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September 27, 2016

RECEIVED
By Alameda County Environmental Health 11:23 am, Oct 04, 2016

Ms. Kit Soo
Alameda County Health Care Services
Environmental Health Services
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

Subject: **RO0000289**
WORK PLAN TO COMPLETE A SOIL VAPOR INVESTIGATION
OWENS-BROCKWAY GLASS CONTAINER FACILITY.
3600 ALAMEDA AVENUE, OAKLAND, CALIFORNIA.

Dear Ms. Soo:

Owens-Brockway Glass Container Corporation is pleased to submit the attached Work Pland to Complete a Soil Vapor Investigation for the above site.

I declare under penalty of perjury that the information and recommendations contained in the attached report are true and correct to the best of my knowledge.

If you need further information feel free to call me at (567) 336-8682.

Sincerely,

Mark Tussing.
Manager, Environmental Affairs

CKG Environmental, Inc.

P.O. Box 246 St. Helena, CA 94574
Phone (707) 967-8080 Fax: (707) 967-8080
ckennedy@geologist.com

September 27, 2016

Ms. Kit Soo
County of Alameda Health Care Services Agency
Environmental Health Department
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: RO0289
WORK PLAN TO COMPLETE A SOIL VAPOR INVESTIGATION, OWENS-BROCKWAY GLASS CONTAINER FACILITY, OAKLAND, CALIFORNIA.

Dear Ms. Soo:

CKG Environmental, Inc. (CKG) is pleased to provide this work plan to complete a soil vapor investigation at the closed Owens-Brockway Glass Container, Inc. facility at 3600 Alameda Avenue in Oakland California. The soil vapor investigation was discussed in a meeting with the Alameda County Department of Environmental Health (ACDEH) on Thursday August 18. In that meeting ACDEH and Owens-Brockway discussed the merits of using soil gas data to inform potential soil remediation for petroleum hydrocarbons at the site. In addition, ACDEH suggested that Owens-Brockway assess the potential for chlorinated solvent releases from sumps, drains, or sewer lines, and to assess the potential that petroleum hydrocarbons or solvents might be migrating onsite from upgradient sources.

BACKGROUND AND OBJECTIVE

Owens-Brockway has been working with ACDEH since approximately 1986 when petroleum hydrocarbons were discovered in soil and groundwater at the site after removing underground fuel storage tanks. At the time the site was placed into the ACDEH Local Oversight Program (LOP). Subsequent investigations showed that petroleum hydrocarbons were widespread in the southwest corner of the property and remediation efforts were not successful at removing separate phase petroleum hydrocarbons in the subsurface. In May 2015 CKG obtained historic Sanborn Fire Insurance maps to support a future property transaction. The 1912 Sanborn map showed that an asphalt refinery had been operated in the southwest corner of what is now the property. Additional research shows that the refinery operated from approximately 1902 until 1916.

In December 2015 CKG conducted a subsurface investigation to assess the extent of petroleum hydrocarbon impacts associated with the former asphalt refinery. This work was provided to ACDEH in CKG's *Subsurface Investigation Report Former Fuel Storage and Historical Asphalt Refinery Operational Areas*, dated February 29, 2016. The general conclusion of the report was that although some petroleum hydrocarbons may have been released from the former underground storage tanks, those releases are likely minor compared to the overall mass of petroleum hydrocarbons released by the former asphalt refinery operation. As such the bulk of the releases of petroleum hydrocarbons are not associated with underground fuel storage tanks.

At the August 18, 2016 meeting with ACDEH Owens-Brockway was informed that the site had been moved out of the LOP, into the Spills, Leaks Investigation and Cleanup (SLIC) program. This occurred approximately one week before the meeting. This change is significant because it allows Owens-Brockway to use health risk based information to establish a remediation plan. ACDEH suggested that soil vapor data could be used for this purpose. The following work plan presents a scope of work to complete the soil vapor investigation.

SCOPE OF WORK

CKG has reviewed site plans showing sewer structures including piping runs, drains, and sumps. In addition, CKG has completed a site walk to confirm the location of sewer structures and locate other structures that may not have appeared on plans. The subsurface structures located during these activities are shown on Plate 2.

Task 1 Soil Vapor Sampling

CKG will subcontract with Ninyo & Moore to complete the soil vapor investigation. The soil vapor investigation will include the following activities

Task 1.1 Prefield Activities

- CKG will prepare a site-specific health and safety plan specifying concerns associated with soil vapor investigation, and identifying the location and route to the nearest emergency medical facility.

- CKG will mark the proposed temporary soil vapor probe locations, and provide Underground Service Alert (USA) notification as required by California law.

- CKG will subcontract a private utility locator to clear the proposed temporary soil vapor probe locations.

- CKG will submit and obtain a drilling permit from Alameda County Public Works Agency (ACPWA).

Task 1.2. Install Temporary Soil Vapor Probes

- CKG will oversee a California C-57 licensed driller to install temporary soil vapor probes at 41 locations as shown on Plate 2. The following summarizes vapor probe installation rationale:

  1) Two pairs of vapor probes will be installed at the northern (upgradient) property boundary to assess the potential that offsite sources of petroleum hydrocarbons or solvent vapors exist. One location is at the northeast corner where a former drycleaner was identified across the street in CKGs *Phase I Environmental Site Assessment, Owens-Brockway Glass Container Facility,* dated May 15, 2016. The other location is at the far northwest corner where the Phase I report identified a former plating operation across Fruitvale Avenue. At each location one probe will be installed to a depth of 5 feet below

grade and the other installed to ten feet below grade.

2) Seven soil vapor probes will be installed to a depth of five feet below grade at locations thought to have the highest potential to provide conduits to the subsurface for solvents if they were ever used at the site. These locations include two Yeoman Tanks (sewer sumps that serve as collection points and are pumped up to sewer drains as needed), drains, sewer piping (corners) or other structures that might have been used to dispose of solvents at any time during the history of site operations (Plate 2). One probe is located at each of the two Yeoman Tanks. A corrugated cardboard box assembly area was formerly located on the second floor and had a printing area and an "Ink Well" associated with it. CKG and Owens-Brockway traced the drain lines from the Ink Well to the extent possible to the locations where they entered the main sewer at ground level and located two soil vapor probes there. Another soil vapor probe was located on the main sewer trunk line where a number of lines converge. One soil vapor probe was located at the southwest corner of the eastern warehouse where the sewer line drained from a former equipment maintenance area that was removed when the warehouse was constructed in the early 1980s. It should be noted that in the main plant area floor drains were directed to discharge directly to the basement where liquids were channeled to the two oil/water separator structures, then pumped up to the main oil water separator on the south side of the plant. The basement floor is within one foot or less of the groundwater table so it is not feasible to install soil vapor probes in the basement. For this reason, the seventh soil vapor probe was located adjacent to the main oil/water separator.

3) 32 pairs of probes will be installed in the petroleum hydrocarbon impacted area. At each location one probe will be installed to a depth of five feet below grade and the other installed to ten feet below grade. Eight of the probe pairs will be installed at locations where total petroleum hydrocarbons in the gasoline range were detected above 100 mg/kg in the upper ten feet of soil. The rest of the vapor probe pairs will be distributed on approximately 50 foot centers throughout the petroleum hydrocarbon impacted area as shown on Plate 2.

- Each vapor probe will include a 1-inch stainless steel vapor screen placed at five or ten feet below ground surface (bgs) as outlined above, and connected to Teflon tubing. The vapor probes will be constructed following standard methods in accordance with the California Department of Toxic Substances Control Advisory *Active Soil Gas Investigations* dated April 2012.and completed with temporary surface finishes. CKG will additionally prepare California Department of Water Resources (DWR) forms required for the installation of these soil vapor probes.

Task 1.3. Sample and Analyze Temporary Soil Vapor Probes

- CKG will collect one round of soil vapor samples from each of the probe locations (for a total of 78 samples) per the DTSC Advisory. The samples will be transported under chain-of-custody documentation to a California-certified analytical laboratory to be analyzed for the following:

- Total petroleum hydrocarbons as diesel (TPHd) and polynuclear aromatic hydrocarbons (PAHs) using United States Environmental Protection Agency (USEPA) Method TO-17; (From the 34 nested sample locations and the two locations at the property boundary to assess petroleum hydrocarbons for a total of 68 samples).

- Volatile Organic Constituents (VOCs) using EPA Method TO-15 at the two upgradient probe locations.

- Methane using American Society for Testing and Materials (ASTM) Method D1946-90. (One sample from each TPH assessment location, varying between the five foot and ten foot samples for a total of 34 methane samples)

- (VOCs using USEPA Method TO-15 (at the seven potential VOC locations for a total of seven samples)

- CKG will arrange for the characterization and disposal of the investigation-derived waste (IDW) generated by the installation activities. This IDW will be stored on the Site in labeled 55-gallon drums or a roll-off bin pending proper offsite disposal.

Task 2 Temporary Soil Vapor Probe Abandonments

After data has been collected and ACDEH has agreed that no further data is needed, CKG will oversee a California C-57 licensed driller to properly abandon the temporary soil vapor probes. These abandonments will be performed under an ACPWA permit, and will remove all vapor probe construction materials, with the open borehole sealed with neat cement. CKG will prepare and submit the required DWR forms documenting these abandonments. The IDW generated by these abandonments will be stored on the site in labeled 55-gallon drums or a roll off bin pending proper offsite disposal and will be disposed as described above.

Task 3 Reporting

CKG will prepare a report documenting the soil gas investigation findings. This report will describe the completed field activities, provide construction logs of the temporary soil vapor probes, include a map showing the vapor probe locations, tabulate data and provide the analytical laboratory reports. The soil gas analytical results will be evaluated against the RWQCB's Environmental Screening Levels (ESLs) dated February 2016, for residential land use.

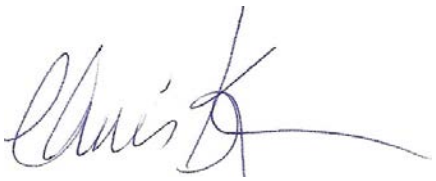
LIMITATIONS

CKG will perform the scope of work in a manner consistent with the standards of care and skill normally exercised by members of the profession practicing under similar conditions in the

geographic vicinity and at the time the services will be performed. No warranty or guarantee expressed or implied is part of the services offered in this work plan.

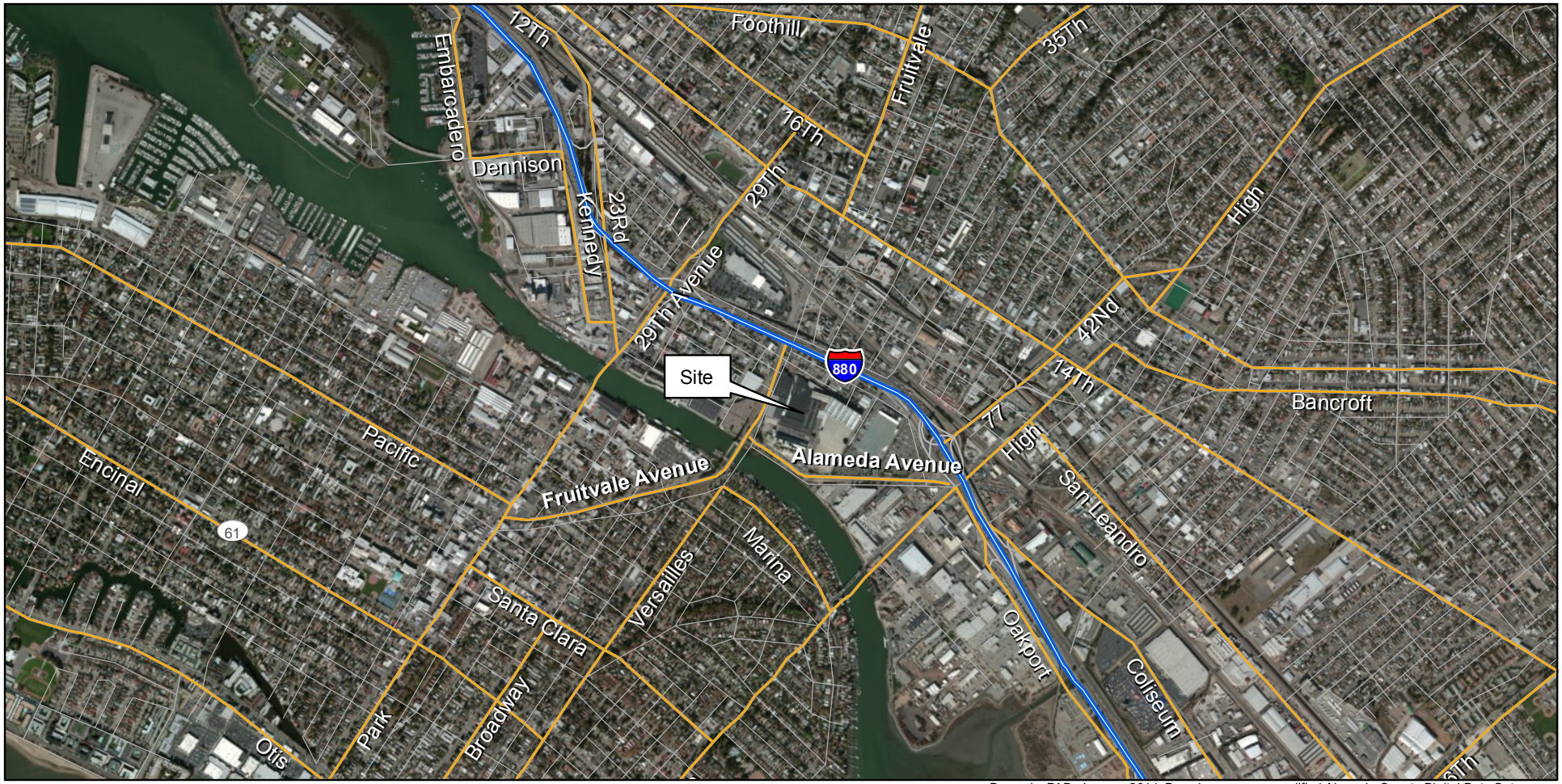
CKG is pleased to prepare this work plan to complete a soil vapor investigation. If you need further information or would like more details regarding this work plan, please feel free to call me at (707) 967-8080.

Sincerely,
CKG ENVIRONMENTAL, INC.

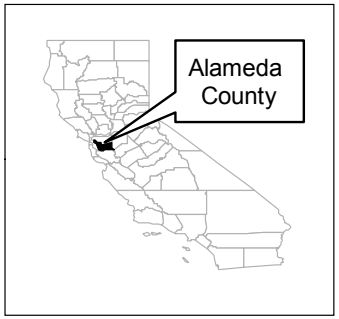


Christina J. Kennedy
Principal

Attachments Plate 1 Site Location Map
Plate 2 Proposed Soil Vapor Sample Locations



Drawn by PAD. January 2014. Base layers are unmodified Alameda County Digital Data Sets.



0 1,000 2,000

Scale in Feet

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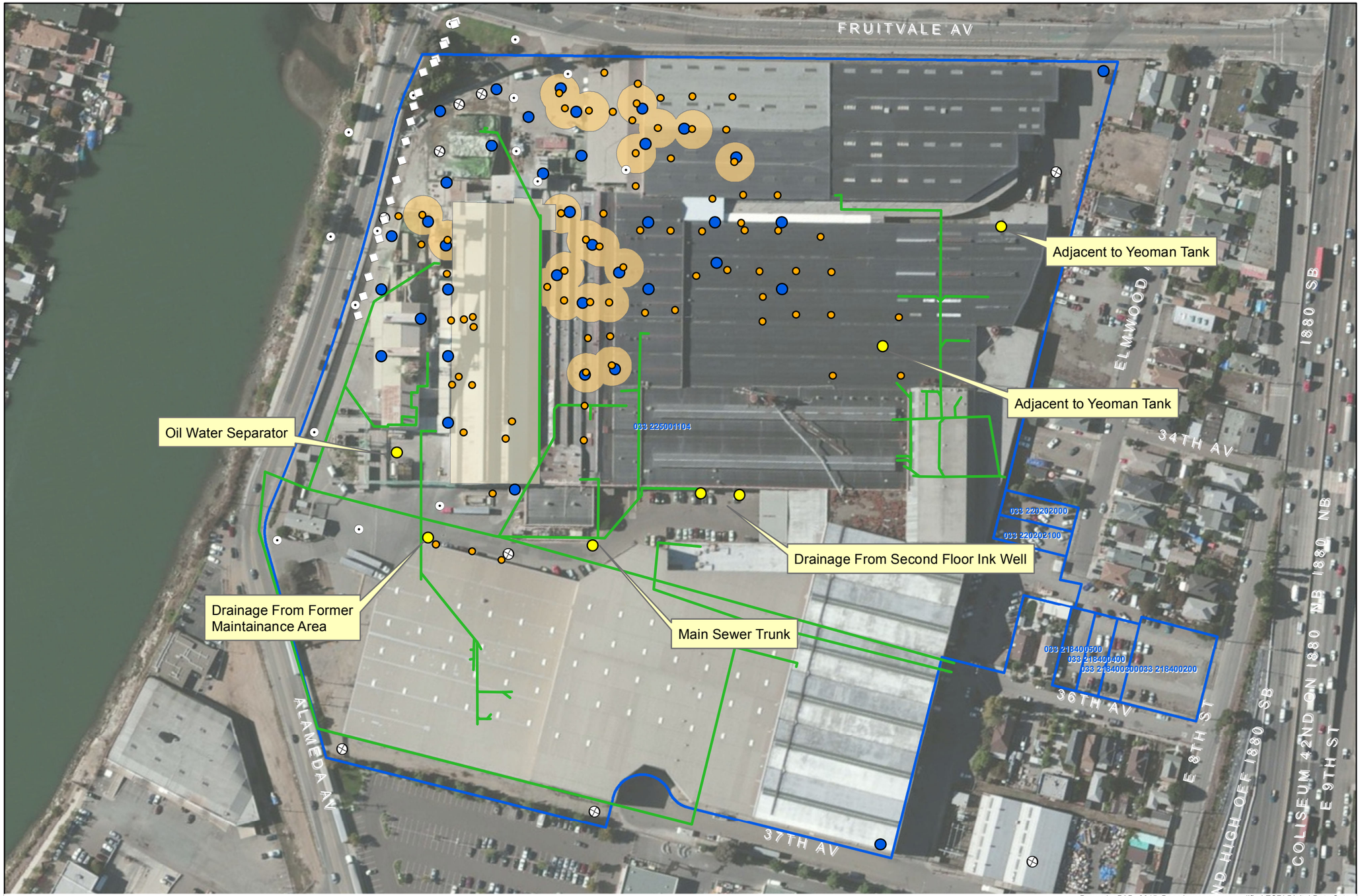
CKG Environmental, Inc.

Site Location Map
Owens-Brockway Glass Container Facility
3600 Alameda Avenue, Oakland, California

PLATE
1



EXPLANATION

- Injection Well
- Destroyed Well
- Monitoring Well
- 2015 Soil Boring

Proposed Soil Vapor Probe

- Pair (5' & 10')
- 5'
- Sanitary Sewer
- Basement
- Soil Potentialy Containing TPH in Upper 10-feet

0 50 100

Scale in Feet

Drawn by PAD. 2015. Base layers are unmodified ESRI Digital Data Sets.

CKG Environmental, Inc.

Proposed Soil Vapor Probe Locations
Owens-Brockway Glass Container Facility
3600 Alameda Avenue, Oakland California

PLATE
2