STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000

June 24, 2010

Mr. Jeff Neuner
Seattle Public Utilities, City of Seattle
700 5th Avenue, Suite 4900
Seattle, WA 98124

Re: Opinion on Proposed Cleanup of the following Site:

- **Site Name:** South Kenyon Street
- **Site Address:** 110, 130, 150, 200 S. Kenyon St., Seattle, WA
- **Facility/Site No.:** 3388037
- **VCP Project No.:** NW1997

Dear Mr. Neuner:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your proposed independent cleanup of the South Kenyon Street facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issue Presented and Opinion

Upon completion of the proposed cleanup, will further remedial action likely be necessary to clean up contamination at the Site?

NO. Ecology has determined that, upon completion of your proposed cleanup, no further remedial action will likely be necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70.105D RCW, and its implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following releases:

- Metals (arsenic, cadmium, chromium, lead) in Soil
- Metals (arsenic and lead) in Ground Water
- Herbicides (pentachlorophenol, 2,4-DB) in Soil
- Herbicides and pesticides in Ground Water

- Gasoline-, diesel-, and oil-range total petroleum hydrocarbons in Soil and Ground Water
- Volatile organics and fuel additives (benzene, ethylbenzene, toluene, xylenes - BETX, methyl tertiary butyl ether -MTBE, and various chlorinated and methylated benzenes) in Soil and Ground Water
- Polycyclic aromatic hydrocarbons (PAHs) in Soil and Ground Water

Enclosure A includes a detailed description and diagram of the Site, as currently known to Ecology.

Please note a parcel of real property can be affected by multiple sites. At this time, we have no information that the parcel(s) associated with this Site are affected by other sites.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. June 18, 2010, *Revised Cleanup Action Plan, South Kenyon Street Bus Yard Site,* report by AMEC Earth & Environmental.

2. January 29, 2010, *Area 3 Performance Monitoring Sample Collection Summary Report, South Kenyon Street Bus Yard,* report by AMEC Earth & Environmental.

3. January 29, 2010, *Performance Monitoring Sampling & Analysis Plan, Remedial Action Implementation, South Kenyon Street Bus Yard,* report by AMEC Earth & Environmental.

4. December 21, 2009, *Addendum to Remedial Investigation, South Kenyon Street Bus Yard Site,* report by AMEC Earth & Environmental.

5. December 21, 2009, *Bus Yard Site Prep,* Bid plans and specifications prepared by Seattle Public Utilities

6. July 23, 2009, *Bus Yard TCLP data with pH,* email from Jeff Neuner, Seattle Public Utilities

6. March 31, 2009, *Cleanup Action Plan, South Kenyon Street Bus Yard Site,* report by AMEC Earth & Environmental.

7. March 31, 2009, *Focused Feasibility Study, South Kenyon Street Bus Yard Site,* report by AMEC Earth & Environmental.

8. March 31, 2009, *Remedial Investigation Report, South Kenyon Street Bus Yard Site,* report by AMEC Earth & Environmental

9. July 15, 2008, *Re: Report of Release at 110, 130, and 150 South Kenyon Street, Seattle, WA,* letter from Kathryn L. Gerla, Seattle City Attorney's Office, to Bob Warren, Department of Ecology, Northwest Regional Office.

10. July 8, 2008, *Limited Site Investigation Report, Seattle Public Utilities Bus Yard,* report by AMEC Earth & Environmental

11. May 18, 2007, *Phase I Environmental Site Assessment Report, Bus Yard Properties,* report by G-Logics

12. December 1, 1999, *Re: Ryder Student Transportation Services,* VCP opinion letter from John Lillie, Department of Ecology, to Bill Fowler, First Group America

13. April 1999, *Site Assessment and Closure Report, Ryder Student Transportation Services, Inc.*, report by Clearwater Group, Inc.

14. April 1999, *Quarterly Monitoring Report, First Quarter, 1999, Ryder Student Transportation Services, Inc., 130 South Kenyon St.*, report by Clearwater Group.

15. March 1999, *Quarterly Monitoring Report, Fourth Quarter, 1998, Ryder Student Transportation Services, Inc, 130 South Kenyon St.*, report by Clearwater Group, Inc

15. October 15, 1997, *Underground Storage Tank Decommissioning Site Characterization Report, Ryder Student Transportation Services, Inc., 130 South Kenyon St.,* report by Clearwater Group, Inc

Those documents are kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. You can make an appointment by calling the NWRO resource contact, Sally Perkins, at 425 649-9190.

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that, upon completion of your proposed cleanup, **no further remedial action** will likely be necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

Ecology has determined your characterization of the Site is sufficient to select a cleanup action, given that complete removal is the primary remedial action proposed.

2. Establishment of cleanup standards.

Soil Cleanup Levels

The more stringent of Method A cleanup levels or terrestrial wildlife cleanup levels were selected for soil based on protection of human direct contact, protection against leaching to ground water, and protection of terrestrial wildlife. A subset of five chemicals of concern (COCs) were selected as indicator hazardous substances for purposes of documenting site cleanup. Cleanup levels protective of the air pathway and of surface water uses were considered unnecessary.

Ecology accepts that protection against direct contact and protection of ground water is appropriate, and appreciates that cleanup levels protective of terrestrial species have been selected where they are more stringent. Ecology also accepts that there is no need for protection of air or surface water. Surface runoff from contaminated surface soils at the Property was minimal in the past, and will be eliminated as part of the cleanup action.

A cleanup level was not proposed for soil pH, but must be used in evaluating whether cleanup has occurred at the property. The Washington State Dangerous Waste criterion for pH, 12.5, may be used as the minimum standard, unless soil pH values lower than 12.5 result in an exceedance of the pH 8.5 standard for ground water in Washington (WAC 173-200).

Soil Point of Compliance

The point of compliance for soil has been proposed as from ground surface to a depth of 15 feet, which is the standard for protection against direct contact. However, ground water also needs to be protected, and the associated point of compliance is throughout the Site (-740(6)(b)). Ecology therefore will only accept a point of compliance as being soils throughout the Site. "Site" in this usage means the area where hazardous substances have come to be located.

Ground Water Cleanup Levels

The highest beneficial use for ground water at the Site is for drinking water purposes. Either Method A or B cleanup levels would therefore be appropriate, and the lower of these two values, or an applicable regulatory standard (e.g., MCLs) have been chosen for this Site. An upper bound cleanup level is also being set for pH at the state Maximum Contaminant Level (MCL) for drinking water (pH 8.5, WAC 173-200-040, Table 1).

Ground Water Point of Compliance

The standard point of compliance will apply to this Site – ground water from the uppermost level of the saturated zone to the lowest depth which could be potentially be affected by the Site.

3. Selection of cleanup action.

Ecology has determined the cleanup action you proposed for the Site meets the substantive requirements of MTCA.

An interim cleanup action occurred in 1997 at the bus fueling station. This action consisted of removing three gasoline and diesel underground storage tanks, removing contaminated soil, replacing the old tanks with a new 12,000 gallon tank, and instituting ground water monitoring.

The proposed future cleanup action is complete removal of contaminated soil to a maximum depth of 15 feet, and disposal of the excavated soil at an off-property treatment facility or permitted landfill. The excavations will be backfilled with "clean" imported material. Confirmatory ground water monitoring will then be instituted.

The cleanup action plan also mentions that excavating all contaminated soil to a depth of 15 feet may not be practical in certain areas, and in particular where the contamination extends right up to the edge of the property (e.g. western border). In this case, other insitu-treatments are proposed to clean up the remaining contamination.

Because the proposed "complete removal" cleanup action is a defacto permanent solution under MTCA (i.e. no remaining contamination), and provides for compliance monitoring, it meets the minimum requirements of MTCA (WAC 173-340-360(2)).

Limitations of the Opinion

1. Opinion does not settle liability with the state.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. Opinion does not constitute a determination of substantial equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you proposed will be substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. Opinion is limited to proposed cleanup.

This letter does not provide an opinion on whether further remedial action will actually be necessary at the Site upon completion of your proposed cleanup. To obtain such an opinion, you must submit a report to Ecology upon completion of your cleanup and request an opinion under the VCP.

4. State is immune from liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

Contact Information

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). As you conduct your cleanup, please do not hesitate to request additional services. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion, please contact me by phone at [PHONE] or e-mail at [E-MAIL]461@ecy.wa.gov.

Sincerely,

Mark Adams
NWRO Toxics Cleanup Program

ma/kp

Enclosures (1): A – Description and Diagrams of the Site

cc: Cherilyn Inouye, AMEC Earth & Environmental, Inc.
Dolores Mitchell, VCP FINANCIAL MANAGER (without enclosures)

Enclosure A

Description and Diagrams of the Site

Enclosure A
Site Definition and Description
South Kenyon Street

Site Definition

The South Kenyon Street Site comprises contaminated portions of the property located at 110, 130, 150, and 200 South Kenyon Street in Seattle, and possibly adjoining property to the west. The Site is defined by the following contamination:

- Cement kiln dust fill (CKD)
- Soil and ground water with a high pH
- Soil and ground water containing elevated concentrations of metals (arsenic, cadmium, lead); pesticides and herbicides (including pentachlorophenol), petroleum hydrocarbons and fuel additives (gasoline-, diesel-, and oil-range, BETX, MTBE, and other volatile organics), and polycyclic aromatic hydrocarbons (PAHs). Dioxins may also be present as a contaminant within the cement kiln dust.

The approximate boundaries of the Site and of the property are shown on the enclosed Figure A.

Property Location and History

The property is located in the Duwamish-Southpark industrial area of Seattle, and is sandwiched between Highway 99/West Marginal Way on the east and Occidental Avenue/Highway 509 on the west. To the north is South Holden Street, across which is a highway stormwater detention pond. To the south is a business park, beyond which is the closed South Park landfill. The approximately 9.1-acre property includes four contiguous tax parcels as follows:

- 292 404 9104 (110 S. Kenyon)
- 292 404 9006 (130 S. Kenyon)
- 292 404 9099 (150 S. Kenyon)
- 732 840 1175 (200 S. Kenyon)

The property is currently vacant, but until very recently was used for the storage and maintenance of school buses and chartered motor coaches. There were three buildings on the property, and a fueling area. The fueling area had one dispenser and a 12,000 gallon underground storage tank (which is still present). Other features include two paved bus-wash pads and an oil-water separator.

Previous businesses at the property included a foundry (Elliot Bronze Company), truck and trailer storage and maintenance operations (e.g. AAA Transfer), auto wrecking yards (e.g. B&G Auto Wrecking), and a painting operation (We Painters). The property was initially cleared in

1936 for farming purposes, and agricultural use continued until at least 1946. There was no further activity until the 1960s, when the foundry was built in the southeast corner of the Property; it operated until between 1965 and 1990. The remainder of the Property uses developed in the 1960s and 1970s.

Physical Conditions

The property is situated on the floor of the Duwamish River valley, near its' western edge. The valley floor is relatively flat at about elevation 15 to 20 feet above mean sea level, and is bordered on the west by the steep slope of the Piegon Hill upland.

Surface water at the property is captured in five catch basins, or infiltrates, or flows laterally overland into drainage ditches. Two of the catch basins discharge to the sanitary sewer, two discharge to a buried stormwater main which cuts across the southwestern edge of the property, and one discharges to an eastern perimeter ditch.

Drainage ditches at the property include a central ditch, and perimeter ditches on the west, north, and east. These ditches discharge northward into a Washington Department of Transportation (WSDOT) stormwater detention pond, and then into a larger wetland/stream complex located on the west side of Highway 509.

The larger wetland/stream complex discharges directly into the Duwamish River (termed Duwamish Waterway in this area). This portion of the river is tidal and is routinely dredged for navigation. The total distance between the northern edge of the property and the point of surface water discharge into the Waterway is about 2000 feet. The actual shortest lateral distance between the Site and the Waterway is about 1,300 feet.

The Duwamish valley is underlain at depth by Pleistocene glacial deposits or older Tertiary sediments, and has been filled to near present-day land surface with younger alluvium deposited by the Duwamish River. These native deposits have been covered with fill of varying thickness across much of the Duwamish-Southpark area.

At the property, about 5 to 10 feet of fill overlies up to 30 feet of alluvial sediment. Most of the fill consists of mixed silty sand and sandy silt with organics. However, an area of CKD fill up to 16 feet thick occurs across the western 1/3 of the property. The CKD was placed into a former drainage that cut across the southwestern edge of the Property. The alluvial sediments are complexly layered, but generally consist of an upper fine-grained organic silt and clayey silt sequence, which grades downward into coarser-grained sands and silty sands. Glacial till reportedly occurs beneath the sediment and extends to the base of the deepest exploration at the property, about 116 feet below land surface. This is an unusually thick till bed.

Ground water in the Duwamish River valley occurs within the fill and alluvial sediment as a generally unconfined (water table) aquifer. This also true of ground water at the property, and the water table is generally 5 to 10 feet below land surface. However, the finer-grained native organic silts and clayey silts at the base of the fill act as a leaky aquitard, separating ground water in the fill from that in the underlying alluvial sands. In the few areas where the finer-grained deposits are missing, water levels in the "fill aquifer" and in the "alluvial aquifer" are close. Where the finer-grained deposits are present, the water levels in the "fill aquifer" are 2 or 3 feet higher than in the "alluvial aquifer".

Ground water flow at the property would be expected to be down-valley to the north/northeast, subparallel to flow in the Duwamish Waterway. However, water level data collected to date show a radial flow pattern emanating from the central drainage ditch near the middle of the property. This pattern implies that leakage from the ditch is recharging ground water and controlling flow directions. The water level data also indicated the "fill aquifer" is unaffected by tidal fluctuations in the Duwamish Waterway, whereas the "alluvial aquifer" may be.

The potential for ground water to discharge to surface water was evaluated as part of the RI, and found not to be occurring. Ground water elevations were consistently measured below drainage ditch base elevations.

Contaminant Occurrence and Distribution

There are three main areas of soil contamination at the property and a few isolated points of contamination. The three main areas and the associated ground water contamination are as follows:

- Fuel Station – Area 1: This area has a bus fueling dispenser, with an associated UST, and an adjacent bus washing station. The current UST replaced three older USTs in 1997. The area is characterized by elevated gasoline-and diesel-range hydrocarbons in fill soil extending down to at least 9 feet below ground surface. The areal extent of TPH contamination has been largely determined, but the vertical extent is less certain. Chances are the TPH contamination does not go much deeper because the water table and fill/native contact is near 9 feet. Elevated lead and carcinogenic PAHs were also detected at a couple of locations in this area near land surface.

  Ground water in Area 1 did not appear to be significantly impacted by hydrocarbons. However, dissolved arsenic was slightly elevated over the Method A cleanup level in this area and in downgradient wells, suggesting the presence of hydrocarbons is contributing

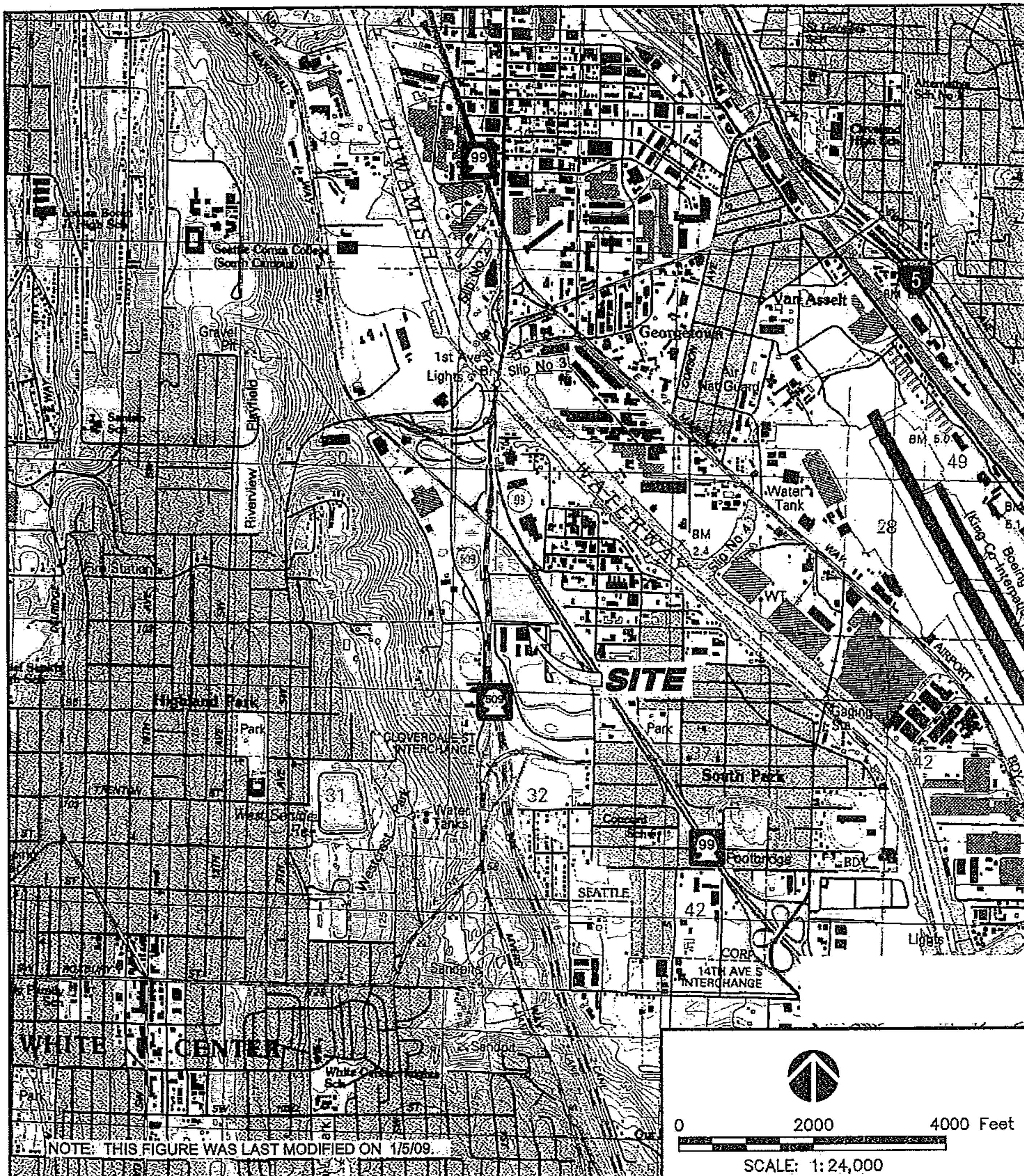
to the dissolution of arsenic from the fill soil. Contaminated ground water from this area flows to the east, perhaps off the Property.

- Maintenance Shop – Area 2: This area is associated with a bus maintenance shop, and is characterized by elevated oil- and diesel-range hydrocarbons. This area also has elevated metals (arsenic, cadmium, and lead) and cPAHs. The contamination in this area is shallower, typically above a depth of 5 feet.

  Ground water in Area 2 did not appear to be significantly impacted by hydrocarbons. However, dissolved arsenic was slightly elevated over the Method A cleanup level in this area and in downgradient wells, suggesting the presence of hydrocarbons is contributing to the dissolution of arsenic from the fill soil. Contaminated ground water from this area flows to the east, perhaps off the Property.

- Wrecking Yard – Area 3: Most of this area is underlain by cement kiln dust fill (CKD), which contains elevated concentrations of arsenic, cadmium, and lead. The CKD extends over an area measuring approximately 200 feet by 500 feet within the Property, and reaches maximum depths of 16 feet below existing ground surface. The CKD likely extends a short distance off-Property to the west, following the original drainage channel. The CKD also contains a number of contaminants apparently associated with former wrecking yard operations including: gasoline- and diesel-range petroleum hydrocarbons, and PAHs. The insecticide endosulfan is also present in the area, and also spread widely across the property. The area of soil contamination in Area 3 appears to be largely constrained to within the CKD.

  Ground water in contact with the CKD has a high pH (up to 12), and contains arsenic and lead concentrations above cleanup levels. Various other compounds are also present in ground water at concentrations above cleanup levels including gasoline-range hydrocarbons, MTBE, and a variety of herbicides and pesticides. Contaminated ground water from this area flows to the west, likely off the Property.



AMEC Earth & Environmental
11810 North Creek Parkway North
Bothell, WA, U.S.A. 98011-6201

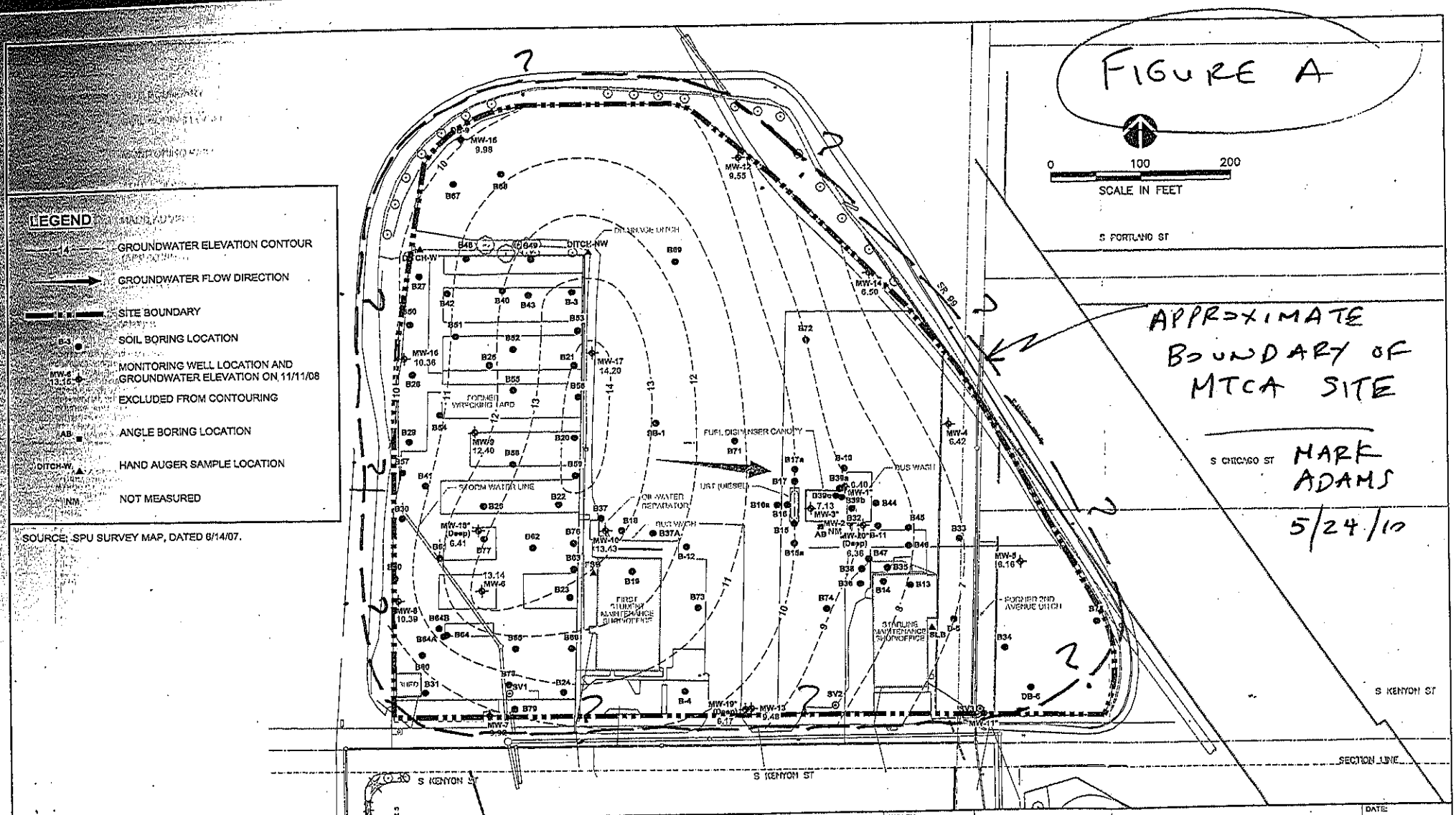
amec

CLIENT LOGO	CLIENT: CITY OF SEATTLE	
PROJECT: SOUTH KENYON STREET BUS YARD SITE		
DWN BY: JRS	DATUM: NAD83	DATE: DECEMBER 2009
CHK'D BY: CI	REV. NO.:	PROJECT NO: 8-915-16289-A
PROJECTION: WA STATE PLANE	SCALE: AS SHOWN	FIGURE No: 1

TITLE: SITE LOCATION MAP

G:\91\16000\16289-A\16289-A-01.dwg -- Layout1 -- Dec. 08, 2009 3:12pm -- jeffrey.sanders

FIGURE A



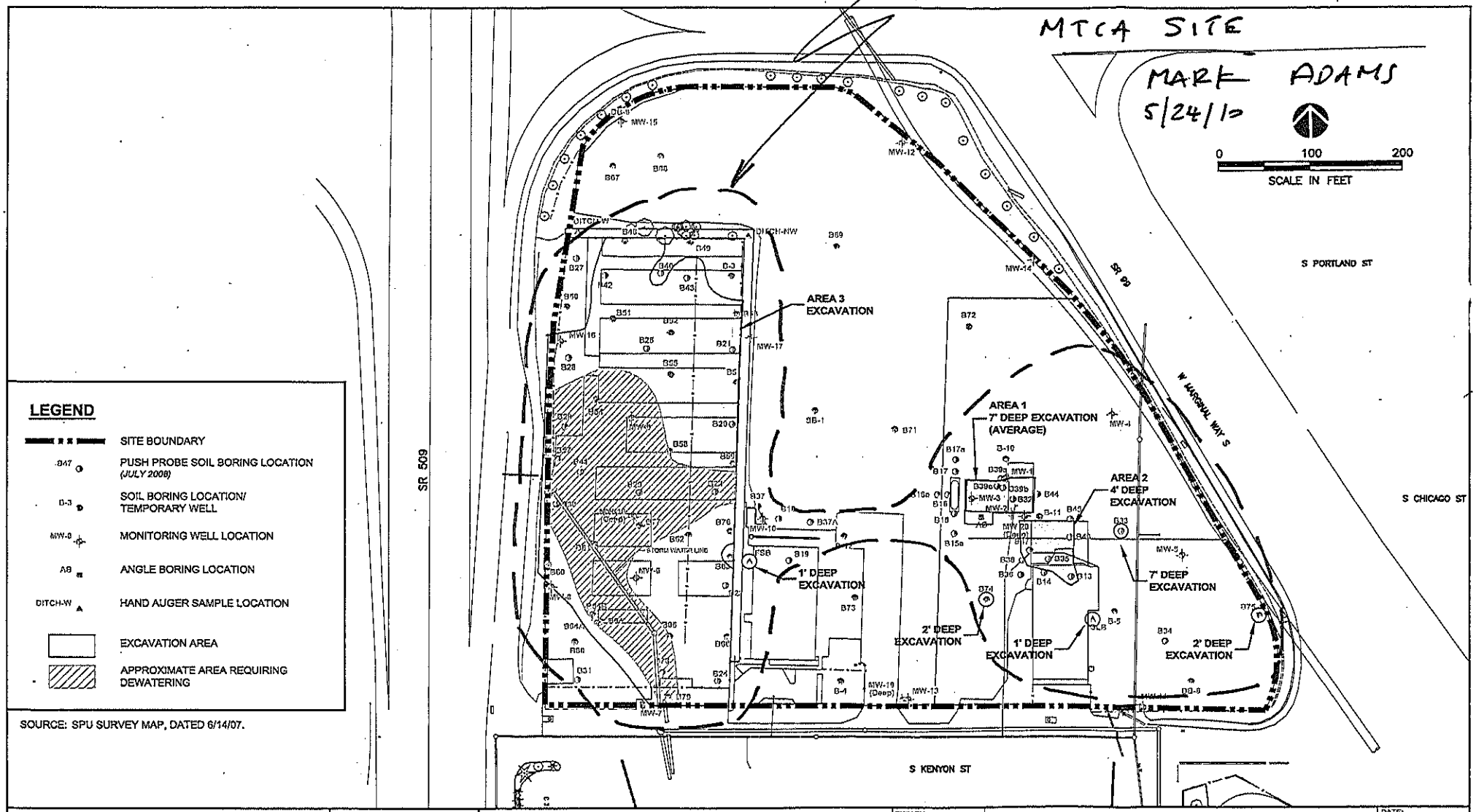
SOURCE: SPU SURVEY MAP, DATED 6/14/07.

CLIENT LOGO	CLIENT: CITY OF SEATTLE	DWN BY: JRS	PROJECT: SOUTH KENYON STREET BUS YARD SITE
		CHKD BY: CI	DATE: MARCH 2009
	AMEC Earth & Environmental 11810 North Creek Parkway North Bothell, WA, U.S.A. 98034-8201	DATUM: HPGN (HARN)	PROJECT NO: 8-915-16289-A
	amec	PROJECTION: WA STATE PLANE	REV. NO.:
		SCALE: AS SHOWN	TITLE: GROUNDWATER ELEVATION CONTOURS AND FLOW DIRECTION HIGH TIDE 11/11/08
			FIGURE No. 5

D:\01\16000\16289-A - SPU Bus Barn\16289-A-20.dwg - GW High Tide - Mar. 27, 2009 11:13am - jeffrey.sanders

APPROXIMATE AREA OF SOIL EXCEEDING CLEANUP LEVELS WITHIN MTCA SITE

MARK ADAMS 5/24/10



SOURCE: SPU SURVEY MAP, DATED 6/14/07.

CLIENT LOGO

CLIENT: CITY OF SEATTLE

AMEC Earth & Environmental
11810 North Creek Parkway North
Bothell, WA, U.S.A. 98034-8201

DWN BY: JRS
CHKD BY: CI
DATUM: HPGN (HARN)
PROJECTION: WA STATE PLANE
SCALE: AS SHOWN

PROJECT: SOUTH KENYON STREET BUS YARD SITE

TITLE: SOIL REMEDIATION AREAS

DATE: MARCH 2009
PROJECT NO: 8-915-16289-A
REV. NO.:
FIGURE No. 3

M:\amec\16289A — South Recycling and Disposal Station\16289A — South Recycling and Disposal Station\SPU File\16289-A-11-AS_SoilRemediationAreas_033009.dwg — Boring Locations — Mar. 30, 2009 5:22pm — adam.stenberg