STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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February 16, 2012

Mr. James Mueller
500 Union Street
Logan Building, Suite 625
Seattle, WA 98101

Re: Opinion on Proposed Cleanup of a Property associated with a Site:

- **Property Address:** 2040 East Madison Street, Seattle WA
- **Facility/Site No.:** 9935581
- **VCP Project No.:** NW 1973
- **Cleanup Site ID No.:** 889

Dear Mr. Mueller:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your proposed independent cleanup of a Property associated with the East Madison Valet Cleaners Former 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.

Issues Presented and Opinion

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

   NO. Ecology has determined that no further remedial action will likely be necessary at the Property to clean up contamination associated with the Site.

2. Upon completion of the proposed cleanup, will further remedial action likely still be necessary elsewhere at the Site?

   YES. Ecology has determined that further remedial action will likely still be necessary elsewhere 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 it's implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

Description of the Property and the Site

This opinion applies only to the Property and the Site described below. This opinion does not apply to any other sites that may affect the Property. Any such sites, if known, are identified separately below.

1. Description of the Property.

The Property includes the following tax parcels in King County, which were affected by the Site and will be addressed by your cleanup:

- 949770-0010
- 949770-0011
- 949770-0020
- 949770-0030
- 949770-0035
- 949770-0040
- 949770-0045
- 949770-0046

Enclosure A includes a legal description of the Property. **Enclosure B** includes a diagram of the Site (Figure 1) that illustrates the location of the Property within the Site.

2. Description of the Site.

The Site is defined by the nature and extent of contamination associated with the following releases:

- Tetrachloroethylene (PCE) and its related breakdown products into the Soil and Ground Water.

These releases have affected more than one parcel of real property, including the parcels identified above.

Enclosure B includes a detailed description and diagram of the Site (Figure 2), as currently known to Ecology.

3. Identification of Other Sites that may affect the Property.

Please note the Property is also affected by petroleum hydrocarbon releases associated with use of heating oil tanks and historical operations of a fuel transfer and storage facility located on the Property. This opinion does not apply to any contamination associated with these separate petroleum releases.

Basis for the Opinion

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

1. *Cleanup Action Plan, Deano Falls Property, 2040 East Madison, Seattle, Washington 98122.* Prepared by SoundEarth Strategies, Inc. and dated May 18, 2011; revised January 19, 2012.

2. *Cleanup Action Plan, Deano Falls Property, 2040 East Madison, Seattle, Washington 98122.* Prepared by SoundEarth Strategies, Inc. and dated May 18, 2011; revised December 16, 2011.

3. *Property No Further Action Likely Letter, 2040 East Madison Street, Seattle, WA;* Washington Department of Ecology, Northwest Regional Office, Bellevue, WA; June 28, 2011.

4. *Cleanup Action Plan, Deano Falls Property, 2040 East Madison, Seattle, Washington 98122.* Prepared by SoundEarth Strategies, Inc. and dated May 18, 2011.

5. *Technical Memorandum, Subject: Project Status – Deano Falls/2040 East Madison Street.* From John Funderburk, MSPH, SoundEarth Strategies, Inc. and dated April 22, 2011.

6. *Subsurface Investigation Report and Remedial Approach for Cleanup, Deano Falls Property, City Block at 2010 through 2040 East Madison Street, Seattle, Washington.* Prepared by Sound Environmental Strategies and dated September 7, 2006.

7. *Phase II Investigation Analytical Results, 2040 East Madison, Seattle, Washington.* Prepared by Kane Environmental, Inc. and dated June 5, 2006.

8. *Phase I Environmental Site Assessment, 2040 East Madison Mixed-Use Project, Seattle, Washington.* Prepared by GeoEngineers and dated June 22, 2004.

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) 649-7190.

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

Analysis of the Cleanup

1. Cleanup of the Property located within the Site.

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

a. Characterization of the Site.

Ecology has determined your characterization of the Site is sufficient to establish cleanup standards for the Site and select a cleanup for the Property. The Site is described above and in **Enclosure B**.

b. Establishment of cleanup standards for the Site.

i. Cleanup levels.

Soil:

The Site is located in a mixed residential and commercial area. You have selected MTCA Method B soil cleanup levels which were calculated and based on protection of human health through direct contact.

In order for the soil cleanup level to also be protective of ground water, the achievement of soil cleanup levels will be dependent on ground water meeting MTCA Method A.

Soil cleanup levels protective of terrestrial species are also potentially applicable. However, they are deemed not-applicable for this Site based on the exclusion relating to proximity of undeveloped land in accordance with WAC 173-34-7491(1)(c)(i).

It should be noted that a vapor intrusion threat may exist at the Site. An evaluation of the soil to vapor pathway is therefore required. MTCA and Ecology's current guidance on soil vapor intrusion do not provide an explicit method for establishing soil cleanup levels protective of indoor air, and instead rely on empirical demonstrations of air quality or modeling. Proof that soil contamination is not causing an exceedence of air cleanup standards will therefore be the basis for establishing that soils are protective of indoor air.

Groundwater:

Cleanup levels were set for groundwater based on its use as a potential drinking water source. The MTCA Method A cleanup levels are appropriate for this purpose, and were selected as the cleanup levels for this Site.

Air:

The MTCA standard Method B air cleanup levels are appropriate for protection for human health and the environment at the Site. Ecology recommends confirmation air samples be collected in the building that is constructed following remediation and analyzed for volatile organic compounds via the TO-15/APH method.

ii. Points of Compliance.

Soil:

The point of compliance for protection of human health (direct contact) is soil throughout the Site to a depth of 15 feet below the ground surface. The top of the ground surface is defined as that which currently exists. The point of compliance for the protection of ground water is throughout the Site.

Groundwater:

The standard point of compliance for groundwater is throughout the Site from the uppermost level of the unsaturated zone extending vertically to the lowest most depth which could potentially be affected by the Site.

Air:

The standard point of compliance for air is in the ambient air throughout the Site.

c. Selection of cleanup for the Property.

Ecology has determined the cleanup you proposed for the Property meets the substantive requirements of MTCA. Your proposed cleanup meets minimum cleanup requirements and will not exacerbate conditions or preclude reasonable cleanup alternatives elsewhere at the Site.

The selected cleanup action includes:

- Soil excavation and treatment: All contaminated soils within the development building footprint will be excavated to a depth of 17 feet below the existing ground grade surface. Four areas where PCE concentrations in soil exceeded the MTCA Method B cleanup level will be excavated deeper, until the water table is encountered. The excavations in these areas should be expanded laterally until sidewall confirmation samples indicate COC concentrations below Method B cleanup levels. The excavated soil will be removed and disposed of offsite.

- Ground water treatment: After removal and disposal of PCE-impacted soil, a permanent ground water treatment system consisting of perforated, high-density polyethylene (HDPE) pipe will be installed within shallow ground water below the base of the planned two-story parking garage (Figure 8). Ground water treatment will be conducted using injections of emulsified oil substrate (EOS) to enhance the anaerobic degradation of PCE in the ground water.

- Ground water monitoring: After the soil excavation is completed, ground water monitoring will be conducted quarterly in four Property Point of Compliance

wells (MW-103, MW-108, MW-110 and MW-112 on Figure 9) until results from at least four consecutive ground water monitoring events demonstrate compliance with MTCA Method A cleanup levels. If results from soil confirmation sampling indicate that soil containing PCE and its byproducts above Method B remains in place, data from additional wells may be needed to determine impacts to ground water on the Property.

2. Cleanup of the Site as a whole.

Ecology has concluded that **further remedial action** will still be necessary elsewhere at the Site upon completion of your proposed cleanup. In other words, while your proposed cleanup may constitute the final action for the Property, it will constitute only an **"interim action"** for the Site as a whole.

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**:

- Change the boundaries of the Site.
- 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 Property 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 your Property 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 (425) 649-7064 or by e-mail at hvic461@ecy.wa.gov.

Sincerely,

Heather Vick, LHg
Toxics Cleanup Program

tn

Enclosures (2): A – Legal Description of the Property
B – Description and Diagrams of the Site (including the Property)

cc: John Funderburk, SouthEarth Strategies, Inc
Sonia Fernandez, VCP Coordinator, Ecology

Enclosure A

Legal Description of the Property:

949770-0010: WITTS ADD POR LOT 1 BLK 1 WITTS ADD: BEG MOST NLY COR SD LOT 1 TH SELY ALG ELY LN THOF 104.267 FT TO SELY COR THOF TH SWLY ALG SLY LN THOF 24.268 FT TO ANGLE PT IN SD LN TH W 17.667 FT TH NWLY PLW NELY LN SD LOT TO W LN THOF TH N ALG SD W LN 70 FT TO POB ALSO SWLY 10 FT LOT 2 SD BLK 1 TGW POR LOT 7 BLK 15 HALLS ADD - BEG ON E LN SD LOT AAP 31.362 FT N OF SE COR THOF TH NWLY AT R/A TO N MGN E MADISON ST TO W LN SD LOT 7 TH N ALG SD W LN 57 FT M/L TO SLY PROD OF ALLEY IN BLK 1 SD WITTS ADD TH NELY ALG SD LN PROD TO E LN SD LOT 7 TH S ALG SD E LN TO BEG TGW POR NE 1/4 OF NW 1/4 SEC 33-25-4 DAF BEG ON N MGN SD MADISON ST AT NXN WITH SEC LN BETW SEC 28 & 33 TH SWLY ALG N MGN SD ST DIST 15 FT TH NWLY AT R/A TO SD ST 9.33 FT M/L TO SEC LN TH E 17.667 FT M/L TO BEG

949770-0011: WITTS ADD LESS SWLY 10 FT OF 2 & ALL 3

949770-0020: WITTS ADD

949770-0030: WITTS ADD

949770-0035: WITTS ADD

949770-0040: WITTS ADD

949770-0045: WITTS ADD N 72 FT & N 72 FT OF LOT 7 BLK 15 HALLS LESS POR SD 7 FOR ALLEY

949770-0046: WITTS ADD & POR OF LOT 7 BLK 15 HALLS ADD N OF N LN OF ALLEY IN SD BLK 1 WITTS ADD PROD WLY LESS POR OF SD 7 FOR ALLEY LESS N 72 FT THOF

Enclosure B

Description and Diagrams of the Site
(including the Property)

Site Description

Site: The Site comprises PCE releases to soil and groundwater at a property located at 2040 East Madison Street in Seattle, Washington (the Property). The Property and the Site are shown on the attached Site Map.

Area Description: The Property is situated on the east side of Capitol Hill in Seattle in a mixed residential and commercial area. The area is mostly developed, and most surfaces are paved, covered by buildings or landscaping.

Property History and Current Use: The Property is approximately 0.86 acres in size, includes a whole city block located between East Madison and East Denny Way. The property was first developed as part of an orchard in the 1890's, followed by the construction of residential and commercial buildings, several of which used heating oil systems. A former dry cleaner operated on the Property between the 1950's and 1970's. A fuel storage and transfer facility operated on the Property from the 1930s for an unknown period of time. All structures on the Property were demolished in 2008, which included the decommissioning and removal of three heating oil underground storage tanks. The Property is currently vacant.

Sources of Contamination: Potential contaminant sources consist of leaks and spills associated with the historical operations at the Property. The type of contamination expected would mostly be petroleum hydrocarbons associated with heating oil tanks and operations of the former fuel storage and transfer facility and mineral spirits or chlorinated solvents associated with the operations of the former dry cleaner.

Physiographic Setting: The Site and surrounding area are on the eastern slope of the "Capitol Hill" upland. The elevation of the Site is approximately 325 feet above sea level.

Surface/Storm Water System: Surface water runoff in the area is collected in municipal storm drains. There are no creeks or surface water bodies in the immediate vicinity of the Site. The closest surface water body is Lake Washington, located about 7,000 feet to the east.

Ecological Setting: There is little terrestrial habitat in the immediate vicinity of the Property. The area is mostly developed, with most surfaces paved, covered by buildings or landscaping.

Geology: Subsurface soils consist of several feet of fill, overlying glacial till to depths ranging from about 20 to 30 feet below ground surface (bgs). A transitional zone of interbedded till/outwash underlies the glacial till to approximately 35 feet bgs. Underlying this transitional zone is outwash sand with occasional interbedded till to the maximum depth explored, about 70 feet below ground surface.

Groundwater: A shallow aquifer occurs under generally unconfined conditions, within the fill and in the sand and gravel lenses interbedded within the till and transitional beds. The depth to water varies seasonally, ranging from to approximately 15 to 22 feet bgs. The groundwater flow at the Property is semi-radial with flow to the northeast towards East Denny Way as well as to the east and south. A dewatering system for the Safeway store on East Madison is located approximately 500 feet east of the Property. Water collected in the Safeway drain system is pumped to the sanitary sewer for disposal. It is unknown if the dewatering system impacts the ground water flow regime of the Site. Based on two deep monitoring well installations on the Property (KMW-1D and MW-108D, a confined aquifer is interpreted to be present within the outwash sand as the depth to groundwater is approximately 20 feet below the ground surface. The flow direction of this deeper aquifer is not known.

Water Supply: The City of Seattle provides water for the Property.

Soil and Groundwater Contamination: PCE was released to soil in the vicinity of the former dry cleaning facility. PCE and its breakdown product trichloroethene (TCE) were both detected in soil at concentrations exceeding MTCA Method A cleanup levels; contaminated soil was found to extend to the water table in an area underlying the former dry cleaning facility. Ground water monitoring indicated that PCE and its related breakdown products TCE, cis-1,2-dichloroethylene (DCE) and vinyl chloride (VC), were present at concentrations above their MTCA Method A cleanup levels in the shallow aquifer and off-Property to the east/southeast as shown on the attached site diagram. A detection of PCE in a monitoring well screened in the deeper aquifer was most likely due to cross-contamination that resulted from drilling and well installation procedures; the well, KMW-1D, has since been decommissioned.

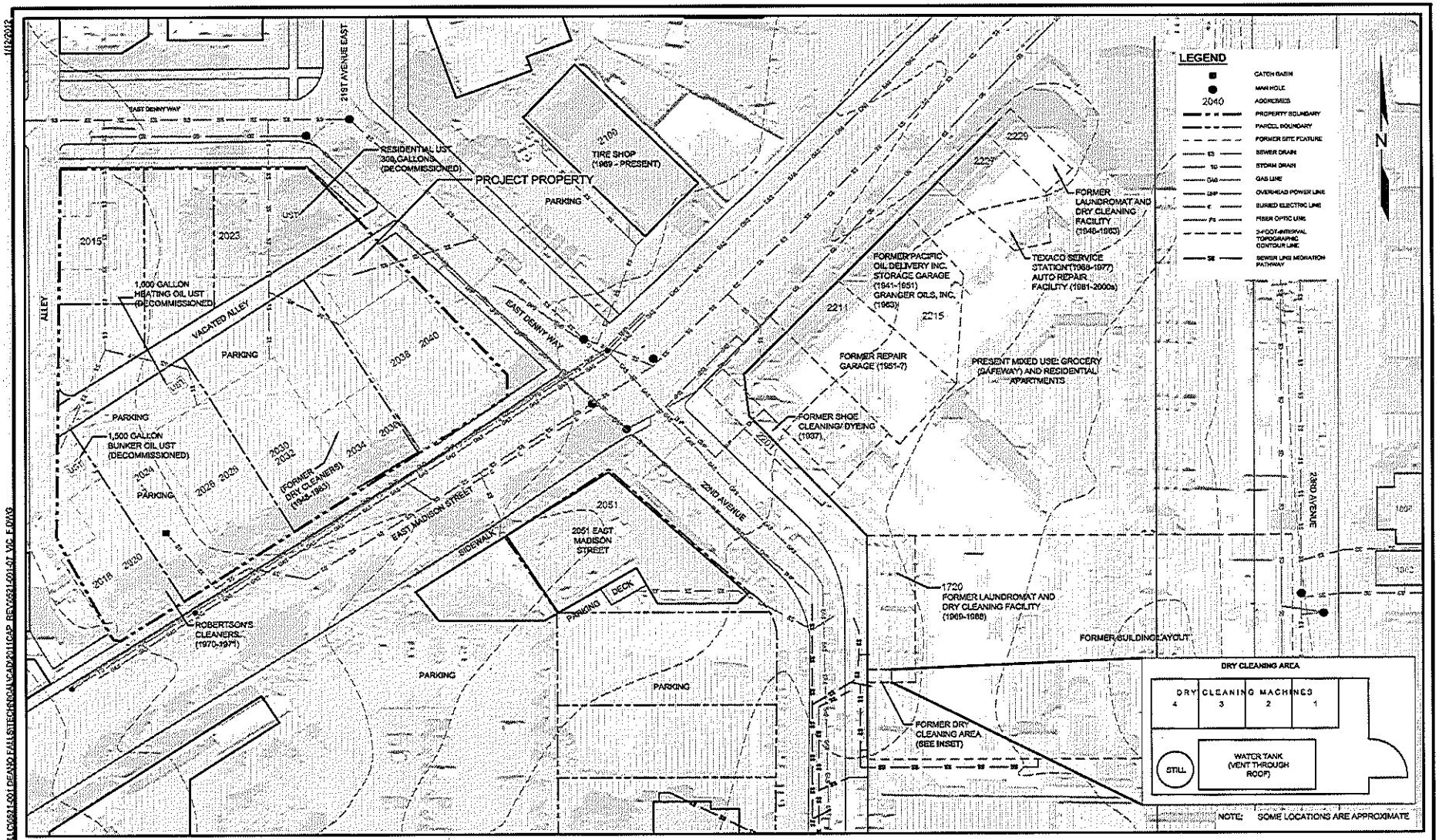
Interim Cleanup Actions Conducted: Interim cleanup actions were conducted from 2008 to 2011, including the following:

- In-situ soil vapor extraction (SVE) system: a SVE system was installed in the source area in the vicinity of the former dry cleaning facility on the Property. The system consists of three vertical extraction wells installed to depths of approximately 18 feet bgs and screened at two depth intervals, from 3 to 8 feet bgs and from 13 to 18 feet bgs. In addition, one horizontal SVE pipe was installed at 4 feet bgs to remove vapors from shallow subsurface soils in the source area. The system operated between October 2009 and October 2010.

- In-situ groundwater treatment was conducted through chemical injection to enhance biodegradation of PCE and its breakdown products. The injection included the following events.
  - Approximately 6,300 gallons of EOS solution were injected into the groundwater in the PCE source area in October 2008.
  - Approximately 2,560 gallons of potassium permanganate solution were injected in the Right-of-Way (ROW) adjacent to the Safeway building in October 2008.
  - A second round of EOS injection was conducted in November 2008. Approximately 200 gallons of EOS solution was injected into groundwater via MW-108.
  - A third round of EOS injection was conducted in March 2010. Approximately 780 gallons of EOS solution was injected into groundwater in the ROW downgradient of the plume.
  - A fourth round of EOS injection was conducted in March 2011. Approximately 3,595 gallons of EOS solution was injected into groundwater in the source area on the Property.

- Soil excavation in the vicinity of the former dry cleaning facility was conducted in April 2011. Approximately 600 cubic yards of PCE-contaminated soil were excavated from the source area and stockpiled on the Property. An above-ground SVE system was installed on the Property to remove PCE and its breakdown products from the stockpiled soil.

Site Diagrams



SoundEarth Strategies
WWW.SOUNDEARTHINC.COM

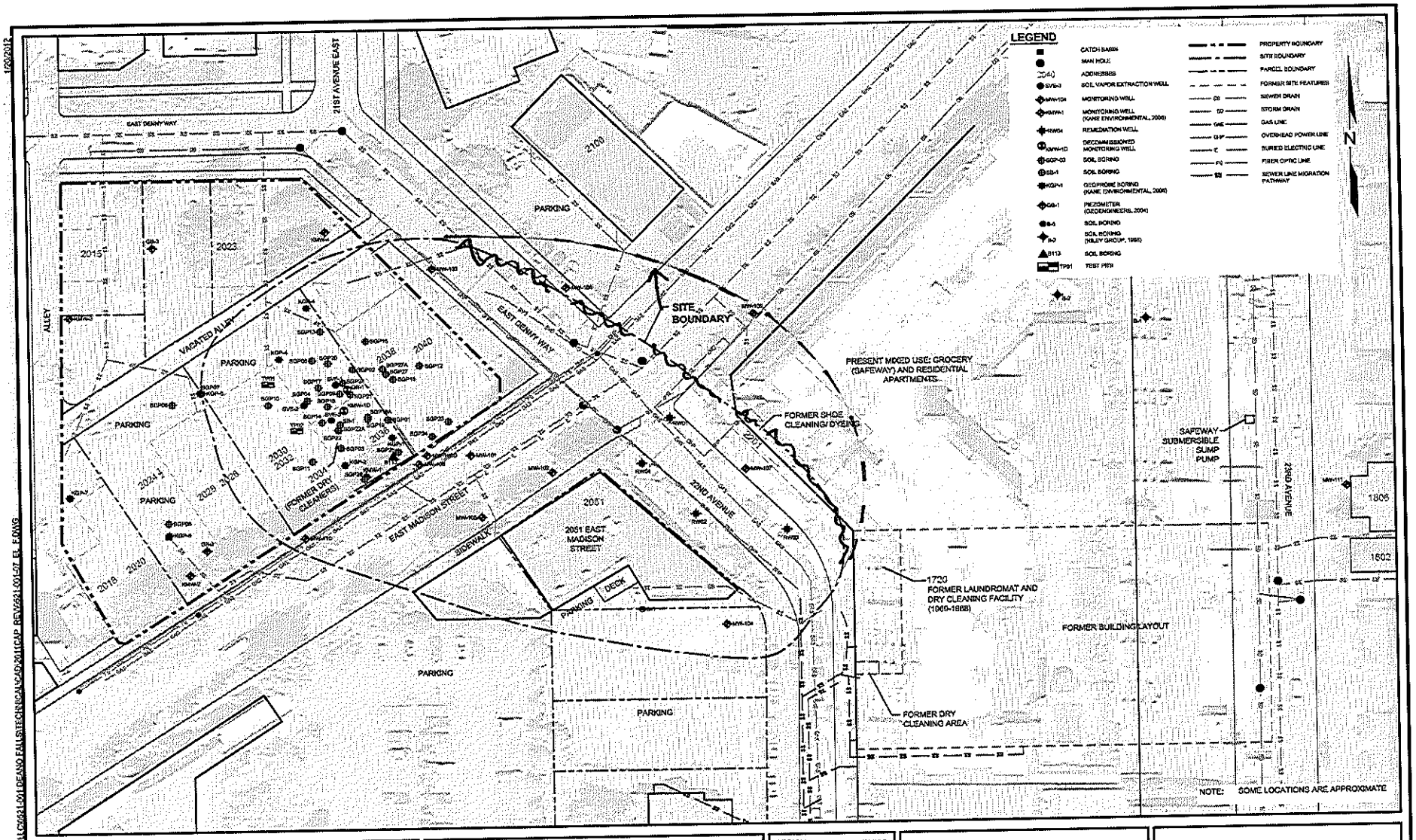
DATE: 11/30/11
DRAWN BY: NAC
CHECKED BY: SKB
CAD FILE: 0521-001-07_VIC

PROJECT NAME: DEANO FALLS PROPERTY
PROJECT NUMBER: 0521-001-03
STREET ADDRESS: 2040 EAST MADISON STREET
CITY, STATE: SEATTLE, WASHINGTON

REGION:

0 25 50 100
APPROXIMATE SCALE IN FEET

FIGURE 1
PROPERTY AND VICINITY MAP - HISTORICAL ACTIVITIES



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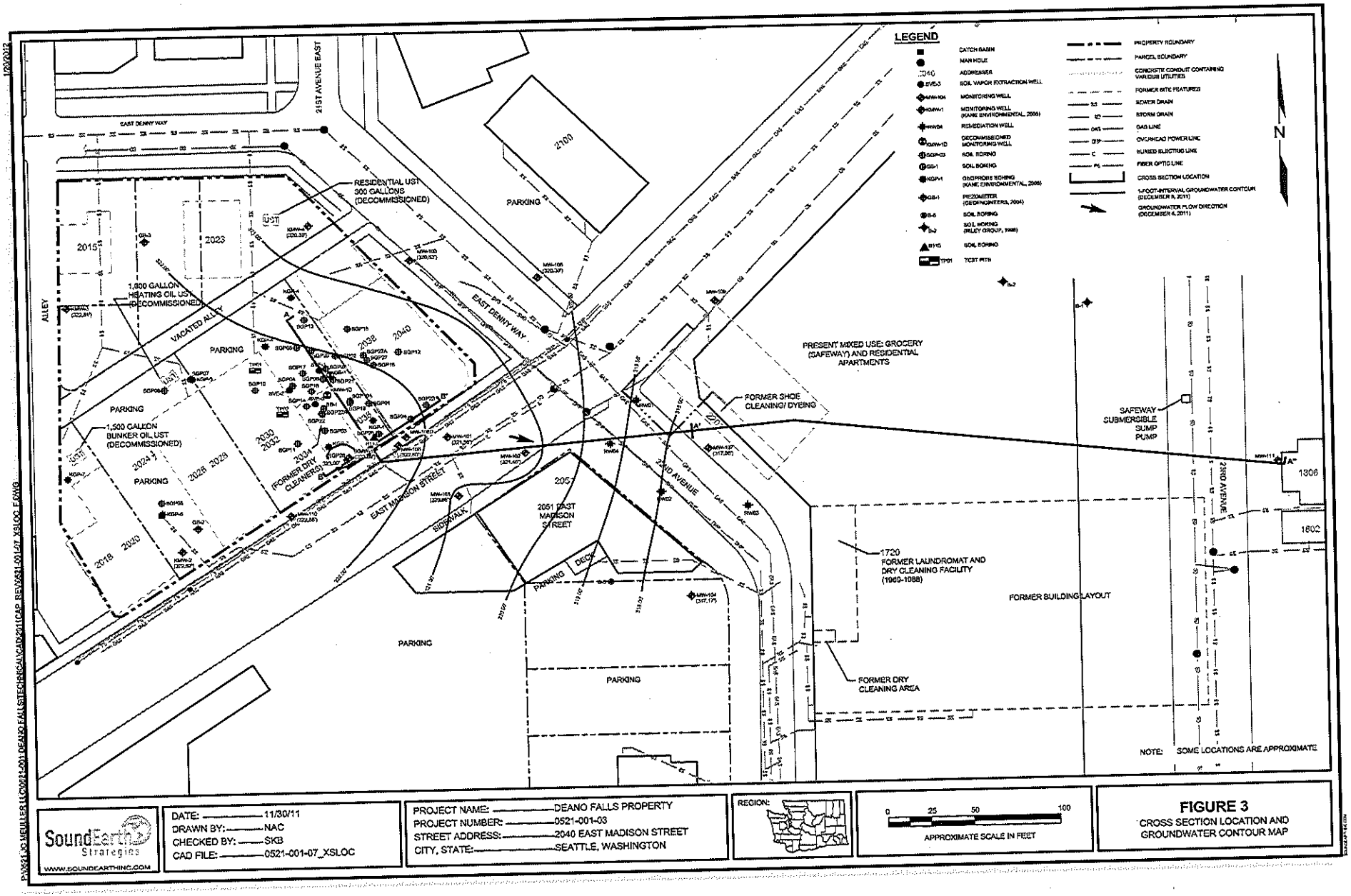
CHECKED BY: SKB
CAD FILE: 0521-001-07_EL

PROJECT NAME: DEANO FALLS PROPERTY
PROJECT NUMBER: 0521-001-03
STREET ADDRESS: 2040 EAST MADISON STREET
CITY; STATE: SEATTLE, WASHINGTON

REGION:

0 25 50 100
APPROXIMATE SCALE IN FEET

FIGURE 2
EXPLORATION LOCATION MAP AND SITE BOUNDARY



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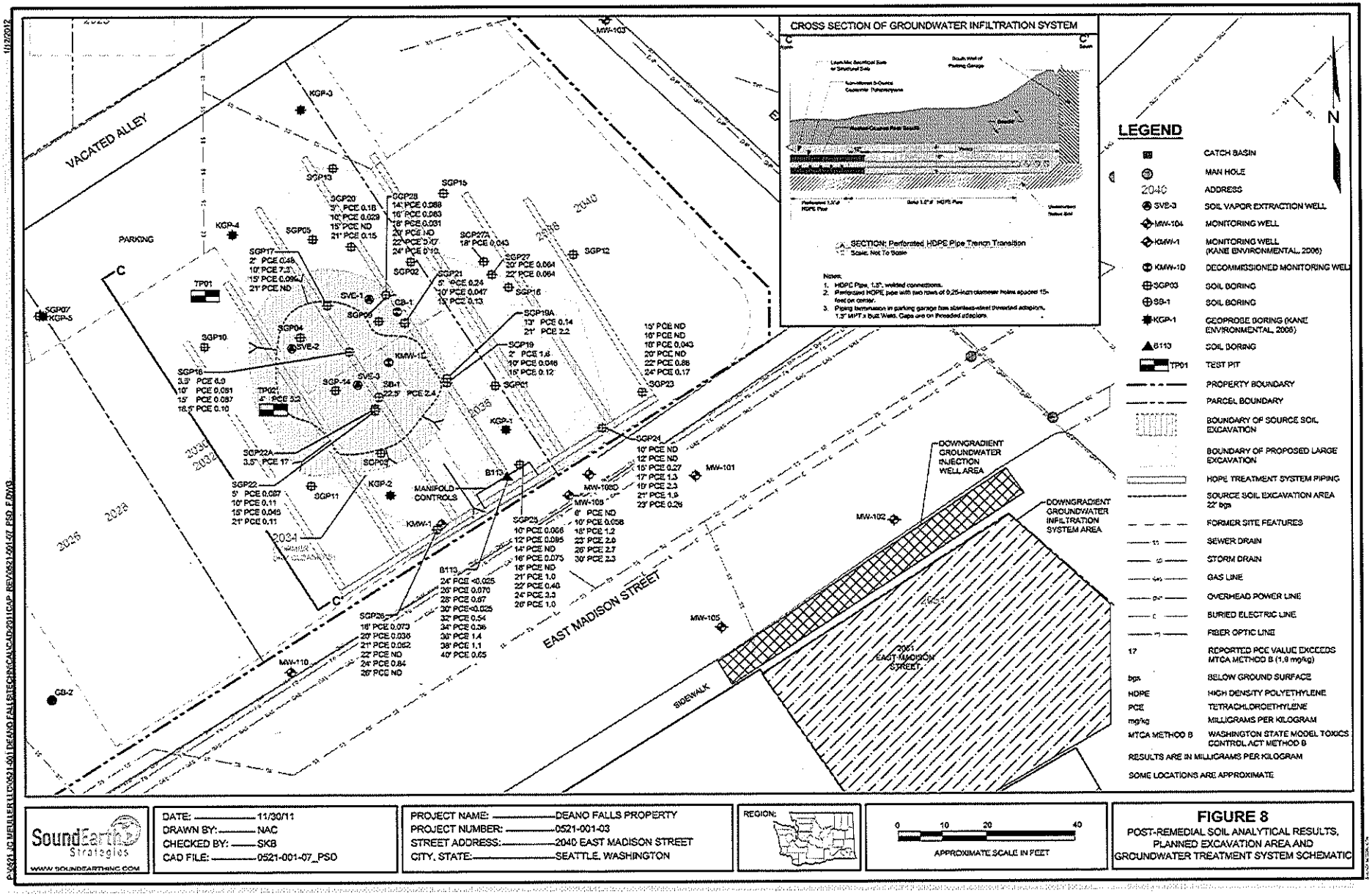
CAD FILE: 0521-001-07_XSLOC

PROJECT NAME: DEANO FALLS PROPERTY
PROJECT NUMBER: 0521-001-03
STREET ADDRESS: 2040 EAST MADISON STREET
CITY, STATE: SEATTLE, WASHINGTON

REGION:

0 25 50 100
APPROXIMATE SCALE IN FEET

FIGURE 3
CROSS SECTION LOCATION AND GROUNDWATER CONTOUR MAP



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DATE: 11/30/11
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CHECKED BY: SKB
CAD FILE: 0521-001-07_PSD

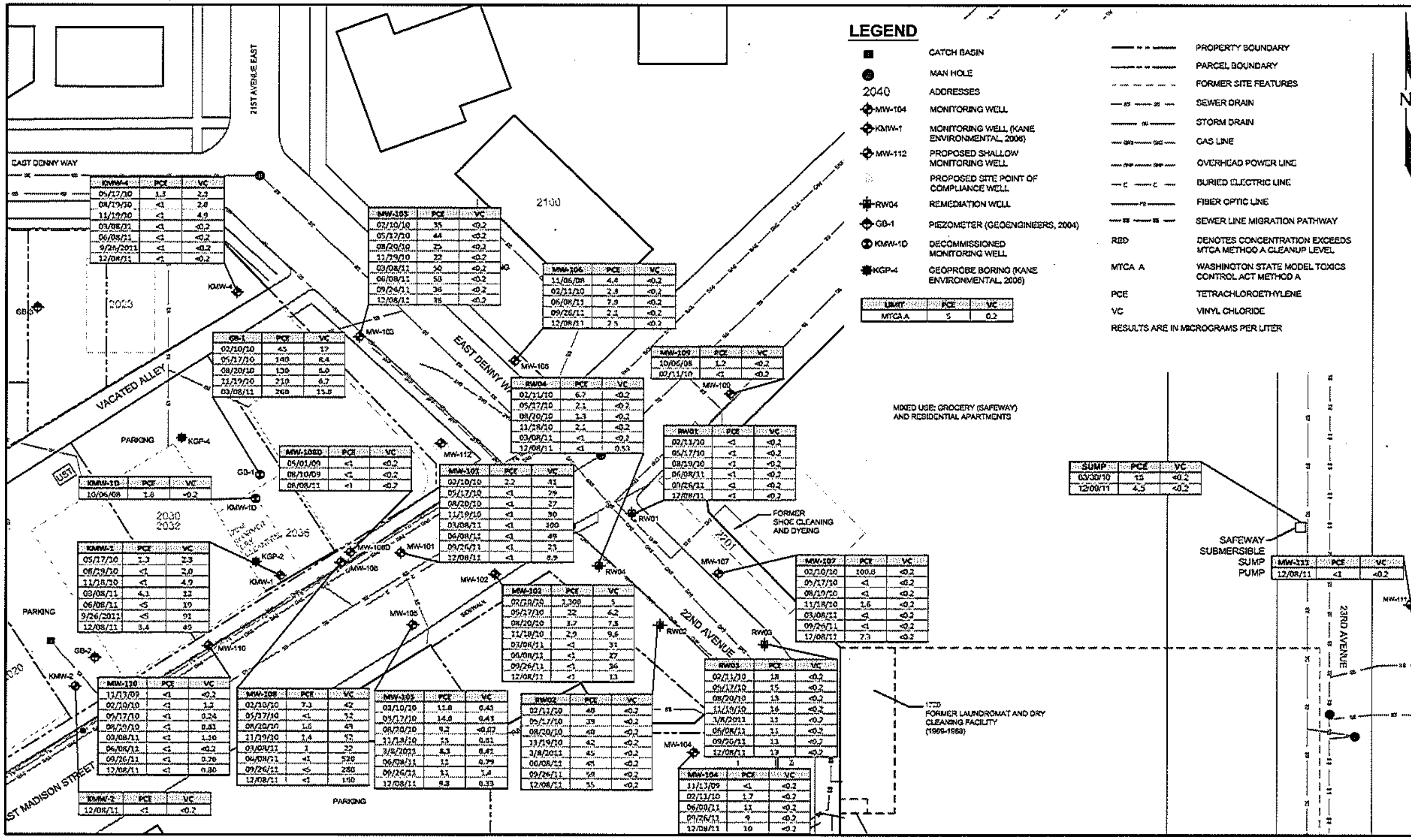
PROJECT NAME: DEANO FALLS PROPERTY
PROJECT NUMBER: 0521-001-03
STREET ADDRESS: 2040 EAST MADISON STREET
CITY, STATE: SEATTLE, WASHINGTON

REGION:

FIGURE 8

POST-REMEDIAL SOIL ANALYTICAL RESULTS, PLANNED EXCAVATION AREA AND GROUNDWATER TREATMENT SYSTEM SCHEMATIC

P:\0521 JG MEULLER LLC\0521-001 DEANO FALLS\TECH\CAD\CAD\201\CAP_REV\0521-001-07_PSD_F.DWG
11/2/2012



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DATE:	12/2/11
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CHECKED BY:	SKB
CAD FILE:	0521-001-07_PGD
PROJECT NAME:	DEANO FALLS PROPERTY
PROJECT NUMBER:	0521-001-07
STREET ADDRESS:	2040 EAST MADISON STREET
CITY, STATE:	SEATTLE, WASHINGTON

REGION:

0 45 90
APPROXIMATE SCALE IN FEET

FIGURE 9
POST-REMEDIAL
GROUNDWATER ANALYTICAL RESULTS