25 mg/kg of heavier-than-diesel-range petroleum hydrocarbons.

5. CONCLUSIONS

As presented in the UST Decommissioning Report dated July 1993, results of the laboratory analyses from sample T1-2 collected from the Tank 1 excavation, and two soil samples (SP2-1 and SP2-4) from the Tank 2 soil stockpiles contain petroleum hydrocarbons in concentrations exceeding the MTCA Method A Cleanup Level of 200 mg/kg (200 mg/kg and 970 mg/kg, respectively). Tables and a site map summarizing the results of the May 14 and May 17, 1993 soil sample analysis are presented in Appendix C. The disposal of petroleum-contaminated soils from the Tank 2 soil stockpiles and the additional excavation and disposal of in-place soils from the Tank 1 excavation is consistent with recommendations made in the UST Decommissioning report dated July 1993.

The laboratory analysis of the additional soil sample T1-2A obtained subsequent to overexcavation of the Tank 1 cavity indicates soils containing petroleum hydrocarbons have been removed and no further cleanup action is required.

6. STANDARD LIMITATIONS

The findings and conclusions documented in this report have been prepared for specific application to this project and have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with the terms and conditions set forth in BOATENG's work program dated March 17, 1993. No warranty, expressed or implied, is made. This report is for the exclusive use of U S WEST and their representatives.

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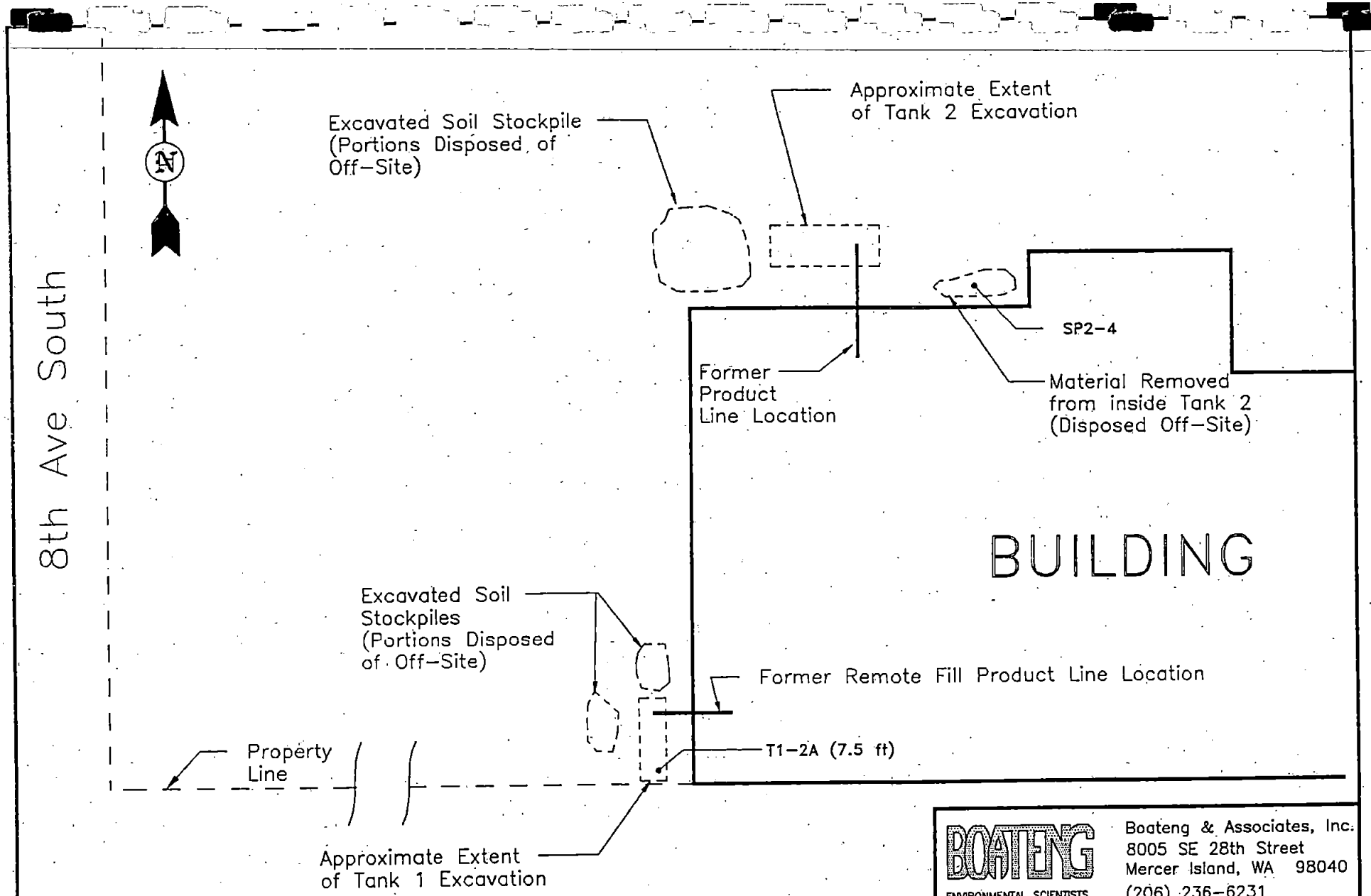
Conditions between sample locations may vary. A potential always remains for the presence of unknown, unidentified, or unforeseen subsurface contamination elsewhere in the site. Further evidence against such potential site contamination would require additional subsurface exploration and testing.

The data presented in this report should be considered representative of the time and specific area of our site observations. Changes in the conditions can occur over time. In addition, local, state and Federal regulations may be subject to change. Our observations and recommendations may need to be revised wholly or in part due to changes beyond our control.

Respectfully submitted,
BOATENG & ASSOCIATES, INC.

Allan S. Wahl, P.G.
Senior Geologist
Registration # G1454

Kwasi Boateng, P.G.
Principal Hydrogeologist



REF: John Paul Jones – Leonard W. Bindow, Architects, Drawing No. N-15919, 1952 (Rev. 1992).

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Figure 1

Site Detail,
US WEST, Airport Way SOC

Job No.: 0004-19-02-01 FN: 930111

REF: USGS 7.5 Minute Quadrangle, Seattle South, WA, 1983.

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Figure 2

Site Vicinity Map
US WEST,
Airport Way SOC

Job No.: 0004-19-01-01 CFN: 930504

TABLE 1

RESULTS OF SOIL SAMPLE ANALYSIS — TANK 1[1]
U S WEST AIRPORT WAY SOC
(Samples Collected July 30, 1993)

	Excavation Sample Identification	
	T1-2A	MTCA Cleanup Level[2]
Laboratory Data		
TPH heavier than diesel (mg/kg)[3]	(25)[4]	200

Notes:
1 Tank 1 = 300-gallon waste motor oil UST.
2 *Model Toxics Control Act* Cleanup Regulation (WAC 173-340-720[2][a][i]) Method A Soil Cleanup Level.
3 Total petroleum hydrocarbons by Washington State Method WTPH-418.1.
4 Numbers in ( ) indicate constituent not detected above the enclosed method detection limit.

APPENDIX A

SOIL DISPOSAL RECEIPT

RABANCO RECYCLING CO.
A DIVISION OF RABANCO COMPANIES
2733 3rd Avenue South
Seattle, Washington 98134
(206) 623-4080

TICKET NUMBER 173475

DATE: 09/05/93
TIME: 10:25:59

264 - BOATENG ASSOC 93-1529
NWES
TRUCK #: 177 A DYNO
PLACE: A SEATTLE
PRODUCT: PCS-Seattle (T/S)

GROSS LBS: 70320.00
TARE LBS: 30000.00
NET LBS: 40740.00
NET TONS: 20.37

GROSS WEIGHT ONLY

Recycled

SUMMARY OF LOADS HAULED
INVOICE #9308110

PAGE: 1

DATE	TICKET #	GROSS	TARE	NET	NET TONS	TRUCK #
08/05/93	173475	70,320	30,080	40,240	20.120	177
			Grand Total		20.120	

APPENDIX B

LABORATORY DATA SHEETS AND CHAIN-OF-CUSTODY FORMS FOR PHASE II INVESTIGATION

OnSite Environmental Inc.

August 19, 1993

Allan Wahl
Boateng & Associates
8005 SE 28th Street
Mercer Island, WA 98040

8/20/93

Dear Allan:

Enclosed are the results of the analyses of samples submitted on July 30, 1993 from Project Airport Way.

We appreciate this opportunity to be of service to you on this project. If you have any questions regarding this report, please feel free to call me.

Sincerely,

Karl P. Hornyik
Project Chemist

Enclosures

14924 NE 31st Circle • Redmond, WA 98052 • (206) 883-3881 • Fax (206) 885-4603

Date of Report: August 19, 1993
Samples Submitted: July 30, 1993
Lab Traveler: 07-057
Project: Airport Way

Matrix: Soil
Units: mg/Kg (ppm)
Date Extracted: August 2, 1993
Date Analyzed: August 2, 1993

WTPH 418.1

Sample Number	Dilution Factor	Total Petroleum Hydrocarbons
T1-2A	5	**<25**

QUALITY ASSURANCE

	Dilution Factor	Total Petroleum Hydrocarbons
Method Blank	5	<25
Sample: T1-2A	5	<25
Duplicate	5	<25
RPD		0%

Date of Report: August 19, 1993
Samples Submitted: July 30, 1993
Lab Traveler: 07-057
Project: Airport Way

Date Analyzed: August 2, 1993

RESULTS OF DRY WEIGHT

Sample Number	Moisture
T1-2A	9.0%

COMPANY [redacted] BOATENG & Assoc.

PROJECT #

PROJECT NAME Airport Way

MANAGER Allan Wahl

TRAVELER #

OnSite Environmental Inc.

2859 152nd Ave. NE, Redmond, WA 98052
Phone (206) 883-3881 Fax (206) 885-4603

QUESTED TURNAROUND? RUSH

07-057

Dash	Sample Number	Date	Type	# Jars	WTPH-HCID	WTPH-G/BTEX	WTPH-G	WTPH-D + BTEX	WTPH-418.1	PCB's	Metals	DRY WEIGHT	Comments
	T1-2A	30 July '93	Soil	1					✓				RUSH
	SP2-4A	↓	↓	↓				✓					HOLD
	SP1-4	↓	↓	↓					✓	✓	✓		HOLD

Submitted Allan Wahl Date 30 July '93 Received by [signature] Date 7-30-93

Firm BOATENG & Assoc Time 1456 Firm OSE Time 14:57

Submitted Date Received by Date

Firm Time Firm Time

APPENDIX C

TABLE 1 AND 2, AND FIGURE 1 FROM MAY 14 AND MAY 17, 1993

SITE ASSESSMENT REPORT

TABLE 1

RESULTS OF SOIL SAMPLE ANALYSIS — TANK 1[1]
US WEST AIRPORT WAY SOC
(Samples Collected May 17, 1993)

	Sample Identification							
	Excavation Samples				Stockpile Samples			
	T1-1	T1-2	T1-3	T1-4[2]	SP1-1	SP1-2	SP1-3	MTCA Cleanup Level[3]
Laboratory Data								
TPH heavier than diesel (mg/kg)[4]	(11)[5]	**220**	29	49	180	150	190	200

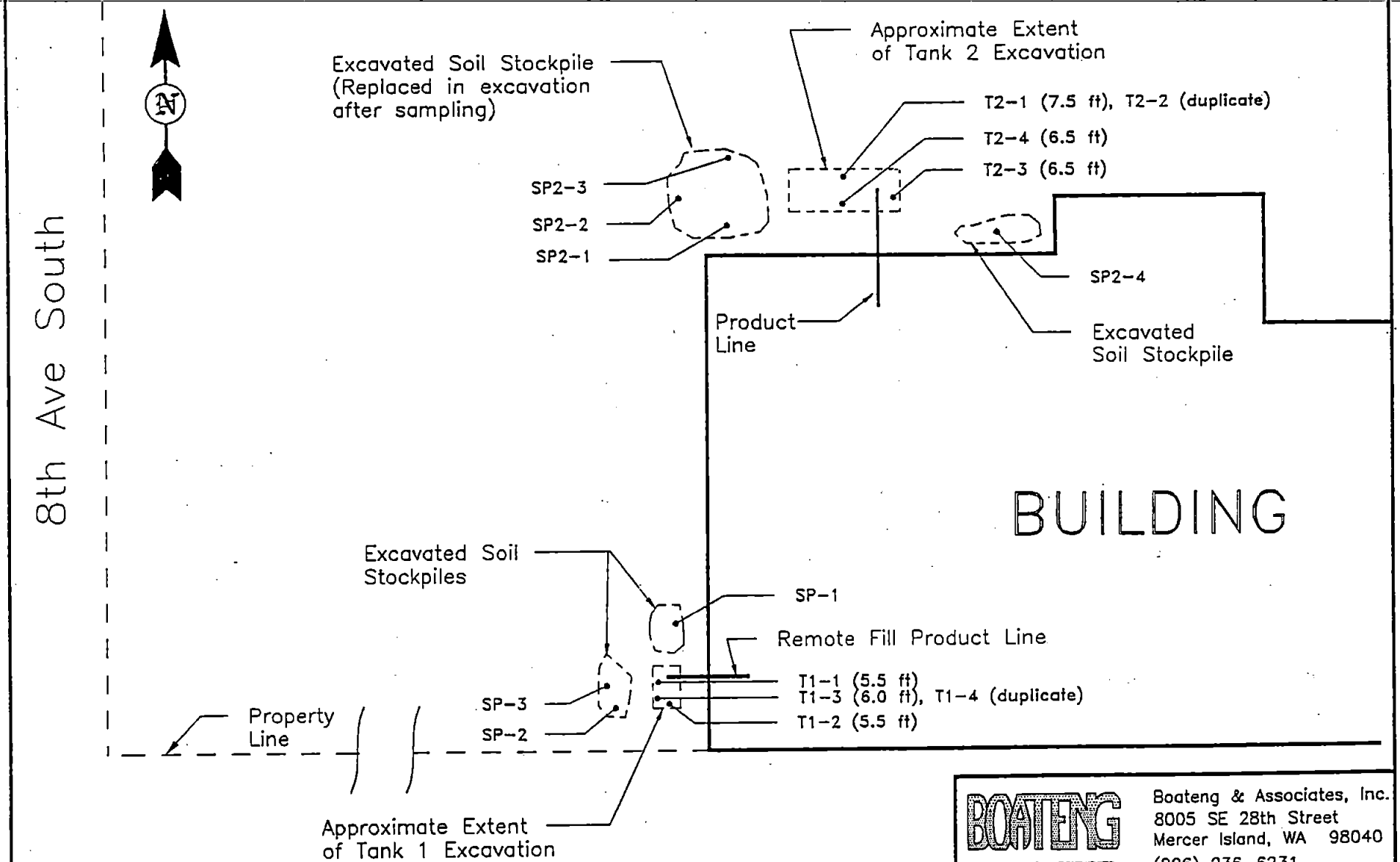
Notes:
1 Tank 1 = 300-gallon waste motor oil UST.
2 Duplicate soil sample collected from the T1-3 location labeled as "T1-4" in laboratory report and chain-of-custody forms.
3 *Model Toxics Control Act* Cleanup Regulation (WAC 173-340-720[2][a][i]) Method A Soil Cleanup Level.
4 Total petroleum hydrocarbons by Washington State Method WTPH-418.1.
5 Numbers in ( ) indicate constituent not detected above the enclosed method detection limit.
Numbers in bold indicate constituent concentrations greater than MTCA Method A Cleanup Level.

TABLE 2

RESULTS OF SOIL SAMPLE ANALYSIS — TANK 2[1]
US WEST AIRPORT WAY SOC
(Samples Collected May 14, 1993)

	Sample Identification								
	Excavation Samples				Stockpile Samples				
	T2-1	T2-2[2]	T2-3	T2-4	SP2-1	SP2-2	SP2-3	SP2-4	MTCA Cleanup Level[3]
Laboratory Data									
TPH as diesel (mg/kg)[4]	(5.0)[5]	(5.0)[5]	(5.0)[5]	36	**220**	87	12	**970**	200

Notes:
1 Tank 2 = 1,760-gallon heating fuel oil UST.
2 Duplicate soil sample collected from the T2-3 location labeled as "T2-4" in laboratory report and chain-of-custody forms.
3 *Model Toxics Control Act* Cleanup Regulation (WAC 173-340-720[2][a][i]) Method A Soil Cleanup Level.
4 Total petroleum hydrocarbons by Washington State Method WTPH-418.1.
5 Numbers in ( ) indicate constituent not detected above the enclosed method detection limit.
Numbers in bold indicate constituent concentrations greater than MTCA Method A Cleanup Level.



LEGEND

●—T2-1 Sampling Location

0 15 30 60

SCALE: (Feet)

REF: John Paul Jones – Leonard W. Bindow, Architects, Drawing No. N-15919, 1952 (Rev. 1992).

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Figure 1

Site Detail, US WEST, Airport Way SOC

Job No.: 0004-19-01-01 FN: 931104