TO:	Byron Haley - Moffatt & Nichol
FROM:	Grant Hainsworth – CRETE Consulting
PROJECT:	Thorne Road Off Dock Container Yard
SUBJECT:	Summary of Potential Areas of Soil and Groundwater Contamination
DATE:	February 25, 2020
CC:	Norm Gilbert, Mark Rettmann, Scott Hooton - Port of Tacoma

This memorandum provides a summary of environmental conditions and associated constraints that are present in the area of the Thorne Road Off Dock Container Yard project. The project site includes three parcels that will be discussed individually. Numerous documents were reviewed that summarized historical investigation and cleanup activities that occurred at the parcels between about 1988 and 2007. Key summary documents are identified in the discussion for each parcel. Copies of key figures, tables, and other documentation identified in the memorandum are attached as Reference Documents.

A Waste Disposal Authorization (WDA) Application was submitted to the Tacoma-Pierce County Health Department (TPCHD) by the Port of Tacoma (Port) on February 17, 2011 that identified general excavation and disposal areas on each of the three parcels that would occur during the joint demolition contract for the three parcels (Port Construction Contract No. 069256). The estimated removal volumes were 650 cubic yards (cy) for Parcel 72, 200 cy for Parcel 85, and 350 cy for Parcel 87. The WDA No. 1468 was issued by TPCHD on March 21, 2011 for disposal of 2,400 tons of contaminated soil during the 2011 demolition project for the three parcels. Port Purchase Order 48632 dated March 18, 2011 indicates that 1,750 tons were anticipated for disposal. A payment of $25,249.73 with check number 00183192 under the PO indicates that only about 950 tons of contaminated soil were disposed. Based on the tonnage, an estimated volume of 500 to 550 cy was excavated and disposed, about half of what was projected. There is no documentation available to determine which of the areas identified in the WDA Application were excavated and disposed.

1. Parcel 72 - 1702 Port of Tacoma Road

Parcel 72 received a No Further Action determination from Ecology in a letter dated August 20, 2007. The Ecology letter referenced the first two documents below but did not reference the third:

a. Independent Remedial Action Report North America Packaging Corporation 1702 Port of Tacoma Road Tacoma, Washington. AGI. July 22, 1997.
b. Phase 2 Environmental Assessment NAMPAC Facility 1702 Port of Tacoma Road Tacoma, Washington. Geotech Consultants. July 9, 1998.
c. Limited Site Investigation. Zipper Zeman Associates (ZZA). July 2, 2007.

Drawing Sheet C3 from the 2011 demolition project identifies: 1) contaminated soil excavation around a shed; and, 2) welding slag removal and disposal. The excavation around the shed coincides with the location of a soil sample identified as “Sample 4 Paint Locker Area” by GeoEngineers (1988) and as

"Paint Storage Shed" by AGI. This sample had detected concentrations of ethylbenzene, toluene, and xylenes and concentrations of methylene chloride (0.6 mg/kg) and tetrachloroethene (0.088 mg/kg) that exceed the current MTCA Method A Cleanup Levels of 0.02 and 0.05 mg/kg, respectively. However, the excavation did not address the soil sample collected from MW-1 at 2 feet below grade. This sample had a detected concentration of 1,1,1-trichloroethane and concentrations of ethylbenzene (62 mg/kg), toluene (430 mg/kg), xylenes (630 mg/kg), and methylene chloride (0.41 mg/kg) that exceed the current MTCA Method A Cleanup standards of 6, 7, 9, and 0.02 mg/kg, respectively. In MW-3 (same location as MW-1 soil sample noted above), toluene, xylenes, and tetrachloroethene were detected below MTCA Method A Cleanup Levels in groundwater in 1996.

In support of the NFA request, AGI collected soil and groundwater samples and was unable to replicate the above detections and exceedances.

The AGI 1997 report identified two sample locations that exceed the current MTCA Method A Unrestricted Cleanup level for lead in the paint waste storage area (C-1 with 270 mg/kg at 18 inches and C-3 with 400 mg/kg on the surface). The 1998 Phase 2 identified welding slag that had been used in the parking area north of the building. The report estimated 60,000 square feet that was covered with 6 inches of slag (1,100 cy). There is no documentation that this material was removed; it does not designate as a Dangerous Waste and should be handled as a solid waste. A groundwater sample collected from MW-7 during the Phase 2 had a detected WTPH-Dx result of 0.84 mg/L, slightly above the current MTCA Method A Cleanup Level of 0.5 mg/L. The borehole log identified "wood fragments" and the analytical report noted that the chromatogram did not match the fuel standard, suggesting that the result could be due to organic acid interference. A groundwater sample collected from MW-8 during the Phase 2 had arsenic and selenium concentrations above the current MTCA Method A and B Cleanup Levels, respectively. The ZZA 2007 document identified one location with TPH-Oil that exceeded the MTCA Method A Cleanup Level (2,920 mg/kg at B9-6").

Based on these data, the following areas are identified on Figure 1 that have potential contamination remaining in soil and groundwater:

- Paint waste storage area has potential soil and groundwater contamination, including ethylbenzene, toluene, xylenes, methylene chloride, and tetrachloroethene.
- Welding slag may be present in the parking area north of the former building.

As with any project, soil and groundwater contamination may be uncovered during grading and excavation activities and any suspected contamination should be reported to the Port.

2. Parcel 85 – 1451 Thorne Road

Parcel 85 environmental conditions were summarized in the following reports:

a. Phase I Environmental Site Assessment 1451 Thorne Road Tacoma, Washington. Aspect Consulting. February 2, 2006

b. Air Liquide Phase II Assessment. Aspect Consulting. April 13, 2006.

These documents included a summary of site conditions, a review of previous investigations and cleanup, a Phase II investigation, and recommendations.

The documents identified shot blast waste exceeding MTCA Method A criteria for metals (cadmium, chromium, copper, and zinc) in concrete-lined trenches. The document also noted that the Seller (Air Liquide) would not allow groundwater sampling anywhere on the property nor soil sampling in the former UST areas. In addition, the Seller limited VOC soil sampling to three analytes (toluene, ethylbenzene, and total xylenes). Groundwater sampling in the toluene spill and septic tanks areas was recommended in the Phase I and may have been considered in the former UST areas, but was not performed due to Seller restrictions.

Two former 5,000 gallon USTs (Tank #1 contained gasoline or diesel while Tank #2 contained unleaded gasoline) were installed in 1968 and removed in 1990. The locations of these USTs were not provided in the available documentation. A TPCHD letter (March 6, 1990) indicates that the soil test results associated with the UST removals were below "maximum contaminant levels for petroleum-contaminated soil."

Phase II soil sampling at the toluene spill provided 1 clean vadose zone sample, but this sample did not have the highest recorded PID reading during investigation in the area.

The concrete-lined trenches with shot blast waste were not identified for removal in the 2011 WDA Application. The design drawings identified some of the trenches and noted "Remove concrete trench, including any pipes or conduits". There is no documentation available to indicate that the shot blast waste was removed and disposed.

Based on these data, the following areas are identified on Figure 2 that have potential contamination remaining in soil and groundwater:

- The toluene spill area has potential toluene groundwater contamination.
- The former concrete trench areas have potential metals contamination in soil from the shot blast waste.

As with any project, soil and groundwater contamination may be uncovered during grading and excavation activities and any suspected contamination should be reported to the Port.

3. Parcel 87 - 1721 Thorne Road

Parcel 87 environmental conditions were summarized in the following report:

a. Site Conditions Report 1721 Thorne Road Property Tacoma, Washington. Landau Associates. January 12, 2006.

The document recommended cleanout of the storm drain system and collection and disposal of any residual slag uncovered during site development (incidental slag that was not excavated during a previous cleanup).

The 2011 WDA Application also identified removal of contaminated soil associated with 2 former USTs. The design drawings did not identify contaminated soil removal in these areas and there is no documentation to indicate this material was removed.

Potential groundwater contamination was mentioned and addressed during the 2006 work, but groundwater samples were collected upgradient of potential sources, including the 10,000 gallon UST and a 1995 cleanup area that was addressed in a Hydrometrics report that was noted as not being sampled for groundwater in the Nowicki Phase 1 ESA.

During the 2011 demolition project, a septic tank was removed. No documentation was available to indicate whether the septic tank was evaluated as a possible source of contamination.

Data collected and summarized in the 2006 report indicate no specific potential sources of soil and groundwater contamination. The potential for incidental slag to be encountered during site development was noted. As with any project, soil and groundwater contamination may be uncovered during grading and excavation activities and any suspected contamination should be reported to the Port.

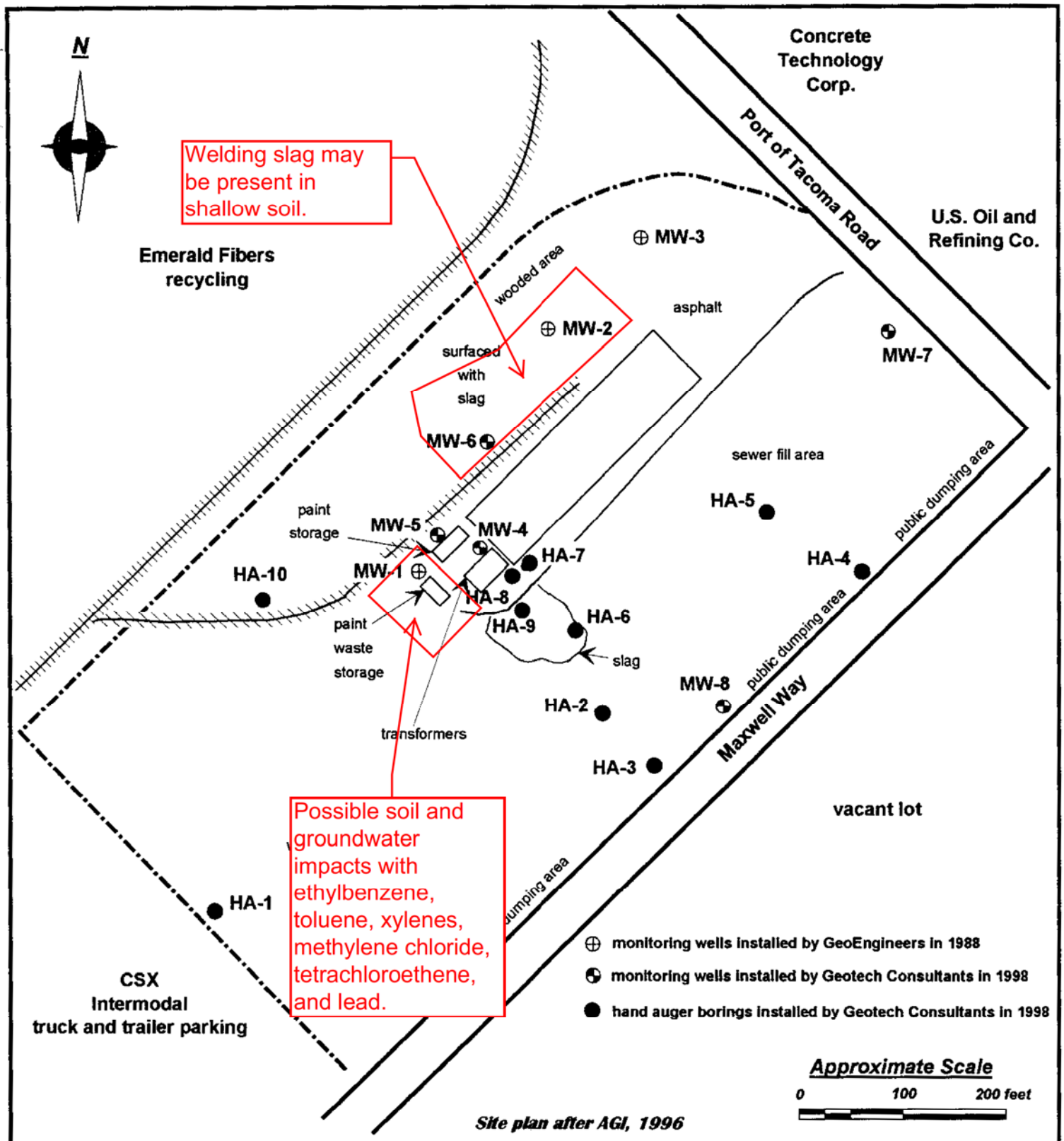
It is not documented that the recommended cleanout of the storm drain system was performed. Storm drain solids should be collected, characterized, and disposed appropriately.

Please contact Grant Hainsworth at 253-797-6323 or grant.hainsworth@creteconsulting.com if you have any questions regarding this documentation.

Attachments: Figure 1 – Parcel 72 Possible Contamination

Figure 2 – Parcel 85 Possible Contamination

Reference Documents

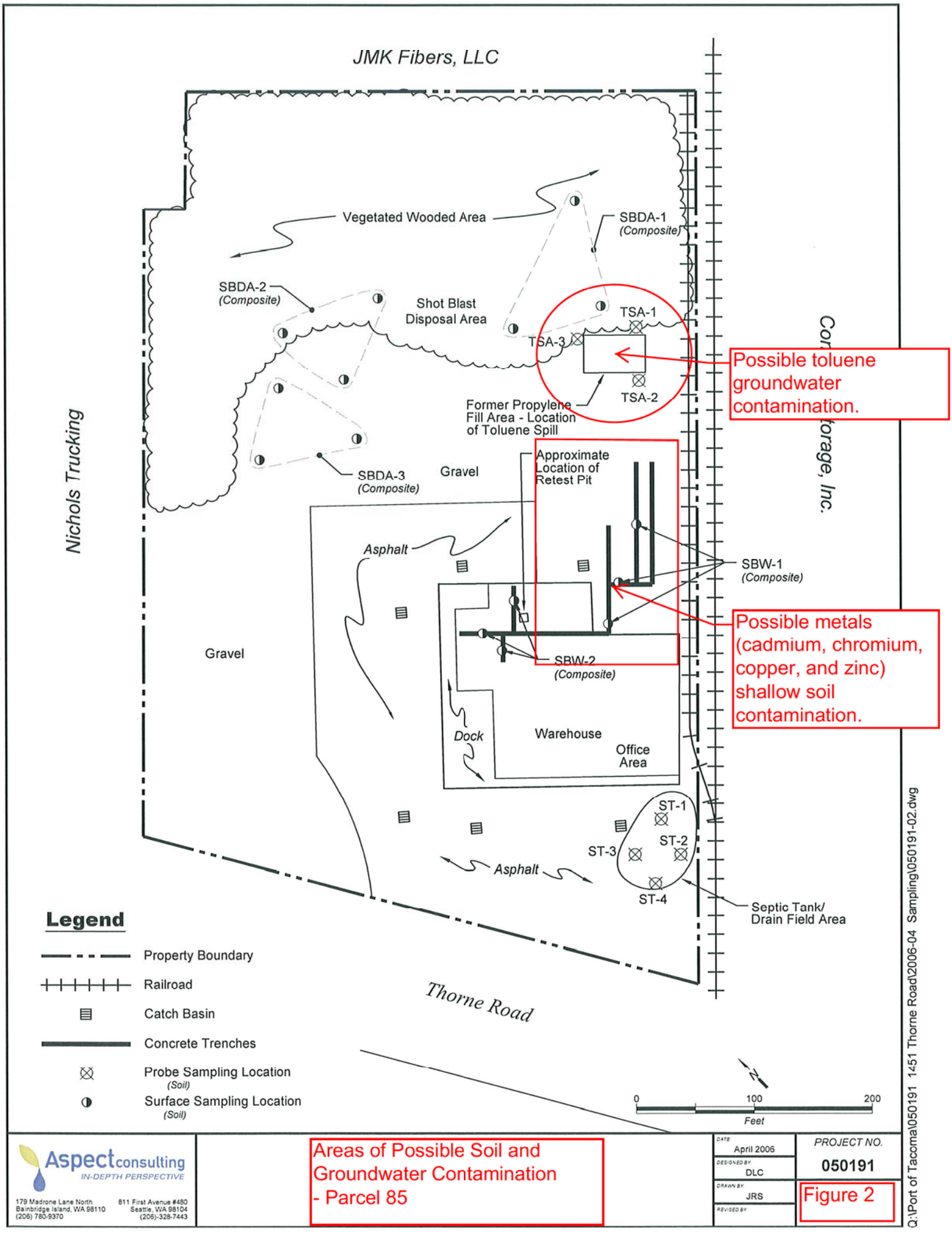


Site plan after AGI, 1996

GEOTECH CONSULTANTS, INC.

Areas of Possible Soil and Groundwater Contamination - Parcel 72

Job No:	Date:		Figure 1
98215E	July 1998		



Aspect consulting
IN-DEPTH PERSPECTIVE

179 Madrone Lane North
Bainbridge Island, WA 98110
(206) 780-9370

811 First Avenue #480
Seattle, WA 98104
(206)-328-7443

Areas of Possible Soil and Groundwater Contamination - Parcel 85

DATE	April 2006
DESIGNED BY	DLC
DRAWN BY	JRS
REVISED BY	
PROJECT NO.	050191
	Figure 2

Q:\Port of Tacoma\050191 1451 Thorne Road\2006-04 Sampling\050191-02.dwg

Attachment

Reference Documents

Tacoma | Pierce County
Health Department
Healthier. Safer. Smarter.

WASTE DISPOSAL AUTHORIZATION APPLICATION

The information requested below is essential in determining if this waste is acceptable for disposal at the City of Tacoma Landfill, the LRI Landfill, the Hidden Valley Transfer Station, or other permitted solid waste facilities such as petroleum contaminated soils treatment facilities. It is unlikely that you will be able to respond in the space provided. Feel free to modify the format and/or address the information on additional pages, but at a minimum include all the information requested below. For more information call **253 798-6470**. The information listed below may be mailed or faxed to:

Tacoma-Pierce County Health Department
Waste Management Program
3629 South D Street, MS-304
Tacoma, WA 98418-6813
Fax - (253) 798-6498

Date: 2/~~16~~17/11 Site/Facility Name: Port of Tacoma

Consultant/Contractor/Company representative: Robert Brenner

Proposed Solid Waste Disposal/Treatment Facility: LRI

Describe Where Waste Originated (physical location, company name, project name, etc.):

Approximately 200 cy originating from 1451 Thorne Road, approximately 350 cy from 1721 Thorne Road, and approximately 650 cy originating from 1702 Port of Tacoma Road. Each is a demolition of existing structures, with limited soil excavation being conducted as well.

Projected Quantity or Volume of Waste (generated per month, quarter, year, etc.): ~1,200 cy, one time generation

Describe How Waste is Generated/Source of Waste:

Most material will be excavated soils from areas of former ASTs, along rail spurs, welding slag deposition area, and former paint shed location.

Describe the Site History (if applicable):

1451 Thorne Rd was an Air Liquide gas facility where liquified gases were stored for distribution, including a rail spur for deliveries/distribution. 1721 Thorne Rd was a container chassis repair facility with two ASTs - one gasoline (5,000 gal) and one diesel fuel (10,000 gal) - along with a rail spur for delivery of supplies and equipment. 1702 Port of Tacoma Road was a steel drum manufacturing facility where sheet steel was rolled, formed, welded, and painted to make finished drums.

Describe the Sampling Method(s) or Submit Sampling Plan:

Please see attached site investigation reports

Describe and/or Justify the Number of Samples per Volume of Waste:

see attached site investigation reports

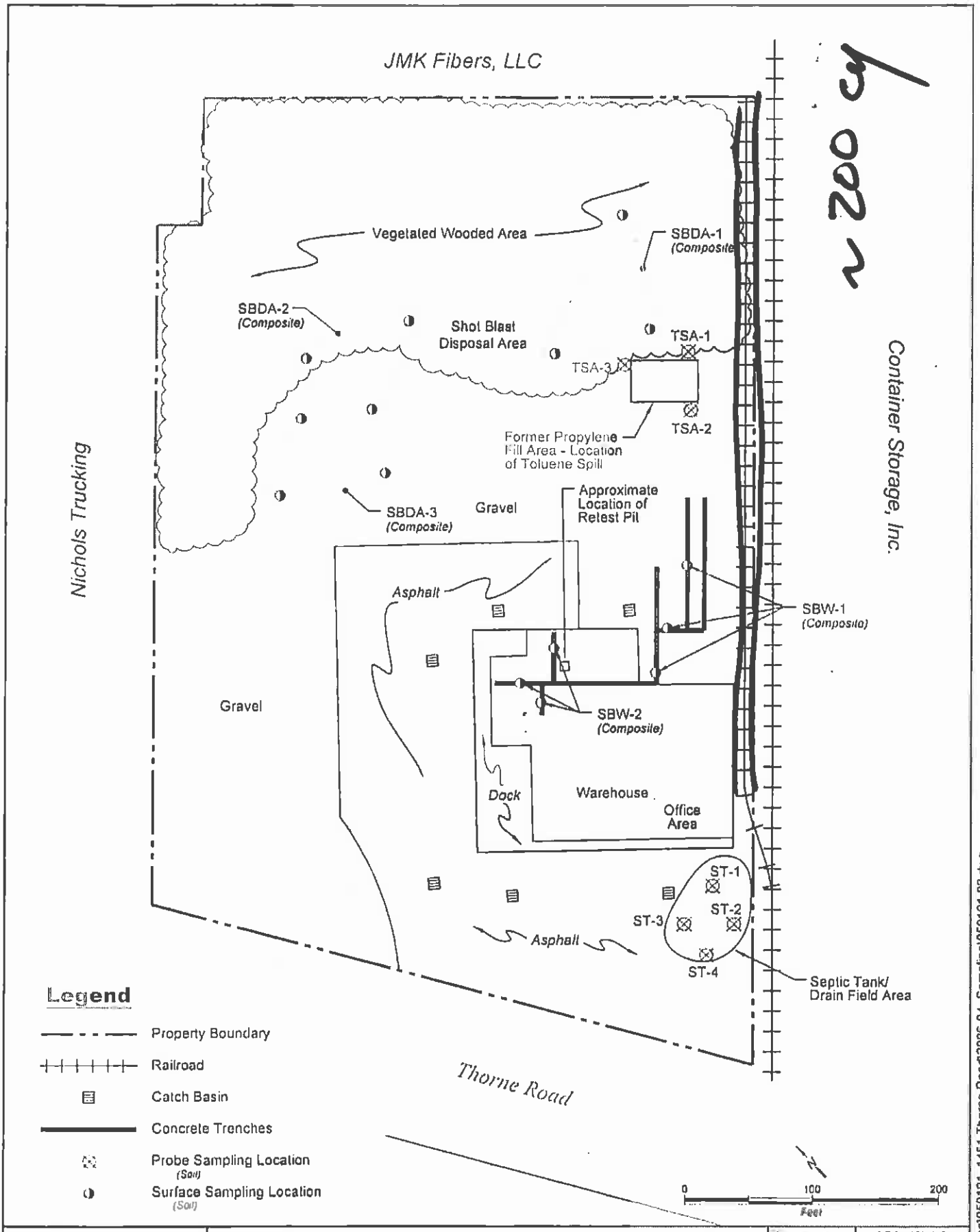
Describe and/or Justify the Parameters Selected for Analysis:

Parameters were selected by site based on historic uses at each site and contaminants likely to be present.

In addition to the information requested above, please enclose copies of the analytical results, chain of custody forms, a sampling plan, and any other documents relevant to the review of the site, facility, and/or waste being characterized.

By my signature below, I certify that the information presented in this application is true and complete to the best of my knowledge.

Applicant Signature	Robert Brenner, Env. Prog. Mgr. Applicant Name & Title	2/17/11 Date
Port of Tacoma Company Name	PO Box 1837, Tacoma, WA 98401-1837 Company Address	
253-592-6704 Phone Number	rbrenner@portoftacoma.com Email Address	
253-383-9440 Fax Number		



~ 200 cy

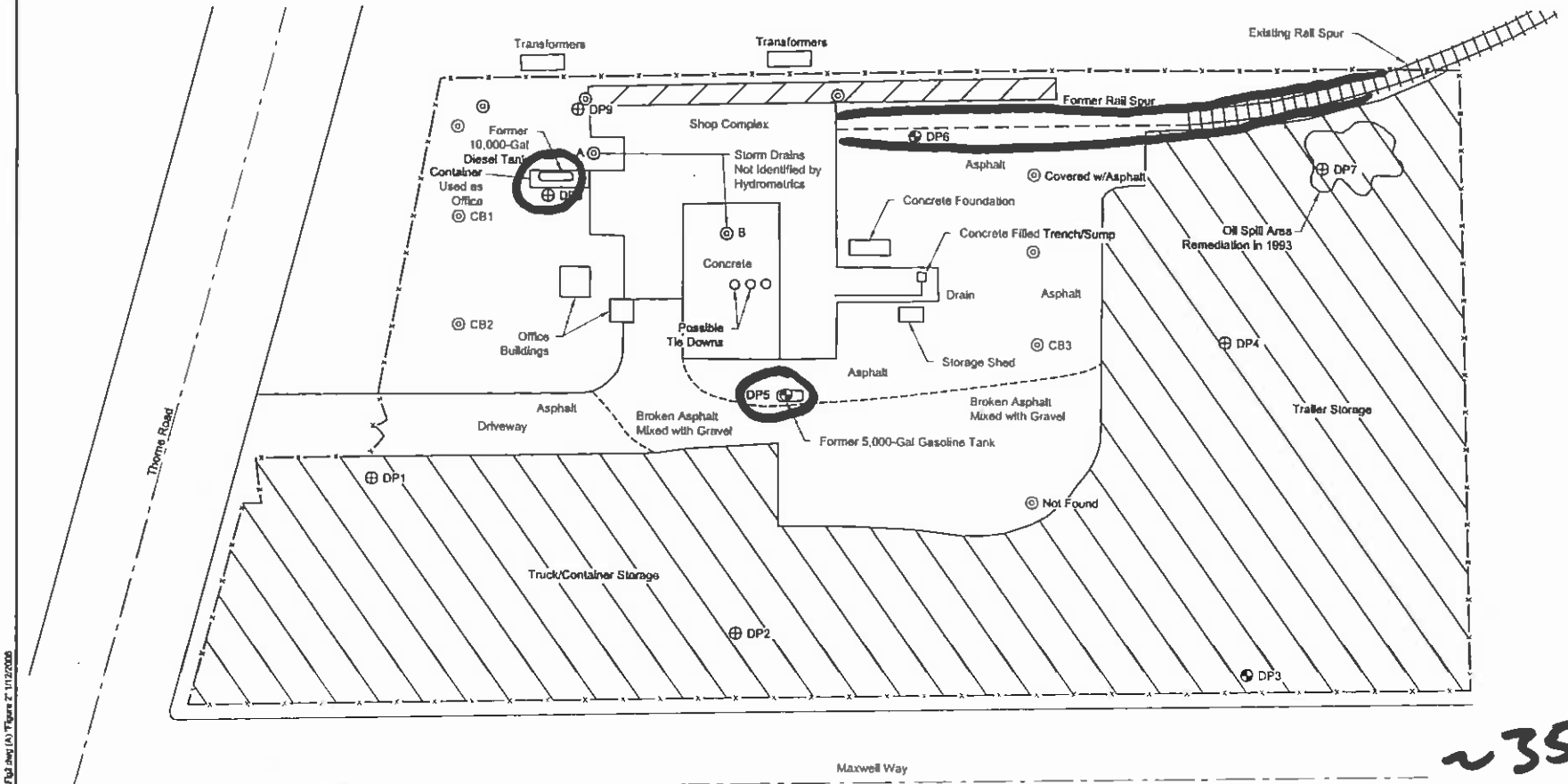
Sampling Locations

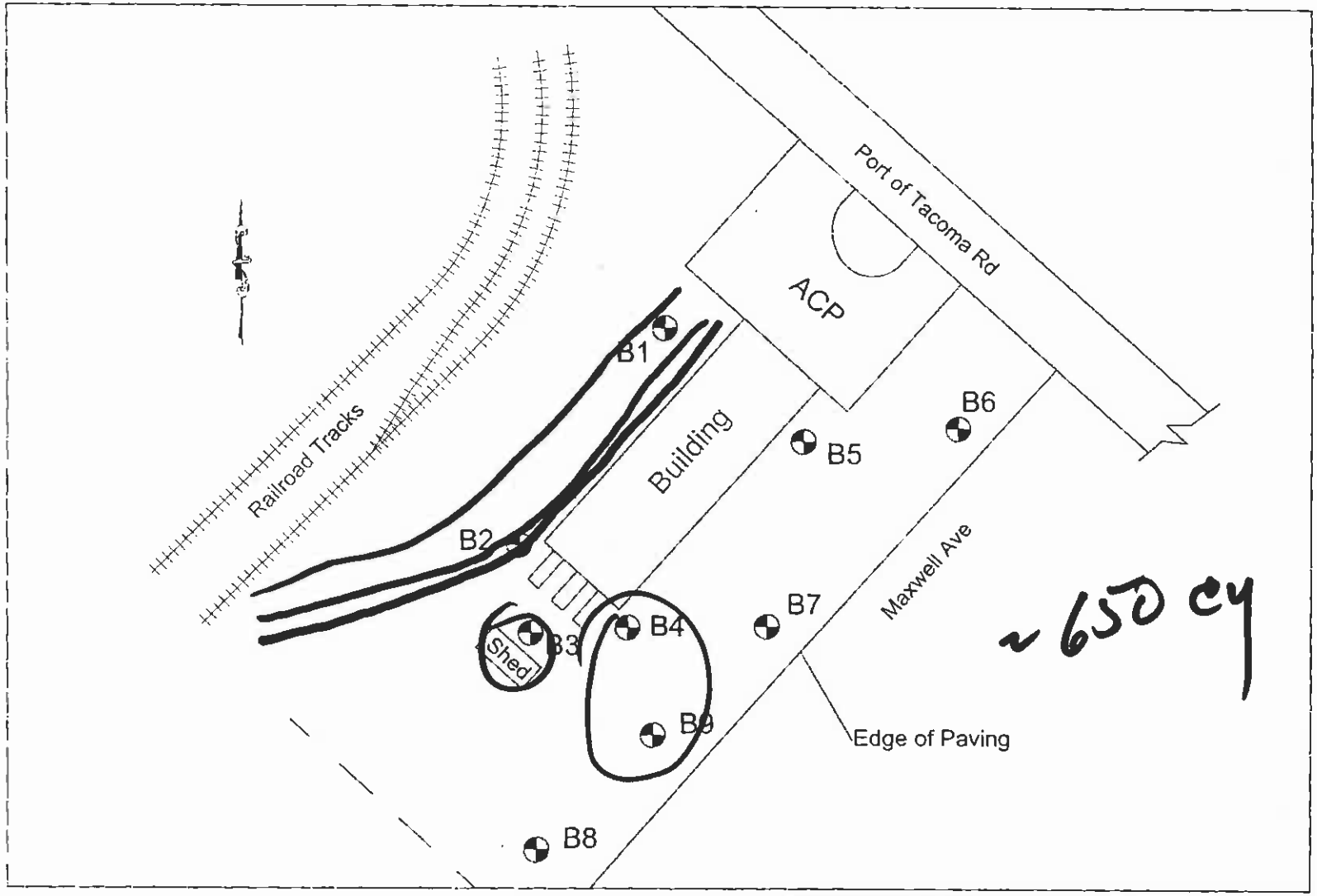
Port of Tacoma - 1451 Thorne Road
Tacoma, Washington

Aspect consulting

April 2006	PROJECT NO 050191
DLC	
JRS	FIGURE NO 2

Q:\Port of Tacoma\050191 1451 Thorne Road\2006-04 Sampling\050191-02.dwg


Transformers
Transformers
Existing Rail Spur
Former Rail Spur
DP9
Shop Complex
DP6
Former 10,000-Gal Diesel Tank
Container Used as Office
CB1
Storm Drains Not Identified by Hydrometrics
Asphalt
Covered w/Asphalt
DP7
Concrete Foundation
Concrete Filled Trench/Sump
Oil Spill Area Remediation in 1993
B
Concrete
Drain
Asphalt
CB2
Office Buildings
Possible Tie Downs
CB3
DP4
Storage Shed
Asphalt
DP5
Broken Asphalt Mixed with Gravel
Trailer Storage
Asphalt
Driveway
Broken Asphalt Mixed with Gravel
Former 5,000-Gal Gasoline Tank
Thorne Road
DP1
Not Found
Truck/Container Storage
DP2
DP3
Maxwell Way
~350 cy
Legend
Soil and Groundwater Sample Location
Soil Sample Location
Approximate TPH Cleanup (1995)
Approximate Slag Remediation Area (1995)
Storm Drain
N
0
75
150
Approximate Scale in Feet
1721 Thorne Rd
Base map source: Kennedy/Jenks Consultants, 2005
LANDAU ASSOCIATES
Thorne Road Property
Tacoma, Washington
Site Plan
Figure
2



SITE & EXPLORATION PLAN

1702 Port of Tacoma Road
Tacoma, Pierce County, Washington

Project Mngr	JME	Zipper Zaman Associates, Inc. Geotechnical & Environmental Consulting A Terracon Company	Project No 81075829
Designed By	AD		Scale: Not to Scale
Checked By		18905 33rd Avenue West, #117 Lynnwood, Washington 98036	Date June, 2007
Approved By			Drawn By JME
File Name:	FIG1.DWG		Figure No 1

DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Tacoma - Pierce County
Health Department
Healthy People in Healthy Communities

No. 1468

WASTE DISPOSAL AUTHORIZATION

(**XX**) Non-Asbestos (**XX**) **New**
( ) Asbestos (PSCAA Case # _____) ( ) Amendment

A. Generator Name: Port of Tacoma – Thorne Road & Port of Tacoma Rd Projects
B. Project Address: 1451 Thorne Rd; 1721 Thorne Rd & 1702 Port of Tacoma Rd, Tacoma WA
C. Transporter Names: Contract Hauler
D. Technical Contact: Robert Brenner, Env. Program Manager, Port of Tacoma Telephone: (253) 592-6704
E. Waste Description: Contaminated Soils
( ) Sludge (**XX**) Solid (**XX**) Contaminated Soil ( ) Other
F. Approved Quantity: **2400 Tons** (Estimated 1200 CY)
G. **Actual Quantity (Filled in upon disposal):** _____
H. Multiple Loads: (**XX**) Yes ( ) No
I. Dates of Disposal: March 21 2011 through December 31, 2011
J. Testing: Total & TCLP Metals (RCRA-8), Semi-VOC's, PCB's VOC's, NWTPH-G_x & D_x
K. Reviewed by Department of Ecology: ( ) Yes (**XX**) No
L. Disposal/Transportation Requirements: **A copy of this WDA must be transported with EACH load of waste and presented to the LRI Landfill Scalehouse Operator.** Soils demonstrating excessive odors are not suitable for use as daily cover and shall be directly buried (disposed of) in the landfill. If odors are not excessive and the soils physical characteristics are suitable for utilization as a daily cover then the soils may be used as alternative daily cover. Load sizes shall comply with conditional-use and solid waste permit criteria. If soils are dry and a potential for windblown dust exists, loads shall be covered. Wastes may have no free liquids (waste must pass the paint filter test). Generator shall add bulking agents to waste if needed, to absorb free liquids.
M. Facility: **(XX) LRI Landfill (304th Street LF), 30919 Meridian Street, Eatonville**

Tacoma Pierce County
3/21/2011 10:39:31 AM
Clerk 38-T6
Waste Disposal Authorization
$145.00
Receipt #211926
MC 1146 matova port of tacoma

CERTIFICATION

I hereby certify that I have personally examined and am familiar with the information submitted in this document and any supporting material. Based on my inquiry of those individuals immediately responsible for obtaining the information, the information submitted is true, accurate and complete to the best of my knowledge and ability and that all known and suspected hazards have been disclosed. I agree that the generator and/or transporter will abide by all conditions specified in line (L) or any attachments thereto.

3/21/11 ENV. Prog. Mgr
Date Title Signature

AUTHORIZED BY:

Andy Comstock, TPCHD, (253) 798-6538

Cc: LRI Scalehouse fax 253-875-7205

APPROVED

MAR 21 2011

For Official Use Only
TACOMA-PIERCE COUNTY HEALTH DEPT.
ENVIRONMENTAL [illegible]

PORT OF TACOMA

Purchase Order

Seattle (253) 838-0142 Tacoma (253) 383-5841
Bellevue (425) 623-8110 Fax (253) 383-9451

Purchase Order Description: Contaminated soil disposal and trucking

Buyer:

Purchase Order Number

PO: 48632 **Status:** APPR
Parent PO: PO Type: STD

REFERENCE P.O. NUMBER ON ALL DOCUMENTS PERTAINING TO THIS ORDER

MAIL ORIGINAL PLUS ONE COPY OF INVOICE
Port of Tacoma Accounts Payable
P.O. Box 1837 Tacoma, WA 98401-1837

TO: 004398
PCRCD DBA LRI
17925 MERIDIAN ST E
PUYALLUP, WA 98375
Phone: 253-208-4096 Fax: 253-847-7713

SHIP TO:
Engineering
One Sitcum Plaza
Tacoma, WA 98401

Attention: ACCTPAYABLE

Mark For:

Deliver By:	Date Ordered:	Payment Terms:	Freight Terms:	Ship Via:	F.O.B.:
	3/18/2011	N30			

SUBJECT TO PORT OF TACOMA TERMS AND CONDITIONS

*****TWIC CARD REQ'D FOR ACCESS TO ALL PORT TERMINALS BEGINNING FEB.28,2009*****

Line No.	Qty	UOM	Description	Vendor P/N	Unit Cost	Extended Cost	Tax	Line Cost
1	1750.00	TON	Contaminated soil disposal and trucking - Thorne Rd site improvements		$25.46	$44,555.00	$1,603.98	$46,158.98
2	1500.00	LOT	fuel surcharge		$1.00	$1,500.00	$54.00	$1,554.00
					Subtotal:	$46,055.00	$1,657.98	

****** **Total for Purchase Order: 48632** ****** **$47,712.98**

Comments: contaminated soil hauling and disposal

Approved By:

Alyce L Benge

Alyce Benge, CPPO, C.P.M.
Purchasing Manager

Terms and Conditions:

Term (ID)	Description
PORT DEFAULT	Port of Tacoma Standard Terms and Conditions for PO Contracts, Invitation to Bid & RFQ

The contract includes the following terms and conditions and includes the invitation to bid, request for quotations, specifications, plans, resolutions and policies of the Port of Tacoma and the laws of the state of Washington, incorporated herein by reference.

1. Definitions: "Buyer" means Port of Tacoma. "Seller" means the party with whom Buyer is contracting and any reference to "vendor", "subcontractor", "contractor" or "supplier" shall also mean "Seller". The term "purchase order" or "order" shall mean the name or title of the instrument of contracting, including all documents, exhibits, and attachments referenced therein.

2. Changes: No alteration in any of the terms, conditions, delivery, prices, quality, quantities, or specifications of this order will be effective without written order of the Purchasing Manager. Unauthorized substitutions will be made entirely at Seller's risk and, at Buyer's option, may be returned without prior authorization at Seller's expense.

3. Handling: No charges will be allowed for handling which includes, but is not limited to packing, wrapping, bags, containers or reels, unless otherwise stated herein.

4. Delivery: For any exception to the delivery date as specified on this order, Seller shall give prior notification and obtain written approval from the Buyer. With respect to delivery under this order, time is of the essence. The order is subject to termination for failure to deliver as specified. The acceptance of late performance with or without objection or reservation shall not waive the right to claim damage for such breach nor constitute a waiver of the requirements for the timely performance of any obligation remaining to be performed by Seller.

5. Payments, Cash Discount, Late Payment Charges: Separate numbered invoices are required for each order. Invoice only for goods delivered. Invoices will not be processed for payment nor will the period of computation for cash discount commence until receipt of a properly completed invoice or when invoiced items are received, whichever is later. If an adjustment in payment is necessary due to damage or dispute, the cash discount period shall commence on the date final approval for payment is authorized.

Unless otherwise stated, standard payment terms shall be net thirty days following month of invoice date. If Buyer fails to make timely payment, Seller may invoice for one percent per month on the amount overdue, or a minimum of one dollar. Payment shall not be considered late if a check or warrant is available or mailed within the time specified, or if no terms are specified. Payments will normally be remitted by mail. Buyer will not honor drafts, nor accept goods on a sight draft basis.

6. Shipping Instructions: Unless otherwise specified, all goods are to be shipped prepaid, FOB destination. When shipping addresses specify room numbers, Seller shall make such delivery thereto without additional charge. When shipment is specified FOB origin, Seller agrees to prepay all shipping charges, route as instructed and, if instructions are not provided, route by most economical common carrier and to bill Buyer as a separate item on the invoice for said charges. If shipping charges are expected to exceed $100.00, Buyer shall have the option of determining whether shipping shall be prepaid by Seller or billed directly to Buyer. Seller's invoice for shipping charges shall include a copy of the freight bill showing that payment for shipping charges has been made. It is agreed that Buyer reserves the right to refuse COD shipments.

7. Rejection: All goods or materials purchased herein are subject to approval by the Buyer. Any rejection of goods or material resulting because of nonconformity to the terms and specifications of this order, whether held by the Buyer or returned, will be at Seller's risk and expense.

8. Identification: All invoices, packing lists, packages, shipping notices, instruction manuals, and other

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

August 20, 2007

Susan Mauermann
Director of Environmental Programs
Port of Tacoma
P.O. Box 1837
Tacoma, WA 98401

Subject: Site Hazard Assessment – Tacoma Port Warehouse Demo
Ecology Facility Site I.D. No. 75139839

Dear Ms. Mauermann:

The Washington Department of Ecology (Ecology) has completed the site hazard assessment (SHA) of the Tacoma Port Warehouse Demo site, 1702 Port of Tacoma Road, Tacoma, Pierce County, WA 98421, as required by the Model Toxics Control Act (MTCA). A determination of **No Further Action (NFA)** has been made under WAC 173-340-310(5)(d)(ii).

For your information, Ecology will be publishing the results of this, and other recently completed SHAs, in the August 22, 2007 Special Issue of the Site Register.

Ecology reserves the right to initiate further investigation at this site where new information is received indicating a potential/actual threat to human health and/or the environment through the release of a hazardous substance.

Please contact me at (360) 407-7195 if you have any questions/comments regarding this SHA determination of No Further Action.

Sincerely,

Michael J. Spencer
Site Hazard Assessment/Washington Ranking Method

MJS:ms

Cc: Cris Matthews, Ecology Southwest Regional Office Toxics Cleanup Program
Sharon Bell, Tacoma-Pierce County Health District

Site Hazard Assessment
Recommendation for No Further Action

Tacoma Port Warehouse Demo
1702 Port of Tacoma Road
Tacoma, Pierce County, WA 98421
Ecology Facility Site ID No. 75139839
August 17, 2007

Background/Site Description

The Tacoma Port Warehouse Demo site (hereinafter referred to as the Warehouse, or site) is a former steel drum manufacturing facility located at 1702 Port of Tacoma Road, in the industrial area of the Port of Tacoma (POT) called the Tideflats. It was built in 1957 on land reclaimed from the tideflats in 1946 by filling. The nearly rectangular site is approximately 450 feet wide by 850 feet long and consists of two parcels totaling 8.48 acres. The former (operations ceased at the end of 1995) 18,200 square foot manufacturing facility is centrally located in the northeastern half of the site.

It has operated under the names Rheem Manufacturing Company, Pacific Rim Packaging Corporation, and North American Packaging Corporation (NAMPAC). This is the name of the site as originally listed on the Washington Department of Ecology (Ecology) Confirmed and Suspected Contaminated Sites List on July 25, 1997.

To make drums, sheets of steel cut to size offsite were rolled and formed by machines, welded, fitted with tops and bottoms as required, and painted. Painting of the exterior of the drums took place in a paint booth with a water curtain to catch overspray. The water drained to a trough, then was discharged to a floor drain. Although the outlet of the floor drain was not known with certainty, it appeared to connect to the municipal storm water system. The paint sludge from the spray booth was initially burned on the ground at the back of the building, then later was collected by Safety Kleen.

Enamel paints, methyl ethyl ketone (MEK), toluene, and other hazardous materials were used in the manufacturing process. They were stored in a metal shed at the rear of the manufacturing building and in a fenced enclosure on a concrete pad. Welding slag produced over the years was used to surface the loading area on the northwestern side of the building and was also dumped in the wooded section of the property. Soils from a sewer project along the Port of Tacoma Road was used to fill low areas of the site property. The conditions of the imported soil was not documented.

Previous Environmental Investigations

In November 1988, GeoEngineers, Inc. conducted a study of subsurface contamination at the site, including obtaining surface and subsurface soil samples at several locations, installing three groundwater monitoring wells. Samples from MW-1, located within the vicinity of the paint and solvent storage area, showed concentrations of such volatile organic compounds (VOCs) as benzene, ethylbenzene, toluene, and xylenes (BETX) exceeding their respective Model Toxics Control Act (MTCA) Method A cleanup levels for both soil and groundwater. Both soil and groundwater samples

from MW-2, located along the northern side of the property, showed either non-detects, or concentrations below their respective MTCA Method A Cleanup levels, for BETX compounds, the same for MW-3, located near the northern corner of the site. Petroleum hydrocarbons, below MTCA cleanup levels, were found in surface soil near the air compressor discharge vent, and BETX and two solvents, below their respective MTCA levels, were found in surface soil near the paint locker. Polychlorinated biphenyls (PCBs) and total petroleum hydrocarbons (TPH) were not detected in the surface soil sample obtained near the transformers.

AGI Technologies (AGI) completed a Phase I environmental assessment (EA) of the site in April 1996, where it was determined there was potential for on-site contamination from spillage and improper disposal of paints, solvents, petroleum products, and waste products associated with painting operations. Likely chemicals of concern included MEK, BETX, methyl isobutyl alcohol and isobutyl alcohol.

Based on information gathered through the GeoEngineers investigation, and the AGI Phase I EA, AGI conducted a screening survey/sampling of soils around the paint waste storage compound, the paint/MEK storage shed, and the historical paint waste burn area. Twenty-four soil samples were collected from a grid area with 20-foot centers, consisting of six rows and five columns. Soil samples were collected at 1-foot intervals to a depth of 3 – 5 feet. Each sample was field screened with a photoionization detector (PID). MW-3 was sampled following purging.

Only very low concentrations of all VOCs (including BETX compounds) were detected, if detected at all, in all soil samples, well below their respective MTCA Method A Cleanup levels. There were no detections of chlorinated VOCs and MEK is any of the soil samples. Arsenic, barium, chromium, and lead were detected in three of the soil samples, but all at concentrations much lower than their respective MTCA Method A Industrial Cleanup levels. However, the lead concentrations for two of the soil samples slightly exceeded its MTCA Method A Cleanup level for Unlimited Land Use.

There was a significant reduction in the concentrations of BETX compounds detected in the MW-3 groundwater sample compared to the GeoEngineers' results from 1988, to concentrations all below their respective MTCA Method A Groundwater Cleanup levels. Tetrachloroethylene was detected at a concentration of 2 ug/l, below its Method A level of 5 ug/l.

AGI speculated the reasons for this significant attenuation of concentrations in the groundwater over the eight year period as:

- The BETX concentrations reported in 1988 by GeoEngineers were at or near their maximum solubility in groundwater. In addition, they noted a sheen on the groundwater at the time of sampling, while none was noted in the recent sampling event. This is indicative of a free phase product, rather than a dissolved concentration, and also indicating that the sampling point and source area are close to each other.

- The site is underlain by loose, poorly-sorted fine-grained sand and groundwater is very close to the ground surface, and most of the site area is unpaved – all conditions that are conducive to volatilization of smear zones caused by seasonal groundwater fluctuations.

It was noted during the AGI Phase I EA that there was apparent hydrocarbon staining of surface soils next the southern corner of the manufacturing building, apparently from overflow of condensation water from a former air compressor, and AGI recommended excavation and appropriate disposal of these soils, rather than on-site treatment, due to the apparently relatively small volume.

This remedial action was conducted by AGI on December 6, 1996. Visually contaminated soils were excavated beginning at the southeast corner of the building six feet north and west of the corner. The excavation extended about six to ten feet out from the building to a depth of approximately one foot, totaling 5.4 tons of soil that was transported to TPS Technologies in Tacoma, WA, for treatment by thermal desorption. Confirmational sampling done at the base of the excavation showed one out of the three soil samples (TPH = 11,000 mg/kg) greatly exceeded the MTCA Method A cleanup level for diesel and oil range TPH in effect at that time (200 mg/kg) and would still do so today under the current level of 2000 mg/kg.

Geotech Consultants conducted a Phase 2 Environmental Site Assessment of the Warehouse site to fill in data gaps and build on information from the two earlier sampling events. Five monitoring wells were installed in order to collect additional groundwater samples, and subsurface soil samples were collected from hand auger boring down to 10 feet depths. Toxicity Characteristic Leaching Procedure (TCLP) analyses were done on three welding slag samples.

Soil samples were analyzed for TPH, PCBs, selected VOCs, pesticides, herbicides, and RCRA metals. Based on sample analyses, there was only one area identified of further concern, that being due to concentrations of TPH-diesel exceeding its MTCA Method A Cleanup level in the vicinity of the southern border of the property where unauthorized dumping had occurred over the years. Other than that, there were no significant detections of any other VOCs, PCBs, TPH compounds, or metals. The TCLP results for the three welding slag samples were all satisfactorily below Dangerous Waste levels. There was one noticeable detection of pentachlorophenol in the samples taken at the railroad spur, attributed to the presence of creosoted railroad ties there, otherwise there were no evidence of pesticides or herbicides.

There were several detections of metals in the groundwater samples which were significant (Note: the table in the Geotech report has the MTCA Method A Groundwater Cleanup Level for lead at 5 ug/l, whereas the correct value is 15 ug/l)

Table 1. GROUNDWATER SAMPLING RESULTS

Sample No.	Analyte Found	Sample Result (ug/l)	Applicable Standard	(ppm)
MW-7	Arsenic	4.4	MTCA A*	5
MW-8	Arsenic	7.0	"	5
MW-8	Lead	12	"	15

*MTCA A refers to the Model Toxics Control Act Table 720-1 Method A Cleanup Levels for Groundwater

A recommendation was made by Geotech to excavate and dispose of the contaminated soil at the south boundary of the site. The remedial action was completed on August 28 and September 7, 1998, by AGI. Additional soil was removed from the area left unremediated in December 1996, and the area at

the south property line. A total of 22.75 tons of soil were removed and transported to Woodworth and Company, Tacoma, WA. A total of eight confirmational samples were taken to ensure the removal met Method A Cleanup levels. The analytical results were Non Detects for all of the samples except one, which had TPH-diesel at 140 mg/kg and motor oil at 650 mg/kg (MTCA Method A for both of these is 2000 mg/kg).

On October 13, 1998, the POT acquired the site property and supplied Ecology with copies of all pertinent site assessment and cleanup reports they had to date. These form the basis of this recommendation. POT was notified on March 19, 2007, that a site hazard assessment (SHA) under MTCA, Chapter 173-340-320, would take place.

Site Hazard Assessment

An SHA site drive-by visit was made July 10, 2007. The facility was completely surrounded by a chain link fence, limiting unauthorized access, and appeared to be inactive. The lay of the land, as could be seen from Port of Tacoma Road, was pretty much as described in the AGI and Geotech reports.

Pathway Information

Surface and subsurface **Soils** at the site were documented to have been impacted by a number of hazardous contaminants, however some of these have attenuated with time, while two main areas of concern had a total of approximately 28 cubic yards of soil removed and appropriately disposed of with manifests provided. Confirmational sampling showed the cleanups achieved compliance with MTCA Method A cleanup levels.

The **Surface Water Pathway** is not likely a significant route of potential exposure at this site, nor is the **Air Pathway**, due to the entirely subsurface nature of any possible remaining contamination, as well as the distance to any surface water of significance, and lack of residential population in the site vicinity.

Groundwater sampling data showed a small exceedance in one sample of arsenic, but it is not believed to be of significance. It is not believed that any public water or private wells are at risk from any possible remaining subsurface contamination, as the nearest City of Tacoma water supply well is nearly 1.5 miles upgradient of the site.

Conclusions and Recommendations

Excavation of approximately 28 cubic yards of PCS, followed up by confirmational sampling showing contaminant concentrations below the applicable MTCA Method A cleanup levels has documented that this site has achieved satisfactory cleanup.

It is recommended that this site receive no further action under MTCA, based on WAC 173-340-310(5)(d)(ii): that a release of a hazardous substance has occurred at the site, but in the department's judgment, does not pose a threat to human health or the environment.

References

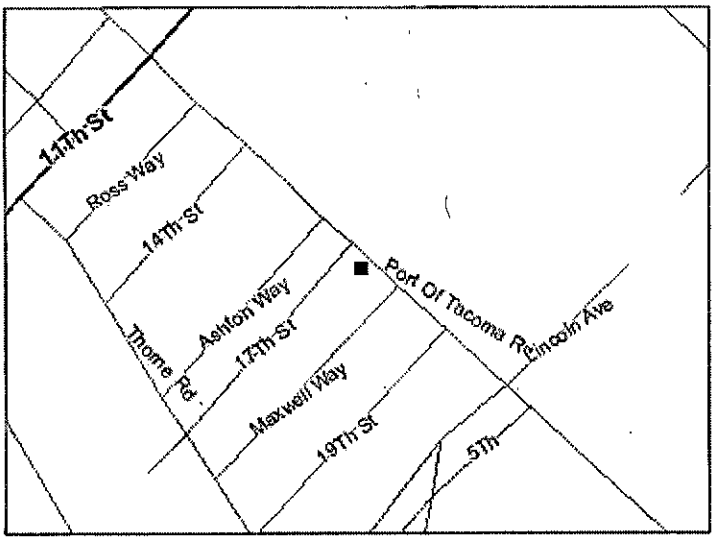
1) Independent Remedial Action Report, North American Packaging Corporation, 1702 Port of Tacoma Road, Tacoma, WA, AGI Technologies, July 22, 1997.
2) Phase 2 Environmental Site Assessment, NAMPAC Facility, 1702 Port of Tacoma Road, Tacoma, WA, Geotech, July 9, 1998.
3) Soil Excavation Report, North American Packaging Corporation, 1702 Port of Tacoma Road, Tacoma, WA, AGI Technologies, September 28, 1998.
4) Ecology Site Hazard Assessment Site Drive-by Visit, May 10, 2007.

Tacoma Port Warehouse Demo

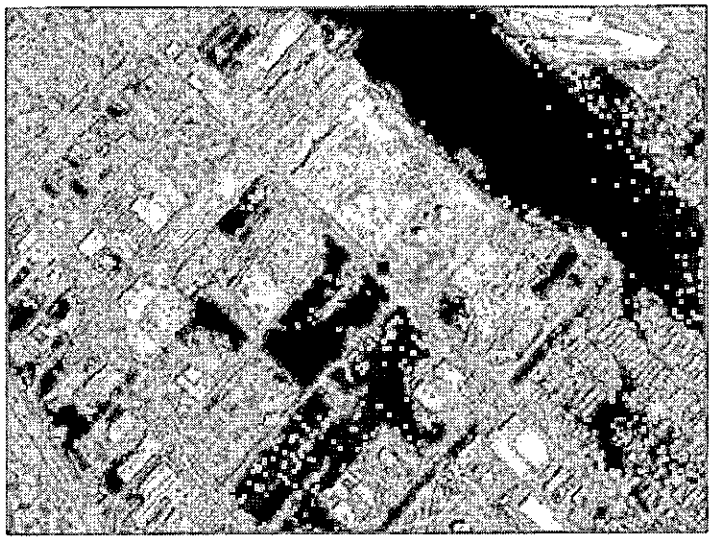
Ecology Identifier: 75139839

06-01-2007

Road Level Map & Aerial Photo:



Larger Map



Larger Map

Geographic Information

Facility Site Address

1702 PORT OF TACOMA RD

TACOMA 98421

Misc. Information

County:	PIERCE
Legislative District:	27
Congressional District:	9
WRIA:	10
Indian Land:	Yes

Lat/Long Coordinates

Degrees

Lat:	47° 15' 51"
Long:	122° 24' 1"

Decimal

Lat:	47.26444
Long:	122.40054

Ecology Interactions

Interaction Description	Ecology Program	Status	Ecology Program Phone	Program ID
HWG	HAZWASTE	Inactive	(360) 407-6023	WAD009242249
TRI	HAZWASTE	Inactive	(360) 407-6727	WAD009242249
HWP	HAZWASTE	Inactive	(360) 407-6731	WAD009242249
IRAP	TOXICS	Active	(360) 407-7224	

Industrial Classification (External Links Below)

SIC CODE	SIC Description
3412	METAL BARRELS, DRUMS, AND PAILS

NAICS CODE	NAICS Description
493110	GENERAL WAREHOUSING AND STORAGE

R 03 (E W)

R__(E W)

TPWD

T 21 N

T___N

6	5	4	3	2	1	6	5	4	3	2	1
7	8	9	10	11	12	7	8	9	10	11	12
18	17	16	15	14	13	18	17	16	15	14	13
19	20	21	22	23	24	19	20	21	22	23	24
30	29	28	27	26	25	30	29	28	27	26	25
31	32	33	34	35	36	31	32	33	34	35	36
6	5	4	3	2	1	6	5	4	3	2	1
7	8	9	10	11	12	7	8	9	10	11	12
18	17	16	15	14	13	18	17	16	15	14	13
19	20	21	22	23	24	19	20	21	22	23	24
30	29	28	27	26	25	30	29	28	27	26	25
31	32	33	34	35	36	31	32	33	34	35	36

Township, Range, and Section Diagram for Determining Well Data Collection Needs

Water Right Tracking System
Department of Ecology
WR Document List Sorted By Primary Party Report

TPWD

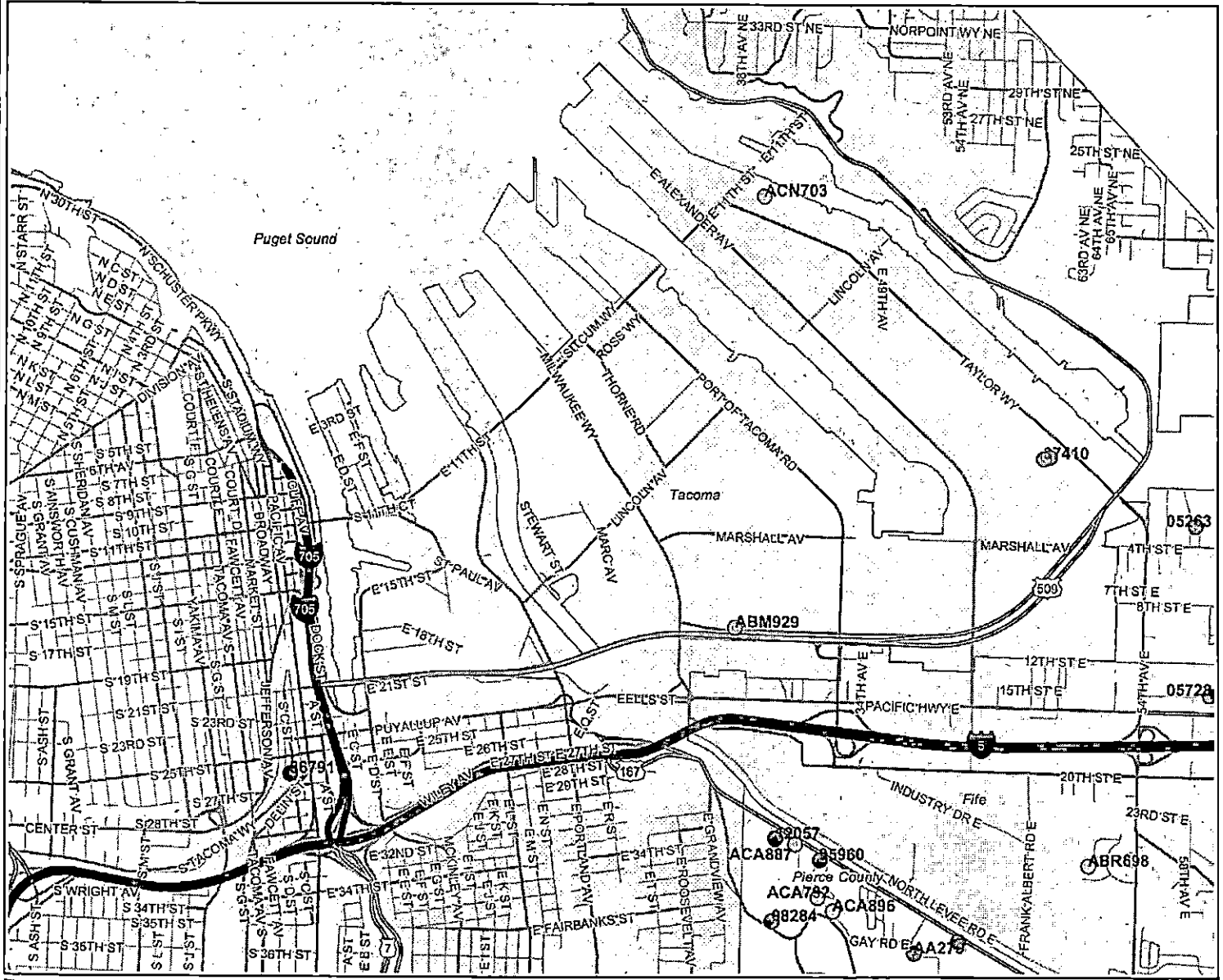
File #	Cert #	Person	Stat	Doc	Priority Dt	Purpose	Qi	UOM	Qa	Ir Acres	WRIA	County	TRS	QQ/Q	Src's	1stSrc
S2-014138CL		RAMSDELL ROSS R.	A	Claim L		IR		CFS			10	PIERCE	21.0N 03.0E 14		1	
G2-113061CL		ADAMS OLLIE K	A	Claim L		DG		GPM			10	PIERCE	21.0N 03.0E 22		1	WELL
G2-155890CL		BURGESS MERLE J	A	Claim S		DG		GPM			10	PIERCE	21.0N 03.0E 22		1	
G2-067934CL		CONRAD WILLIAM J.	A	Claim S		DG		GPM			10	PIERCE	21.0N 03.0E 22		1	WELL
G2-020914CL		ERHART BERNICE A.	A	Claim L		DG		GPM			10	PIERCE	21.0N 03.0E 22		1	
G2-061454CL		FOSS LAUNCH & TUG CO.	A	Claim L		DG		GPM			10	PIERCE	21.0N 03.0E 22		1	WELL
G2-156086CL		KUCIEMBA VIRGINIA	A	Claim L		NR		GPM			10	PIERCE	21.0N 03.0E 22		1	
G2-020232CL		LOWRY HENRY	A	Claim L		DG		GPM			10	PIERCE	21.0N 03.0E 22		1	
G2-065377CL		MARINE VIEW BOAT BUILD CO	A	Claim L		NR		GPM			10	PIERCE	21.0N 03.0E 22		1	WELL
G2-092490CL		MATTERN PETER H	A	Claim S		DG		GPM			10	PIERCE	21.0N 03.0E 22		1	
G2-069041CL		MAXWELL JOHN W.	A	Claim L		DG		GPM			10	PIERCE	21.0N 03.0E 22		1	WELL
G2-068273CL		MCDONALD GEORGE	A	Claim L		DG		GPM			10	PIERCE	21.0N 03.0E 22		1	WELL DRIVEN
G2-125286CL		PERTILE ALBENO	A	Claim S		DG		GPM			10	PIERCE	21.0N 03.0E 22		1	
G2-135617CL		TUCKER SHELBY E	A	Claim L		DG		GPM			10	PIERCE	21.0N 03.0E 22		1	ARTESIAN WELL
G2-27285GWRIS		North Shore Associates Inc	A	Cert	2/29/1988	IR	350	GPM	150	75	10	PIERCE	21.0N 03.0E 23	SW/NW	1	WELL
G2-135276CL		SOKOLOWSKI DANIEL	A	Claim L		ST,IR		GPM			10	PIERCE	21.0N 03.0E 25		1	WELL
G2-135278CL		SOKOLOWSKI DANIEL L	A	Claim L		ST,IR		GPM			10	PIERCE	21.0N 03.0E 25		1	WELL
G2-135281CL		SOKOLOWSKI DANIEL L	A	Claim L		ST,IR		GPM			10	PIERCE	21.0N 03.0E 25		1	WELL
B2-200280CL		WALKER HAROLD L.	A	Claim L		ST,IR		CFS			10	PIERCE	21.0N 03.0E 25		1	SW & WELL
G2-122887CL		WINCH JAMES R	A	Claim S		IR,DG		GPM			10	PIERCE	21.0N 03.0E 25		1	
G2-*03314CWRIS	02117	Woodworth Co Inc	A	Cert	7/28/1953	CI	275	GPM	112		10	PIERCE	21.0N 03.0E 25	SE/SW	1	WELL
G2-CCVOL1-2P78	02117	Woodworth Co Inc	A	CertChg	7/28/1953	CI	275	GPM	112		10	PIERCE	21.0N 03.0E 25	SE/SW	1	WELL
G2-145819CL		WOOTEN IRENE	A	Claim L		IR,DG		GPM			10	PIERCE	21.0N 03.0E 25		1	WELL
G2-105088CL		BERNARD MABLE E	A	Claim S		DG		GPM			10	PIERCE	21.0N 03.0E 26		1	
S2-*08302CWRIS	04517	GRAY C F	A	Cert	3/31/1948	DS	0.005	CFS			10	PIERCE	21.0N 03.0E 26		1	UNNAMED SPRING
S2-017237CL		MILLER ROBERT	A	Claim L		DG		CFS			10	PIERCE	21.0N 03.0E 26		1	
S2-099300CL		PAUL ANNA A G	A	Claim S		DG		CFS			10	PIERCE	21.0N 03.0E 26		1	SPRING
G2-022793CL		SMITH ALBERT W.	A	Claim L		DG		GPM			10	PIERCE	21.0N 03.0E 26		1	
G2-*00167SWRIS	00215	TACOMA CITY	A	Cert	1/1/1928	MU	1050	GPM	100		10	PIERCE	21.0N 03.0E 26	W2/SW	1	WELL
G2-27023CWRIS		Tacoma PUD	A	Cert	12/9/1986	MU	1050	GPM	840		10	PIERCE	21.0N 03.0E 26	W2/SW	1	WELL
G2-*00282SWRIS	00213	Hooker Electrochemical Co	A	Cert	4/20/1939	CI	933	GPM	1505		10	PIERCE	21.0N 03.0E 27		1	WELL
S2-28863		Occidental Chemical Corporation Inc	A	Cert	6/4/1993	CI	37.7	CFS	27294		10	PIERCE	21.0N 03.0E 27		1	HYLEBOS CREEK
G2-27701		Occidental Chemical Corporation Inc	A	Pmt	1/31/1990	CI	20	GPM			10	PIERCE	21.0N 03.0E 27		1	WELL
G2-027089CL		STUARD YVONNE	A	Claim L		DG		GPM			10	PIERCE	21.0N 03.0E 27		1	
S2-121248CL		COSKI BERNARD	A	Claim L		IR		CFS			10	PIERCE	21.0N 03.0E 36		1	STREAM
G2-*09906CWRIS	06850	Kaiser Aluminum & Chemical Corporation	A	Cert	12/2/1968	HE	1100	GPM	1752		10	PIERCE	21.0N 03.0E 36	SE/SW	1	WELL
G2-*03685CWRIS	02217	Kaiser Aluminum & Chemical Corporation	A	Cert	6/23/1954	CI	650	GPM	1048		10	PIERCE	21.0N 03.0E 36	SE/SW	1	WELL
G2-*02031CWRIS	01449	Kaiser Aluminum & Chemical Corporation	A	Cert	7/10/1951	CI	690	GPM	1100		10	PIERCE	21.0N 03.0E 36		1	WELL
G2-*01096SWRIS	01028	Kaiser Aluminum & Chemical Corporation	A	Cert	11/1/1942	CI	400	GPM	648		10	PIERCE	21.0N 03.0E 36		1	WELL
TOTAL RECORDS:	41															

Water Right Tracking System
Department of Ecology
WR Document List Sorted By Primary Party Report

File #	Cert #	Person	Stat	Doc	Priority Dt	Purpose	Qi	UOM	Qa	Ir Acres	WRIA	County	TRS	QQ/Q	Src's	1stSrc
SELECTION CRITERIA																
Region	Southwest															
TRS	21N 03E 14,21N 03E 14,21N 03E 22,21N 03E 23,21N 03E 24,21N 03E 25,21N 03E 26,21N 03E 27,21N 03E 34,21N 03E 35,21N 03E 36															
Status	Active															

Group A & B Wells

Tacoma Tide Flats Area



Map Legend

- Group B Water Systems
- Wells - Group A

Roads

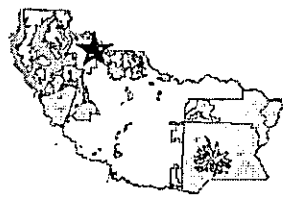
- Interstate
- Limited Access State Routes
- Other State Routes
- Ramps
- Major Arterial
- Collector
- Local Access

Pierce County Basemap

- Unincorporated County
- Tacoma
- Lakewood, Edgewood, Bonney Lake, Buckley, South Prairie
- Steilacoom, Fircrest, Fife, Gig Harbor, Orting, Eatonville, Roy, Carbonado, Wilkeson, Mt Rainier
- University Place, Puyallup, Auburn
- DuPont, Milton, Sumner
- Fort Lewis, McChord,

Scale 1:42,561

0 1750 3500 ft.



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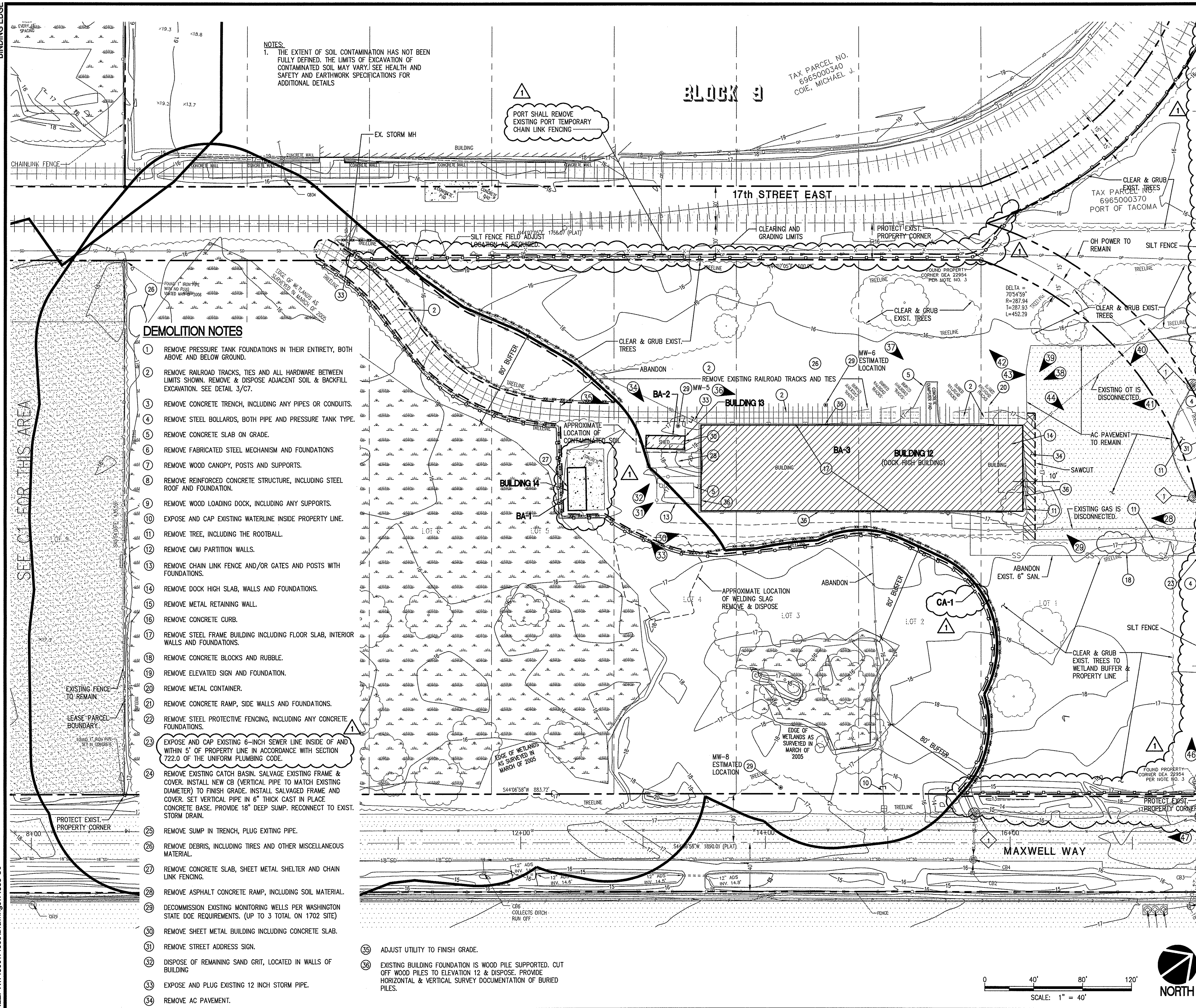
Tacoma | Pierce County Health Department
Healthier. Safer. Smarter.

BINDING EDGE



NOTES:
1. THE EXTENT OF SOIL CONTAMINATION HAS NOT BEEN FULLY DEFINED. THE LIMITS OF EXCAVATION OF CONTAMINATED SOIL MAY VARY. SEE HEALTH AND SAFETY AND EARTHWORK SPECIFICATIONS FOR ADDITIONAL DETAILS

DEMOLITION NOTES

1. REMOVE PRESSURE TANK FOUNDATIONS IN THEIR ENTIRETY, BOTH ABOVE AND BELOW GROUND.
2. REMOVE RAILROAD TRACKS, TIES AND ALL HARDWARE BETWEEN LIMITS SHOWN. REMOVE & DISPOSE ADJACENT SOIL & BACKFILL EXCAVATION. SEE DETAIL 3/C7.
3. REMOVE CONCRETE TRENCH, INCLUDING ANY PIPES OR CONDUITS.
4. REMOVE STEEL BOLLARDS, BOTH PIPE AND PRESSURE TANK TYPE.
5. REMOVE CONCRETE SLAB ON GRADE.
6. REMOVE FABRICATED STEEL MECHANISM AND FOUNDATIONS
7. REMOVE WOOD CANOPY, POSTS AND SUPPORTS.
8. REMOVE REINFORCED CONCRETE STRUCTURE, INCLUDING STEEL ROOF AND FOUNDATION.
9. REMOVE WOOD LOADING DOCK, INCLUDING ANY SUPPORTS.
10. EXPOSE AND CAP EXISTING WATERLINE INSIDE PROPERTY LINE.
11. REMOVE TREE, INCLUDING THE ROOTBALL.
12. REMOVE CMU PARTITION WALLS.
13. REMOVE CHAIN LINK FENCE AND/OR GATES AND POSTS WITH FOUNDATIONS.
14. REMOVE DOCK HIGH SLAB, WALLS AND FOUNDATIONS.
15. REMOVE METAL RETAINING WALL.
16. REMOVE CONCRETE CURB.
17. REMOVE STEEL FRAME BUILDING INCLUDING FLOOR SLAB, INTERIOR WALLS AND FOUNDATIONS.
18. REMOVE CONCRETE BLOCKS AND RUBBLE.
19. REMOVE ELEVATED SIGN AND FOUNDATION.
20. REMOVE METAL CONTAINER.
21. REMOVE CONCRETE RAMP, SIDE WALLS AND FOUNDATIONS.
22. REMOVE STEEL PROTECTIVE FENCING, INCLUDING ANY CONCRETE FOUNDATIONS.
23. EXPOSE AND CAP EXISTING 6-INCH SEWER LINE INSIDE OF AND WITHIN 5' OF PROPERTY LINE IN ACCORDANCE WITH SECTION 722.0 OF THE UNIFORM PLUMBING CODE.
24. REMOVE EXISTING CATCH BASIN. SALVAGE EXISTING FRAME & COVER. INSTALL NEW CB (VERTICAL PIPE TO MATCH EXISTING DIAMETER) TO FINISH GRADE. INSTALL SALVAGED FRAME AND COVER. SET VERTICAL PIPE IN 6" THICK CAST IN PLACE CONCRETE BASE. PROVIDE 18" DEEP SUMP. RECONNECT TO EXIST. STORM DRAIN.
25. REMOVE SUMP IN TRENCH, PLUG EXITING PIPE.
26. REMOVE DEBRIS, INCLUDING TIRES AND OTHER MISCELLANEOUS MATERIAL.
27. REMOVE CONCRETE SLAB, SHEET METAL SHELTER AND CHAIN LINK FENCING.
28. REMOVE ASPHALT CONCRETE RAMP, INCLUDING SOIL MATERIAL.
29. DECOMMISSION EXISTING MONITORING WELLS PER WASHINGTON STATE DOE REQUIREMENTS. (UP TO 3 TOTAL ON 1702 SITE)
30. REMOVE SHEET METAL BUILDING INCLUDING CONCRETE SLAB.
31. REMOVE STREET ADDRESS SIGN.
32. DISPOSE OF REMAINING SAND GRIT, LOCATED IN WALLS OF BUILDING
33. EXPOSE AND PLUG EXISTING 12 INCH STORM PIPE.
34. REMOVE AC PAVEMENT.
35. ADJUST UTILITY TO FINISH GRADE.
36. EXISTING BUILDING FOUNDATION IS WOOD PILE SUPPORTED. CUT OFF WOOD PILES TO ELEVATION 12 & DISPOSE. PROVIDE HORIZONTAL & VERTICAL SURVEY DOCUMENTATION OF BURIED PILES.

BUILDING AREA

BA-1 = 525 S.F.
BA-2 = 339 S.F.
BA-3 = 18486 S.F.

TOTAL = 19350 S.F.

CLEARING AND GRADING AREA

CA-1 = 189,667 S.F.
TOTAL = 189,667 S.F.

LEGEND

- PROPERTY LINE
- SILT FENCE DETAIL 1/C8
- SAWCUT
- PROVIDE TEMP. 4' HIGH VISIBILITY FENCE W/5' ENAMEL COATED METAL STAKES
- REMOVE PAVEMENT
- EXISTING WETLAND
- EXISTING ASPHALT
- EXISTING BUILDING
- EXISTING GRAVEL
- EXISTING CONCRETE
- C.B. PROTECTION DETAIL 4/C8
- DEMOLITION NOTE
- PHOTO NUMBER, SEE SPECIFICATION SECTION 02 41 16 FOR PICTURE (TYP)

PORT OF TACOMA P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

SITTS & HILL ENGINEERS, INC.
CIVIL • STRUCTURAL • SURVEYING
4815 CENTER ST. TACOMA, WA. 98409 PHONE: (253) 474-9449

PORT of TACOMA U.S.A.

MARK:	REVISION:	BY:	APPR:	DATE:
1	MARCH 2011 CITY COMMENTS			23 MARCH 2011

ROBERT L. DAHMEN, STATE OF WASHINGTON, 20289, REGISTERED PROFESSIONAL ENGINEER

APPROVED:
CHECKED BY DATE
S_PM DATE PROJ. ENGR DATE
PRINTED BY: watkinsj Mar 25, 2011
PORT ADDRESS: ONE SITCUM PLAZA TACOMA, WA 98401-1837

1702 PORT OF TACOMA ROAD, 1721 & 1451 THORNE ROAD DECONSTRUCTION

1702 PORT OF TACOMA
SITE DEMOLITION PLAN

TOWNSHIP: 21 | RANGE: 3 | SECTION: 34
DAT-HRZ: WA83-SF | VERT: MLLW 19.39' @ Tide 22 1933
PARCEL: | DRAWING SCALE: AS NOTED

C3
SHEET 8 OF 13
CONT/CONS: 069256
M. ID: 099568
PHASE:

FILE: V:\14800\14858\Drawings\14858-C3

AGI TECHNOLOGIES

Table 2
Soil Analytical Summary
Detected Volatile Organic Compounds and Total Metals
NAMPAC/Paint Area Investigation
Tacoma, Washington

Analyte	Sample Location, Depth, and Date Sampled								Reporting Limit	MTCA Method A Cleanup Level [c]	
	A-5 3-1/2' - 4' 09/13/96	B-2 18" 09/12/96	B-2 4-1/2' to 5' 09/13/96	C-1 18" 09/12/96	C-3 Surface 09/12/96	C-3 24" 09/12/96	Boring MW3 [a] 2' 11/22/88	Paint Storage Shed [b] 11/22/88		Residential	Industrial
	mg/kg								mg/kg		
Volatile Organic Compounds											
Ethylbenzene	ND	ND	ND	1.1	NA	ND	62	0.36	0.05[d]/0.025 [e]	20	20
Toluene	ND	ND	ND	0.72	NA	ND	430	0.40	0.05/0.025	40	40
Total Xylenes	ND	ND	ND	6.8	NA	ND	630	1.53	0.05/0.025	20	20
Methylene Chloride	ND	ND	ND	ND	NA	ND	0.41	0.60	0.25/0.025	0.5	0.5
1,1,1-Trichloroethane	ND	ND	ND	ND	NA	ND	0.040	ND	0.050/0.010	20	20
Tetrachloroethene	ND	ND	ND	ND	NA	ND	ND	0.088	0.050/0.010	0.5	0.5
Total Metals											
Arsenic	2.9	NA	NA	3.9	3.4	NA	NA	NA	0.25	20	200
Barium	29	NA	NA	32	45	NA	NA	NA	0.5	--	--
Cadmium	ND	NA	NA	ND	ND	NA	NA	NA	0.25	2	10
Chromium	11	NA	NA	30	52	NA	NA	NA	0.5	100	500
Lead	56	NA	NA	270	400	NA	NA	NA	1.5	250	1,000
Mercury	ND	NA	NA	ND	ND	NA	NA	NA	0.1	1.0	1.0
Selenium	ND	NA	NA	ND	ND	NA	NA	NA	0.25	--	--
Silver	ND	NA	NA	ND	ND	NA	NA	NA	0.25	--	--

Notes:

a) GeoEngineers' Sample 1-A.
b) GeoEngineers' Sample 4, Paint Locker Area.
c) Method A suggested cleanup level for residential/industrial soil promulgated under Washington Administrative Code Chapter 173-340, Model Toxics Control Act Cleanup Regulation.
d) Method reporting limit for analytical data reported by EPA Method 8240 (samples collected by AGI).
e) Method reporting limit for analytical data reported by EPA Method 8010/8020 (samples collected by GeoEngineers).
mg/kg - Milligrams per kilogram, dry weight basis. NA - Not analyzed. ND - Not detected.

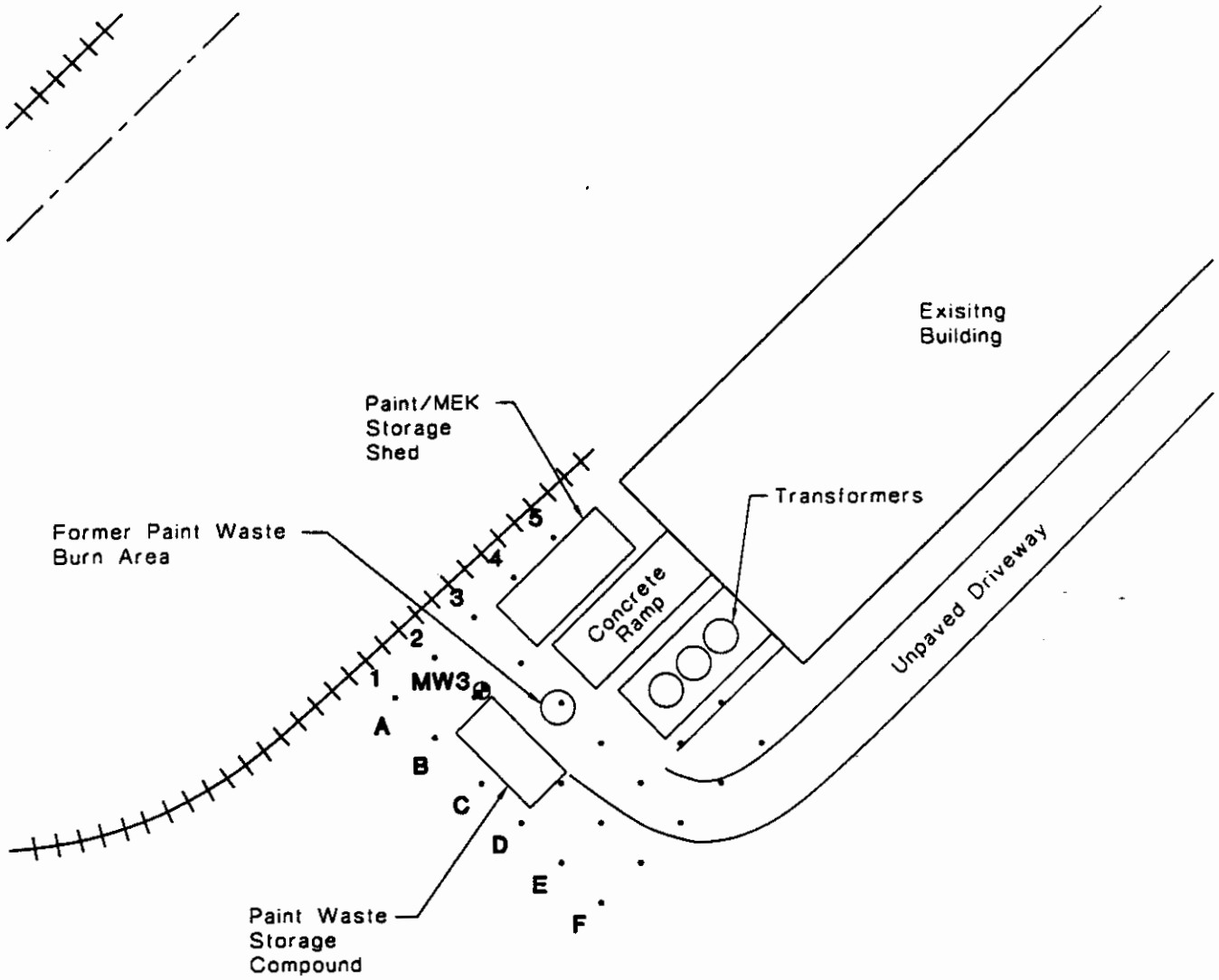
AGI TECHNOLOGIES

Table 3
Groundwater Analytical Summary - Volatile Organic Compounds
NAMPAC/Paint Area Investigation
Tacoma, Washington

Well I.D.	Company	Sample I.D.	Date Sampled	Ethyl-benzene	Toluene	Total Xylenes	Tetrachloro-ethene
				µg/L			
MW1	GeoEngineers	B-3	11/22/88	ND	ND	ND	ND
MW2	GeoEngineers	B-2	11/22/88	ND	3.6	4.4	ND
MW3	GeoEngineers	B-1	11/22/88	78,000	1,700,000	650,000	ND [a]
	AGI	MW-3	12/06/96	ND	3	6	2
Method Reporting Limit (MRL)				1[b]/0.5[c]	1/0.5	1/0.5	1/0.2
Cleanup Level [d]				30	40	20	5

Notes:

11/22/88 samples analyzed by EPA Methods 601//602.
12/06/96 sample analyzed by EPA Method 8240 A.
a) MRL - 1,000 µg/L due to sample dilution.
b) MRL for EPA Method 8240A data.
c) MRL for EPA Method 601/602 data; MRLs are elevated when sample dilution is necessary.
d) Method A suggested cleanup level for groundwater promulgated under Washington Administrative Code Chapter 173-340, Model Toxics Control Act Cleanup Regulation.
ND - Not detected.
NS - Not sampled.
µg/L - Micrograms per liter.



AGI TECHNOLOGIES

Sampling Grid Location Map

NAMPAC/Paint Area Investigation
Tacoma, Washington

FIGURE 3

PROJECT NO.	DRAWN	DATE	APPROVED	REVISED	DATE
934003s1.dwg	15,934.003	03 Jan 97	MAP		

Notes:

1. Results are reported in parts per million (ppm)
2. ND denotes not detected above the detection limit
3. NT indicates sample not tested for this metal
4. Method A Cleanup Levels for Soils, from the Model Toxics Control Act (MTCA) 173-340-740 and MTCA Cleanup Levels and Risk Calculations (CLARC II) Update, Publication No. 94-145

In addition, soil samples from B-8 near the groundwater surface, from HA-6 with a high concentration of selenium, and three samples of the welding slag were subjected to Toxicity Characteristic Leaching Procedure (TCLP) by EPA Method 1311. Selenium was not detected in the sample from B-8, HA-6, or two samples of the slag. One sample of the welding slag had levels of barium, cadmium, and selenium well below those that would characterize it as a dangerous waste. The results appear in Table 2 below:

TABLE 2
TCLP ANALYSIS[1]

Sample Number	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
B-8	NT[2]	NT	NT	NT	NT	NT	ND[3]	NT
HA-6-3	NT	NT	NT	NT	NT	NT	ND	NT
Welding Slag-1	ND	0.074	0.2	ND	ND	ND	0.66	ND
Welding Slag-2	NT	NT	NT	NT	NT	NT	ND	NT
Welding Slag-3	NT	NT	NT	NT	NT	NT	ND	NT
DW Threshold[4]	**5.0**	**100.0**	**1.0**	**5.0**	**5.0**	**0.2**	**1.0**	**5.0**

Notes:

1. Results are reported in parts per million (ppm).
2. NT denotes not tested.
3. ND denotes not detected above the detection limit.
4. Maximum allowable concentrations of contaminants from the Dangerous Waste Regulations WAC 173-303-090, Publication No. 92-91.

Groundwater

Groundwater samples from monitoring wells MW-1 through MW-8 were analyzed for petroleum hydrocarbons, for PCBs, for volatile organic compounds (VOCs), for pesticides and herbicides, and for dissolved RCRA metals. Again, the type of test selected for each sample was based upon probable contaminants at that location or upon past test results. The results of the analyses are summarized in the paragraph which follows. Complete laboratory reports for all analyses can be found in Appendix C.

Samples from MW-1, MW-2, MW-3, MW-5, and MW-6, those wells closest to the paint and solvent storage areas, were analyzed for VOCs. Acetone at levels ranging from 1.4 parts per billion (ppb) to 9.8 ppb, below the MTCA Method B cleanup level of 800 ppb, was detected in each of the samples. The sample from MW-1, the well nearest the paint waste storage area, also had very low levels of ethylbenzene and xylenes. The sample from MW-4, near the transformer pad, did not have detectable concentrations of petroleum hydrocarbons or of PCBs. The samples from MW-7, in the sewer fill area, and from MW-8, in the public dumping area, were analyzed for petroleum hydrocarbons, herbicides and pesticides, and dissolved RCRA metals. The sample from MW-7

had concentrations of diesel and motor oil below the MTCA cleanup level. The sample from MW-8 did not have detectable amounts of petroleum hydrocarbons. Neither sample had detectable concentrations of pesticides or herbicides. Concentrations of dissolved metals for samples from these two wells appear in Table 3 below:

TABLE 3
DISSOLVED METALS IN GROUNDWATER[1]

Sample Number	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
MW-7	4.4	89	ND[2]	ND	ND	ND	ND	ND
MW-8	7	31	ND	ND	12	ND	540	ND
Current Cleanup Level[3]	**5.0**	**1,120**	**5.0**	**50.0**	**5.0**	**2.0**	**80.0**	**80.0**

Notes:

1. Results are reported in parts per billion (ppb)
2. ND denotes not detected above the detection limit
3. Method A Cleanup Levels for Groundwater from the Model Toxics Control Act (MTCA) 173-340-720 and MTCA Cleanup Levels and Risk Calculations (CLARC II) Update, Publication No. 94-145

CONCLUSIONS

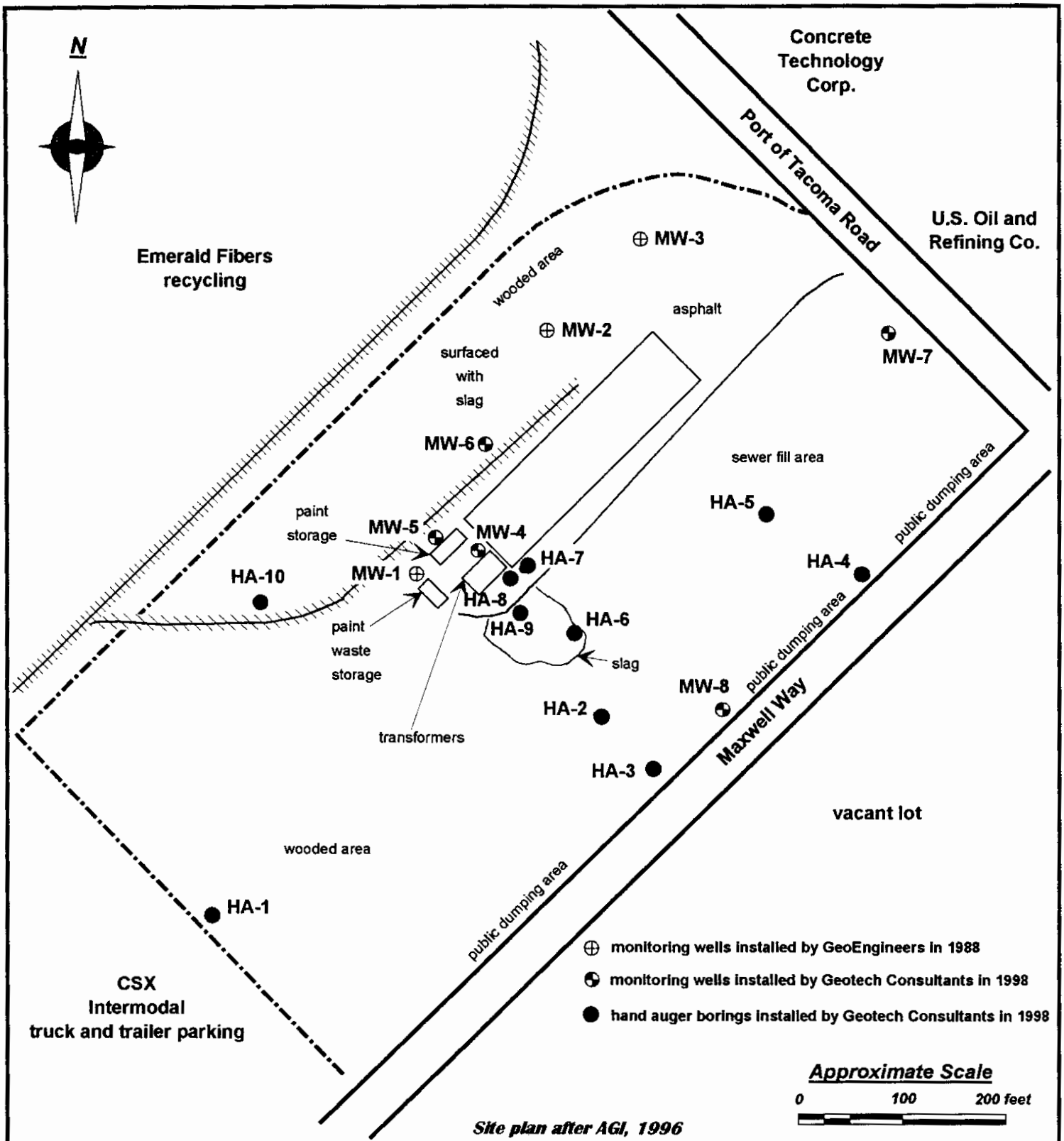
The purpose of this study was to further assess the condition of the quality of the soil and groundwater at the subject property. For clarity, the discussion that follows addresses the topics of soil and groundwater separately.

Known Conditions

Soil

Our field observations completed for this phase of work suggest that the upper ten feet of soil on the site is dredged fill. The northwestern side of the property has been surfaced with welding slag to an approximate depth of six inches. The welding slag was also disposed of in a wooded area to the south of the building. TCLP analysis of the welding slag and selected soil samples indicates that the levels of arsenic, barium, chromium, and selenium are below the threshold concentrations for a dangerous waste. The total concentration of these metals is also below MTCA cleanup levels. This material may be geotechnically unsuitable as fill, and, as discussed below, may have contributed metals to groundwater at concentrations above MTCA cleanup levels.

Analysis of soil samples from HA-1 revealed concentrations of diesel- and heavy oil-range petroleum hydrocarbons in excess of current MCTA cleanup requirements. Although a soil sample from the compressor area (HA-8) found no evidence of petroleum contamination, a previous report by AGI noted that some petroleum-contaminated soil apparently remains in that area. Soil samples at all other locations were within MTCA cleanup standards for all analytes.



Site plan after AGI, 1996

GEOTECH CONSULTANTS, INC.

SITE EXPLORATION PLAN

NAMPAC Facility
1702 Port of Tacoma Road
Tacoma, Washington

Job No:	Date:		Plate:
98215E	July 1998		2

- pH by EPA Method 9045

The executed chain-of-custody forms and laboratory analytical certificates are provided in Appendix B. Data validation was outside of our scope of services and was not completed for this project. Analytical results as reported by the laboratory are summarized below:

- Volatile TPH as gasoline, semi-volatile TPH as diesel, semi-volatile organic compounds, and polychlorinated biphenyls (PCBs) were not detected above laboratory reporting limits in any of the samples.

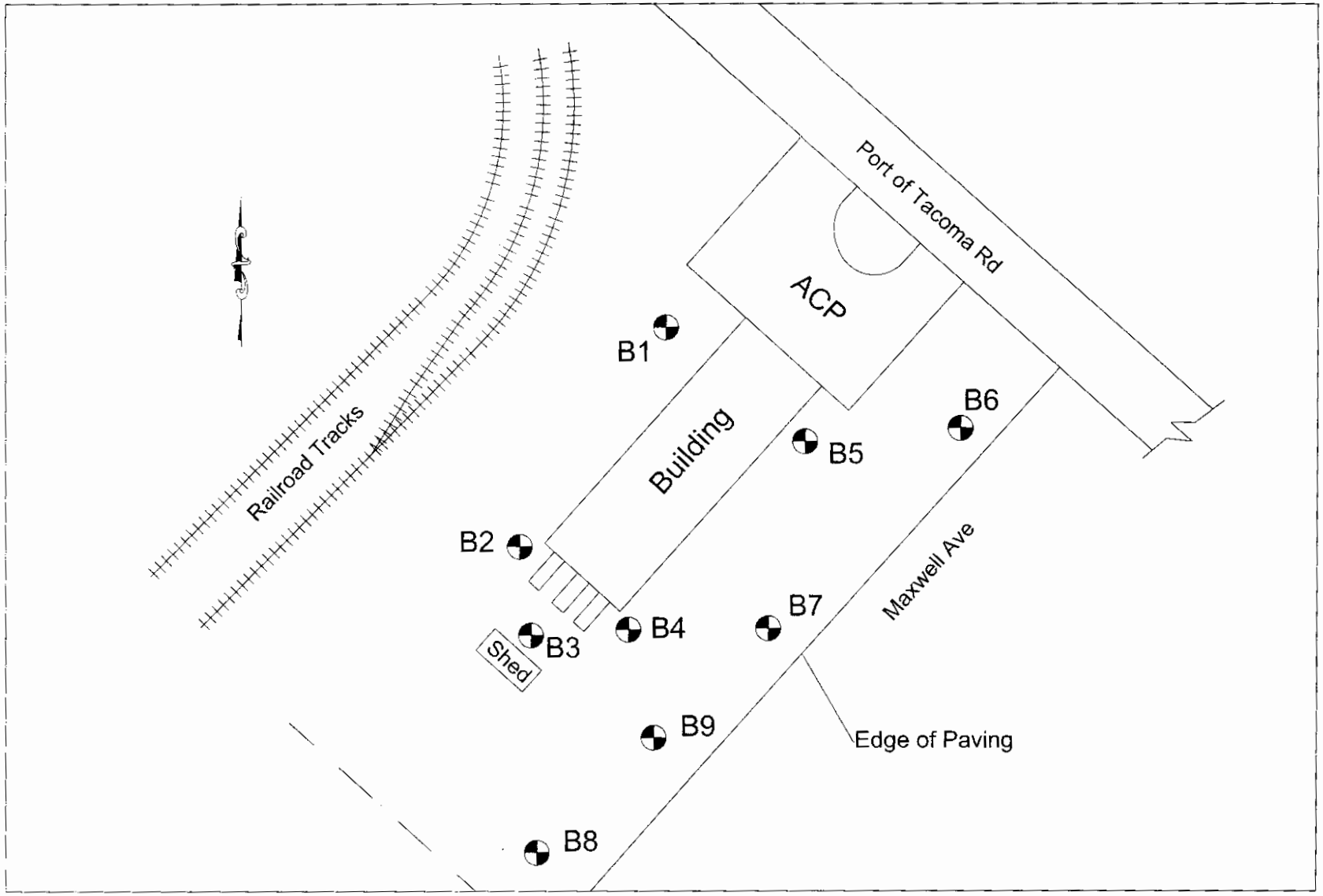
- Semi-volatile TPH as oil was not detected above laboratory reporting limits in any of the samples, expect that Sample B9-6" contained a reported concentration of 2,920 mg/kg. This value exceeded the Model Toxics Control Act (WAC 173-340) Method A cleanup level for soil (2,000 mg/kg). It should be noted that the lack of reported semi-volatile organic compounds (in particular polycyclic aromatic hydrocarbons) was unexpected given the relatively high reported concentration of semi-volatile TPH as oil in Sample B9-6".

- Volatile organic compounds were not detected above laboratory reporting limits in any of the samples, except that total xylenes were reported at a concentration of 0.05 mg/kg and 0.052 mg/kg in Samples B3-16" and B5-17", respectively. These values did not exceed the MTCA Method A cleanup level for soil (9 mg/kg).

- Total arsenic, cadmium, selenium, silver, and mercury were not detected above laboratory reporting limits in any of the samples. Total lead was not detected above laboratory reporting limits in any of the samples except for B2-13" (12 mg/kg) and B9-6" (26 mg/kg). Total barium (14 mg/kg to 78 mg/kg) and total chromium (16 mg/kg to 43 mg/kg) were reported in all nine samples. The reported values for lead did not exceed the MTCA Method A cleanup level for soil (250 mg/kg). Method A cleanup levels for barium have not been defined. The reported concentrations of barium did not exceed the default, direct contact (ingestion only) Method B cleanup level (16,000 mg/kg). MTCA cleanup levels for total chromium have not been defined. The MTCA Method A cleanup levels for chromium III and chromium VI are 2,000 mg/kg and 19 mg/kg, respectively.

- Leachable metals as determined by the Toxic Characteristic Leaching Procedure (TCLP) were not reported above laboratory reporting limits, expect that leachable barium was detected in all samples in concentrations ranging from 0.10 mg/L to 0.33 mg/L.

- pH was reported to range from pH 5.02 to pH 8.13.



SITE & EXPLORATION PLAN

Port of Tacoma
1702 Port of Tacoma Road
Tacoma, Pierce County, Washington

Project Mngr: JME	ZZA Zipper Zeman Associates, Inc. Geotechnical & Environmental Consulting A Terracon Company		Project No. 81075829
Designed By: AD			Scale: Not to Scale
Checked By:	18905 33rd Avenue West, #117 Lynnwood, Washington 98036		Date: June, 2007
Approved By:			Drawn By: JME
File Name: FIG1.DWG			Figure No. 1

DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

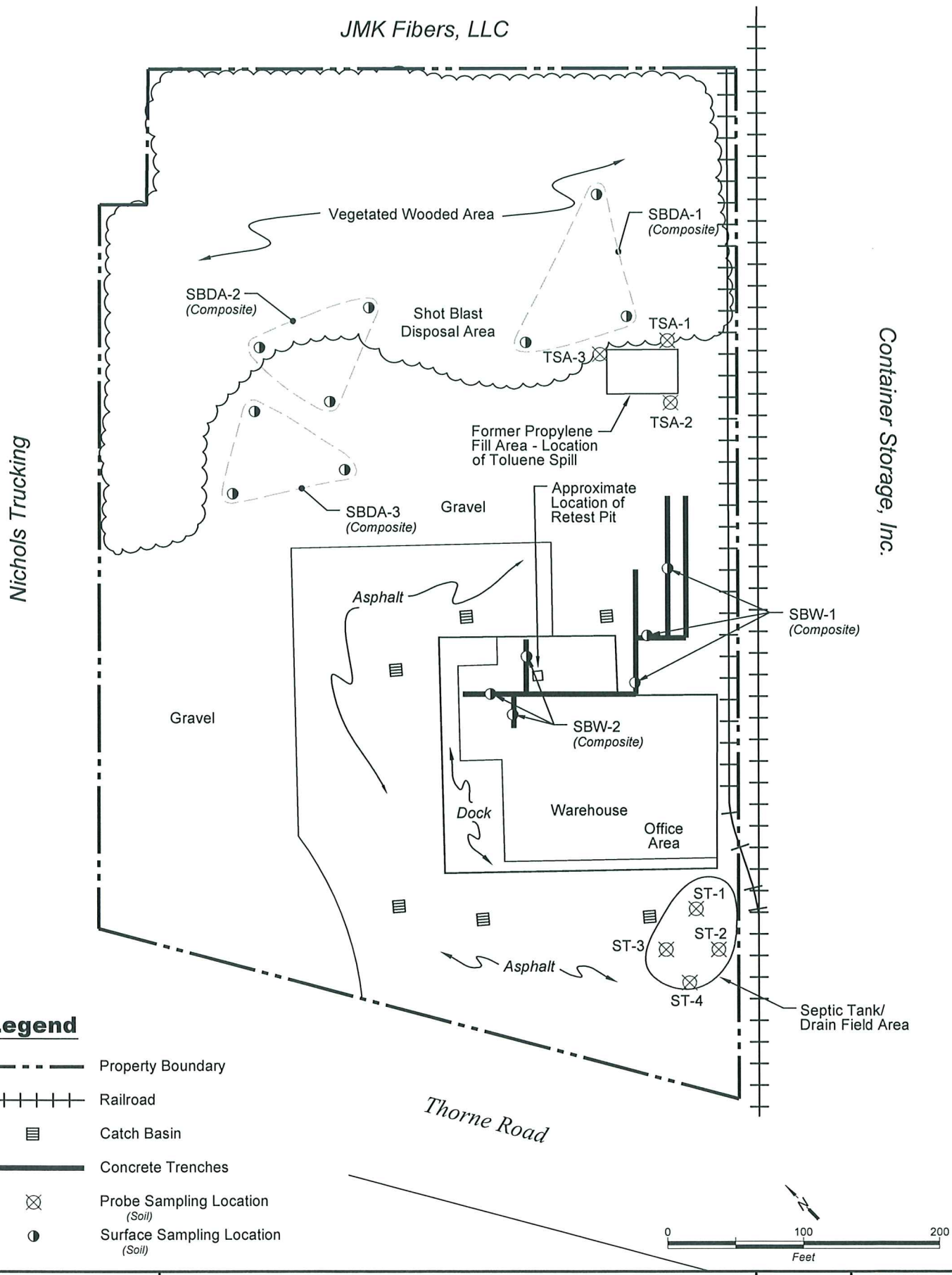
Table 1- Analytical Results for Soil Samples

Location	TSA-1	ST-2	SBW-1	SBW-2	SBDA-1	SBDA-2	SBDA-3	MTCA
Sample Depth in ft	4 to 5	4 to 5	Outdoor Trenches	Indoor Trenches	0 to 0.5	0 to 0.5	0 to 0.5	Screening
Sample Date	3/16/2006	3/16/2006	3/16/2006	3/16/2006	3/16/2006	3/16/2006	3/16/2006	Levels
Total Metals by EPA Method 6010B in mg/kg								
Arsenic [(1)]	--	5 U	20 U	20 U	5 U	10 U	5 U	20 [(A)]
Cadmium	--	0.3 U	16	0.6	0.3 U	0.3 U	0.3 U	2 [(A)]
Chromium	--	12	160	1,300	25	15	23	19/2,000 [(A2)]
Copper	--	7.2	890	1,600	15	11	17	263 [(B)]
Lead	--	4 U	210	110	38	6	16	1,000 [(A)]
Selenium	--	8 U	8 U	8 U	8 U	8 U	8 U	--
Zinc	--	17	2,000	320	43	25	38	5,970 [(B)]
Volatile Organic Compounds by EPA 8260B in mg/kg								
Toluene	0.025 U	0.025 U	--	--	--	--	--	7 [(A)]
Ethyl Benzene	0.025 U	0.025 U	--	--	--	--	--	6 [(A)]
Total Xylenes	0.05 U	0.05 U	--	--	--	--	--	9 [(A)]

Notes

TSA Toluene spill area
ST Septic tank area
SBW Shotblast waste in trenches
SBDA Shotblast disposal area
U Not detected at or above the reported value.
-- Not submitted for listed analyte
SBW and SBDA samples consisted of three point composites.
(1) Arsenic detection limit elevated for SBW samples and SBDA-2 due to spectral interference from high metals content of the sample.

MTCA Screening Levels
(A) Method A soil cleanup level for industrial properties
(A2) Method A soil cleanup level for industrial properties; first value is for $Cr^{(VI)}$ and the second value is for $Cr^{(III)}$
(B) Method A not available; based on Method B soil cleanup level protective of groundwater (non-carcinogen)



Sampling Locations

Port of Tacoma - 1451 Thorne Road
Tacoma, Washington

Aspect consulting
IN-DEPTH PERSPECTIVE
179 Madrone Lane North
Bainbridge Island, WA 98110
(206) 780-9370
811 First Avenue #480
Seattle, WA 98104
(206)-328-7443

DATE	April 2006
DESIGNED BY	DLC
DRAWN BY	JRS
REVISED BY	
PROJECT NO.	050191
FIGURE NO.	2

Q:\Port of Tacoma\050191 1451 Thorne Road\2006-04 Sampling\050191-02.dwg

Tacoma-Pierce County Health Department

Alfred M. Allen, M.D., M.P.H.
Director of Health

March 6, 1990

Chemical Processors
3400 East Marginal Way South
Seattle, WA 98134

ATTN: Mark Knight

RE: Underground Storage Tank Removal at Liquid Air Corporation
1451 Thorne Road, Tacoma, WA

Dear Mr. Knight:

This letter serves to inform you that the Tacoma-Pierce County Health Department (TPCHD) has reviewed the soil test results and is now prepared to make a decision as to the outcome of the above-mentioned project.

TPCHD's review indicates that the test results are below Washington Department of Ecology's maximum contaminant levels for petroleum-contaminated soil. Based on this information, the tank removal operation at this site may now be closed.

If you have any questions, please contact me at 591-6469.

Sincerely,

Enrico Baroga, R.S.
Environmental Health Specialist
Hazardous Waste Program
Water Resources Section
Environmental Health Division

EB:ks

cc: Liquid Air Corporation
1451 Thorne Road
Tacoma, WA 98421

BINDING EDGE

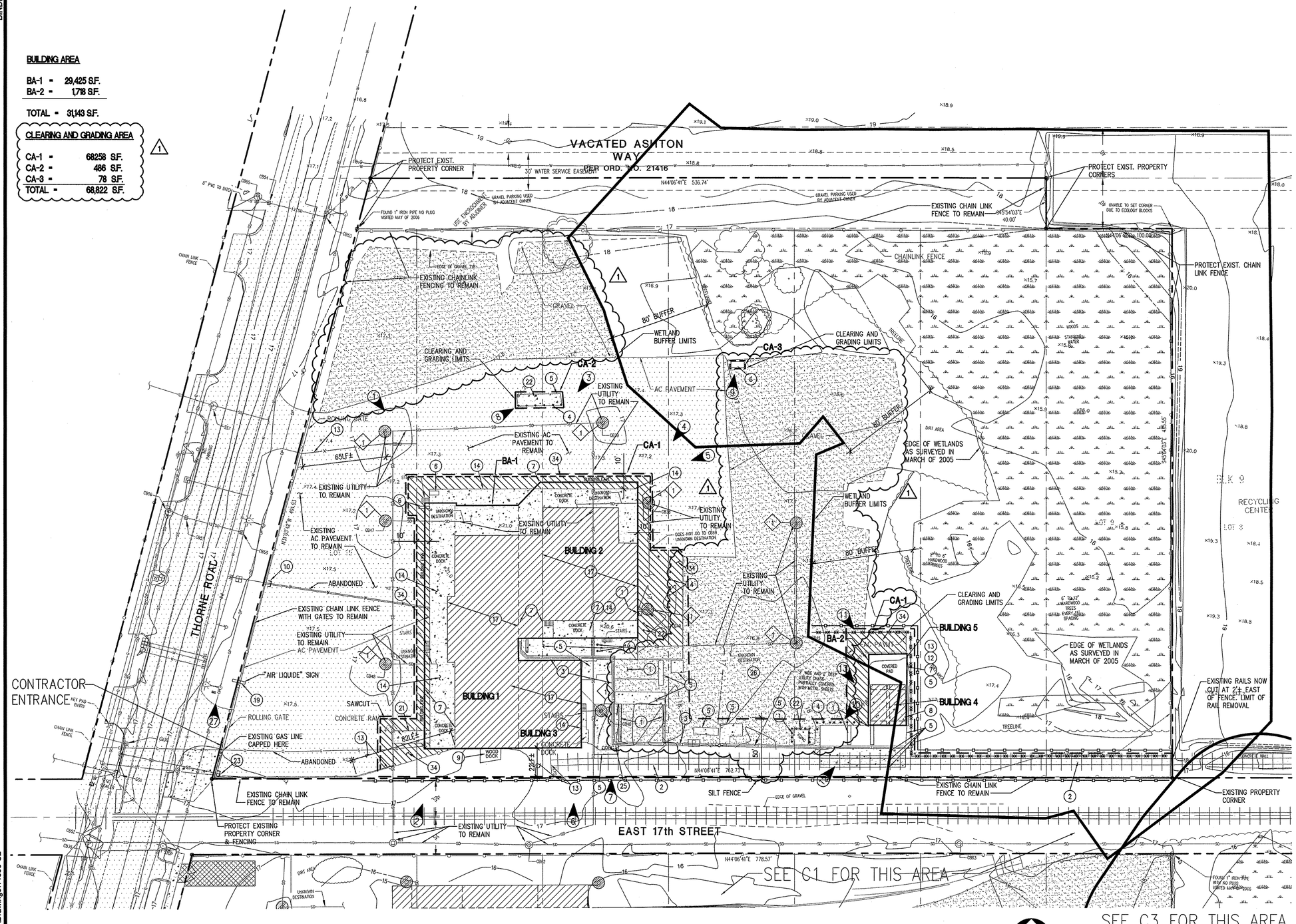
BUILDING AREA

BA-1 = 29,425 S.F.
BA-2 = 1,718 S.F.

TOTAL = 31,143 S.F.

CLEARING AND GRADING AREA

CA-1 = 68258 S.F.
CA-2 = 486 S.F.
CA-3 = 78 S.F.
TOTAL = 68,822 S.F.



DEMOLITION NOTES

1. REMOVE PRESSURE TANK FOUNDATIONS IN THEIR ENTIRETY, BOTH ABOVE AND BELOW GROUND.
2. REMOVE RAILROAD TRACKS, TIES AND ALL HARDWARE BETWEEN LIMITS SHOWN. REMOVE & DISPOSE ADJACENT SOIL & BACKFILL EXCAVATION. SEE DETAIL 3/C7.
3. REMOVE CONCRETE TRENCH, INCLUDING ANY PIPES OR CONDUITS.
4. REMOVE STEEL BOLLARDS, BOTH PIPE AND PRESSURE TANK TYPE.
5. REMOVE CONCRETE SLAB ON GRADE.
6. REMOVE FABRICATED STEEL MECHANISM AND FOUNDATIONS
7. REMOVE WOOD CANOPY, POSTS AND SUPPORTS.
8. REMOVE REINFORCED CONCRETE STRUCTURE, INCLUDING STEEL ROOF AND FOUNDATION.
9. REMOVE WOOD LOADING DOCK, INCLUDING ANY SUPPORTS.
10. EXPOSE AND CAP EXISTING WATERLINE INSIDE PROPERTY LINE.
11. REMOVE TREE, INCLUDING THE ROOTBALL.
12. REMOVE CMU PARTITION WALLS.
13. REMOVE CHAIN LINK FENCE AND/OR GATES AND POSTS WITH FOUNDATIONS.
14. REMOVE DOCK HIGH SLAB, WALLS AND FOUNDATIONS.
15. REMOVE METAL RETAINING WALL.
16. REMOVE CONCRETE CURB.
17. REMOVE STEEL FRAME BUILDING INCLUDING FLOOR SLAB, INTERIOR WALLS AND FOUNDATIONS.
18. REMOVE CONCRETE BLOCKS AND RUBBLE.
19. REMOVE ELEVATED SIGN AND FOUNDATION.
20. REMOVE METAL CONTAINER.
21. REMOVE CONCRETE RAMP, SIDE WALLS AND FOUNDATIONS.
22. REMOVE STEEL PROTECTIVE FENCING, INCLUDING ANY CONCRETE FOUNDATIONS.
23. EXPOSE AND CAP EXISTING 6-INCH SEWER LINE INSIDE OF AND WITHIN 5' OF PROPERTY LINE IN ACCORDANCE WITH SECTION 722.0 OF THE UNIFORM PLUMBING CODE. (1)
24. REMOVE EXISTING CATCH BASIN. SALVAGE EXISTING FRAME & COVER. INSTALL NEW CB (VERTICAL PIPE TO MATCH EXISTING DIAMETER) TO FINISH GRADE. INSTALL SALVAGED FRAME AND COVER. SET VERTICAL PIPE IN 6" THICK CAST IN PLACE CONCRETE BASE. PROVIDE 18" DEEP SUMP. RECONNECT TO EXIST. STORM DRAIN.
25. REMOVE SUMP IN TRENCH, PLUG EXITING PIPE.
26. REMOVE DEBRIS, INCLUDING TIRES AND OTHER MISCELLANEOUS MATERIAL.
27. REMOVE CONCRETE SLAB, SHEET METAL SHELTER AND CHAIN LINK FENCING.
28. REMOVE ASPHALT CONCRETE RAMP, INCLUDING SOIL MATERIAL.
29. DECOMMISSION EXISTING MONITORING WELLS (UP TO 3 TOTAL ON 1702 SITE) (1)
30. REMOVE SHEET METAL BUILDING INCLUDING CONCRETE SLAB.
31. REMOVE STREET ADDRESS SIGN.
32. DISPOSE OF REMAINING SAND GRIT, LOCATED IN WALLS OF BUILDING
33. EXPOSE AND PLUG EXISTING 12 INCH STORM PIPE.
34. REMOVE AC PAVEMENT.
35. ADJUST UTILITY TO FINISH GRADE.

LEGEND

- PROPERTY LINE
- SILT FENCE DETAIL 1/C8
- SAWCUT
- PROVIDE TEMP. 4' HIGH VISIBILITY FENCE W/5' ENAMEL COATED METAL STAKES
- REMOVE PAVEMENT
- EXISTING WETLAND
- EXISTING ASPHALT
- EXISTING BUILDING
- EXISTING GRAVEL
- EXISTING CONCRETE
- (1) C.B. PROTECTION DETAIL 4/C8
- (5) DEMOLITION NOTE
- (23) PHOTO NUMBER, SEE SPECIFICATION SECTION 02 41 16 FOR PICTURE (TYP)

PORT OF TACOMA P.O. BOX 1837
TACOMA, WA 98401 (253)383-5841
SITTS & HILL ENGINEERS, INC.
CIVIL • STRUCTURAL • SURVEYING
4401 ADDISON ST. TACOMA, WA 98409
PHONE: (253) 474-9449

MARK:	REVISION:	BY:	APPR:	DATE:
1	MARCH 2011 CITY COMMENTS			23 MARCH 2011

APPROVED:

CHECKED BY	DATE	S_PM	DATE	PROJ. ENGR	DATE
		PRINTED BY: watkins_j Mar 25, 2011			

C2
SHEET 7 OF 13

1702 PORT OF TACOMA ROAD,
1721 & 1451 THORNE ROAD DECONSTRUCTION
1451 THORNE ROAD
SITE DEMOLITION PLAN

CONT/CONS: 069256	TOWNSHIP: 21	RANGE: 3	SECTION: 34
M. ID: 099568	DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933	PORT ADDRESSONE SITCUM PLAZA
PHASE:	PARCEL:	DRAWING SCALE: AS NOTED	TACOMA, WA 98401-1837

FILE: V:\1480011485 8\Drawings\14858-C2

BINDING EDGE

DEMOLITION NOTES

1. REMOVE PRESSURE TANK FOUNDATIONS IN THEIR ENTIRETY, BOTH ABOVE AND BELOW GROUND.
2. REMOVE RAILROAD TRACKS, TIES AND ALL HARDWARE BETWEEN LIMITS SHOWN. REMOVE & DISPOSE ADJACENT SOIL & BACKFILL EXCAVATION. SEE DETAIL 3/C7.
3. REMOVE CONCRETE TRENCH, INCLUDING ANY PIPES OR CONDUITS.
4. REMOVE STEEL BOLLARDS, BOTH PIPE AND PRESSURE TANK TYPE.
5. REMOVE CONCRETE SLAB ON GRADE.
6. REMOVE FABRICATED STEEL MECHANISM AND FOUNDATIONS
7. REMOVE WOOD CANOPY, POSTS AND SUPPORTS.
8. REMOVE REINFORCED CONCRETE STRUCTURE, INCLUDING STEEL ROOF AND FOUNDATION.
9. REMOVE WOOD LOADING DOCK, INCLUDING ANY SUPPORTS.
10. EXPOSE AND CAP EXISTING WATERLINE INSIDE PROPERTY LINE.
11. REMOVE TREE, INCLUDING THE ROOTBALL.
12. REMOVE CMU PARTITION WALLS.
13. REMOVE CHAIN LINK FENCE AND/OR GATES AND POSTS WITH FOUNDATIONS.
14. REMOVE DOCK HIGH SLAB, WALLS AND FOUNDATIONS.
15. REMOVE METAL RETAINING WALL.
16. REMOVE CONCRETE CURB.
17. REMOVE STEEL FRAME BUILDING INCLUDING FLOOR SLAB, INTERIOR WALLS AND FOUNDATIONS.
18. REMOVE CONCRETE BLOCKS AND RUBBLE.
19. REMOVE ELEVATED SIGN AND FOUNDATION.
20. REMOVE METAL CONTAINER.
21. REMOVE CONCRETE RAMP, SIDE WALLS AND FOUNDATIONS.
22. REMOVE STEEL PROTECTIVE FENCING, INCLUDING ANY CONCRETE FOUNDATIONS. 1
23. EXPOSE AND CAP EXISTING 6-INCH SEWER LINE INSIDE OF AND WITHIN 5' OF PROPERTY LINE IN ACCORDANCE WITH SECTION 722.0 OF THE UNIFORM PLUMBING CODE.
24. REMOVE EXISTING CATCH BASIN. SALVAGE EXISTING FRAME & COVER. INSTALL NEW CB (VERTICAL PIPE TO MATCH EXISTING DIAMETER) TO FINISH GRADE. INSTALL SALVAGED FRAME AND COVER. SET VERTICAL PIPE IN 6" THICK CAST IN PLACE CONCRETE BASE. PROVIDE 18" DEEP SUMP. RECONNECT TO EXIST. STORM DRAIN.
25. REMOVE SUMP IN TRENCH, PLUG EXITING PIPE.
26. REMOVE DEBRIS, INCLUDING TIRES AND OTHER MISCELLANEOUS MATERIAL.
27. REMOVE CONCRETE SLAB, SHEET METAL SHELTER AND CHAIN LINK FENCING.
28. REMOVE ASPHALT CONCRETE RAMP, INCLUDING SOIL MATERIAL.
29. DECOMMISSION EXISTING MONITORING WELLS (UP TO 3 TOTAL ON 1702 SITE) 1
30. REMOVE SHEET METAL BUILDING INCLUDING CONCRETE SLAB.
31. REMOVE STREET ADDRESS SIGN.
32. DISPOSE OF REMAINING SAND GRIT, LOCATED IN WALLS OF BUILDING
33. EXPOSE AND PLUG EXISTING 12 INCH STORM PIPE.
34. REMOVE AC PAVEMENT.
35. ADJUST UTILITY TO FINISH GRADE.

BUILDING AREA

BA-1 = 411 S.F.
BA-2 = 20307 S.F.
TOTAL = 20718 S.F.

CLEARING AND GRADING AREA

CA-1 = 82208 S.F.
TOTAL = 82208 S.F.

LEGEND

- PROPERTY LINE
- SILT FENCE DETAIL 1/C8
- SAWCUT
- REMOVE PAVEMENT
- EXISTING WETLAND
- EXISTING ASPHALT
- EXISTING BUILDING
- EXISTING GRAVEL
- EXISTING CONCRETE
- C.B. PROTECTION DETAIL 4/C8
- (5) DEMOLITION NOTE
- (23) PHOTO NUMBER, SEE SPECIFICATION SECTION 02 41 16 FOR PICTURE (TYP)

SCALE: 1" = 40'

NORTH

PROJECT NORTH

MARK:	REVISION:	BY:	APPR:	DATE:
1	MARCH 2011 CITY COMMENTS			23 MARCH 2011

PORT OF TACOMA P.O. BOX 1837
TACOMA, WA 98401 (253)383-5841

SITTS & HILL ENGINEERS, INC.
CIVIL • STRUCTURAL • SURVEYING
4815 CENTER ST. TACOMA, WA. 98409
PHONE: (253) 474-9449

PORT OF TACOMA U.S.A.

APPROVED:	CHECKED BY	DATE

S_PM	DATE	PROJ. ENGR	DATE
PRINTED BY: watkinsj Mar 25, 2011			
PORT ADDRESS:ONE SITCUM PLAZA			
TACOMA, WA 98401-1837			

1702 PORT OF TACOMA ROAD,
1721 & 1451 THORNE ROAD DECONSTRUCTION
1721 THORNE ROAD
SITE DEMOLITION PLAN

C1
SHEET 6 OF 13

CONT/CONS: 069256	TOWNSHIP: 21	RANGE: 3	SECTION: 34
M. ID: 099568	DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933	
PHASE:	PARCEL:	DRAWING SCALE: AS NOTED	

FILE: V:\1480014858\Drawings\14858-C1-

8.0 SUMMARY AND CONCLUSIONS

Landau Associates has reviewed previous environmental reports and conducted Focused Phase II soil and groundwater sampling at the 1721 Thorne Road property located at the corner of Thorne Road and Maxwell Way in Tacoma, Washington. The following identifies our findings relative to the subject property.

- The catch basin solid samples indicated concentrations of TPH, BCE, BEP, and arsenic above MTCA cleanup levels. The source of the detected contaminants is suspected to be surface water runoff from the subject property. Petroleum hydrocarbons are commonly found in stormwater catch basins in areas with high traffic. Elevated arsenic levels in the area are not uncommon in the tideflats. The property lies within the Tacoma Smelter Plume, an area affected by lead and arsenic distribution from the former Asarco Smelter in Ruston. BEP is a plasticizer that occurs commonly in the environment. The EPA has identified BEP as a common contaminant in surface water runoff in the Tacoma tideflats area. BCE is mainly used as a chemical intermediate to make pesticides, but some of it is used as a solvent and cleaner. It is a chemical found in high volumes in the United States and is commonly found in industrial areas. Many of the detected concentrations are greater than MTCA soil cleanup levels. However, the concentrations do not suggest that the material will be designated as hazardous waste, and indicate that the solids can be disposed as solid waste if the catch basins are cleaned out. Prior to disposal, the need for any additional analyses should be discussed with the planned disposal facility.

- The trailer yard/slag cleanup area shows only low concentrations of metals in the soil. The samples from the area remediated previously did not indicate the presence of metals at concentrations of concern. The presence of a small amount of slag below the asphalt at DP6 indicates the possibility of localized areas of additional slag on the subject property below the asphalt paved areas. Due to its widespread use, localized areas with residual slag would be anticipated on the subject property. The presence of some slag beneath the asphalt at location DP6 is not considered to be of concern. However, if the soil is excavated, then the presence of slag should be considered in the planning for disposal of the material.

- Two USTs were removed from the subject property. At the time of UST removal, there was no indication that either of the tanks had leaked, and no soil or groundwater contamination was noted. The Focused Phase II investigation did not identify any evidence of impacts in the footprint of the 5,000-gal gasoline UST. Due to the current building configuration, the soil boring for investigation of the diesel UST was located adjacent to the former UST footprint and not within the former footprint, as initially planned. The boring found no evidence of impact to soil or groundwater, and there is no information to suggest any widespread impact associated with the former diesel UST.

- The previous remediation of oil-stained soil in the northeast portion of the subject property appears to have been successful with no further evidence of TPH contamination found in this area during the Focused Phase II sampling.

- The area of the 1994 petroleum hydrocarbon-impacted soil remediation on the north side of the main shop building was not accessible for direct-push sampling due to the presence of brush, stored wooden pallets, and a retaining wall. Therefore, two borings were located adjacent to the south of the east and west ends of the cleanup area and as close to the former

cleanup area as possible to evaluate soil and groundwater conditions. The findings of our explorations (i.e., no evidence of impact to soil or groundwater) agree with the previously reported data that resulted in the no further action determination from Ecology. The recent data do not preclude the existence of some localized soil hotspots in the TPH cleanup area, but do provide evidence that any residual impacts are likely not widespread.

- Groundwater from upgradient sites shows evidence of low concentrations of a few SVOCs, but the detected concentrations were well below the MTCA cleanup levels.

Based on the results of the Focused Phase II sampling and analysis, no conditions of environmental concern are identified at the subject property. The analytes detected in the storm drain system are those commonly found in industrial surface water runoff. The current condition of the storm drains likely makes the system only partially functioning. Several of the catch basins could not be accessed or were reported as abandoned. The storm drain catch basins should be cleaned to improve their effectiveness. The solids and water generated during the cleanout work should be managed by appropriately trained personnel, such as a licensed environmental services contractor, for appropriate disposal per applicable Ecology regulations. In addition, due to the previous widespread use of slag in the subject property area, some localized areas with residual slag would be anticipated on the subject property (such as was detected beneath the asphalt at location DP6). These small amounts of slag are not considered to be of concern. However, if the soil is excavated, then the presence of slag should be considered in the planning for disposal of the material.

Transformers
Transformers
Existing Rail Spur
Former Rail Spur
DP9
Shop Complex
DP6
Former
10,000-Gal
Diesel Tank
Container
Used as
Office
CB1
DP8
A
Storm Drains
Not Identified by
Hydrometrics
Asphalt
Covered w/Asphalt
DP7
Concrete Foundation
Concrete Filled Trench/Sump
Oil Spill Area
Remediation in 1993
B
Concrete
Drain
Asphalt
CB2
Office
Buildings
Possible
Tie Downs
CB3
DP4
Storage Shed
Asphalt
DP5
Broken Asphalt
Mixed with Gravel
Trailer Storage
Former 5,000-Gal Gasoline Tank
Asphalt
Driveway
Broken Asphalt
Mixed with Gravel
Thorne Road
DP1
Not Found
Truck/Container Storage
DP2
DP3
Maxwell Way

Legend

- Soil and Groundwater Sample Location
- Soil Sample Location
- Approximate TPH Cleanup (1995)
- Approximate Slag Remediation Area (1995)
- Storm Drain

N

0 75 150

Approximate Scale in Feet

Base map source: Kennedy/Jenks Consultants, 2005

LANDAU ASSOCIATES

Thorne Road Property Tacoma, Washington	**Site Plan**	Figure 2

Thorne Road Property | T:\118\018\010\Report\Fig2.dwg (A) "Figure 2" 1/12/2006

TABLE 1
PROPOSED FOCUSED PHASE II SAMPLING
1721 THORNE ROAD
TACOMA, WASHINGTON

Area	Potential Concern	Recommended Focused Phase II Action	Soil Analysis	Groundwater Analysis	Sediment Analysis
Storm Drain System	During the slag cleanup activities, two catch basins were not cleaned out. All four onsite basins warrant inspection/evaluation.	Field inspection of four catch basins; Sampling and analysis of sediment.	None	None	NWTPH-Dx, Arsenic, Lead, Copper, Zinc, VOCs, SVOCs/PAHs, and PCBs
Trailer Yard Area (Asarco Slag Cleanup Area)	Area where cleanup was conducted to remove Asarco slag.	Three direct-push probes for evaluation of soil including sampling and analysis.	Arsenic, Lead, Copper, Zinc	None	None
10,000-Gal Diesel UST	Contaminated soil and/or groundwater; Investigate footprint of the UST	One direct-push probe to depth of tank bottom for evaluation of soil and groundwater.	NWTPH-DX and NWTPH-HCID	NWTPH-G, NWTPH-Dx, Arsenic, Lead, Copper, Zinc, VOCs including BTEX, and SVOCs/PAH	None
5,000-Gal Gasoline UST	Contaminated soil and/or groundwater; Investigate footprint of the UST	One direct-push probe to depth of tank bottom for evaluation of soil and groundwater.	NWTPH-Gx/BTEX and NWTPH-HCID	NWTPH-G, NWTPH-Dx, Arsenic, Lead, Copper, Zinc, VOCs including BTEX, and SVOCs/PAH	None
Oil Spill Cleanup in North Corner of Site	Residual contaminated soil	One direct-push probe for evaluation of soil including sampling and analysis.	NWTPH-HCID and NWTPH-Dx	None	None
Petroleum-Impacted Soil Cleanup	Residual groundwater contamination confirmed by 1995 water samples	Three direct-push probes for evaluation of soil including sampling and analysis. Groundwater grab sample from one location.	NWTPH-HCID and NWTPH-Dx	NWTPH-G, NWTPH-Dx, Arsenic, Lead, Copper, Zinc, VOCs including BTEX, and SVOCs/PAH	None
Upgradient Sites	Characterize groundwater from potential upgradient sources	One direct-push probe for groundwater grab sample and analysis.	None planned; May be added based on field observations.	NWTPH-G, NWTPH-Dx, Arsenic, Lead, Copper, Zinc, VOCs including BTEX, and SVOCs/PAH	None

TABLE 2
SOIL ANALYTICAL RESULTS: DETECTED CONSTITUENTS
1721 THORNE ROAD
TACOMA, WASHINGTON

	MTCA Method A Screening Level (a)	MTCA Method B Screening Level (b)	DP1-2-3 130310-01 10/26/2005	DP2-1-2 130310-02 10/26/2005	DP3-0.5-1.5 130310-03 10/26/2005	DP4-0.5-1.5 130310-05 10/26/2005	DP5-7-8 130310-06 10/26/2005	DP6-6.5-7.5 130310-08 10/26/2005	DP7-1.5-2.5 130310-10 10/26/2005	DP8-4-5 130310-11 10/26/2005	DP9-4-5 130310-12 10/26/2005	CB1 130311-01 10/28/2005	CB2 130311-02 10/28/2005	CB3 130311-03 10/28/2005
NWTPH-DX (mg/kg)														
#2 Diesel	2,000		NA	NA	NA	NA	25 U	28.1 U	25.7 U	27 U	28.7 U	247	2,890 X1	2,050 X1
Motor Oil	2,000		NA	NA	NA	NA	158	56.2 U	70.6	54 U	57.5 U	2,450	21,500	21,000
TOTAL METALS (mg/kg)														
Method SW6010														
Arsenic	20		4.31 U	4.55 U	5.32	4.65 U	NA	NA	NA	NA	NA	10.6	24.6	11.4
Copper		262.8	8.02	15.3	27.2	12	NA	NA	NA	NA	NA	55.9	174	188
Lead	1,000		1.72 U	1.82 U	4.22	1.97	NA	NA	NA	NA	NA	39.5	94.6	68.5
Zinc		5,971	14.5	21	84.6	15.5	NA	NA	NA	NA	NA	282	661	668
BTEX (mg/kg)														
Method SW8021B														
m&p-Xylene	9		NA	NA	NA	NA	0.125 J	NA	NA	NA	NA	NA	NA	NA
Toluene	7		NA	NA	NA	NA	0.071 J	NA	NA	NA	NA	NA	NA	NA
VOLATILES (µg/kg)														
Method SW8260														
Naphthalene	5,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	49.8 UJ	21.4 UJ	35.2 J
Styrene	330		NA	NA	NA	NA	NA	NA	NA	NA	NA	49.8 UJ	21.4 UJ	98.2 J
Trichlorofluoromethane	34,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	561 J	524 J	386 J
SEMIVOLATILES (µg/kg)														
Method SW8270C														
3-&4-Methylphenol		3,960	NA	NA	NA	NA	NA	NA	NA	NA	NA	59.6 U	81.2 U	990
Acenaphthylene		66,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.8 U	37.6	297 U
Benzo(a)anthracene			NA	NA	NA	NA	NA	NA	NA	NA	NA	100	32.5 U	297 U
Benzo(b)fluoranthene			NA	NA	NA	NA	NA	NA	NA	NA	NA	75.5	215	297 U
Benzo(k)fluoranthene			NA	NA	NA	NA	NA	NA	NA	NA	NA	69	212	297 U
Benzofluoranthenes			NA	NA	NA	NA	NA	NA	NA	NA	NA	137	366	594 U
bis(2-Chloroethyl)ether		0.17	NA	NA	NA	NA	NA	NA	NA	NA	NA	119 U	162 U	1,870
bis(2-Ethylhexyl)phthalate		13,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,110	14,200	27,300
Butylbenzylphthalate		349,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	417	325 U	2,970 U
Dimethylphthalate		74,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	119 U	255	1,490 U
Di-n-butylphthalate		57,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	299 U	629 U	3,970
Fluoranthene		89,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	65.2	227	511
Fluorene		101,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.8 U	32.7	297 U
Naphthalene	5,000		NA	NA	NA	NA	NA	NA	NA	NA	NA	23.8 U	34.1	297 U
Phenanthrene			NA	NA	NA	NA	NA	NA	NA	NA	NA	26.5	151	387
Pyrene		655,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	71.2	269	723
cPAH TEQ (c)	2000		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.45	42.70	0.0

U = Indicates the compound was undetected at the reported concentration.
NA = Not analyzed.
UJ = The analyte was not detected in the sample; the reported sample detection limit is an estimate.
J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
X1 or X2 = Contaminant does not appear to be typical product.
(a) For industrial properties.
(b) For the protection of groundwater.
(c) Toxicity Equivalency Quotient (TEQ) based on individual Toxicity Equivalency Factors (TEFs) for benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene.
Indicates exceedance of the applicable MTCA screening level.

TABLE 3
GROUNDWATER ANALYTICAL RESULTS: DETECTED CONSTITUENTS
1721 THORNE ROAD
TACOMA, WASHINGTON

	MTCA Method A Screening Level	MTCA Method B Screening Level (a)	DP3 130310-04 10/26/2005	DP5 130310-07 10/26/2005	DP6 130310-09 10/26/2005
TOTAL METALS (mg/L)					
Method 6000/7000 series					
Copper		592	0.0025 U	0.00427	0.0026
Zinc		4,800	0.0103	0.0115	0.165
SEMIVOLATILES (µg/L)					
Method SW8270C					
4-Chloro-3-methylphenol		NL	0.189 U	0.189 U	0.233
Benzo(a)anthracene			0.0189 U	0.028	0.019 U
Benzo(a)pyrene			0.0398	0.0264	0.019 U
Benzo(g,h,i)perylene			0.0441	0.0364	0.019 U
Chrysene			0.0189 U	0.0319	0.019 U
Diethylphthalate		12,800	0.189 U	0.189 U	0.379
Di-n-butylphthalate		1,600	0.189 U	0.189 U	0.455
Fluoranthene			0.028	0.0339	0.019 U
Indeno(1,2,3-cd)pyrene			0.0293	0.0276	0.019 U
Pyrene			0.0591	0.0425	0.019 U
cPAH TEQ (b):	0.1		0.043	0.032	0.0

U = Indicates the compound was undetected at the reported concentration.

(a) For groundwater

(b) Toxicity Equivalency Quotient (TEQ) based on individual Toxicity Equivalency Factors (TEFs) for benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene

NL = No MTCA cleanup level identified.