STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
*Northwest Regional Office • 3190 160th Ave SE • Bellevue, WA 98008-5452 • 425-649-7000*
*711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341*

October 3, 2013

Mr. Andy Lakha
Lakha Kent Properties LLC
500 108th Avenue NE
Bellevue, WA 98004-5568

**Re: Opinion pursuant to WAC 173-340-515(5) on Proposed Remedial Action for the following Hazardous Waste Site:**

- **Name:** Meridian Cleaners
- **Address:** 12908 SE Kent Kangley Road, Kent, WA
- **Facility/Site No.:** 25548656
- **VCP No.:** NW 2708
- **Cleanup Site ID No.:** 12100

Dear Mr. Lakha:

Thank you for submitting documents regarding your proposed remedial action for the Former Meridian facility (Site) for review by the Washington State Department of Ecology (Ecology) under the Voluntary Cleanup Program (VCP). Ecology appreciates your initiative in pursuing this administrative option for cleaning up hazardous waste sites under the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

This letter constitutes an advisory opinion regarding a review of submitted documents/reports pursuant to requirements of MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the following releases at the Site:

- Tetrachloroethylene (PCE) and its related degradation products trichloroethene (TCE), cis-1,2-dichloroethene (cis-DCE) and vinyl chloride (VC) into the Soil, Ground Water and Air

Ecology is providing this advisory opinion under the specific authority of RCW 70.105D.030(1)(i) and WAC 173-340-515(5).

This opinion does not resolve a person's liability to the state under MTCA or protect a person from contribution claims by third parties for matters addressed by the opinion. The state does not have the authority to settle with any person potentially liable under MTCA except in accordance with RCW 70.105D.040(4). The opinion is advisory only and not binding on

Ecology.

Ecology's Toxics Cleanup Program has reviewed the following information regarding your proposed remedial actions:

1. Ecology, 2013. Letter to Amin Lakha from Mary Shaleen-Hansen. Subject: Registration with the Underground Injection Control (UIC) Program, former Meridian Cleaners Site, 12908 SE Kent-Kangley Road, Kent, WA. August 29.

2. Golder Associates, 2013. *Response to Opinion Letter Dated July 3, 2013, Meridian Cleaners, 12908 SE Kent Kangley Road, Kent, Washington.* Letter to Heather Vick of Ecology dated July 26.

3. Golder Associates, 2013. *Preliminary Cleanup Action Plan, Former Meridian Cleaners Site at Lake Meridian Marketplace Shopping Center, 12908 SE Kent Kangley Road, Kent, Washington.* July 23.

4. Golder Associates, 2013. *Lake Meridian Marketplace – MW-4 Well Installation.* April 17.

5. Golder Associates, 2013. *Site Characterization, Former Meridian Cleaners Site at Lake Meridian Marketplace Shopping Center, 12908 SE Kent Kangley Road, Kent, Washington.* March 28.

6. PES Environmental, Inc., 2012. *Summary of Additional Investigation Results, Lake Meridian Marketplace, Kent, Washington.* December 6.

7. SCS Engineers, 2012. *Results of Limited Phase II Environmental Site Assessment of the Former Meridian Cleaners, Kent, Washington.* June 7.

The reports listed above will be kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. Appointments can be made by calling the NWRO resource contact at (425) 649-7235 or sending an email to nwro_public_request@ecy.wa.gov.

The Site is defined by the extent of contamination caused by the following releases:

- Tetrachloroethylene (PCE) and its related degradation products trichloroethene (TCE), cis-1,2-dichloroethene (cis-DCE) and vinyl chloride (VC) into the Soil, Ground Water and Air

The Site is more particularly described in **Enclosure A** to this letter, which includes detailed Site diagrams. The description of the Site is based solely on the information contained in the

documents listed above.

Based on a review of supporting documentation listed above, pursuant to **requirements contained in MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the following releases at the Site, Ecology has determined:**

- The Preliminary Cleanup Action Plan (PCAP) describes the components of the planned remediation of the Site including soil vapor extraction (SVE), accelerated bioremediation by injecting nutrients and microbes using direct push technology to enhance naturally-occurring reductive dechlorination and long-term ground water monitoring.

- Ecology was requested to review the PCAP and provide a formal opinion. Ecology approves the PCAP on the basis that it should result in source mitigation in the vadose zone and remediation of the ground water at the Site, and with the following comments:

    - The PCAP states that compounds detected in soil samples collected from the boring drilled for installation of MW-4 are included in Table 1 however that is not the case. The soil results are presented in Table 1 of the MW-4 – Well Installation Technical Memorandum so this is a typographical error.

    - The PCAP and the MW-4 Well Installation Technical Memorandum state that monitoring well MW-4 was sited in the approximate center of the ground water plume. However, according to Figures 7 and 8 of the PCAP, the location of MW-4 is south or southeast of the plume center. The analytical results from MW-4 (sampled on April 1, 2013) in Table 3 of the PCAP are consistent with the sited position of the well within the plume. The MW-4 analytical results should be shown on Figures 7 and 8 and included in the iso-concentration contouring. Also, on Figure 8, a data point (3.8 µg/L at B-8) was not considered in the contouring and should be, or a note included on the figure explaining the omission.

    - The PCAP hydrogeology section (Section 2.0) does not provide information on the depth to water at the Site. This information was also not included in any tables in the PCAP or the text and the boring log for MW-4 in the MW-4 Well Installation Technical Memorandum. This information should be included in the PCAP. Based on information in the July 26, 2013 Response to Opinion Letter Dated July 3, 2013, ground water elevation contour maps will be produced with data from all Site monitoring wells, including MW-4, after the well is incorporated into the elevation survey network.

- According to Figure 10 of the PCAP, the water table ranges from approximately 4.5 to 6.5 feet below the ground surface under the building in the area where the SVE horizontal well sections will be installed at depth of 3 feet bgs. This means that at the east end of the SVE system, the water table could be 1.5 feet below the SVE piping which is most likely within the range of the seasonal high water table. How would this potentially impact the SVE system?

- The Ecology drilling variance dated June 4, 2013 in Appendix B says that the SVE collection system can be installed using biodegradable drilling fluid additives. The variance, which expires December 31, 2013, also states that at no time shall construction of the horizontal wells take place below the water table. What is the contingency plan for SVE well installation if fall 2013 receives more precipitation than normal?

- There are discrepancies between the PCAP text and Figures 9 and 10. PCAP text (page 9) states that the SVE wells will be placed in native, lower permeability till and that horizontal wells will also be placed in the upper 3 feet of soil beneath the building to reduce the risk of vapor intrusion. Figure 10 shows a horizontal pipe at a depth of 3 feet bgs and a horizontal pipe within the floor of the building just above the ground surface. The horizontal pipes are unlabeled and not in the legend but are presumably the SVE sections. Figure 9 shows six SVE horizontal well sections in plan view. Based on the text on page 9 and Figure 10, it is unclear at what depths the SVE well sections will be installed.

- The PCAP includes a section on cleanup objectives and references MTCA cleanup standards as being exceeded. Although previous sample results have been compared to MTCA Method A and Method B, the PCAP lacks a section on exposure pathways and developing proposed cleanup levels for soil, ground water and air at the Site. This step is critical prior to undertaking remedial actions.

**This opinion does not represent a determination by Ecology that a proposed remedial action will be sufficient to characterize and address the specified contamination at the Site or that no further remedial action will be required at the Site upon completion of the proposed remedial action.** To obtain either of these opinions, you must submit appropriate documentation to Ecology and request such an opinion under the VCP. **This letter also does not provide an opinion regarding the sufficiency of any other remedial action proposed for or conducted at the Site.**

Please note that this opinion is based solely on the information contained in the documents listed above. Therefore, if any of the information contained in those documents is materially false or misleading, then this opinion will automatically be rendered null and void.

The state, Ecology, and its officers and employees make no guarantees or assurances by providing this opinion, and no cause of action against the state, Ecology, its officers or employees may arise from any act or omission in providing this opinion.

Again, Ecology appreciates your initiative in conducting independent remedial action and requesting technical consultation under the VCP. As the cleanup of the Site progresses, you may request additional consultative services under the VCP, including assistance in identifying applicable regulatory requirements and opinions regarding whether remedial actions proposed for or conducted at the Site meet those requirements.

If you have any questions regarding this opinion, please contact me at (425) 649-7064 or hvic461@ecy.wa.gov.

Sincerely,

Heather Vick

Heather Vick, LHg
NWRO Toxics Cleanup Program

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

cc: Sonia Fernandez, VCP Coordinator, Ecology

# Enclosure A

# Description and Diagrams of the Site

## Site Description

*This section provides Ecology's understanding and interpretation of site conditions, and is the basis for the opinions expressed in the body of the letter.*

**Site:** The Site is defined as chlorinated solvent contamination in soil and groundwater at 12922 SE Kent-Kangley Road in Kent, Washington (Property). The Property, which is 14.52 acres in size, is the location of the Lake Meridian Marketplace at the intersection of Kent-Kangley Road and 132nd Avenue SE. The Property corresponds to King County tax parcel number 2822059062. The Site is located in the southwest portion of the Property as shown on the attached Site Diagram.

**Area and Property Description:** Meridian Cleaners was formerly located in Building A of the Lake Meridian Marketplace. The address of the tenant space within the Property that formerly contained Meridian Cleaners is 12908 SE Kent-Kangley Road. The Property is surrounded primarily by commercial and residential land uses. The Property is bordered to the north by residential properties and some undeveloped land. The Property is bordered to the east by 132nd Avenue SE and a Walgreens drug store, to the south by Kent-Kangley Road and a Safeway grocery store and to the west by residential properties.

**Property History and Current Use:** The former Meridian Cleaners was in operation from approximately 1990 to 2003. The dry cleaning operations included a closed loop dry cleaning machine that used dry cleaning solvents. The former dry cleaner tenant space, which is approximately 1,300 square feet in size, is currently vacant.

**Sources of Contamination:** The source of the contamination at the Site is a release of tetrachloroethylene (PCE) which was being used as a dry cleaning solvent at the former Meridian Cleaners. The exact location of the release is unknown; the most elevated concentrations of PCE in soil are at the west side of the former dry cleaning facility space. Since the original release, PCE has degraded in the subsurface into by-products that have been detected as trichloroethylene (TCE), cis-1,2-dichloroethylene (cis-DCE), trans-1,2-dichloroethylene (trans-DCE) and vinyl chloride (VC). Detected concentrations of the by-products have exceeded MTCA cleanup levels.

**Physiographic Setting:** The Site is located within the Puget Sound Lowland Physiographic Province, a north-south trending structural and topographic depression which is bordered to the west by the Olympic Mountains, and to the east by the Cascade Mountain foothills. The Puget Sound Lowland is underlain by Tertiary volcanic and sedimentary bedrock, and has been filled to the present day land surface with Pleistocene glacial and nonglacial sediments. The Property is located on a drift upland area.

**Surface/Storm Water System:** The surface water body closest to the Site is a tributary to Soosette Creek which begins just inside the north Property boundary and flows northwest.

**Ecological Setting:** The Property is covered with concrete and buildings. Two areas just north of the Property may be undeveloped land and potential terrestrial habitat.

**Geology:** The Site is directly underlain by dense glacial (Vashon) till which is described as a compact mixture of varying amounts of silt, sand and gravel which is unsorted. Based on soil borings advanced at the Site, the Vashon till at this location may be more than 30 feet thick. Some fill materials were encountered overlying the till in several locations up to about 4 feet in thickness.

**Ground Water:** Ground water occurs within the upper part of the glacial till under water table conditions. Depth to ground water varies between 6 to 9 feet below the ground surface. The ground water flow direction varies from southwest to south-southwest based on ground water elevation measurements in three Site monitoring wells. The measured hydraulic conductivity of aquifer materials screened by Site monitoring wells MW-1 through MW-3 ranged from 0.2 to 1.23 feet/day.

**Water Supply:** The Site area is served by the Soos Creek Water and Sewer District. Water is obtained from Seattle Public Utilities and comes from the Cedar River Watershed. According to Ecology's well log data base, no water supply wells are located within 0.5 mile of the Site.

**Release and Extent of Contamination:**

**Soil.** In May 2012, eight direct push borings (B1 through B8) were advanced. Borings B1 through B6 were advanced in exterior locations and borings B7 and B8 were advanced in the interior of the former Meridian Cleaners tenant space. One soil sample and a grab ground water sample were collected from each boring and analyzed for VOCs.

In October and November 2012, two off-Site direct push borings were advanced along the south (B-16) and north (B-17) margins of Kent-Kangley Road.

Soil samples collected at depths of 3 to 7 feet bgs during drilling of MW-4 in March 2013 contained 1,1-dichloroethene (1,1-DCE), cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), methylene chloride and vinyl chloride.

Data from soil samples collected to date have delineated the horizontal extent of VOC contamination on the Site.

**Ground Water.** In March 2012, five direct push soil borings (B-6, B-8, B-9, B-10 and B-11) were advanced in exterior locations in order to collect grab ground water samples which were analyzed for VOCs. The locations of the borings are shown on the attached Site Diagram. No soil samples were collected. Additional direct push borings (B-14, B-16 and B-17) were advanced in October and November 2013 and grab ground water samples were collected.

Three monitoring wells, MW-1 through MW-3, were installed in October 2012. In March 2013, monitoring well MW-4 was installed west of the tenant space formerly occupied by Meridian Cleaners in an area previously determined to have the most elevated chlorinated volatile organic

compounds (cVOCs) in ground water. Based on analytical data from the direct push borings and four Site monitoring wells, the horizontal extent of VOC contamination has been delineated on the Property however the Site extends off-Property to the southwest. The VOC plume likely extends for some distance under Kent-Kangley Road.

A fourth monitoring well, MW-4, was installed in March 2013 to a total depth of 15 feet bgs. MW-4 was sited to be in the approximate center of the VOC plume based on previous ground water contaminant data. Soil samples collected during drilling of the borehole for MW-4 at depths of 3, 5 and 7 feet bgs and were analyzed for VOCs. No VOCs were detected at concentrations exceeding MTCA screening levels.

**Air:** In March 2012, sub-slab soil vapor samples were collected at five interior (B-1 through B-5) locations and one exterior (B-7) location. Eight soil gas samples (VP-1 through VP-8) were collected on October 9, 2012 using temporary sub-slab vapor probes. PCE and TCE were detected in all eight samples and some concentrations exceeded MTCA screening levels for soil gas in an unrestricted land-use setting. The soil gas samples contained elevated levels of PCE, TCE, cis-DCE, trans-DCE and vinyl chloride in excess of MTCA screening levels.

# Site Diagrams


*Source: Google Earth Pro, 2013*

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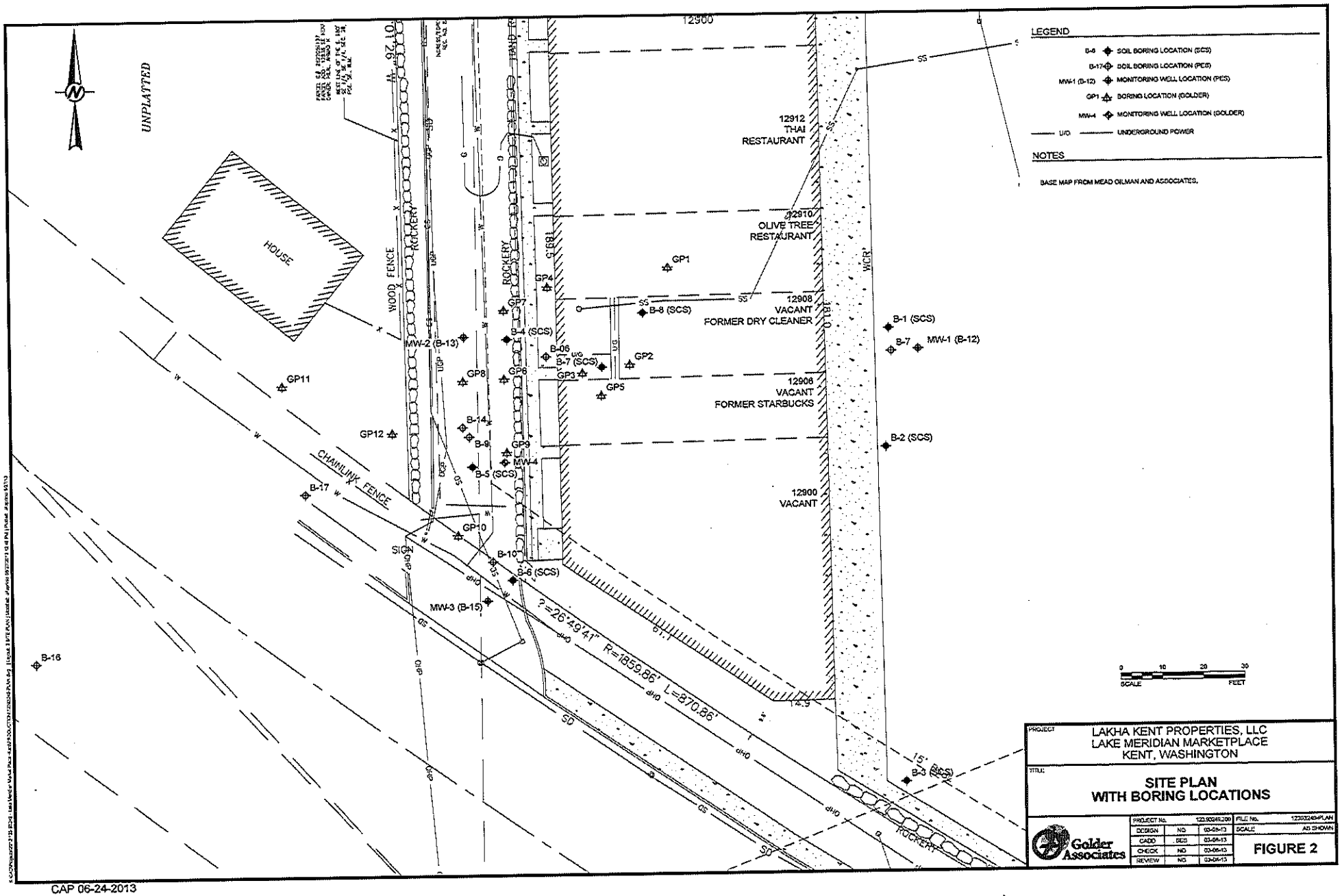
APPROXIMATE SCALE IN FEET

N

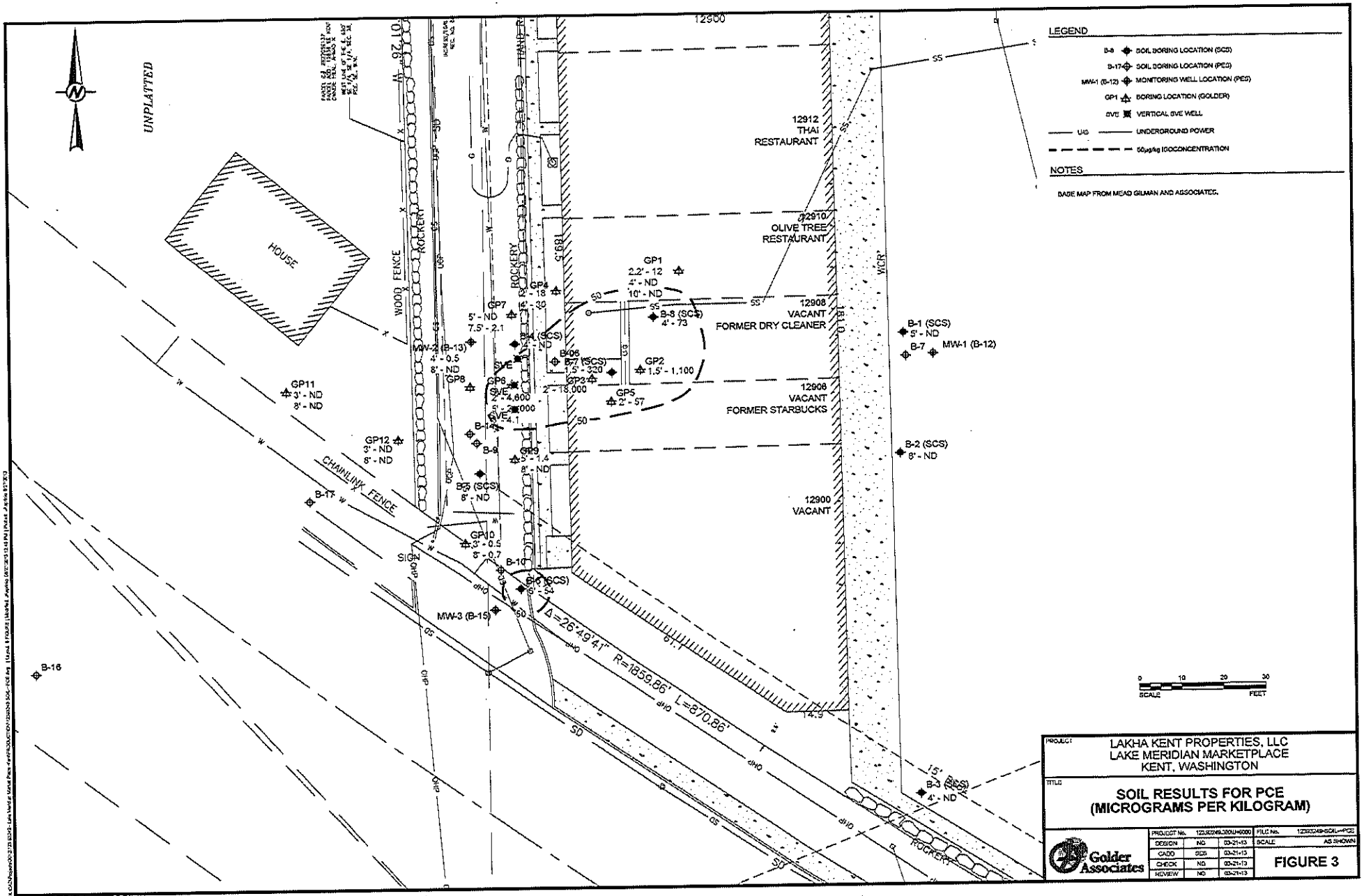
FIGURE 1

**SITE LOCATION MAP**

LAKHA/KENT MERIDIAN CONSULTING/WA




CAP 06-24-2013




PROJECT: LAKHA KENT PROPERTIES, LLC
LAKE MERIDIAN MARKETPLACE
KENT, WASHINGTON

TITLE: **SOIL RESULTS FOR PCE (MICROGRAMS PER KILOGRAM)**

| | | | | |
|---|---|---|---|---|
| PROJECT No. | 123J0249.300U6000 | | FILE No. | 123J0249-SOIL-PCE |
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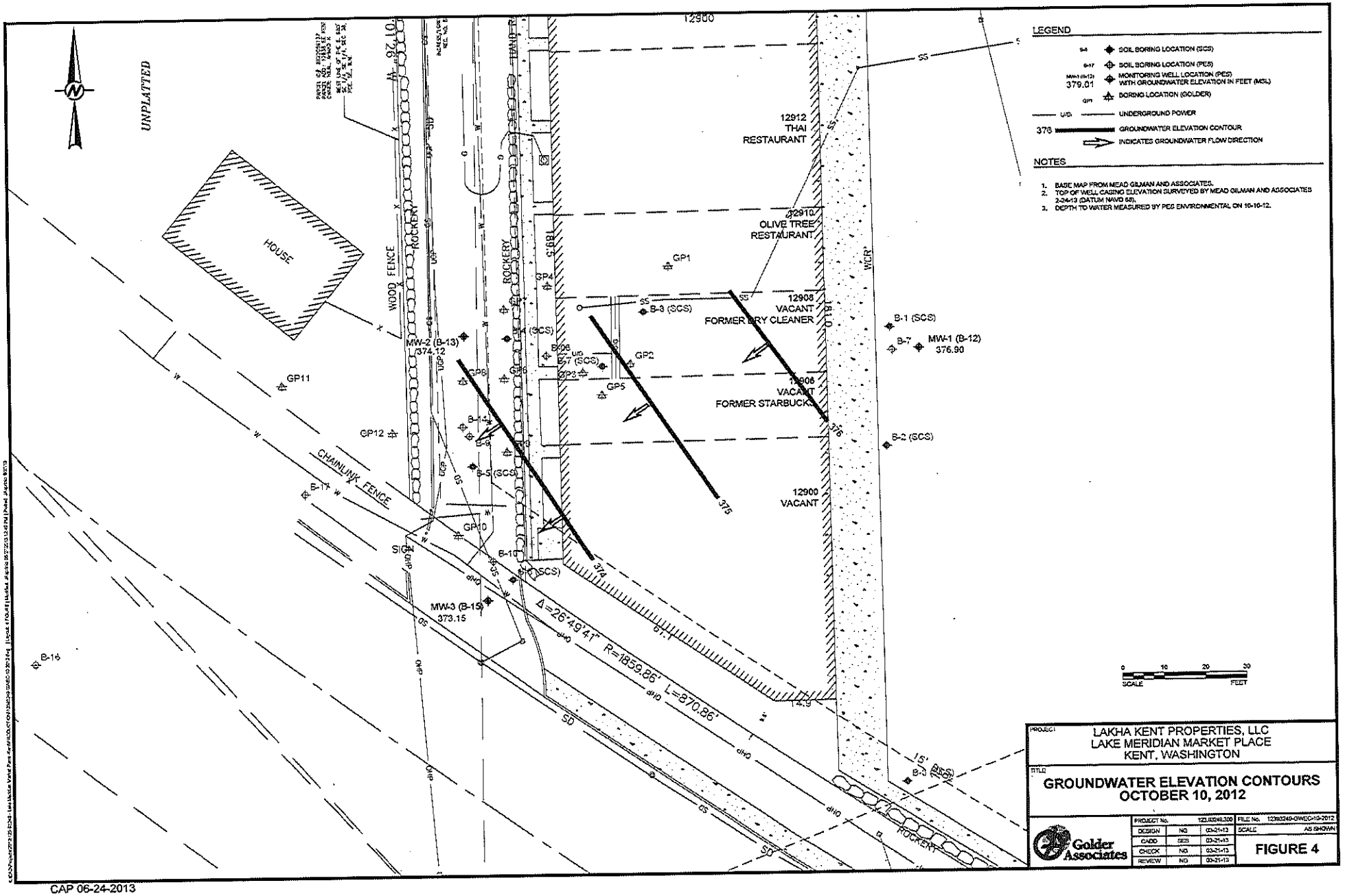
| CADD | SDS | 03-21-13 | | |
| CHECK | NG | 03-21-13 | | |
| REVIEW | NG | 03-21-13 | | |

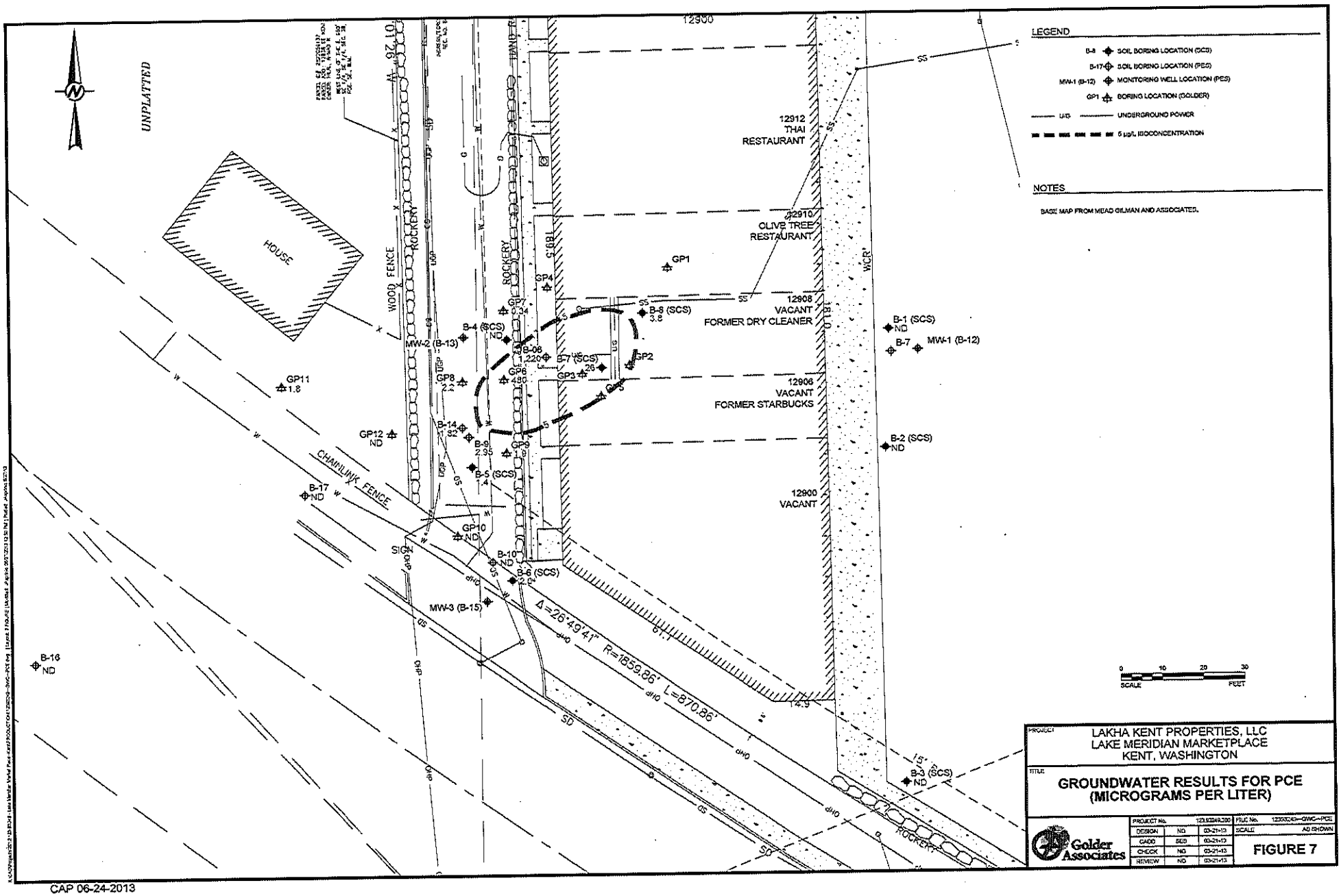
Golder Associates

**FIGURE 3**

CAP 06-24-2013




CAP 06-24-2013

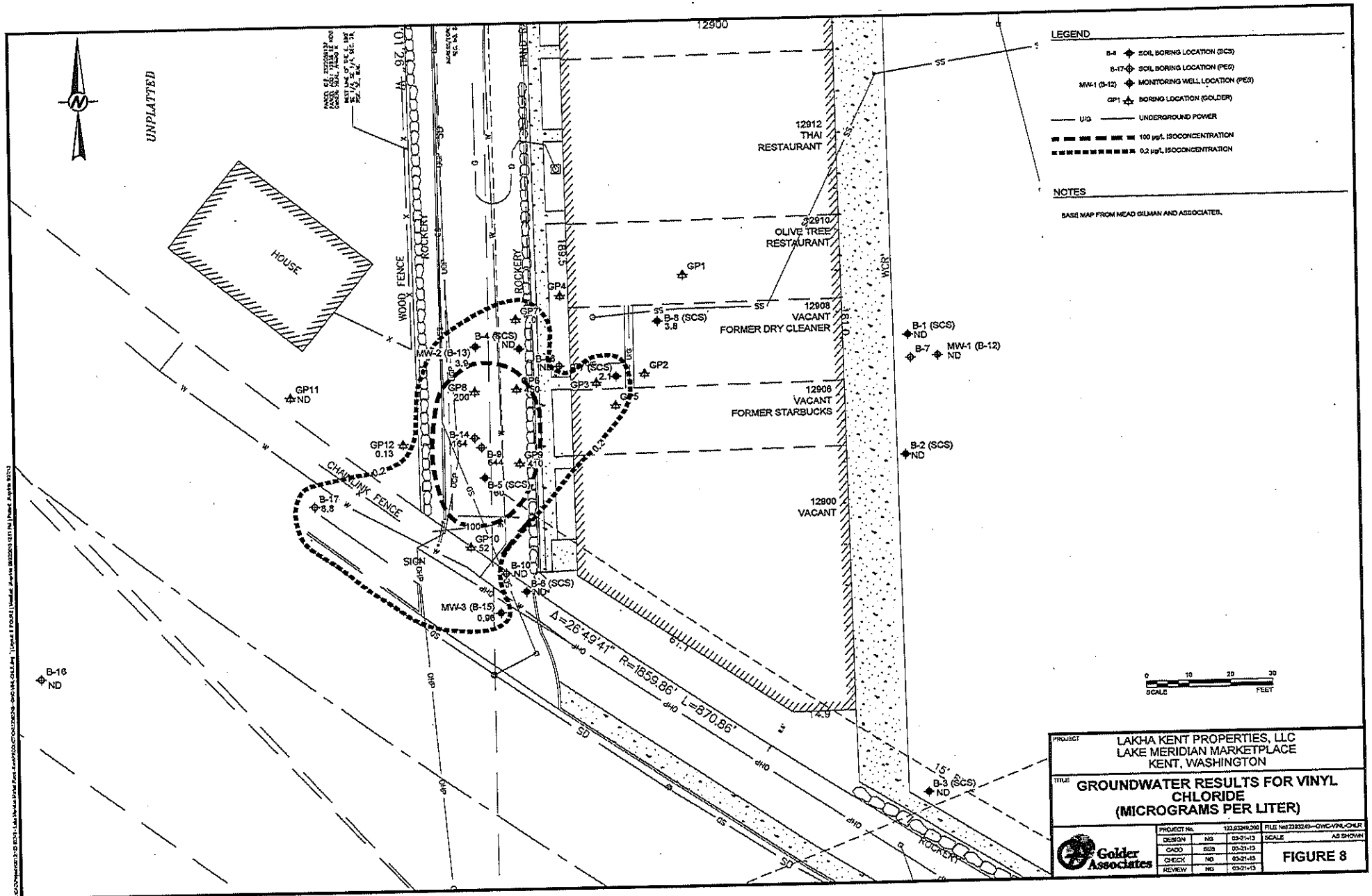



PROJECT: LAKHA KENT PROPERTIES, LLC
LAKE MERIDIAN MARKETPLACE
KENT, WASHINGTON

TITLE: **GROUNDWATER RESULTS FOR PCE (MICROGRAMS PER LITER)**

| | | | | | |
|---|---|---|---|---|---|
| Golder Associates | PROJECT No. | 123.93249.200 | FILE No. | 123932491-GWC-PCE | |
| | DESIGN | NG | 03-21-13 | SCALE | AS SHOWN |
| | CADD | SCS | 03-21-13 | | |
| | CHECK | NG | 03-21-13 | | FIGURE 7 |
| | REVIEW | NG | 03-21-13 | | |

CAP 06-24-2013



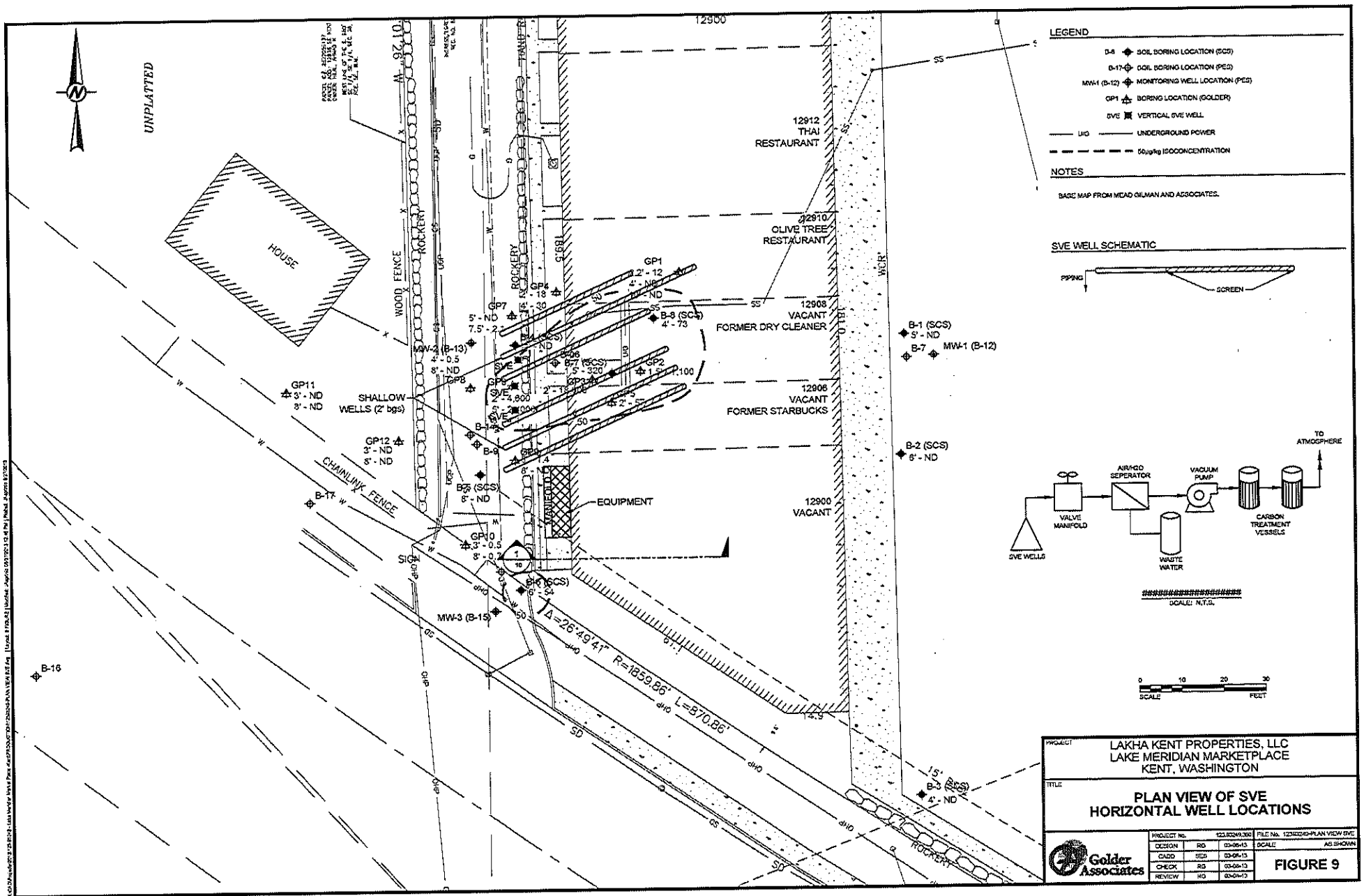

PROJECT
LAKHA KENT PROPERTIES, LLC
LAKE MERIDIAN MARKETPLACE
KENT, WASHINGTON

TITLE
**GROUNDWATER RESULTS FOR VINYL CHLORIDE (MICROGRAMS PER LITER)**

| | | | |
|---|---|---|---|
| PROJECT No. | | 123.93249.200 | FILE No. 23932.49-GWC-VINLCHLR |
| DESIGN | NG | 03-21-13 | SCALE AS SHOWN |
| CADD | SES | 03-21-13 | |
| CHECK | NG | 03-21-13 | FIGURE 8 |
| REVIEW | NG | 03-21-13 | |

Golder Associates

CAP 06-24-2013




PROJECT
LAKHA KENT PROPERTIES, LLC
LAKE MERIDIAN MARKETPLACE
KENT, WASHINGTON

TITLE
**PLAN VIEW OF SVE HORIZONTAL WELL LOCATIONS**

Golder Associates

| | | | |
|---|---|---|---|
| PROJECT No. | | 123.93249.300 | FILE No. 123S93249-PLAN VIEW SVE |
| DESIGN | RG | 03-06-13 | SCALE AS SHOWN |
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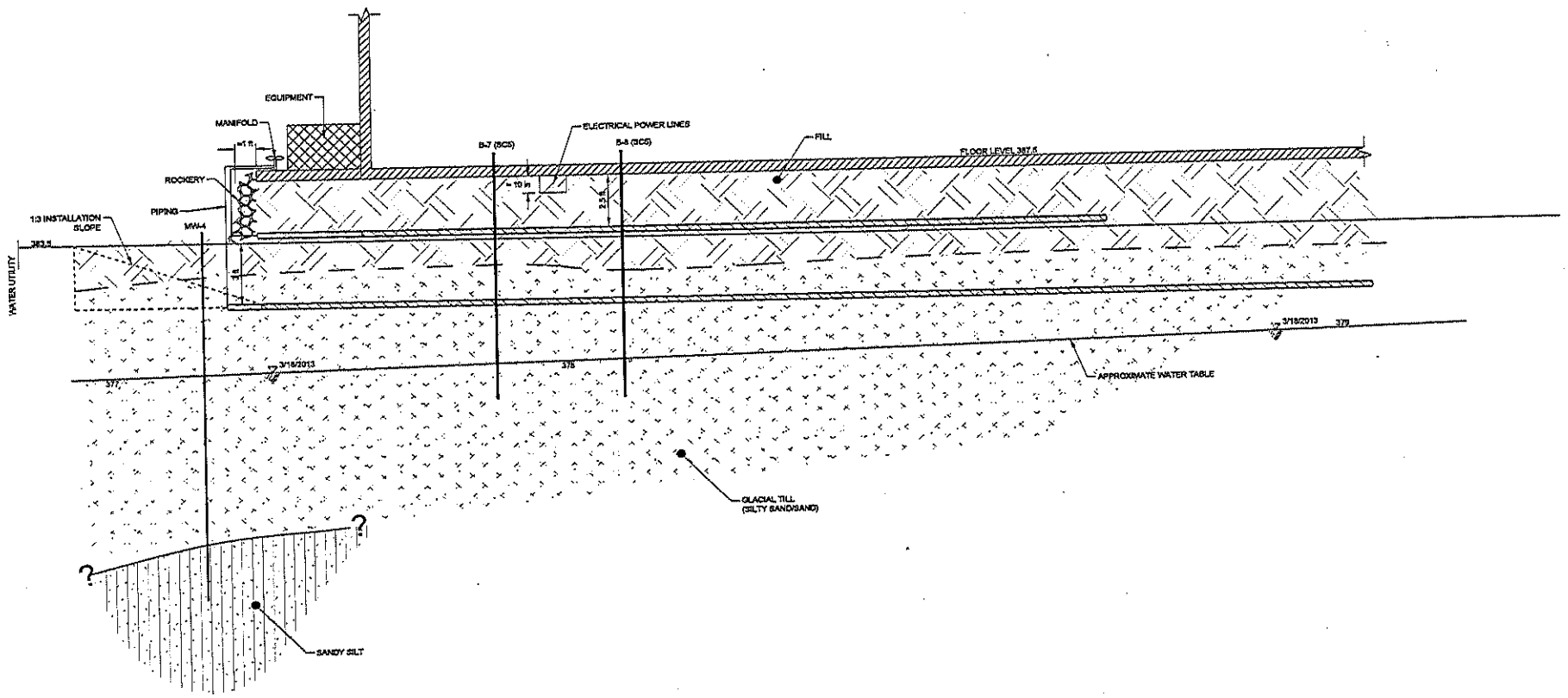
| CHECK | RG | 03-06-13 | |
| REVIEW | NG | 03-06-13 | |

**FIGURE 9**

CAP 06-24-2013




SVE SECTION AT MANIFOLD

LEGEND

- FILL
- GLACIAL TILL
- SANDY SILT
- B-7 (SCS) BORING
- 379 ELEVATION
- 3/18/2013 ESTIMATED GROUNDWATER LEVEL

STRATIGRAPHIC CONTACT: SOLID IS CONFIDENT ——— DASHED IS APPROXIMATE – – – QUERIED IS INFERRED —?—

SCALE 0 2.5 5 7.5 FEET

| | |
|---|---|
| PROJECT | LAKHA KENT PROPERTIES, LLC<br>LAKE MERIDIAN MARKETPLACE<br>KENT, WASHINGTON |
| TITLE | SVE WELL SECTION AT MANIFOLD |

Golder Associates

| | | | | | |
|---|---|---|---|---|---|
| PROJECT No. | 123-93249.300 | | | FILE No. | 123931493-000-006 |
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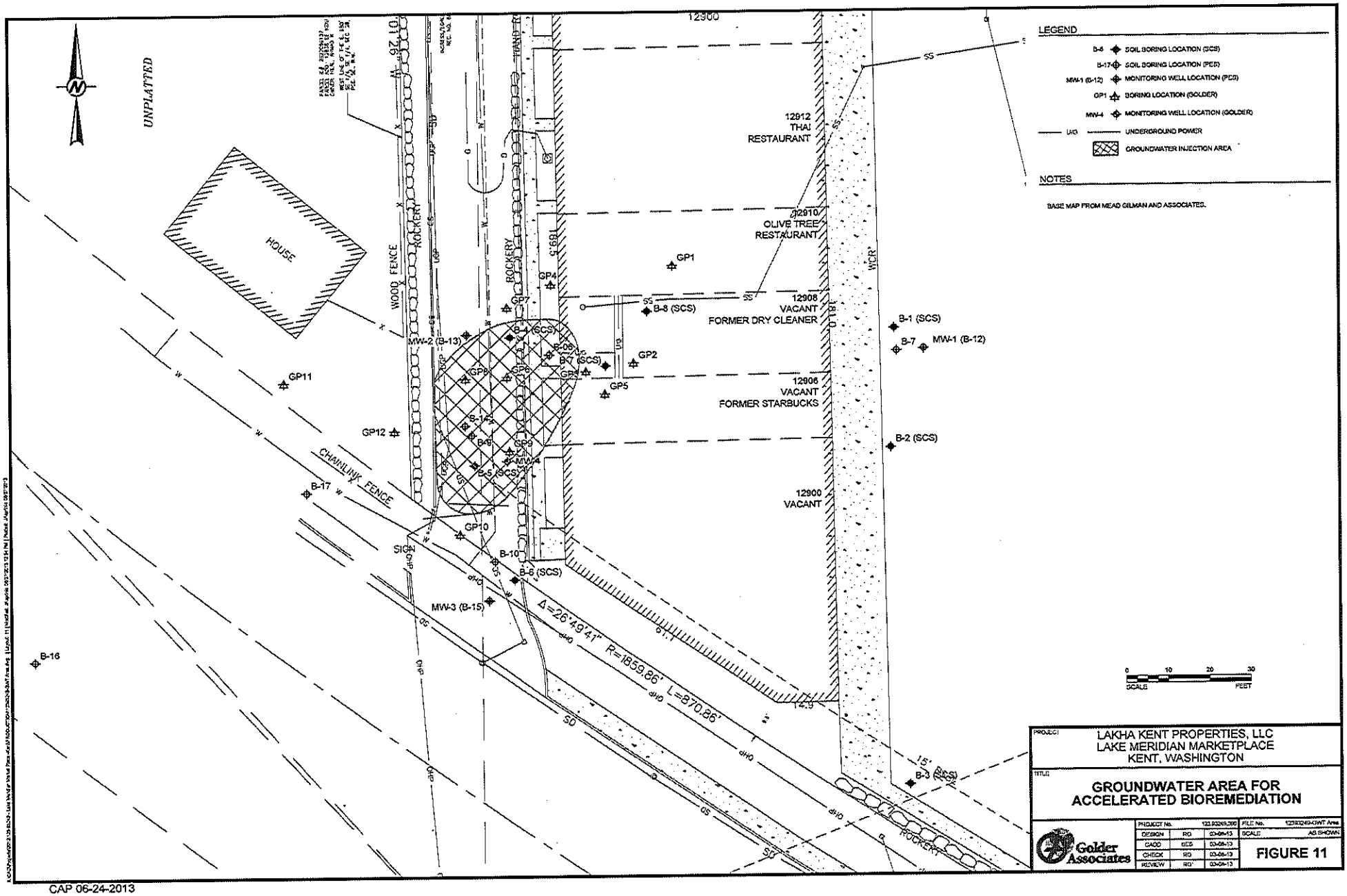
CAP 06-24-2013




CAP 06-24-2013