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Environmental & Engineering Services

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June 20, 2017

REPORT ON CONFIRMATION SOIL VAPOR SAMPLING

Property Identification:

Lucasey Manufacturing Site
2744 East Eleventh Street
Oakland, California
Toxics Case No. RO0003183

AEI Project No. 345989

Prepared for:

Risa Investments, LLC

Prepared by:

AEI Consultants
2550 Camino Diablo
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June 20, 2017

Dilan Roe
Alameda County Department of Environmental Health
1131 Harbor Parkway
Alameda, California 94502

Subject: Transmittal, *Report on Confirmation Soil Vapor Sampling*
Lucasey Manufacturing Site
2744 East Eleventh Street, Oakland, California
Toxics Case No. RO0003183

Dear Miss Roe:

Enclosed is the *Report on Confirmation Soil Vapor Sampling* which was prepared in general accordance with the request by the Alameda County Department of Environmental Health (ACDEH) during the April 17, 2017 conference call between AEI Consultants, Risa Investments, LLC, and the ACDEH.

On behalf of Risa Investments, LLC, I declare under penalty of perjury, that the information and/or recommendations contained in the attached plan for the above-referenced site are true and correct to the best of my knowledge.

If you have any questions or need additional information, please do not hesitate to contact Mr. Trent Weise of AEI Consultants at (408) 559-7600.

Sincerely,

Risa Investments, LLC

A handwritten signature in blue ink, appearing to read "Jonathan Law", written over a horizontal line.

Jonathan Law
Development Manager

Enclosures

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Report on Confirmation Soil Vapor Sampling

Lucasey Manufacturing Site
2744 East Eleventh Street, Oakland, California

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Figure 6	Proposed Land Use and Plume Positions

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Table 1	Summary of Detections
Table 2	Summary of Soil Gas Analytical Results
Table 3	Summary of Historical Groundwater Analytical Results

APPENDICES

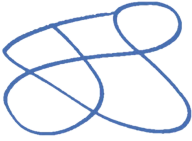
Appendix A	Historic Well Locations
Appendix B	Laboratory Analytical Data
Appendix C	Proposed Lot Lines and Descriptions
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Report on Confirmation Soil Vapor Sampling

Lucasey Manufacturing Site
2744 East Eleventh Street, Oakland, California

SIGNATURES

This document was prepared by, or under the direction of, the undersigned:



Jonathan Sanders, E.I.T.
Project Engineer



Trent Weise, P.E.
Principal Engineer



1. INTRODUCTION

On behalf of Risa Investments, LLC (Risa), AEI Consultants (AEI) is pleased to present this document describing the confirmation sampling event for the Lucasey Manufacturing Site, Toxics Case No. RO0003183, located at 2744 East Eleventh Street in Oakland, California ("the Site") and to document the change in development plans for the Site. The confirmation sampling was requested by the Alameda County Department of Environmental Health (DEH) in a conference call on March 2, 2017 and was completed in general accordance with the informal work plan which was submitted in an email to the DEH on March 2, 2017 ("the *Informal Work Plan*") and approved by the DEH in an email dated March 7, 2017. The purposes of this report include:

- Document the results of the additional soil gas sampling event conducted on March 31, 2017;
- Evaluate if rising regional groundwater elevations have changed subsurface conditions or vapor intrusion risk at the Site;
- Communicate the change in the planned development and use of the Site;
- Evaluate vapor intrusion risk as it relates to the new planned development and use of the Site; and
- Provide recommendations for administrative and/or engineering controls as appropriate to be protective of human health for the planned development and use of the Site.

Each of these are addressed below, including a summary of the project background, presentation of the confirmation sampling activities, a description of the proposed development, and the Site Management Plan.

2. BACKGROUND

The Site comprises approximately 2.32 acres and is located in an urban mixed-use area of Oakland, California, consisting of commercial, residential, and industrial uses. The Site is currently developed with conjoined buildings comprising approximately 104,008 square-feet built between 1920 and 1922. The current on-site structures are used for manufacturing, warehousing, and office space. The Site vicinity is shown on Figure 1 and a Site Plan is depicted on Figure 2.

The Site is underlain by generally discontinuous layers of fine-grained deposits comprised of gravely-silt, silty-sands, and clay. Two water-yielding horizons have been identified at the Site. First encountered water is observed in an upper unconfined to semi-confined zone present to a depth of approximately 21 feet below ground surface (bgs). A deeper confined zone is present from 24 feet bgs to an unknown depth, which is comprised of clayey-sands.

Petroleum hydrocarbons were released to the subsurface at the Site presumably from an underground storage tank (UST) used to store fuel oil formerly located in what is now a parking lot located in the southern corner of the Site.

The fuel release case (RO0002902) was granted closure by the DEH in a letter dated July 31, 2014. The case was granted closure under Scenario 4 of the Low-Threat Underground



Report on Confirmation Soil Vapor Sampling

Lucasey Manufacturing Site
2744 East Eleventh Street, Oakland, California

Storage Tank Closure Policy (LTCP). The Site Management Requirements of the Case Closure Summary includes that “[b]ased on the depth and type of petroleum hydrocarbons, the potential for exposure is low and the contamination does not appear to present a risk unless exposed by excavation. Therefore, case closure is granted for the current commercial land use.” The conclusion section of the Case Closure Summary notes that “...re-evaluation of this case is required if any excavation takes place below a depth of 8 feet bgs.”

Soil gas samples collected prior to closure identified elevated concentrations of petroleum hydrocarbons in soil gas. As part of an evaluation of whether the residual petroleum hydrocarbons present in the subsurface posed a potential unacceptable risk to future residential users of the property, under the initially proposed redevelopment, AEI performed several rounds of additional investigations to further characterize petroleum hydrocarbons in the subsurface, including:

- In accordance with the *Work Plan, Soil Vapor Investigation* dated October 30, 2015, AEI advanced and installed eight twinned temporary soil gas probes at a depth of five feet below ground surface (bgs) and sub-slab vapor probes (ASV-16, ASV-17, ASV-19, ASV-20, ASV-21, ASV-22, ASV-23, and ASV-24). These twinned probes were installed in the area where residual petroleum hydrocarbons were known to be present beneath the Site. This initial scope of work was conducted in Building 1 (ASV-21 and ASV-22), Building 2 (ASV-24), and Building 3 (ASV-16, ASV-17, ASV-19, ASV-20, and ASV-23) and was completed in November 2015. Sample locations and building designations are shown on Figure 2. Soil gas and sub-slab vapor samples from the November 2015 investigation identified benzene and PCE as chemicals of potential concern (COPC) with both these compounds present in sub-slab and soil gas samples in excess of the conservative risk screening level for the protection of indoor air. Based on the results of the November 2015 investigation, AEI expanded the scope of the investigation to include an additional seventeen temporary soil gas probes installed at five feet bgs in an approximate grid pattern throughout the interior of the on-site manufacturing building (ASV-25 through ASV-41).
- Subsequent to the *Report on Soil Vapor Investigation* dated January 19, 2016, and as a result of the review of the compiled data, the DEH requested that additional work be conducted in an attempt to identify an on-site source of PCE that is affecting soil gas. In accordance with the *Work Plan for Additional Subsurface Investigation* dated March 11, 2016, AEI conducted additional assessment activities which included the advancement and installation of twelve permanent soil gas probes to five and a half feet below ground surface and seven soil borings to groundwater for the collection of soil and groundwater samples. The permanent soil gas probes were installed in twinned locations of historical temporary soil gas probes ASV-16 through ASV-29 excluding ASV-18, ASV-24, and ASV-26. Additionally, AEI conducted a survey of the on-site and historic sanitary sewer system to identify potential preferential pathways for soil gas migration or potential migration pathways for contaminants. The results of this additional investigation are reported in the *Report on Additional Soil, Groundwater, and Soil*



Vapor Investigations dated March 30, 2016. On April 1, 2016, AEI met with the DEH to discuss the results of the March 30, 2016 *Report on Additional Soil, Groundwater, and Soil Vapor Investigations* and their impact on the planned redevelopment of the Site for residential use. Based on this meeting, the DEH agreed that a vapor intrusion mitigation system is likely appropriate for the protection of human health for future users of the Site and requested that an additional investigation be completed to characterize the nature and extent of benzene and PCE in soil gas at the Site. The investigation included collecting and additional round of soil gas samples, collecting additional soil gas samples within the parking lot at the Site, and collecting vapor samples from within the on-site sanitary sewer lines.

The results of this additional investigation are reported in the *Report on Soil Vapor and Sewer Gas Investigation* dated May 23, 2016.

The findings of the investigations performed by AEI are summarized below:

- There was no primary source of benzene identified in soil nor groundwater that is the source of benzene observed in soil gas samples. Therefore, AEI attributes the presence of benzene in soil gas samples collected on-site to the off-site migration of benzene vapors through fill materials around on-site utility and sanitary sewer. Benzene concentrations observed in soil gas were generally consistent with the December 2015 and November 2015 sampling events, with a maximum concentration of benzene observed in soil gas of 260 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). The concentrations of benzene observed in soil gas represented a potential unacceptable risk to residential indoor air at the Site.
- No potential primary sources of PCE were identified in soil at the Site and only low-levels of PCE were observed in groundwater samples collected and analyzed. The presence of PCE in soil gas is attributed to the volatilization from the low levels of PCE observed in groundwater or the migration of PCE in soil gas from an off-site source. PCE concentrations observed in soil gas were generally consistent with previous sampling events, with a maximum concentration observed of 800 $\mu\text{g}/\text{m}^3$. The concentrations of PCE observed in soil gas represented a potential unacceptable risk to residential indoor air at the Site

3. INVESTIGATION ACTIVITIES

The additional investigative activities described below were performed in general accordance with the *Informal Work Plan* and the technical comments contained in the DEH's conditional approval. Activities performed are summarized in the following sections

3.1. Groundwater Investigation

On March 21, 2017, AEI attempted to collect groundwater elevation data and groundwater samples from accessible groundwater wells at the Site, however, during the Site visit, it was determined that each of the on-site product monitoring wells (PMW-1 through PMW-3) and product recovery wells (RW-1 through RW-3) had been previously destroyed. As such, groundwater elevation data and groundwater samples could not be collected as part of this



assessment. Photographs of the historic location of each of the product monitoring wells and product recovery wells are provided in Appendix A. Available historical groundwater analytical results are summarized in Table 3 and are depicted on Figure 3.

3.2. Soil Gas Investigation

On March 21, 2017 AEI collected a total of nine soil gas samples from existing soil gas probes ASV-17, ASV-19, ASV-20, ASV-21, ASV-22, ASV-26, ASV-27, ASV-28, and ASV-29. Soil gas sampling was performed in general accordance with the procedures outlined in the joint California Environmental Protection Agency, Department of Toxic Substances Control, Los Angeles Regional Water Quality Control Board, and the San Francisco Regional Water Quality Control Board July 2015 Active Soil Gas Investigation Advisory ("the Advisory").

Prior to sampling, each evacuated canister and sample apparatus were tested for tightness. A negative pressure shut-in test was conducted by connecting the assembled sample apparatus to the vapor probes with the plug valve closed and inducing a negative pressure of at least -25 inches of mercury (in-Hg) in the sample apparatus using a syringe. The shut-in test was considered to pass if no observable change in vacuum occurred over a five-minute period. Following the shut-in test, the sample apparatus and vapor probe surface completion were emplaced in a shroud. Helium was added to the shroud to a concentration of at least 20 percent volume/volume atmosphere. The sample train and vapor probe were then purged for at least three well volumes. A field screening sample of at least 500 milliliters (mL) of soil gas was then extracted through the sample apparatus into a Tedlar™ bag and the helium content of the screening sample was measured using a portable field instrument and recorded to check for the presence of helium that may indicate a potential leak. If helium was measured in the sample, then the connections of the sampling apparatus were tightened and the field screening sample collection and screening was repeated. Once the sample apparatus was deemed tight, a soil gas sample was collected.

Each soil gas sample was collected in laboratory-supplied, batch certified clean, evacuated one-liter canisters through a laboratory supplied regulator set at 150 mL/minute. Each canister and sample manifold was individually checked, tested, and certified by the laboratory for air tightness and proper vacuum prior to shipping. A vacuum gauge was used to measure and record the initial and final canister vacuum. Sample evacuated canisters were rejected if initial vacuum was not greater than 25 in-Hg. Soil gas sampling was terminated and sample canisters were sealed when the vacuum pressure within the canister reached equilibrium with the subsurface or when the sample canister vacuum reached five in-Hg. Upon the completion of sample collection, each canister was sealed, labeled, and the starting and ending vacuums were recorded. The collected samples were transported under chain-of-custody protocol to ESC Lab Sciences (ESC) and analyzed for VOCs, including PCE and benzene using US EPA Testing Method TO-15 and helium using ASTM method 1946.

No anomalies or variations to sampling methods are reported during the soil gas sampling except for the following:



- Downhole vacuum equilibration was encountered in ASV-19, ASV-21, and ASV-26 with downhole vacuum pressures of -11 in-Hg, -13 in-Hg, and -11 in-Hg begin recorded respectively. Sufficient sample volume was extracted from each of these probes for analysis.

3.3. Analytical Results

This section presents the results of the soil gas analysis.

3.3.1. Soil Gas Analytical Results

Table 1 presents a summary of the compounds detected in soil gas sample results. The concentration of chemicals of concern are tabulated in Table 2. Soil gas analytical results are presented on Figure 4. The soil gas sample results can be summarized as follows:

- Benzene was not present in the nine soil gas samples collected at concentrations at or above the laboratory method reporting limit (LMRL).
- Ethylbenzene was present in one soil gas sample, ASV-22, at a concentration of 2.1 $\mu\text{g}/\text{m}^3$.
- Toluene was present in soil gas samples collected from ASV-17, ASV-19, ASV-21, and ASV-26, observed at a maximum concentration of 2.05 $\mu\text{g}/\text{m}^3$.
- Xylenes were present in ASV-22 and ASV-26 at 9.09 $\mu\text{g}/\text{m}^3$ and 2.71 $\mu\text{g}/\text{m}^3$ respectively.
- PCE was present in each of the soil gas samples collected and analyzed observed at concentrations ranging between 25.3 $\mu\text{g}/\text{m}^3$ in ASV-29 to 636 $\mu\text{g}/\text{m}^3$ in ASV-17.

Soil gas sample results were compared to their applicable San Francisco Bay Regional Water Quality Control Board's Environmental Screening Levels (ESLs) dated February 2016, specifically, soil vapor intrusion human health risk environmental Screening Levels (ESLs) under residential use and commercial use scenarios (Residential ESL and Commercial ESL respectively), summarized as follows:

- No analytes were reported as present above their respective Residential ESL except for PCE in ASV-17, ASV-19, ASV-20, and ASV-22.
- No analytes were reported as present above their respective commercial ESL.

In general, benzene and PCE were present in soil gas at concentrations consistent with those observed during previous sampling events. Based on the results of the confirmation sampling event and previous historical sampling events, the extent of the benzene and PCE soil vapor plumes appear to be generally confined within the area depicted in Figure 4.

3.4. Quality Assurance / Quality Control Measures

Standard Quality Assurance/Quality Control (QA/QC) measures were implemented during the sample collection, transport, and chemical analysis process. The QA/QC measures consisted evaluating laboratory performance of surrogate spike recovery, matrix spike/matrix spike duplicate (MS/MSD), laboratory control spike (LCS) analyses, and helium analysis to determine if leaks were present during vapor sampling. The primary objective of these QA/QC measures is to ensure that resulting analytical data are reproducible, are of adequate quality for their intended use, and are representative of actual conditions. No anomalies were found in the laboratory

analytical data resulting from analysis of samples collected during this additional assessment. No significant (<5%) leaks were identified as part of the helium leak check test.

4. REVISED PLANNED REDEVELOPMENT

The on-site structures (buildings 1 through 5) were previously planned to be redeveloped for commercial and residential use as multi-tenant work/live spaces. Due to complications with the City of Oakland, Risa has decided not to pursue this redevelopment plan. The new development plan for the Site consists of a pre-development phase and three development phases which are outlined in the following sections.

4.1. Pre-development

To support the planned re-development of the Site, the Site, which is a 2.320-acre parcel (APN 19-93-13) will be combined with an adjacent 0.067 acre parcel (APN 19-93-16-01) and new lot lines will be submitted to split the property into two new parcels: Parcel A, an approximately 1.41 acre parcel containing Buildings 2 through 5 and Parcel B, an approximately 0.98 acre parcel containing Building 1 and the majority of the undeveloped portions of the Site. The proposed new parcel lines, planned use, and new building construction are depicted on Figure 5. Topographic surveys, parcel map waivers, and legal descriptions of the proposed parcels are provided in Appendix C. Following the approval of the new lot lines, Parcel A will remain zoned for commercial and industrial mixed Use (CIX-2). Parcel B will then be rezoned for housing and business use (HBX-2). Each of these phases are further described below.

4.2. Phase I (Parcel A)

Phase I will consist of voluntary seismic and base building upgrades within Parcel A, Buildings 2 through 5. These upgrades are planned to be above grade only and are not planned to include any modifications or removal of the existing foundation or slab. Phase I will be completed following the guidance of the *Risk Management Plan* dated October 20, 2015 (RMP).

As depicted on Figure 5, Parcel A is within an area in which PCE and benzene in soil gas samples have not exceeded their respective Commercial ESLs. As such, vapor intrusion is not considered to represent an unacceptable risk to current or future commercial and/or industrial users of Parcel A.

4.3. Phase II and Phase III (Parcel B)

Phase II will consist of converting Building 1 on Parcel B to a mechanical parking garage. Building 1 remains within the extent of the benzene and PCE soil gas plume which exceeds Residential ESLs, however, none of the soil gas samples collected from within Building 1 had benzene or PCE reported in excess of Commercial ESLs. Therefore, use of the building as a parking garage would not represent an unacceptable risk to users of the building.

Phase III will consist of the construction of a new, multi-tenant residential building (Building 6) on Parcel B. The location and general layout of the proposed residential building is depicted on Figure 5. Architectural design drawings are provided in Appendix D. Benzene and PCE in soil gas samples collected from within the footprint of the proposed Building 6 have not exceeded their applicable Residential ESLs.



5. CONCLUSIONS AND RECOMMENDATIONS

As stated above, the Site was previously granted closure by the DEH for commercial land use in a letter dated July 31, 2014, however, a new case was opened in 2015 to allow for the potential redevelopment of the Site for residential land use. Parcel A is no longer planned for redevelopment for residential use. Based on the soil gas data from this and historical subsurface investigations, PCE and benzene are not present in the soil gas within Parcel A above Commercial ESLs, and therefore do not represent an unacceptable risk to human health at the Site under commercial use. Therefore, AEI recommends that the proposed Parcel A be granted case closure for commercial and light industrial land use under the terms of the initial closure for fuel release case RO0002902 and under provision of accordance with the RMP.

AEI recommends that Parcel B remain an open and active case under the review of the ACDEH to ensure that Phase II and Phase III are completed in a manner which is protective of human health concerns.

6. REFERENCES

The regulatory record for this Site can be found on the State of California GeoTracker Website at http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0600133151.

California Department of Toxic Substances Control (DTSC). 2015. *Advisory – Active Soil Gas Investigation*. July.

http://www.dtsc.ca.gov/SiteCleanup/upload/VI_ActiveSoilGasAdvisory_FINAL_043012.pdf

California Regional Water Quality Control Board, San Francisco Bay Region. 2013. *User's Guide: Derivation and Application of Environmental Screening Levels – Interim Final*. December.

http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.shtml

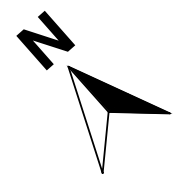
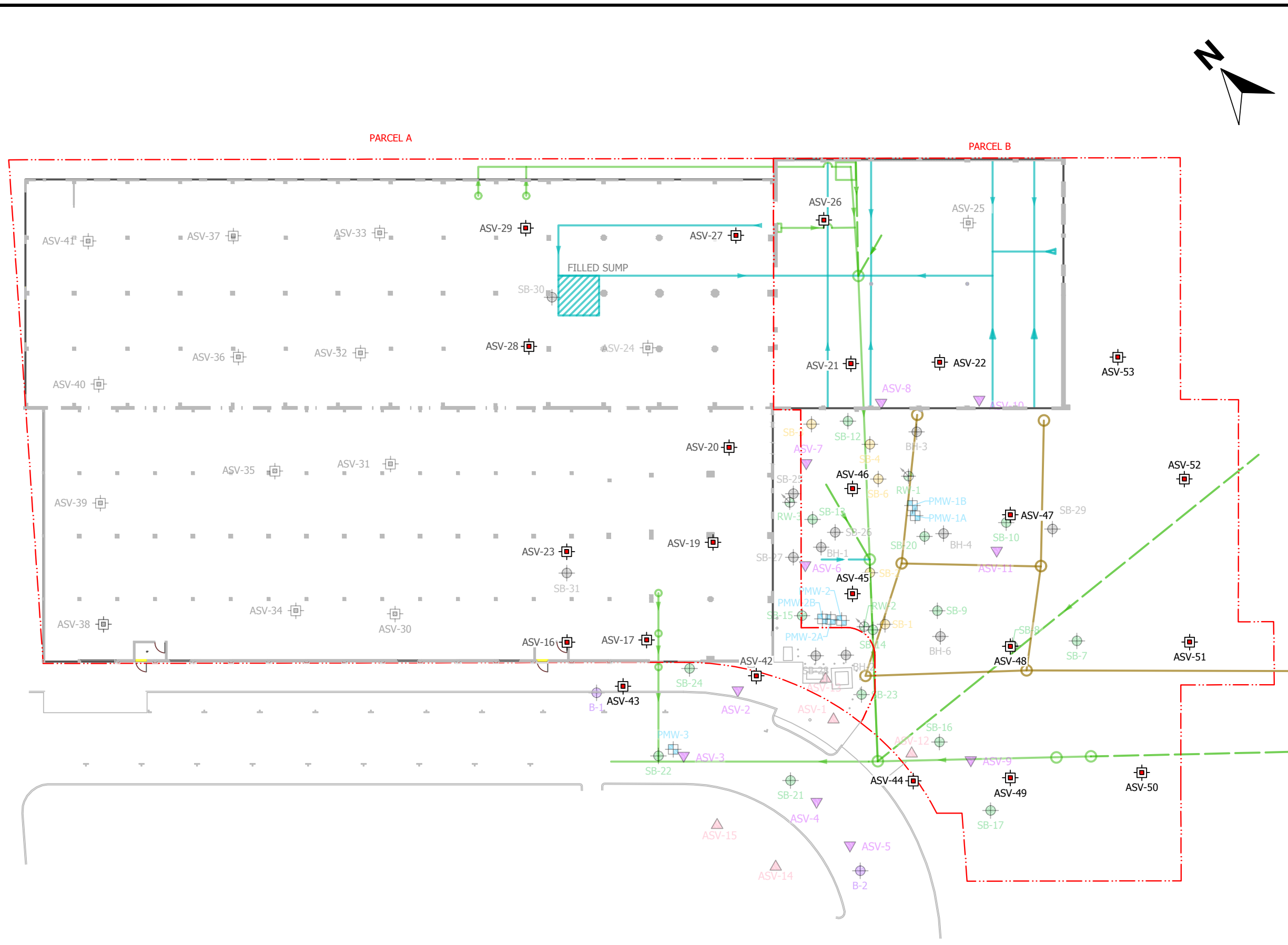
Lindeburg, Michael R. *Civil Engineering Reference Manual, 10th Edition*. Belmont, CA



FIGURES



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LEGEND

- - - Proposed Lot Lines
- ASV-24 Permanent Soil Vapor Probes (AEI)
- ASV-24 Temporary Soil Vapor Probes (AEI, 2016)
- RW-3 Product Recovery Well (Clearwater)
- PMW-3 Product Monitoring Well (ERM)
- SB-24 Soil Boring (Clearwater)
- SB-6 Soil Boring (Terra Firma)
- SB-14 Soil Boring (AEI)
- B-2 Soil Boring (ERM 2010)
- ASV-11 Soil Vapor Sample Location (ERM, 2009)
- ASV-15 Soil Vapor Sample Location (ERM, 2010)
- Sanitary Sewer (arrow indicates flow direction)
- Historic Drain Lines (arrow indicates flow direction)
- Storm Drain

- Proposed Residential Use Area
- Proposed Industrial Use Area
- Proposed Lobby, Circulation, Service, and Parking Area

- PH I Voluntary Seismic and Base Building Upgrades
- PH II Mechanical Parking Garage
- PH III New Residential Structure

BUILDING 5 (E) 2 STORY PARCEL A PH I: IND

BUILDING 2 (E) 5 STORY PARCEL A PH I: IND

BUILDING 1 (E) 2 STORY PARCEL B PH II: PARKING

BUILDING 4 (E) 2 STORY PARCEL A PH I: IND

BUILDING 3 (E) 2 STORY PARCEL A PH I: IND

BUILDING 6 (N) 5 STORY PARCEL B PH III: RES

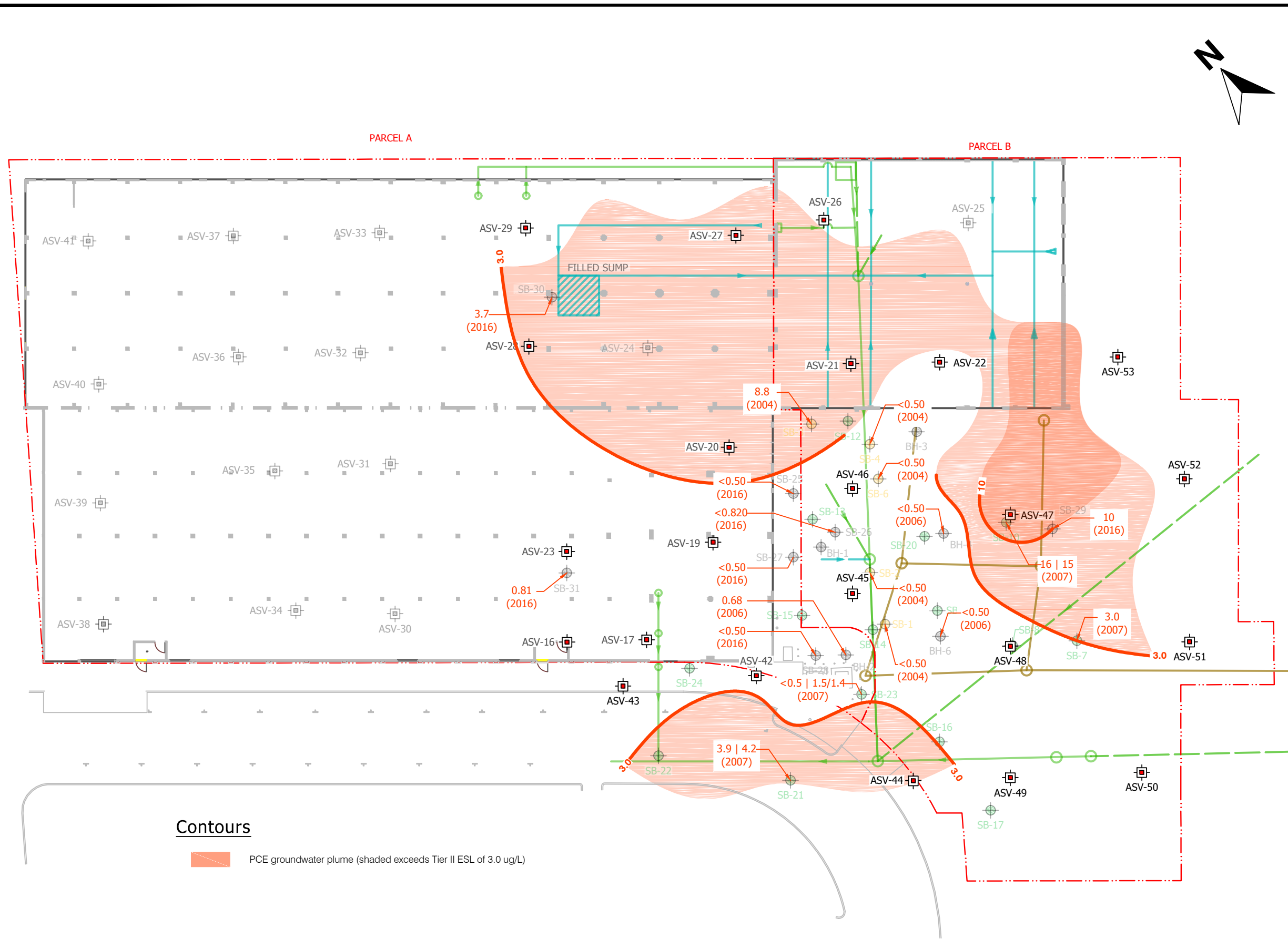
0 40 80
APPROXIMATE SCALE IN FEET

AEI Consultants
2500 Camino Diablo
Walnut Creek, California

Site Map

2744 East 11th Street Oakland, California	FIGURE 02 Project No. 345989
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- ### LEGEND
- Proposed Lot Lines
 - ASV-24 Permanent Soil Vapor Probes (AEI)
 - ASV-24 Temporary Soil Vapor Probes (AEI, 2016)
 - ⊕ RW-3 Product Recovery Well (Clearwater)
 - ⊕ PMW-3 Product Monitoring Well (ERM)
 - ⊕ SB-24 Soil Boring (Clearwater)
 - ⊕ SB-6 Soil Boring (Terra Firma)
 - ⊕ SB-14 Soil Boring (AEI)
 - Sanitary Sewer (arrow indicates flow direction)
 - Historic Drain Lines (arrow indicates flow direction)
 - Storm Drain
 - <0.50 (2004) Groundwater Analytical Data in ug/L and year
(| = multiple sample depths, / = duplicate)

BUILDING 5
(E) 2 STORY
PARCEL A
PH I: IND

BUILDING 2
(E) 5 STORY
PARCEL A
PH I: IND

BUILDING 1
(E) 2 STORY
PARCEL B
PH II: PARKING

BUILDING 4
(E) 2 STORY
PARCEL A
PH I: IND

BUILDING 3
(E) 2 STORY
PARCEL A
PH I: IND

0 40 80
APPROXIMATE SCALE
IN FEET

Contours

█ PCE groundwater plume (shaded exceeds Tier II ESL of 3.0 ug/L)

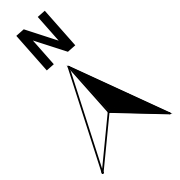
AEI Consultants
2500 Camino Diablo
Walnut Creek, California

Historical PCE Groundwater Analytical Data

2744 East 11th Street
Oakland, California

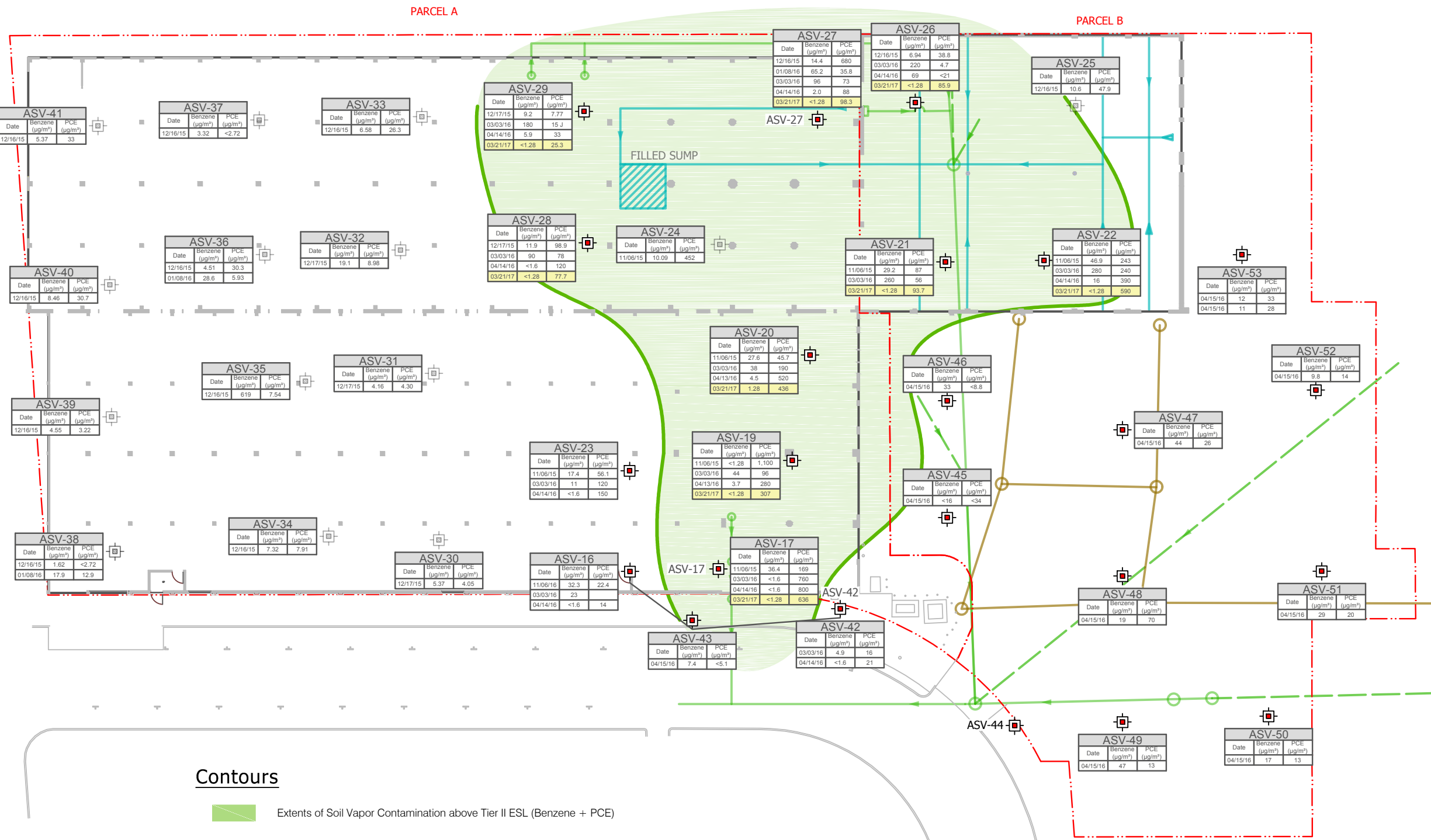
FIGURE 03
Project No. 345989

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LEGEND

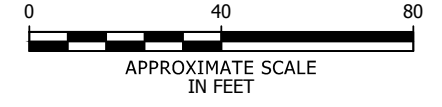
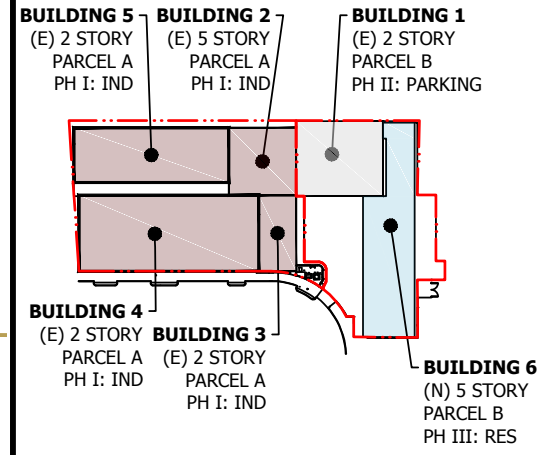
- - - Proposed Lot Lines
- ASV-24 Permanent Soil Vapor Probes (AEI)
- ASV-32 Temporary Soil Vapor Probes (AEI 2016)
- Analytical Results from March 2017
- Sanitary Sewer (arrow indicates flow direction)
- Historic Drain Lines (arrow indicates flow direction)
- Storm Drain



Contours

Extents of Soil Vapor Contamination above Tier II ESL (Benzene + PCE)

- PH I Voluntary Seismic and Base Building Upgrades
- PH II Mechanical Parking Garage
- PH III New Residential Structure



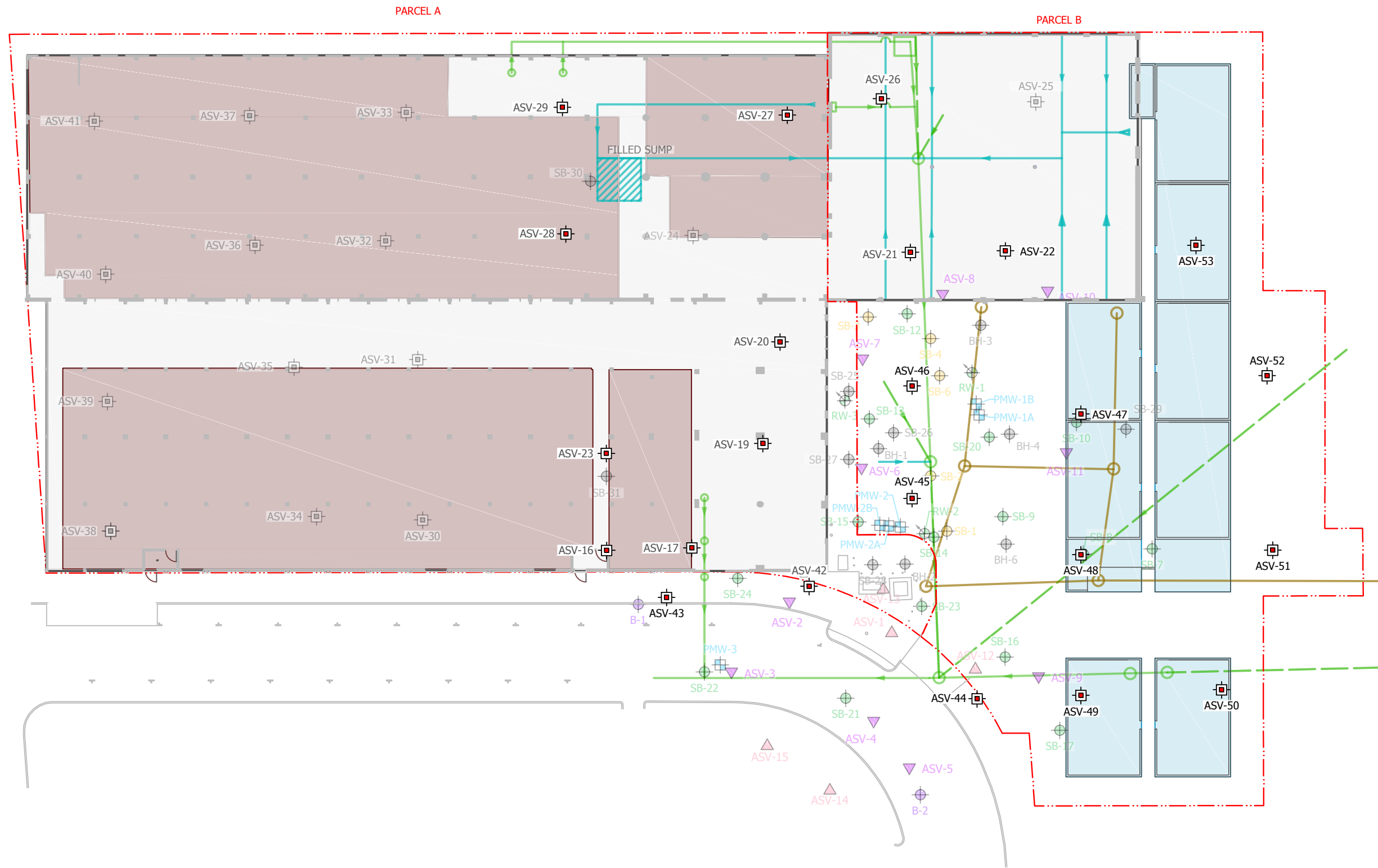
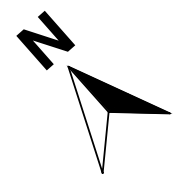
AEI Consultants
 2500 Camino Diablo
 Walnut Creek, California

Maximum Extent of Benzene and PCE Soil Gas Plumes

2744 East 11th Street
 Oakland, California

FIGURE 04
 Project No. 345989

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LEGEND

- Proposed Lot Lines
- ASV-24 [Symbol] Permanent Soil Vapor Probes (AEI)
- ASV-32 [Symbol] Temporary Soil Vapor Probes (AEI, 2016)
- RW-3 [Symbol] Product Recovery Well (Clearwater)
- PMW-3 [Symbol] Product Monitoring Well (ERM)
- SB-24 [Symbol] Soil Boring (Clearwater)
- SB-6 [Symbol] Soil Boring (Terra Firma)
- SB-14 [Symbol] Soil Boring (AEI)
- B-2 [Symbol] Soil Boring (ERM 2010)
- ASV-11 [Symbol] Soil Vapor Sample Location (ERM, 2009)
- ASV-15 [Symbol] Soil Vapor Sample Location (ERM, 2010)
- [Symbol] Sanitary Sewer (arrow indicates flow direction)
- [Symbol] Historic Drain Lines (arrow indicates flow direction)
- [Symbol] Storm Drain

- [Symbol] Proposed Residential Use Area
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- [Symbol] Proposed Lobby, Circulation, Service, and Parking Area

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- PH III New Residential Structure

BUILDING 5 (E) 2 STORY PARCEL A PH I: IND

BUILDING 2 (E) 5 STORY PARCEL A PH I: IND

BUILDING 1 (E) 2 STORY PARCEL B PH II: PARKING

BUILDING 4 (E) 2 STORY PARCEL A PH I: IND

BUILDING 3 (E) 2 STORY PARCEL A PH I: IND

BUILDING 6 (N) 5 STORY PARCEL B PH III: RES

APPROXIMATE SCALE IN FEET

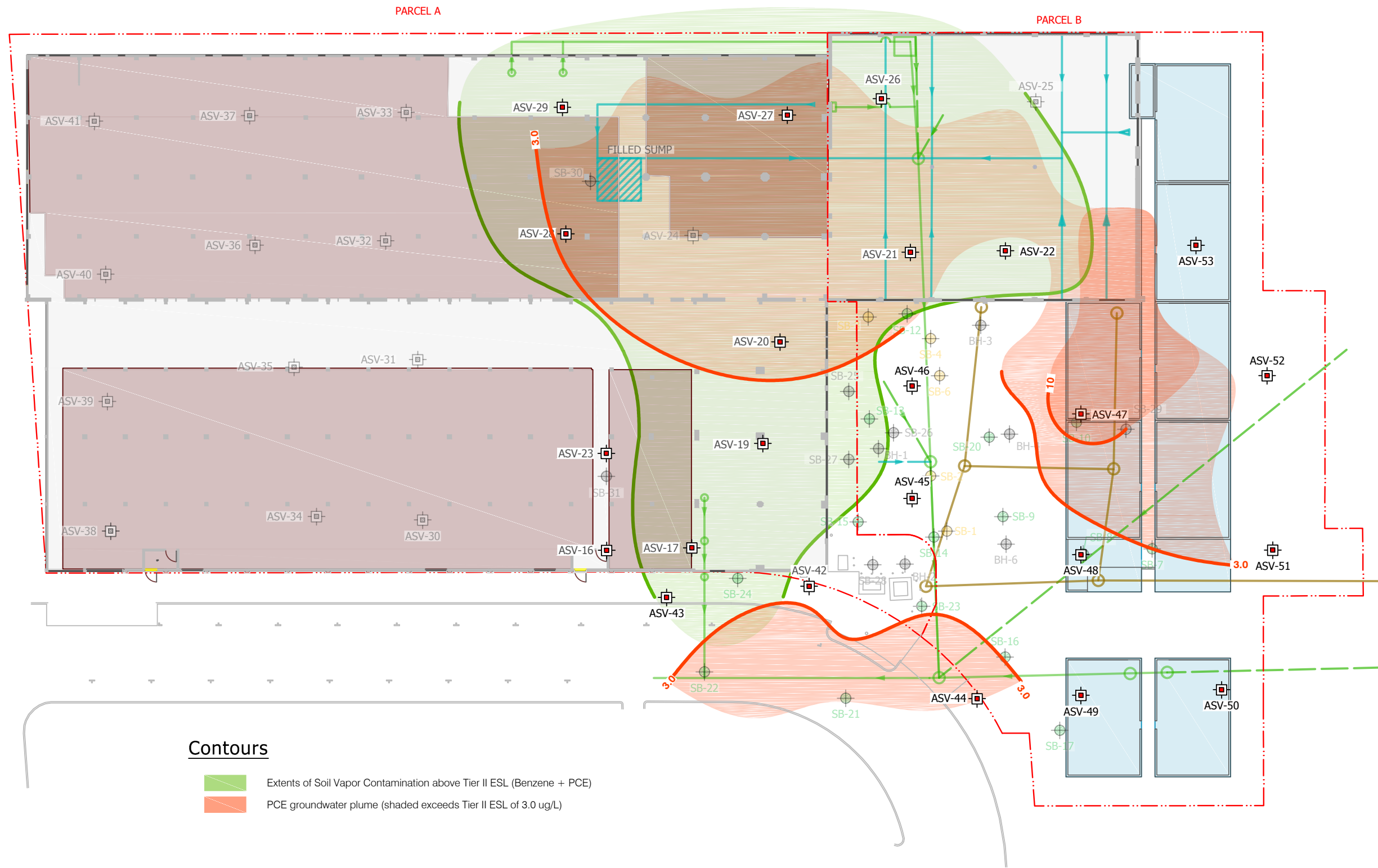
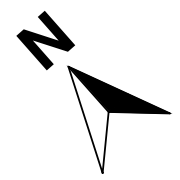
AEI Consultants
 2500 Camino Diablo
 Walnut Creek, California

Proposed Land Use, Development, and Lot Lines

2744 East 11th Street
 Oakland, California

FIGURE 05
 Project No. 345989

P:\Companywide Projects\345000 Series\345989 Oakland_CAS\SM\Deliverables\2017_05 Dd - Confirmation Soil Vapor Sampling Results And Site Use Plan\01 Figures\Working Files\20170530_345989_Figures_v01_JES - 06/05/2017



Contours

- Extents of Soil Vapor Contamination above Tier II ESL (Benzene + PCE)
- PCE groundwater plume (shaded exceeds Tier II ESL of 3.0 ug/L)

LEGEND

- Proposed Lot Lines
- ASV-24 Permanent Soil Vapor Probes (AEI)
- ASV-24 Temporary Soil Vapor Probes (AEI, 2016)
- SB-24 Soil Boring (Clearwater)
- SB-6 Soil Boring (Terra Firma)
- SB-14 Soil Boring (AEI)
- Sanitary Sewer (arrow indicates flow direction)
- Historic Drain Lines (arrow indicates flow direction)
- Storm Drain

- Proposed Residential Use Area
- Proposed Industrial Use Area
- Proposed Lobby, Circulation, Service, and Parking Area
- PH I Voluntary Seismic and Base Building Upgrades
- PH II Mechanical Parking Garage
- PH III New Residential Structure

BUILDING 5 (E) 2 STORY PARCEL A PH I: IND

BUILDING 2 (E) 5 STORY PARCEL A PH I: IND

BUILDING 1 (E) 2 STORY PARCEL B PH II: PARKING

BUILDING 4 (E) 2 STORY PARCEL A PH I: IND

BUILDING 3 (E) 2 STORY PARCEL A PH I: IND

BUILDING 6 (N) 5 STORY PARCEL B PH III: RES

0 40 80
APPROXIMATE SCALE IN FEET

AEI Consultants
2500 Camino Diablo
Walnut Creek, California

Proposed Land Use and Plume Positions

2744 East 11th Street
Oakland, California

FIGURE 06
Project No. 345989

TABLES



TABLE 1
SUMMARY OF DETECTIONS
Lucasey Manufacturing Site
2744 East 11th Street, Oakland, California

Sample ID	Sample Location	Sample Date	Analyte	Result	Units	Screening Level
ASV-17	Parcel A, Bld 4	03/21/2017	Acetone	13.9	µg/m ³	15,000,000
			Ethanol	42.4	µg/m ³	NE
			Trichlorofluoromethane	2.51	µg/m ³	650,000
			Dichlorodifluoromethane	12.0	µg/m ³	3,333
			2-Propanol (Isopropyl Alcohol)	13.8	µg/m ³	7,000
			Tetrachloroethene	636	µg/m³	240
			Tetrahydrofuran	9.07	µg/m ³	70,000
			Toluene	2.05	µg/m ³	160,000
			1,1,1-Trichloroethane	2.20	µg/m ³	520,000
			1,1-Difluoroethane	11.2	µg/m ³	1,400,000
			ASV-19	Parcel A, Bld 3	03/21/2017	Acetone
Chloromethane	1.72	µg/m ³				47,000
Cyclohexane	25.3	µg/m ³				210,000
Ethanol	60.7	µg/m ³				NE
Dichlorodifluoromethane	6.86	µg/m ³				3,333
2-Propanol (Isopropyl Alcohol)	21	µg/m ³				7,000
Tetrachloroethene	307.0	µg/m³				240
Toluene	1.85	µg/m ³				160,000
2,2,4-Trimethylpentane	3.12	µg/m ³				NE
ASV-20	Parcel A, Bld 3	03/21/2017				Acetone
			Carbon Disulfide	3.34	µg/m ³	24,333
			Cyclohexane	2.75	µg/m ³	210,000
			Ethanol	27.4	µg/m ³	NE
			Dichlorodifluoromethane	9.88	µg/m ³	3,333
			Tetrachloroethene	436	µg/m³	240
ASV-21	Parcel B, Bld 1	03/21/2017	Acetone	60.8	µg/m ³	15,000,000
			Chloromethane	5.08	µg/m ³	47,000
			Cyclohexane	24.1	µg/m ³	210,000
			1,4-Dioxane	14.6	µg/m ³	180
			Ethanol	23.4	µg/m ³	NE
			Methylene Chloride	2.52	µg/m ³	510
			2-Butanone (MEK)	13.4	µg/m ³	2,600,000
			2-Propanol (Isopropyl Alcohol)	7.35	µg/m ³	7,000
			Tetrachloroethene	93.7	µg/m ³	240
			Tetrahydrofuran	13.8	µg/m ³	70,000
			Toluene	1.67	µg/m ³	160,000
			1,1-Difluoroethane	15.8	µg/m ³	1,400,000
			ASV-22	Parcel B, Bld 1	03/21/2017	Cyclohexane
Ethanol	8.33	µg/m ³				NE
Ethylbenzene	2.15	µg/m ³				560

TABLE 1
SUMMARY OF DETECTIONS
Lucasey Manufacturing Site
2744 East 11th Street, Oakland, California

Sample ID	Sample Location	Sample Date	Analyte	Result	Units	Screening Level
			4-Ethyltoluene	5.64	µg/m ³	NE
			Dichlorodifluoromethane	12.6	µg/m ³	3,333
			2-Propanol (Isopropyl Alcohol)	21.9	µg/m ³	7,000
			Tetrachloroethene	590	µg/m³	240
			1,1,1-Trichloroethane	3.08	µg/m ³	520,000
			1,2,4-Trimethylbenzene	6.41	µg/m ³	243
			1,3,5-Trimethylbenzene	6.88	µg/m ³	21,000
			M&P-Xylene	3.72	µg/m ³	52,000
			O-Xylene	5.37	µg/m ³	3,333
			1,1-Difluoroethane	26.8	µg/m ³	1,400,000
ASV-26	Parcel B, Bld 1	03/21/2017	Acetone	10.1	µg/m ³	15,000,000
			Chloromethane	0.957	µg/m ³	47,000
			Cyclohexane	52.8	µg/m ³	210,000
			Ethanol	8.75	µg/m ³	NE
			2-Propanol (Isopropyl Alcohol)	70.1	µg/m ³	7,000
			Tetrachloroethene	85.9	µg/m ³	240
			Toluene	1.73	µg/m ³	160,000
			1,2,4-Trimethylbenzene	2.52	µg/m ³	243
			2,2,4-Trimethylpentane	11.3	µg/m ³	NE
			O-Xylene	2.71	µg/m ³	3,333
			1,1-Difluoroethane	17.1	µg/m ³	1,400,000
ASV-27	Parcel A, Bld 2	03/21/2017	Ethanol	4.38	µg/m ³	NE
			Dichlorodifluoromethane	6.65	µg/m ³	3,333
			2-Propanol (Isopropyl Alcohol)	26.3	µg/m ³	7,000
			Tetrachloroethene	98.3	µg/m ³	240
			1,1,1-Trichloroethane	2.85	µg/m ³	520,000
			1,1-Difluoroethane	31.1	µg/m ³	1,400,000
ASV-28	Parcel A, Bld 5	03/21/2017	Acetone	7.88	µg/m ³	15,000,000
			Ethanol	9.68	µg/m ³	NE
			Dichlorodifluoromethane	6.29	µg/m ³	3,333
			2-Propanol (Isopropyl Alcohol)	9.87	µg/m ³	7,000
			Tetrachloroethene	77.7	µg/m ³	240
			Tetrahydrofuran	2.76	µg/m ³	70,000
			1,1,1-Trichloroethane	2.84	µg/m ³	520,000
			1,1-Difluoroethane	5.45	µg/m ³	1,400,000

TABLE 1
SUMMARY OF DETECTIONS
Lucasey Manufacturing Site
2744 East 11th Street, Oakland, California

Sample ID	Sample Location	Sample Date	Analyte	Result	Units	Screening Level
ASV-29	Parcel A, Bld 5	03/21/2017	Acetone	11.8	µg/m ³	15,000,000
			Ethanol	4.2	µg/m ³	NE
			Dichlorodifluoromethane	3.7	µg/m ³	3,333
			Tetrachloroethene	25.3	µg/m ³	240
			Tetrahydrofuran	2.41	µg/m ³	70,000

Notes:

µg/m³ Micrograms of analyte per cubic meter of sample
Bold Result exceeds the Screening Level
NE Not established

Screening Level Tier I ESL. Where no Tier I ESL is established, the RSL was used with appropriate
Tier I ESL Applicable Tier I Environmental Screening Level from February 2016 ESL Workbook
rev3, Prepared by the San Francisco Bay Regional Water Quality Control Board

RSL Vapor Intrusion Screening Level (VISL) calculated using attenuation factor (0.03)
for existing residential buildings with near source vapor contaminants from the US
EPA (Regional Screening Levels, Summary Table, May 2016)

HHRA Note 3 Vapor Intrusion Screening Level (VISL) calculated using attenuation factor (0.002)
for existing residential buildings with near source vapor contaminants from the DTSC
HHRA HERO Note 3

TABLE 2
SUMMARY OF SOIL GAS ANALYTICAL RESULTS
Lucasey Manufacturing Site
2744 East 11th Street, Oakland, California

Sample ID	Location	Sample Date	Depth (feet bgs)	Benzene ($\mu\text{g}/\text{m}^3$)	Ethyl-benzene ($\mu\text{g}/\text{m}^3$)	Toluene ($\mu\text{g}/\text{m}^3$)	Xylenes, Total ($\mu\text{g}/\text{m}^3$)	PCE ($\mu\text{g}/\text{m}^3$)	TCE ($\mu\text{g}/\text{m}^3$)
Comparison Values									
ESL - VI, res				48	560	160,000	52,000	240	240
ESL - VI, com				420	4,900	1,300,000	440,000	2,100	3,000
ASV-1	ROW	06/17/09	5 ^A	150	130	2,100	327	--	--
(dup)		06/17/09	5 ^A	170	140	2,200	362	--	--
ASV-2	ROW	06/17/09	5 ^A	110	250	2,900	990	--	--
ASV-3	ROW	06/17/09	5 ^A	740	1,900	20,000	2,500	--	--
ASV-4	ROW	06/17/09	5 ^A	570	2,600	22,000	12,900	--	--
ASV-5	ROW	06/17/09	5 ^A	33	62.0	690	299	--	--
ASV-6	Parcel B	06/18/09	5 ^A	14	44	470	235	--	--
ASV-7	Parcel B	06/18/09	5 ^A	21	70	700	380	--	--
(dup)		06/18/09	5 ^A	22	71	720	378	--	--
ASV-8	Parcel B, Bld 1	06/18/09	5 ^A	18	54	690	292	--	--
ASV-9	Parcel B	06/18/09	5 ^A	12	55	500	300	--	--
ASV-10	Parcel B, Bld 1	06/18/09	5 ^A	12	40	370	214	--	--
ASV-11	Parcel B, Bld 6	06/18/09	5 ^A	15	49	480	265	--	--
ASV-12	Parcel B	05/10/10	5 ^A	<36	<49	39 J	37 J	--	--
(dup)		05/10/10	5 ^A	<36	<49	38 J	39 J	--	--
ASV-13	Parcel A	05/10/10	5 ^A	<36	<49	<42	<49	--	--
ASV-14	ROW	05/24/10	5 ^A	<42	<58	<50	<58	--	--
(dup)		05/24/10	5 ^A	<42	<57	<42	<57	--	--
ASV-15	ROW	05/24/10	5 ^A	<42	<58	<50	<58	--	--
ASV-16	Parcel A, Bld 4	11/06/15	sub-slab	3.52	5.48	15.1	28.04	14.2	2.43
		11/06/15	5.0	32.3	21.8	167	103.8	22.4	<2.14
		03/03/16	5.0	23	100	430	410	18	<2.8
		04/14/16	5.0	<1.6	<2.2	5.6	<6.6	14	<2.8
ASV-17	Parcel A, Bld 4	11/06/15	sub-slab	<1.28	<1.73	<1.51	<3.47	236	<2.14
		11/06/15	5.0	36.4	18.4	181	19.9	169	<2.14
		03/03/16	5.0	<1.6	4.4	16	17	760	<2.8
		04/14/16	5.0	<1.6	<2.2	3.8	<6.6	800	<2.8

TABLE 2
SUMMARY OF SOIL GAS ANALYTICAL RESULTS
Lucasey Manufacturing Site
2744 East 11th Street, Oakland, California

Sample ID	Location	Sample Date	Depth (feet bgs)	Benzene ($\mu\text{g}/\text{m}^3$)	Ethyl-benzene ($\mu\text{g}/\text{m}^3$)	Toluene ($\mu\text{g}/\text{m}^3$)	Xylenes, Total ($\mu\text{g}/\text{m}^3$)	PCE ($\mu\text{g}/\text{m}^3$)	TCE ($\mu\text{g}/\text{m}^3$)
Comparison Values									
ESL - VI, res				48	560	160,000	52,000	240	240
ESL - VI, com				420	4,900	1,300,000	440,000	2,100	3,000
		03/21/17	5.0	<1.28	<1.73	2.05	<3.47	636	<2.14
ASV-19	Parcel A, Bld 3	11/06/15	sub-slab	3.22	2.96	17.1	18.6	561	<2.14
		11/06/15	5.0	<1.28	<1.73	4.74	<3.47	1,100	<2.14
		03/03/16	5.0	44	160	590	710	96	<5.0
		04/13/16	5.0	3.7	23	69	160	280	<4.5
		03/21/17	5.0	<1.28	<1.73	1.85	<3.47	307	<2.14
ASV-20	Parcel A, Bld 3	11/06/15	sub-slab	3.85	<1.73	8.88	3.49	188	<2.14
		11/06/15	5.0	27.6	11.8	118	55.5	45.7	<2.14
		03/03/16	5.0	38	96	360	430	190	<2.8
		04/13/16	5.0	4.5	37	100	140	520	<2.8
		03/21/17	5.0	<1.28	<1.73	<1.51	<3.47	436	<2.14
ASV-21	Parcel B, Bld 1	11/06/15	sub-slab	3.89	3.31	17.1	13.52	26.9	<2.14
		11/06/15	5.0	29.2	12.4	134	55.6	87	<2.14
		03/03/16	5.0	260	250	2,700	1,000	56	<2.8
		03/21/17	5.0	<1.28	<1.73	1.67	<3.47	93.7	<2.14
ASV-22	Parcel B, Bld 1	11/06/15	sub-slab	<1.28	2.07	34.4	11.55	227	<2.14
		11/06/15	5.0	46.9	14.3	156	59.3	243	<2.14
		03/03/16	5.0	280	280	2,900	1,100	240	<2.8
		04/14/16	5.0	16	170	600	740	390	<2.8
		03/21/17	5.0	<1.28	2.15	<1.51	9.09	590	<2.14
ASV-23	Parcel A, Bld 4	11/06/15	sub-slab	<1.28	<1.73	4.27	<3.47	340	<2.14
		11/06/15	5.0	17.4	7.48	75.4	36.9	56.1	<2.14
		03/03/16	5.0	11	95	280	420	120	<2.8
		04/14/16	5.0	<1.6	<2.2	4.5	11	150	<2.8
ASV-24	Parcel A, Bld 2	11/06/15	sub-slab	<1.28	<1.73	4.63	1.77	63.4	<2.14
		11/06/15	5.0	10.9	4.48	22.1	36.9	452	<2.14
ASV-25	Parcel B, Bld 1	12/16/15	5.0	10.6	6.29	183	26.8	47.9	<2.14
ASV-26	Parcel B, Bld 1	12/16/15	5.0	6.94	5.07	181	23.2	38.8	<2.14
		03/03/16	5.0	220	210	2,400	850	4.7	<2.8
		04/14/16	5.0	69	260	1,300	1,400	<21	<17
		03/21/17	5.0	<1.28	<1.73	1.73	2.71	85.9	<2.14
ASV-27	Parcel A, Bld 2	12/16/15	5.0	14.4	8.77	240	41.0	680	<2.14
		01/08/16	5.0	65.2	36.6	332	204	35.8	<8.57
		03/03/16	5.0	96	110	1,100	460	73	<2.8
		04/14/16	5.0	2.0	17	60	96	88	<2.8
		03/21/17	5.0	<1.28	<1.73	<1.51	<3.47	98.3	<2.14

TABLE 2
SUMMARY OF SOIL GAS ANALYTICAL RESULTS
Lucasey Manufacturing Site
2744 East 11th Street, Oakland, California

Sample ID	Location	Sample Date	Depth (feet bgs)	Benzene ($\mu\text{g}/\text{m}^3$)	Ethyl-benzene ($\mu\text{g}/\text{m}^3$)	Toluene ($\mu\text{g}/\text{m}^3$)	Xylenes, Total ($\mu\text{g}/\text{m}^3$)	PCE ($\mu\text{g}/\text{m}^3$)	TCE ($\mu\text{g}/\text{m}^3$)
Comparison Values									
ESL - VI, res				48	560	160,000	52,000	240	240
ESL - VI, com				420	4,900	1,300,000	440,000	2,100	3,000
ASV-28	Parcel A, Bld 5	12/17/15	5.0	11.9	20.5	146	125	98.9	<2.14
		03/03/16	5.0	90	100	720	360	78	<2.8
		04/14/16	5.0	<1.6	25	87	100	120	<2.8
		03/21/17	5.0	<1.28	<1.73	<1.51	<3.47	77.7	<2.14
ASV-29	Parcel A, Bld 5	12/17/15	5.0	9.20	11.1	193	49.2	7.77	<2.14
		03/03/16	5.0	180	230	2,100	990	15 J	<4.7 J
		04/14/16	5.0	5.9	73	260	340	33	<2.8
		03/21/17	5.0	<1.28	<1.73	<1.51	<3.47	25.3	<2.14
ASV-30	Parcel A, Bld 4	12/17/15	5.0	5.37	4.51	65.4	18.9	4.05	<2.14
ASV-31	Parcel A, Bld 4	12/17/15	5.0	4.16	3.83	79.6	16.7	4.30	<2.14
ASV-32	Parcel A, Bld 5	12/17/15	5.0	19.1	6.48	88.9	25.3	8.98	3.26
ASV-33	Parcel A, Bld 5	12/16/15	5.0	6.58	13.9	181	75.0	26.3	<2.14
ASV-34	Parcel A, Bld 4	12/16/15	5.0	7.32	32.4	88.0	167	7.91	<2.14
ASV-35	Parcel A, Bld 4	12/16/15	5.0	6.19	7.48	70.1	33.7	7.54	<2.14
ASV-36	Parcel A, Bld 5	12/16/15	5.0	4.51	12.9	144	62.2	30.3	<2.14
ASV-36	Parcel A, Bld 5	01/08/16	5.0	28.6	22.2	193	115	5.93	<2.14
ASV-37	Parcel A, Bld 5	12/16/15	5.0	3.32	2.51	72.1	10.3	<2.72	<2.14
ASV-38	Parcel A, Bld 4	12/16/15	5.0	1.62	<1.73	13.6	3.89	<2.72	<2.14
ASV-38	Parcel A, Bld 4	01/08/16	5.0	17.9	10.0	119	53.9	12.9	<2.14
ASV-39	Parcel A, Bld 4	12/16/15	5.0	4.55	3.21	57.8	13.8	3.22	<2.14
ASV-40	Parcel A, Bld 5	12/16/15	5.0	8.46	8.54	192	39.8	30.7	<2.14
ASV-41	Parcel A, Bld 5	12/18/15	5.0	5.37	6.05	180	26.2	33.0	<2.14
ASV-42	ROW	03/03/16	5.0	4.9	20	61	96	16	<2.8
ASV-42	ROW	04/14/16	5.0	<1.6	<2.2	4.8	<6.6	21	<2.8
ASV-43	ROW	04/15/16	5.0	7.4	8.3	16	19	<5.1	<4.0
ASV-44	ROW	04/15/16	5.0	13	10	23	32	69	<4.1
ASV-45	Parcel B	04/15/16	5.0	<16	2,600	170	9,900	<34	<28

TABLE 2
SUMMARY OF SOIL GAS ANALYTICAL RESULTS
Lucasey Manufacturing Site
2744 East 11th Street, Oakland, California

Sample ID	Location	Sample Date	Depth (feet bgs)	Benzene ($\mu\text{g}/\text{m}^3$)	Ethyl-benzene ($\mu\text{g}/\text{m}^3$)	Toluene ($\mu\text{g}/\text{m}^3$)	Xylenes, Total ($\mu\text{g}/\text{m}^3$)	PCE ($\mu\text{g}/\text{m}^3$)	TCE ($\mu\text{g}/\text{m}^3$)
Comparison Values									
ESL - VI, res				48	560	160,000	52,000	240	240
ESL - VI, com				420	4,900	1,300,000	440,000	2,100	3,000
ASV-46	Parcel B	04/15/16	5.0	33	20	31	70	<8.8	<7.0
ASV-47	Parcel B, Bld 6	04/15/16	5.0	44	5.8	18	19	26	<2.8
ASV-48	Parcel B, Bld 6	04/15/16	5.0	19	31	44	120	70	<8.9
ASV-49	Parcel B, Bld 6	04/15/16	5.0	47	4.3	18	<6.6	13	<2.8
ASV-50	Parcel B, Bld 6	04/15/16	5.0	17	8.1	25	25	13	<7.9
ASV-51	Parcel B	04/15/16	5.0	29	46	30	190	20	11
ASV-52	Parcel B	04/15/16	5.0	9.8	<2.2	7.2	<6.6	14	<2.8
ASV-53	Parcel B, Bld 6	04/15/16	5.0	12	8.0	27	25	33	<5.5
(dup)		04/15/16	5.0	11	7.3	25	23	28	<5.4

Notes:

- < Analyte not present at or above the method detection limit
 - $\mu\text{g}/\text{m}^3$ micrograms per cubic meter
 - 5.0^A Depth inferred from context.
 - bgs below ground surface
 - Bld 4 Building Number
 - DCE Dichloroethene
 - J Analyte present below the laboratory reporting limit but above the method detection limit
 - PCE Tetrachloroethene
 - ROW Right of way (off-site)
 - TCE Trichloroethene
- Data from April sampling event

Comparison Values:

- ESL - VI, res Table SG-1 - Subslab/Soil Gas Vapor Intrusion: Human Health Risk Levels (Residential Land Use); February 2016 ESL Workbook rev3, Prepared by the San Francisco Bay Regional Water Quality Control Board
- ESL - VI, com Table SG-1 - Subslab/Soil Gas Vapor Intrusion: Human Health Risk Levels (Commercial/Industrial Land Use); February 2016 ESL Workbook rev3, Prepared by the San Francisco Bay Regional Water Quality Control Board

TABLE 3
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
Lucasey Manufacturing Site
2744 East 11th Street, Oakland, California

Location ID	Sample Date	Location	PCE (µg/L)	TCE (µg/L)	cis-1,2-DCE (µg/L)
<u>Comparison Values</u>					
ESL - res, VI (shallow)			3.0	5.6	110
ESL - com, VI (shallow)			26	49	950
SB-1W	08/31/04	Parcel B	<0.50	<0.50	<0.50
SB-2W	08/31/04	Parcel B	<0.50	<0.50	0.71
SB-3W	08/31/04	Parcel B	8.8	<0.50	<0.50
SB-4W	08/31/04	Parcel B	<0.50	<0.50	<0.50
SB-6W	08/31/04	Parcel B	<0.50	<0.50	<0.50
BH-2	07/09/06	Parcel A	0.68	<0.50	0.57
BH-4	07/09/06	Parcel B	<0.50	<0.50	1.4
BH-6	07/09/06	Parcel B	<0.50	<0.50	<0.50
SB-7	01/11/07	Parcel B, Bld 6	3.0	6.6	--
SB-10-W16	01/10/07	Parcel B, Bld 6	16	<0.50	--
SB-10-W23	01/10/07	Parcel B, Bld 6	15	<0.50	--
SB-21-W17	01/11/07	ROW	3.9	0.5	--
SB-21-W26	01/11/07	ROW	4.2	<0.50	--
SB-23-W	01/11/07	Parcel A	<0.5	<0.50	--
SB-23-W23	01/11/07	Parcel A	1.5	<0.50	--
SB-23-W23-D	01/11/07	Parcel A	1.4	<0.50	--
SB-25	03/01/16	Parcel A	<0.50	<0.50	<0.50
SB-26	03/01/16	Parcel B	<0.820 *	<0.60 *	<0.50 *
SB-27	03/01/16	Parcel A	<0.50	<0.50	<0.50
SB-28	03/01/16	Parcel A	<0.50	<0.50	0.89
SB-29	03/01/16	Parcel B, Bld 6	10	<0.50	<0.50
SB-30	03/01/16	Parcel A, Bld 2	3.7	<0.50	<0.50
SB-31	03/01/16	Parcel A, Bld 4	0.81	<0.50	<0.50

TABLE 3
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
Lucasey Manufacturing Site
2744 East 11th Street, Oakland, California

Notes:

< bgs DCE * 140/<50' µg/L PCE TPH-d TPH-g TPH-mo MTBE	Analyte not present at or above the method detection limit below ground surface Dichloroethene Dilution factor of 10 due to presence of high organics, sample assessed to the method detection limit instead of the laboratory reporting limit. First value without silica gel cleanup, second value with silica gel cleanup micrograms per liter Tetrachloroethene Total Petroleum Hydrocarbons as diesel Total Petroleum Hydrocarbons as gasoline Total Petroleum Hydrocarbons as motor oil Volatile Organic Compounds
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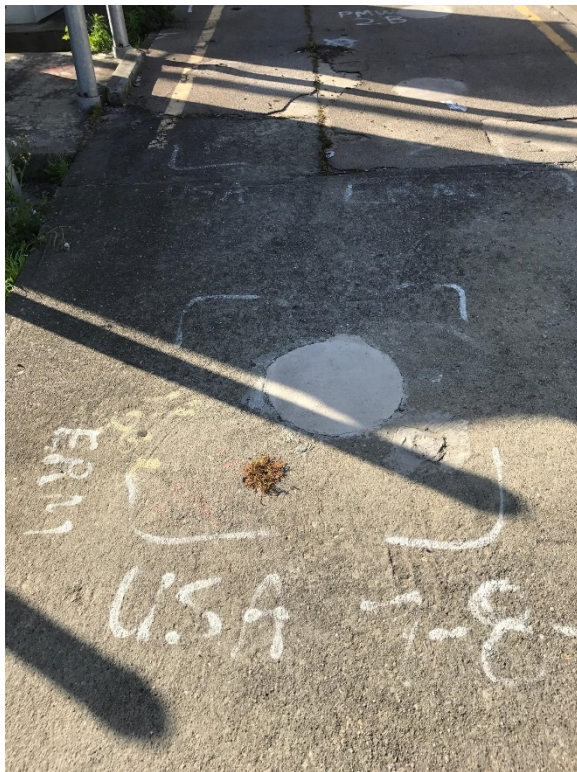
Comparison Value

ESL - res, VI (shallow)	Groundwater Vapor Intrusion Human Health Environmental Screening Levels (ESLs), shallow groundwater (<10 ft bgs), residential land use from February 2016 (Rev. 3) ESL Summary Tables, prepared by the San Francisco Bay Regional Water Quality Control Board
ESL - com, VI (shallow)	Groundwater Vapor Intrusion Human Health Environmental Screening Levels (ESLs), shallow groundwater (<10 ft bgs), commercial/industrial land use from February 2016 (Rev. 3) ESL Summary Tables, prepared by the San Francisco Bay Regional Water Quality Control Board

APPENDIX A
HISTORIC WELL LOCATIONS



Location of RW-1



Location of RW-2



Location of RW-3



Location of PMW-1A and PMW-1B



Location of PMW-2A and PMW-2B

APPENDIX B
LABORATORY ANALYTICAL DATA

AEI Consultants - CA

Sample Delivery Group: L897757
Samples Received: 03/23/2017
Project Number: 345989
Description: Lucasey Redevelopment
Site: 2744 E 11TH ST, OAKLAND, CA
Report To: Jonathan Sanders
2500 Camino Diablo
Walnut Creek, CA 94597

Entire Report Reviewed By:



Brian Ford
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



¹ Cp: Cover Page	1
² Tc: Table of Contents	2
³ Ss: Sample Summary	3
⁴ Cn: Case Narrative	6
⁵ Sr: Sample Results	7
ASV-17 L897757-01	7
ASV-19 L897757-02	9
ASV-20 L897757-03	11
ASV-21 L897757-04	13
ASV-22 L897757-05	15
ASV-26 L897757-06	17
ASV-27 L897757-07	19
ASV-28 L897757-08	21
ASV-29 L897757-09	23
ASV-17 L897757-10	25
ASV-19 L897757-11	26
ASV-20 L897757-12	27
ASV-21 L897757-13	28
ASV-22 L897757-14	29
ASV-26 L897757-15	30
ASV-27 L897757-16	31
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⁶ Qc: Quality Control Summary	34
Volatile Organic Compounds (GC) by Method ASTM 1946	34
Volatile Organic Compounds (MS) by Method TO-15	36
⁷ Gl: Glossary of Terms	40
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¹ Cp
² Tc
³ Ss
⁴ Cn
⁵ Sr
⁶ Qc
⁷ Gl
⁸ Al
⁹ Sc

SAMPLE SUMMARY



ASV-17 L897757-01 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG964542	2	03/27/17 21:25	03/27/17 21:25	MBF

Collected by	Collected date/time	Received date/time
Mallory Zaunius	03/21/17 15:23	03/23/17 09:00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ASV-19 L897757-02 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG964542	2	03/27/17 22:43	03/27/17 22:43	MBF

Collected by	Collected date/time	Received date/time
Mallory Zaunius	03/21/17 16:20	03/23/17 09:00

ASV-20 L897757-03 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG964542	2	03/27/17 23:37	03/27/17 23:37	MBF

Collected by	Collected date/time	Received date/time
Mallory Zaunius	03/21/17 16:53	03/23/17 09:00

ASV-21 L897757-04 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG964542	2	03/28/17 00:30	03/28/17 00:30	MBF

Collected by	Collected date/time	Received date/time
Mallory Zaunius	03/21/17 13:40	03/23/17 09:00

ASV-22 L897757-05 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG964542	2	03/28/17 01:19	03/28/17 01:19	MBF

Collected by	Collected date/time	Received date/time
Mallory Zaunius	03/21/17 14:10	03/23/17 09:00

ASV-26 L897757-06 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG964542	2	03/28/17 02:38	03/28/17 02:38	MBF

Collected by	Collected date/time	Received date/time
Mallory Zaunius	03/21/17 12:19	03/23/17 09:00

ASV-27 L897757-07 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG964542	2	03/28/17 03:29	03/28/17 03:29	MBF

Collected by	Collected date/time	Received date/time
Mallory Zaunius	03/21/17 11:26	03/23/17 09:00

ASV-28 L897757-08 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG964542	2	03/28/17 04:16	03/28/17 04:16	MBF

Collected by	Collected date/time	Received date/time
Mallory Zaunius	03/21/17 09:31	03/23/17 09:00

SAMPLE SUMMARY



ASV-29 L897757-09 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG964542	2	03/28/17 05:04	03/28/17 05:04	MBF

Collected by Mallory Zaunius
 Collected date/time 03/21/17 10:07
 Received date/time 03/23/17 09:00

1 Cp

2 Tc

3 Ss

ASV-17 L897757-10 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method ASTM 1946	WG965539	5	03/30/17 10:01	03/30/17 10:01	MJ

Collected by Mallory Zaunius
 Collected date/time 03/21/17 15:23
 Received date/time 03/23/17 09:00

4 Cn

5 Sr

ASV-19 L897757-11 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method ASTM 1946	WG965539	10	03/30/17 10:14	03/30/17 10:14	MJ

Collected by Mallory Zaunius
 Collected date/time 03/21/17 16:20
 Received date/time 03/23/17 09:00

6 Qc

7 Gl

ASV-20 L897757-12 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method ASTM 1946	WG965539	10	03/30/17 10:53	03/30/17 10:53	MJ

Collected by Mallory Zaunius
 Collected date/time 03/21/17 16:53
 Received date/time 03/23/17 09:00

8 Al

9 Sc

ASV-21 L897757-13 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method ASTM 1946	WG965539	10	03/30/17 11:08	03/30/17 11:08	MJ

Collected by Mallory Zaunius
 Collected date/time 03/21/17 13:40
 Received date/time 03/23/17 09:00

ASV-22 L897757-14 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method ASTM 1946	WG965539	10	03/30/17 11:27	03/30/17 11:27	MJ

Collected by Mallory Zaunius
 Collected date/time 03/21/17 14:10
 Received date/time 03/23/17 09:00

ASV-26 L897757-15 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method ASTM 1946	WG965539	10	03/30/17 11:40	03/30/17 11:40	MJ

Collected by Mallory Zaunius
 Collected date/time 03/21/17 12:19
 Received date/time 03/23/17 09:00

ASV-27 L897757-16 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method ASTM 1946	WG965539	10	03/30/17 12:44	03/30/17 12:44	MJ

Collected by Mallory Zaunius
 Collected date/time 03/21/17 11:26
 Received date/time 03/23/17 09:00

SAMPLE SUMMARY



ASV-28 L897757-17 Air

Collected by: Mallory Zaunius
 Collected date/time: 03/21/17 09:31
 Received date/time: 03/23/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method ASTM 1946	WG964800	1	03/29/17 13:14	03/29/17 13:14	MJ

¹ Cp

² Tc

³ Ss

ASV-29 L897757-18 Air

Collected by: Mallory Zaunius
 Collected date/time: 03/21/17 10:07
 Received date/time: 03/23/17 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method ASTM 1946	WG964800	1	03/29/17 13:28	03/29/17 13:28	MJ

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	5.83	13.9		2	WG964542
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG964542
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG964542
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG964542
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG964542
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG964542
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG964542
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG964542
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG964542
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG964542
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG964542
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG964542
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG964542
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG964542
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG964542
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG964542
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG964542
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG964542
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG964542
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG964542
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG964542
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG964542
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG964542
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG964542
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG964542
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG964542
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG964542
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG964542
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG964542
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG964542
Ethanol	64-17-5	46.10	1.26	2.38	22.5	42.4		2	WG964542
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG964542
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG964542
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	0.447	2.51		2	WG964542
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	2.43	12.0		2	WG964542
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG964542
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG964542
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG964542
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG964542
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG964542
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG964542
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG964542
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG964542
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG964542
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG964542
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG964542
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG964542
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG964542
2-Propanol	67-63-0	60.10	2.50	6.15	5.63	13.8		2	WG964542
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG964542
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG964542
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG964542
Tetrachloroethylene	127-18-4	166	0.400	2.72	93.6	636		2	WG964542
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	3.08	9.07		2	WG964542
Toluene	108-88-3	92.10	0.400	1.51	0.545	2.05		2	WG964542
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG964542

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	0.404	2.20		2	WG964542
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG964542
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG964542
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG964542
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG964542
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG964542
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG964542
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG964542
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG964542
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG964542
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG964542
1,1-Difluoroethane	75-37-6	66.05	0.400	1.08	4.14	11.2		2	WG964542
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		105				WG964542

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch
			ppbv	ug/m3	ppbv	ug/m3			
Acetone	67-64-1	58.10	2.50	5.94	12.4	29.5		2	WG964542
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG964542
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG964542
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG964542
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG964542
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG964542
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG964542
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG964542
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG964542
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG964542
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG964542
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG964542
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG964542
Chloromethane	74-87-3	50.50	0.400	0.826	0.831	1.72		2	WG964542
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG964542
Cyclohexane	110-82-7	84.20	0.400	1.38	7.35	25.3		2	WG964542
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG964542
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG964542
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG964542
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG964542
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG964542
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG964542
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG964542
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG964542
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG964542
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG964542
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG964542
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG964542
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG964542
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG964542
Ethanol	64-17-5	46.10	1.26	2.38	32.2	60.7		2	WG964542
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG964542
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG964542
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG964542
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	1.39	6.86		2	WG964542
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG964542
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG964542
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG964542
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG964542
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG964542
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG964542
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG964542
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG964542
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG964542
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG964542
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG964542
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG964542
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG964542
2-Propanol	67-63-0	60.10	2.50	6.15	8.54	21.0		2	WG964542
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG964542
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG964542
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG964542
Tetrachloroethylene	127-18-4	166	0.400	2.72	45.2	307		2	WG964542
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG964542
Toluene	108-88-3	92.10	0.400	1.51	0.492	1.85		2	WG964542
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG964542

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG964542
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG964542
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG964542
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG964542
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG964542
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	0.668	3.12		2	WG964542
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG964542
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG964542
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG964542
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG964542
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG964542
1,1-Difluoroethane	75-37-6	66.05	0.400	1.08	ND	ND		2	WG964542
<i>(S)</i> 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		113				WG964542

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch
			ppbv	ug/m3	ppbv	ug/m3			
Acetone	67-64-1	58.10	2.50	5.94	3.72	8.84		2	WG964542
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG964542
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG964542
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG964542
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG964542
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG964542
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG964542
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG964542
Carbon disulfide	75-15-0	76.10	0.400	1.24	1.07	3.34		2	WG964542
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG964542
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG964542
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG964542
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG964542
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG964542
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG964542
Cyclohexane	110-82-7	84.20	0.400	1.38	0.800	2.75		2	WG964542
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG964542
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG964542
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG964542
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG964542
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG964542
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG964542
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG964542
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG964542
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG964542
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG964542
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG964542
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG964542
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG964542
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG964542
Ethanol	64-17-5	46.10	1.26	2.38	14.5	27.4		2	WG964542
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG964542
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG964542
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG964542
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	2.00	9.88		2	WG964542
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG964542
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG964542
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG964542
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG964542
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG964542
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG964542
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG964542
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG964542
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG964542
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG964542
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG964542
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG964542
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG964542
2-Propanol	67-63-0	60.10	2.50	6.15	ND	ND		2	WG964542
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG964542
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG964542
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG964542
Tetrachloroethylene	127-18-4	166	0.400	2.72	64.2	436		2	WG964542
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG964542
Toluene	108-88-3	92.10	0.400	1.51	ND	ND		2	WG964542
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG964542

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG964542
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG964542
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG964542
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG964542
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG964542
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG964542
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG964542
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG964542
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG964542
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG964542
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG964542
1,1-Difluoroethane	75-37-6	66.05	0.400	1.08	ND	ND		2	WG964542
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		106				WG964542

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch
			ppbv	ug/m3	ppbv	ug/m3			
Acetone	67-64-1	58.10	2.50	5.94	25.6	60.8		2	WG964542
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG964542
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG964542
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG964542
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG964542
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG964542
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG964542
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG964542
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG964542
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG964542
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG964542
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG964542
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG964542
Chloromethane	74-87-3	50.50	0.400	0.826	2.46	5.08		2	WG964542
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG964542
Cyclohexane	110-82-7	84.20	0.400	1.38	7.00	24.1		2	WG964542
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG964542
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG964542
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG964542
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG964542
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG964542
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG964542
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG964542
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG964542
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG964542
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG964542
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG964542
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG964542
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG964542
1,4-Dioxane	123-91-1	88.10	0.400	1.44	4.04	14.6		2	WG964542
Ethanol	64-17-5	46.10	1.26	2.38	12.4	23.4		2	WG964542
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG964542
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG964542
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG964542
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	ND	ND		2	WG964542
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG964542
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG964542
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG964542
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG964542
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG964542
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG964542
Methylene Chloride	75-09-2	84.90	0.400	1.39	0.726	2.52		2	WG964542
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG964542
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	4.55	13.4		2	WG964542
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG964542
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG964542
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG964542
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG964542
2-Propanol	67-63-0	60.10	2.50	6.15	2.99	7.35		2	WG964542
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG964542
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG964542
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG964542
Tetrachloroethylene	127-18-4	166	0.400	2.72	13.8	93.7		2	WG964542
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	4.69	13.8		2	WG964542
Toluene	108-88-3	92.10	0.400	1.51	0.444	1.67		2	WG964542
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG964542

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 03/21/17 13:40

L897757

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG964542
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG964542
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG964542
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG964542
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG964542
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG964542
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG964542
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG964542
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG964542
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG964542
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG964542
1,1-Difluoroethane	75-37-6	66.05	0.400	1.08	5.84	15.8		2	WG964542
<i>(S)</i> 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		107				WG964542

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	ND	ND		2	WG964542
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG964542
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG964542
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG964542
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG964542
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG964542
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG964542
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG964542
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG964542
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG964542
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG964542
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG964542
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG964542
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG964542
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG964542
Cyclohexane	110-82-7	84.20	0.400	1.38	5.66	19.5		2	WG964542
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG964542
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG964542
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG964542
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG964542
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG964542
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG964542
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG964542
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG964542
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG964542
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG964542
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG964542
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG964542
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG964542
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG964542
Ethanol	64-17-5	46.10	1.26	2.38	4.42	8.33		2	WG964542
Ethylbenzene	100-41-4	106	0.400	1.73	0.497	2.15		2	WG964542
4-Ethyltoluene	622-96-8	120	0.400	1.96	1.15	5.64		2	WG964542
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG964542
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	2.55	12.6		2	WG964542
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG964542
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG964542
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG964542
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG964542
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG964542
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG964542
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG964542
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG964542
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG964542
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG964542
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG964542
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG964542
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG964542
2-Propanol	67-63-0	60.10	2.50	6.15	8.91	21.9		2	WG964542
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG964542
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG964542
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG964542
Tetrachloroethylene	127-18-4	166	0.400	2.72	86.9	590		2	WG964542
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG964542
Toluene	108-88-3	92.10	0.400	1.51	ND	ND		2	WG964542
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG964542

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	0.566	3.08		2	WG964542
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG964542
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG964542
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	1.31	6.41		2	WG964542
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	1.40	6.88		2	WG964542
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG964542
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG964542
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG964542
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG964542
m&p-Xylene	1330-20-7	106	0.800	3.47	0.859	3.72		2	WG964542
o-Xylene	95-47-6	106	0.400	1.73	1.24	5.37		2	WG964542
1,1-Difluoroethane	75-37-6	66.05	0.400	1.08	9.92	26.8		2	WG964542
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		99.2				WG964542

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch
			ppbv	ug/m3	ppbv	ug/m3			
Acetone	67-64-1	58.10	2.50	5.94	4.27	10.1		2	WG964542
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG964542
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG964542
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG964542
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG964542
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG964542
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG964542
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG964542
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG964542
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG964542
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG964542
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG964542
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG964542
Chloromethane	74-87-3	50.50	0.400	0.826	0.463	0.957		2	WG964542
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG964542
Cyclohexane	110-82-7	84.20	0.400	1.38	15.3	52.8		2	WG964542
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG964542
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG964542
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG964542
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG964542
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG964542
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG964542
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG964542
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG964542
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG964542
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG964542
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG964542
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG964542
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG964542
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG964542
Ethanol	64-17-5	46.10	1.26	2.38	4.64	8.75		2	WG964542
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG964542
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG964542
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG964542
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	ND	ND		2	WG964542
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG964542
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG964542
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG964542
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG964542
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG964542
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG964542
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG964542
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG964542
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG964542
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG964542
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG964542
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG964542
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG964542
2-Propanol	67-63-0	60.10	2.50	6.15	28.5	70.1		2	WG964542
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG964542
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG964542
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG964542
Tetrachloroethylene	127-18-4	166	0.400	2.72	12.6	85.9		2	WG964542
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG964542
Toluene	108-88-3	92.10	0.400	1.51	0.460	1.73		2	WG964542
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG964542

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG964542
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG964542
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG964542
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	0.513	2.52		2	WG964542
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG964542
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	2.42	11.3		2	WG964542
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG964542
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG964542
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG964542
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG964542
o-Xylene	95-47-6	106	0.400	1.73	0.624	2.71		2	WG964542
1,1-Difluoroethane	75-37-6	66.05	0.400	1.08	6.35	17.1		2	WG964542
<i>(S)</i> 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		106				WG964542

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	ND	ND		2	WG964542
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG964542
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG964542
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG964542
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG964542
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG964542
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG964542
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG964542
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG964542
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG964542
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG964542
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG964542
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG964542
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG964542
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG964542
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG964542
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG964542
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG964542
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG964542
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG964542
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG964542
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG964542
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG964542
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG964542
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG964542
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG964542
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG964542
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG964542
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG964542
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG964542
Ethanol	64-17-5	46.10	1.26	2.38	2.33	4.38		2	WG964542
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG964542
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG964542
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG964542
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	1.34	6.65		2	WG964542
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG964542
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG964542
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG964542
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG964542
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG964542
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG964542
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG964542
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG964542
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG964542
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG964542
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG964542
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG964542
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG964542
2-Propanol	67-63-0	60.10	2.50	6.15	10.7	26.3		2	WG964542
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG964542
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG964542
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG964542
Tetrachloroethylene	127-18-4	166	0.400	2.72	14.5	98.3		2	WG964542
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG964542
Toluene	108-88-3	92.10	0.400	1.51	ND	ND		2	WG964542
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG964542

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	0.523	2.85		2	WG964542
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG964542
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG964542
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG964542
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG964542
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG964542
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG964542
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG964542
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG964542
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG964542
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG964542
1,1-Difluoroethane	75-37-6	66.05	0.400	1.08	11.5	31.1		2	WG964542
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		105				WG964542

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Collected date/time: 03/21/17 09:31

L897757

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	3.32	7.88		2	WG964542
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG964542
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG964542
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG964542
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG964542
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG964542
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG964542
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG964542
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG964542
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG964542
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG964542
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG964542
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG964542
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG964542
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG964542
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG964542
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG964542
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG964542
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG964542
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG964542
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG964542
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG964542
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG964542
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG964542
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG964542
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG964542
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG964542
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG964542
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG964542
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG964542
Ethanol	64-17-5	46.10	1.26	2.38	5.13	9.68		2	WG964542
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG964542
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG964542
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG964542
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	1.27	6.29		2	WG964542
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG964542
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG964542
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG964542
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG964542
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG964542
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG964542
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG964542
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG964542
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG964542
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG964542
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG964542
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG964542
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG964542
2-Propanol	67-63-0	60.10	2.50	6.15	4.02	9.87		2	WG964542
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG964542
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG964542
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG964542
Tetrachloroethylene	127-18-4	166	0.400	2.72	11.4	77.7		2	WG964542
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	0.935	2.76		2	WG964542
Toluene	108-88-3	92.10	0.400	1.51	ND	ND		2	WG964542
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG964542

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	0.521	2.84		2	WG964542
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG964542
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG964542
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG964542
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG964542
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG964542
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG964542
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG964542
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG964542
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG964542
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG964542
1,1-Difluoroethane	75-37-6	66.05	0.400	1.08	2.02	5.45		2	WG964542
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		97.3				WG964542

- 1
Cp
- 2
Tc
- 3
Ss
- 4
Cn
- 5
Sr
- 6
Qc
- 7
Gl
- 8
Al
- 9
Sc



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch
			ppbv	ug/m3	ppbv	ug/m3			
Acetone	67-64-1	58.10	2.50	5.94	4.96	11.8		2	WG964542
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG964542
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG964542
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG964542
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG964542
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG964542
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG964542
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG964542
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG964542
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG964542
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG964542
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG964542
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG964542
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG964542
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG964542
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG964542
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG964542
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG964542
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG964542
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG964542
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG964542
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG964542
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG964542
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG964542
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG964542
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG964542
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG964542
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG964542
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG964542
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG964542
Ethanol	64-17-5	46.10	1.26	2.38	2.23	4.20		2	WG964542
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG964542
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG964542
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG964542
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	0.748	3.70		2	WG964542
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG964542
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG964542
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG964542
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG964542
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG964542
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG964542
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG964542
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG964542
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG964542
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG964542
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG964542
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG964542
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG964542
2-Propanol	67-63-0	60.10	2.50	6.15	ND	ND		2	WG964542
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG964542
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG964542
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG964542
Tetrachloroethylene	127-18-4	166	0.400	2.72	3.72	25.3		2	WG964542
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	0.817	2.41		2	WG964542
Toluene	108-88-3	92.10	0.400	1.51	ND	ND		2	WG964542
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG964542

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 03/21/17 10:07

L897757

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG964542
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG964542
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG964542
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG964542
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG964542
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG964542
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG964542
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG964542
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG964542
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG964542
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG964542
1,1-Difluoroethane	75-37-6	66.05	0.400	1.08	ND	ND		2	WG964542
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		91.2				WG964542

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Volatile Organic Compounds (GC) by Method ASTM 1946

Analyte	CAS #	Mol. Wt.	RDL	Result	Qualifier	Dilution	Batch
Helium	7440-59-7		500000	2910000		5	WG965539

- ¹Cp
- ²Tc
- ³Ss
- ⁴Cn
- ⁵Sr
- ⁶Qc
- ⁷Gl
- ⁸Al
- ⁹Sc



Volatile Organic Compounds (GC) by Method ASTM 1946

Analyte	CAS #	Mol. Wt.	RDL	Result	Qualifier	Dilution	Batch
Helium	7440-59-7		1000000	6830000		10	WG965539

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Volatile Organic Compounds (GC) by Method ASTM 1946

Analyte	CAS #	Mol. Wt.	RDL	Result	Qualifier	Dilution	Batch
Helium	7440-59-7		1000000	7680000		10	WG965539

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Volatile Organic Compounds (GC) by Method ASTM 1946

Analyte	CAS #	Mol. Wt.	RDL	Result	Qualifier	Dilution	Batch
Helium	7440-59-7		1000000	9930000		10	WG965539

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Volatile Organic Compounds (GC) by Method ASTM 1946

Analyte	CAS #	Mol. Wt.	RDL	Result	Qualifier	Dilution	Batch
Helium	7440-59-7		1000000	5460000		10	WG965539

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Volatile Organic Compounds (GC) by Method ASTM 1946

Analyte	CAS #	Mol. Wt.	RDL	Result	Qualifier	Dilution	Batch
Helium	7440-59-7		1000000	7410000		10	WG965539

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Volatile Organic Compounds (GC) by Method ASTM 1946

Analyte	CAS #	Mol. Wt.	RDL	Result	Qualifier	Dilution	Batch
Helium	7440-59-7		1000000	7100000		10	WG965539

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Volatile Organic Compounds (GC) by Method ASTM 1946

Analyte	CAS #	Mol. Wt.	RDL	Result	Qualifier	Dilution	Batch
Helium	7440-59-7		100000	1270000		1	WG964800

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Volatile Organic Compounds (GC) by Method ASTM 1946

Analyte	CAS #	Mol. Wt.	RDL	Result	Qualifier	Dilution	Batch
Helium	7440-59-7		100000	1640000		1	WG964800

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3206747-3 03/29/17 10:13

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Helium	U		30000	100000

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3206747-1 03/29/17 09:47 • (LCSD) R3206747-2 03/29/17 10:00

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Helium	500000	468000	485000	93.7	96.9	70.0-130			3.41	25

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3207030-3 03/30/17 09:48

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Helium	U		30000	100000

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3207030-1 03/30/17 08:39 • (LCSD) R3207030-2 03/30/17 09:05

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Helium	500000	377000	422000	75.4	84.4	70.0-130			11.3	25

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3206324-3 03/27/17 11:18

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.0569	1.25
Allyl Chloride	U		0.0546	0.200
Benzene	U		0.0460	0.200
Benzyl Chloride	U		0.0598	0.200
Bromodichloromethane	U		0.0436	0.200
Bromoform	U		0.0786	0.600
Bromomethane	U		0.0609	0.200
1,3-Butadiene	U		0.0563	2.00
Carbon disulfide	U		0.0544	0.200
Carbon tetrachloride	U		0.0585	0.200
Chlorobenzene	U		0.0601	0.200
Chloroethane	U		0.0489	0.200
Chloroform	U		0.0574	0.200
Chloromethane	U		0.0544	0.200
2-Chlorotoluene	U		0.0605	0.200
Cyclohexane	U		0.0534	0.200
Dibromochloromethane	U		0.0494	0.200
1,2-Dibromoethane	U		0.0185	0.200
1,2-Dichlorobenzene	U		0.0603	0.200
1,3-Dichlorobenzene	U		0.0597	0.200
1,4-Dichlorobenzene	U		0.0557	0.200
1,2-Dichloroethane	U		0.0616	0.200
1,1-Dichloroethane	U		0.0514	0.200
1,1-Dichloroethene	U		0.0490	0.200
cis-1,2-Dichloroethene	U		0.0389	0.200
trans-1,2-Dichloroethene	U		0.0464	0.200
1,2-Dichloropropane	U		0.0599	0.200
cis-1,3-Dichloropropene	U		0.0588	0.200
trans-1,3-Dichloropropene	U		0.0435	0.200
1,4-Dioxane	U		0.0554	0.200
Ethylbenzene	U		0.0506	0.200
4-Ethyltoluene	U		0.0666	0.200
Trichlorofluoromethane	U		0.0673	0.200
Dichlorodifluoromethane	U		0.0601	0.200
1,1,2-Trichlorotrifluoroethane	U		0.0687	0.200
1,2-Dichlorotetrafluoroethane	U		0.0458	0.200
Heptane	U		0.0626	0.200
Hexachloro-1,3-butadiene	U		0.0656	0.630
n-Hexane	U		0.0457	0.200
Isopropylbenzene	U		0.0563	0.200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3206324-3 03/27/17 11:18

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ppbv		ppbv	ppbv
Methylene Chloride	U		0.0465	0.200
Methyl Butyl Ketone	U		0.0682	1.25
2-Butanone (MEK)	U		0.0493	1.25
4-Methyl-2-pentanone (MIBK)	U		0.0650	1.25
Methyl Methacrylate	U		0.0773	0.200
MTBE	U		0.0505	0.200
Naphthalene	U		0.154	0.630
2-Propanol	U		0.0882	1.25
Propene	U		0.0932	0.400
Styrene	U		0.0465	0.200
1,1,2-Tetrachloroethane	U		0.0576	0.200
Tetrachloroethylene	U		0.0497	0.200
Tetrahydrofuran	U		0.0508	0.200
Toluene	U		0.0499	0.200
1,2,4-Trichlorobenzene	U		0.148	0.630
1,1,1-Trichloroethane	U		0.0665	0.200
1,1,2-Trichloroethane	U		0.0287	0.200
Trichloroethylene	U		0.0545	0.200
1,2,4-Trimethylbenzene	U		0.0483	0.200
1,3,5-Trimethylbenzene	U		0.0631	0.200
2,2,4-Trimethylpentane	U		0.0456	0.200
Vinyl chloride	U		0.0457	0.200
Vinyl Bromide	U		0.0727	0.200
Vinyl acetate	U		0.0639	0.200
m&p-Xylene	U		0.0946	0.400
o-Xylene	U		0.0633	0.200
Ethanol	U		0.0832	0.630
1,1-Difluoroethane	U		0.0256	0.200
(S) 1,4-Bromofluorobenzene	96.1			60.0-140

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3206324-1 03/27/17 09:40 • (LCSD) R3206324-2 03/27/17 10:29

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ppbv	ppbv	ppbv	%	%	%			%	%
Ethanol	3.75	4.69	4.69	125	125	52.0-158			0.0100	25
Propene	3.75	3.83	4.39	102	117	54.0-155			13.7	25
Dichlorodifluoromethane	3.75	3.69	3.84	98.3	102	69.0-143			4.12	25
1,2-Dichlorotetrafluoroethane	3.75	4.14	4.28	110	114	70.0-130			3.35	25



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3206324-1 03/27/17 09:40 • (LCSD) R3206324-2 03/27/17 10:29

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloromethane	3.75	4.27	4.28	114	114	70.0-130			0.360	25
Vinyl chloride	3.75	4.47	3.99	119	106	70.0-130			11.3	25
1,3-Butadiene	3.75	4.15	4.06	111	108	70.0-130			2.17	25
Bromomethane	3.75	4.28	4.14	114	110	70.0-130			3.46	25
Chloroethane	3.75	4.53	4.38	121	117	70.0-130			3.31	25
Trichlorofluoromethane	3.75	4.17	4.17	111	111	70.0-130			0.0700	25
1,1,2-Trichlorotrifluoroethane	3.75	3.96	3.88	106	103	70.0-130			2.07	25
1,1-Dichloroethene	3.75	4.27	4.19	114	112	70.0-130			1.75	25
1,1-Dichloroethane	3.75	4.05	3.99	108	106	70.0-130			1.62	25
Acetone	3.75	4.44	4.38	118	117	70.0-130			1.18	25
2-Propanol	3.75	4.43	4.39	118	117	66.0-150			0.790	25
Carbon disulfide	3.75	4.05	4.03	108	107	70.0-130			0.710	25
Methylene Chloride	3.75	3.81	3.73	102	99.5	70.0-130			2.18	25
MTBE	3.75	4.00	3.96	107	106	70.0-130			1.13	25
trans-1,2-Dichloroethene	3.75	3.93	3.91	105	104	70.0-130			0.440	25
n-Hexane	3.75	4.17	4.08	111	109	70.0-130			2.06	25
Vinyl acetate	3.75	4.41	4.27	118	114	70.0-130			3.26	25
Methyl Ethyl Ketone	3.75	4.12	4.07	110	108	70.0-130			1.30	25
cis-1,2-Dichloroethene	3.75	4.06	3.98	108	106	70.0-130			2.06	25
Chloroform	3.75	3.98	3.96	106	106	70.0-130			0.600	25
Cyclohexane	3.75	3.98	3.92	106	104	70.0-130			1.50	25
1,1,1-Trichloroethane	3.75	3.89	3.86	104	103	70.0-130			0.950	25
Carbon tetrachloride	3.75	3.86	3.86	103	103	70.0-130			0.0500	25
Benzene	3.75	4.01	3.94	107	105	70.0-130			1.64	25
1,2-Dichloroethane	3.75	4.01	4.01	107	107	70.0-130			0.0300	25
Heptane	3.75	4.18	4.09	111	109	70.0-130			1.99	25
Trichloroethylene	3.75	4.01	3.95	107	105	70.0-130			1.49	25
1,2-Dichloropropane	3.75	4.12	3.99	110	106	70.0-130			3.09	25
1,4-Dioxane	3.75	4.27	4.06	114	108	70.0-152			5.00	25
Bromodichloromethane	3.75	4.08	4.03	109	108	70.0-130			1.16	25
cis-1,3-Dichloropropene	3.75	4.11	4.01	109	107	70.0-130			2.24	25
4-Methyl-2-pentanone (MIBK)	3.75	4.41	4.30	118	115	70.0-142			2.63	25
Toluene	3.75	4.03	3.93	107	105	70.0-130			2.38	25
trans-1,3-Dichloropropene	3.75	4.12	3.98	110	106	70.0-130			3.32	25
1,1,2-Trichloroethane	3.75	4.00	3.88	107	103	70.0-130			3.06	25
Tetrachloroethylene	3.75	3.78	3.76	101	100	70.0-130			0.430	25
Methyl Butyl Ketone	3.75	4.53	4.44	121	118	70.0-150			2.04	25
Dibromochloromethane	3.75	3.91	3.86	104	103	70.0-130			1.17	25
1,2-Dibromoethane	3.75	3.92	3.93	104	105	70.0-130			0.240	25
Chlorobenzene	3.75	3.78	3.82	101	102	70.0-130			1.02	25

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3206324-1 03/27/17 09:40 • (LCSD) R3206324-2 03/27/17 10:29

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethylbenzene	3.75	3.89	3.81	104	102	70.0-130			2.00	25
m&p-Xylene	7.50	7.50	7.34	100	97.9	70.0-130			2.14	25
o-Xylene	3.75	3.70	3.64	98.6	97.2	70.0-130			1.46	25
Styrene	3.75	3.89	3.82	104	102	70.0-130			1.66	25
Bromoform	3.75	3.89	3.90	104	104	70.0-130			0.0700	25
1,1,2,2-Tetrachloroethane	3.75	3.68	3.67	98.2	97.9	70.0-130			0.350	25
4-Ethyltoluene	3.75	3.64	3.59	97.1	95.7	70.0-130			1.42	25
1,3,5-Trimethylbenzene	3.75	3.71	3.69	99.0	98.4	70.0-130			0.610	25
1,2,4-Trimethylbenzene	3.75	3.79	3.72	101	99.2	70.0-130			1.88	25
1,3-Dichlorobenzene	3.75	3.62	3.55	96.6	94.7	70.0-130			2.05	25
1,4-Dichlorobenzene	3.75	3.58	3.55	95.4	94.8	70.0-130			0.680	25
Benzyl Chloride	3.75	3.91	3.89	104	104	70.0-144			0.590	25
1,2-Dichlorobenzene	3.75	3.41	3.36	90.9	89.6	70.0-130			1.40	25
1,2,4-Trichlorobenzene	3.75	3.85	3.90	103	104	70.0-155			1.25	25
Hexachloro-1,3-butadiene	3.75	3.58	3.63	95.6	96.7	70.0-145			1.21	25
Naphthalene	3.75	4.36	4.32	116	115	70.0-155			1.04	25
Allyl Chloride	3.75	4.47	4.38	119	117	70.0-130			2.08	25
2-Chlorotoluene	3.75	3.72	3.37	99.3	89.8	70.0-130			10.0	25
Methyl Methacrylate	3.75	4.22	4.12	112	110	70.0-130			2.28	25
Tetrahydrofuran	3.75	4.12	4.02	110	107	70.0-140			2.53	25
2,2,4-Trimethylpentane	3.75	4.08	3.98	109	106	70.0-130			2.26	25
Vinyl Bromide	3.75	3.89	3.84	104	102	70.0-130			1.24	25
Isopropylbenzene	3.75	3.56	3.49	94.9	93.2	70.0-130			1.84	25
1,1-Difluoroethane	3.75	3.96	4.23	106	113	70.0-130			6.72	25
<i>(S) 1,4-Bromofluorobenzene</i>				101	101	60.0-140				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.
 * Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

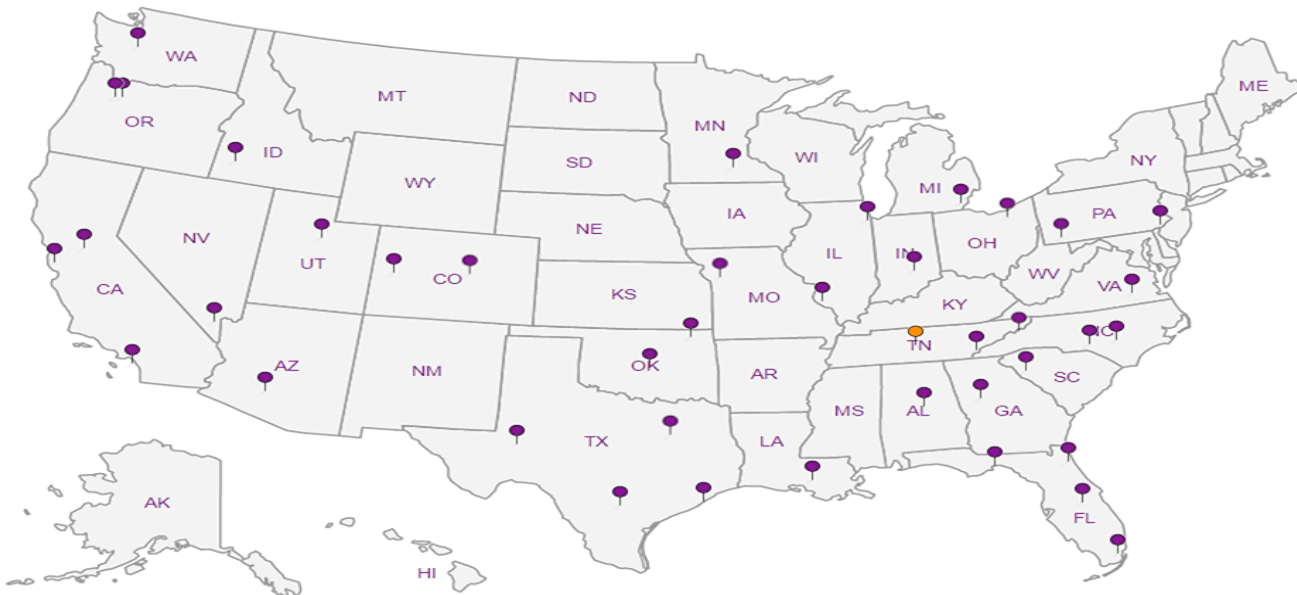
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



ESC
L-A-B S-C-I-E-N-C-E-S
YOUR LAB OF CHOICE

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



AEI Consultants - CA

2500 Camino Diablo
Walnut Creek, CA 94597

Billing Information:
Accounts Payable- Jeremy Smith
2500 Camino Diablo
Walnut Creek, CA 94597

Report to:
Jonathan Sanders

Email To: jsanders@aeiconsultants.com;
tweise@aeiconsultants.com;

Project Description: **Lucasey Redevelopment**

Phone: 925-746-6028
Fax:

Client Project #
345989

City/State Collected:
Lab Project #
AEICONWCCA-345989

Collected by (print):
Mallory Zaunius

Site/Facility ID #
2744 E 11TH ST, OAKLAND, CA

P.O. #
Quote #

Collected by (signature):
[Signature]

Rush? (Lab MUST Be Notified)
 Same Day Five Day
 Next Day 5 Day (Rad Only)
 Two Day 10 Day (Rad Only)
 Three Day

Date Results Needed

Immediately Packed on Ice N X Y

Pres Chk

Analysis / Container / Preservative

L# L897797
D021
Acctnum: AEICONWCCA
Template: T121570
Prelgin: P593121
TSR: 110 - Brian Ford
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Analysis / Container / Preservative	Remarks	Sample # (lab only)
ASV-17		Air		3/21/17	1523	1	X		-01
ASV-19		Air			1620	1	X		02
ASV-20		Air			1653	1	X		07
ASV-21		Air			1340	1	X		04
ASV-22		Air			1410	1	X		05
ASV-26		Air			1219	1	X		06
ASV-27		Air			1126	1	X		07
ASV-28		Air			931	1	X		08
ASV-29		Air			1007	1	X		09
		Air				1	X		

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks: (11) 1 Liter summas, (11) AEI sampling manifolds, (11) tubing and fittings, (3) 6 Liter summas

Samples returned via:
 UPS FedEx Courier

Tracking # 7176 9000 3763

Sample Receipt Check List
 COC Seal Present/Intact: Y N
 COC Signed/Accurate: Y N
 Bottles arrive intact: Y N
 Correct bottles used: Y N
 Sufficient volume sent: Y N
 IF Applicable
 VOA Zero Headspace: Y N
 Preservation Correct/Checked: Y N

Relinquished by: (Signature) *[Signature]* Date: 3/22/17 Time: 1830

Relinquished by: (Signature) Date: Time:

Relinquished by: (Signature) Date: Time:

Received by: (Signature) Trip Blank Received: Yes No
HCL/MeOH TBR

Received by: (Signature) Temp: Amb. °C Bottles Received: 10

Received for Lab by: (Signature) *[Signature]* Date: 3-23-17 Time: 900

If preservation required by Login: Date/Time

Hold: Condition: NCF / OK

APPENDIX C

PROPOSED LOT LINES AND DESCRIPTIONS

GENERAL NOTES:

- 1. OWNER/DEVELOPER: LUCASEY LOFTS LP
1000 BRANNAN STREET, SUITE 402
SAN FRANCISCO, CA 94103
ATTN: JONATHAN LAW
- 2. SURVEYOR: LUK AND ASSOCIATES
738 ALFRED NOBEL DRIVE
HERCULES, CA 94547
JACKIE LUK PLS 8934
(510) 724-3388
- 3. ASSESSOR'S PARCEL NO.: 019-0093-013
019-0093-016-01
- 4. TOTAL AREA: 019-0093-013: 101,077± S.F. (2.320± ACRE)
019-0093-016-01: 2,949± S.F. (0.067± ACRE)

LEGAL DESCRIPTION

THE LAND REFERRED TO IS SITUATED IN THE COUNTY OF ALAMEDA, CITY OF OAKLAND, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL ONE:

PARCEL A, PARCEL MAP 3650, FILED NOVEMBER 4, 1981, BOOK 131 OF MAPS, PAGES 24 AND 25, ALAMEDA COUNTY RECORDS.

APN: 019-0093-013 AS TO PARCEL ONE

PARCEL TWO:

PORTION OF PARCEL 1 OF PARCEL MAP 6301 FILED FEBRUARY 26, 1993 IN BOOK 205 OF PARCEL MAPS AT PAGE 47, ALAMEDA COUNTY RECORDS, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE NORTHWESTERLY LINE OF THE ABOVEMENTIONED PARCEL 1, DISTANT THEREON NORTH 40° 57' 00" EAST, 39.00 FEET ALONG SAID LINE, FROM THE MOST WESTERLY CORNER THEREOF; THENCE CONTINUING ALONG SAID LINE NORTH 40° 57' 00" EAST 25.00 FEET; THENCE LEAVING SAID LINE SOUTH 49° 03' 00" EAST 37.00 FEET; THENCE SOUTH 40° 57' 00" WEST 25.00 FEET; THENCE NORTH 49°03' 00" WEST 37.00 FEET TO THE POINT OF BEGINNING.

PARCEL THREE:

PORTION OF PARCEL 1 OF PARCEL MAP NO. 6301 FILED FEBRUARY 26, 1993 IN BOOK 205 OF PARCEL MAPS AT PAGE 47, ALAMEDA COUNTY RECORDS, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE NORTHWESTERLY LINE OF THE ABOVEMENTIONED PARCEL 1, DISTANT THEREON NORTH 40° 57' 00" EAST 64.00 FEET ALONG SAID LINE, FROM THE MOST WESTERLY CORNER THEREOF; THENCE CONTINUING ALONG SAID LINE NORTH 40° 57' 00" EAST 88.00 FEET; THENCE LEAVING SAID LINE SOUTH 49° 03' 00" EAST 23.00 FEET; THENCE NORTH 40° 57' 00" WEST 88.00 FEET; THENCE NORTH 49°03' 00" WEST 23.00 FEET TO THE POINT OF BEGINNING.

APN: 019-0093-016-01 AS TO PARCELS TWO AND THREE
EXCEPTING FROM PARCEL ONE, TWO AND THREE: 100% OF ALL OIL, GAS, MINERAL, GEOTHERMAL AND SIMILAR RIGHTS LYING BELOW A DEPTH OF 500 FEET, MEASURED VERTICALLY FROM THE SURFACE OF SAID LAND, BUT WITHOUT THE RIGHT OF ENTRY THROUGH THE SURFACE OF SAID LAND OR THE UPPER 500 FEET THEREOF, AS RESERVED BY DEL MONTE CORPORATION, IN DEED RECORDED JANUARY 15, 1979, SERIES NO. 79-008379, ALAMEDA COUNTY RECORDS.

NOTES

- 1. SANITARY SEWER AND STORM DRAINAGE BY CITY OF OAKLAND.
- 2. WATER SUPPLY BY EAST BAY MUNICIPAL UTILITY DISTRICT.
- 3. ELEVATION BASED ON THE CITY OF OAKLAND DATUM.
- 4. FLOOD ZONE DESIGNATION: THE PREMISES ARE LOCATED IN ZONE "X" (NO SHADING) DEFINED AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN", PER FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 06001C00886, EFFECTIVE DATE: AUGUST 3, 2009.

BASIS OF BEARING

BASIS OF BEARINGS TAKEN AS NORTH 49°03'00" WEST, AS SHOWN ON PARCEL MAP NO. 3650, BOOK 131 AT PAGE 24 THROUGH 25, BETWEEN TWO FOUND CITY MONUMENTS ALONG 11TH STREET AT THE INTERSECTIONS OF 26TH STREET AND 27TH STREET.

BENCHMARK

OAKLAND CITY BENCHMARK 2685 AS SHOWN IN FIELD BOOK BL 51 ON PAGE 65, BEING CUT SQUARE LOCATED IN MID POINT OF RETURNS AT SOUTHERLY CORNER OF EAST 9TH STREET AND LISBON AVENUE, ELEVATION = 17.928 FEET, CITY OF OAKLAND DATUM.

RECORD REFERENCES

- R1) PARCEL MAP 3650, FILED NOVEMBER 4, 1981 IN BOOK 131 OF PARCEL MAPS, PAGES 24 AND 25, ALAMEDA COUNTY RECORDS
- R2) PARCEL MAP 6301, FILED FEBRUARY 26, 1993 IN BOOK 205 OF PARCEL MAPS AT PAGE 47, ALAMEDA COUNTY RECORDS
- R3) TRACT MAP 6717, FILED DECEMBER 28, 1995 IN BOOK 222 OF MAPS, PAGES 54-55, ALAMEDA COUNTY RECORDS
- R4) CITY OF OAKLAND MONUMENT MAP NO. 132
- R5) QUITCLAIM DEED RECORDED FEBRUARY 14, 2017 AS DOCUMENT NO. 2017-040492, ALAMEDA COUNTY RECORDS

SURVEYOR'S STATEMENT

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE LAND SURVEYORS ACT AT THE REQUEST OF RIAZ CAPITAL ON MARCH 2017.

Jacqueline Lingwei Luk
JACQUELINE LUK P.L.S. 8934
LICENSE EXPIRES: 9/30/2018

DATE: APRIL 27, 2017



SHEET INDEX

- 1 TITLE SHEET, GENERAL NOTES, AND LEGEND
- 2 BOUNDARY SURVEY
- 3 TOPOGRAPHIC SURVEY
- 4 TOPOGRAPHIC SURVEY
- 5 PROPOSED PLAN
- 6 PROPOSED PLAN

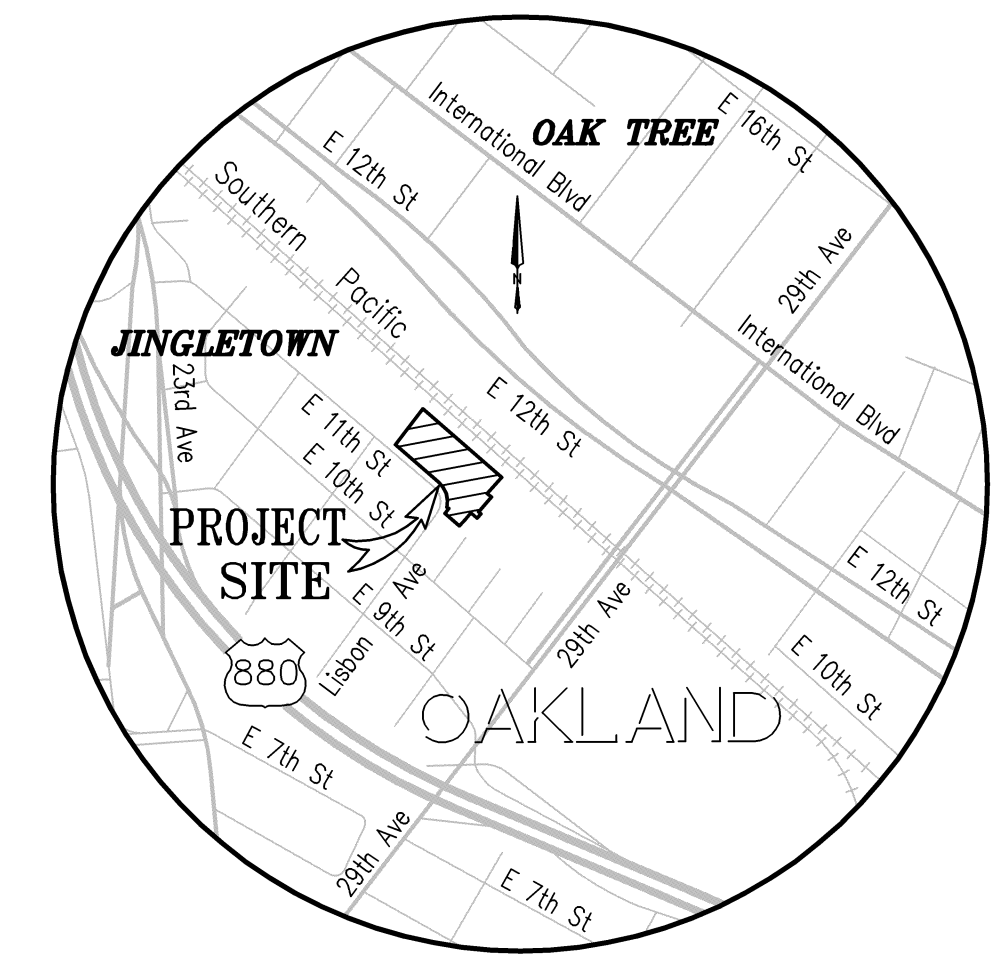
APPLICATION TO WAIVE PARCEL MAP

I certify that I am the applicant named herein and that the information given on any submission herewith is in all respects true and accurate to the best of my knowledge and belief. I further certify that I am the owner or purchaser (option holder) of the property involved in this application.

I understand that any maps or exhibits filed become a permanent part of the file and may not be returned to me.

Signature: 2744 E. 11TH STREET I am the Owner
OAKLAND, CA 94601 Purchaser (include
copy of contract)

Telephone No. (650) 380-1799
Owner's Name LUCASEY LOFTS LP (If other than applicant)
Owner's Address 1000 BRANNAN STREET, SUITE 402 Telephone No. (650) 380-1799
SAN FRANCISCO, CA 94103



VICINITY MAP
NO SCALE

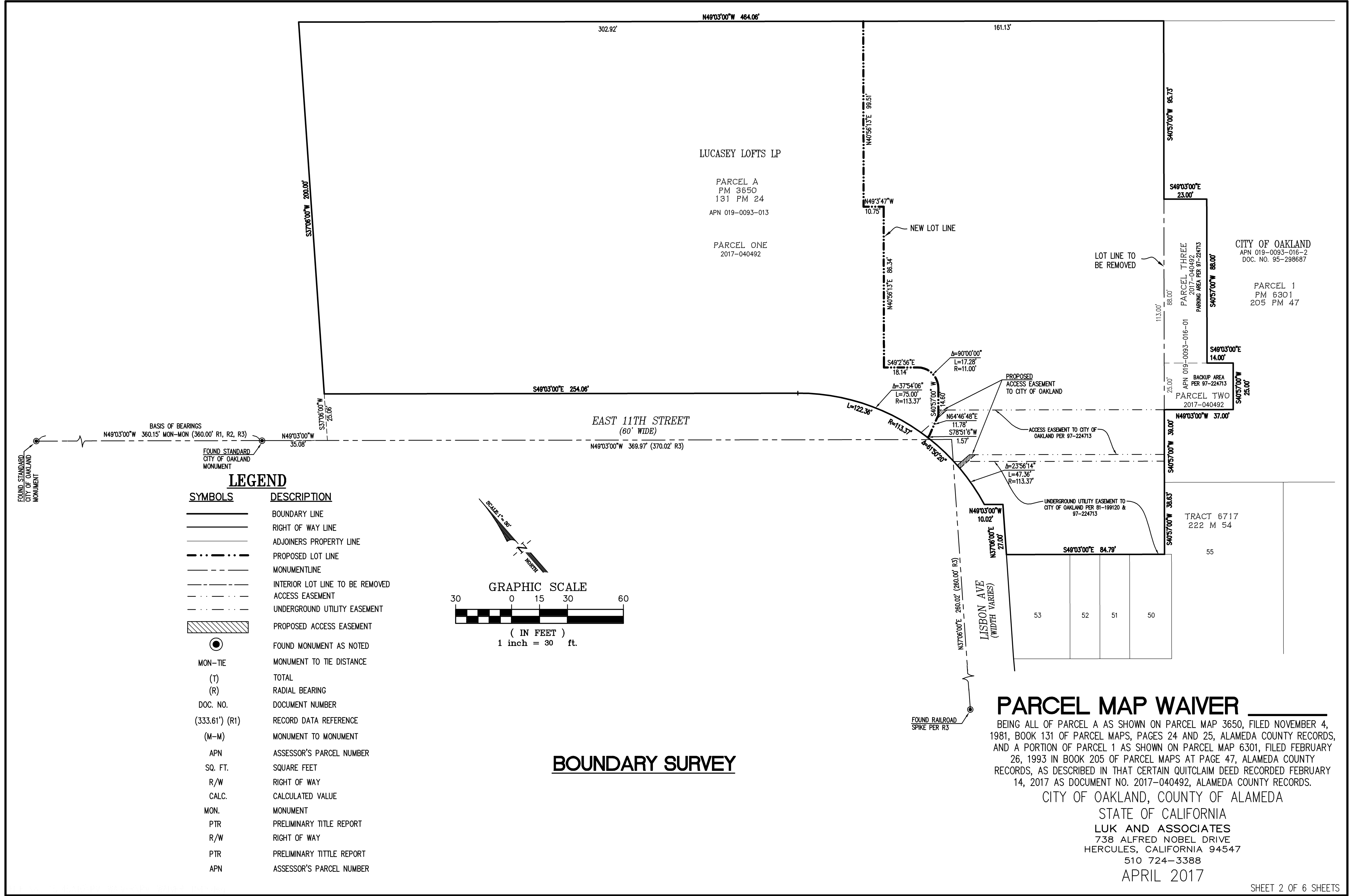
PARCEL MAP WAIVER

BEING ALL OF PARCEL A AS SHOWN ON PARCEL MAP 3650, FILED NOVEMBER 4, 1981, BOOK 131 OF PARCEL MAPS, PAGES 24 AND 25, ALAMEDA COUNTY RECORDS, AND A PORTION OF PARCEL 1 AS SHOWN ON PARCEL MAP 6301, FILED FEBRUARY 26, 1993 IN BOOK 205 OF PARCEL MAPS AT PAGE 47, ALAMEDA COUNTY RECORDS, AS DESCRIBED IN THAT CERTAIN QUITCLAIM DEED RECORDED FEBRUARY 14, 2017 AS DOCUMENT NO. 2017-040492, ALAMEDA COUNTY RECORDS.

CITY OF OAKLAND, COUNTY OF ALAMEDA

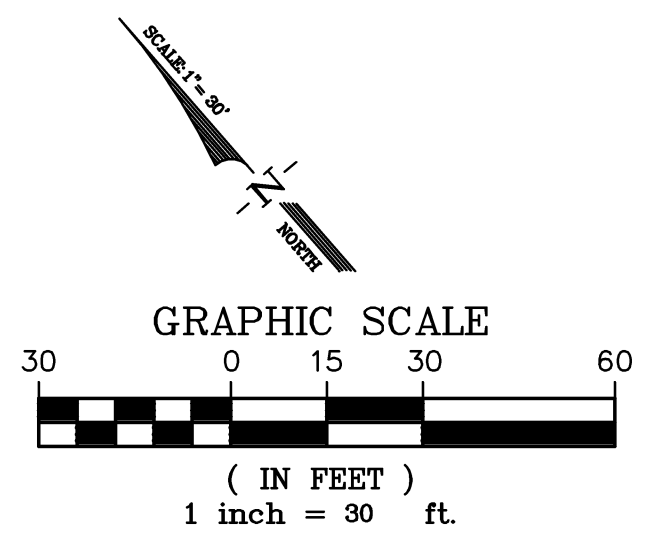
STATE OF CALIFORNIA
LUK AND ASSOCIATES
738 ALFRED NOBEL DRIVE
HERCULES, CALIFORNIA 94547
510 724-3388

APRIL 2017



LEGEND

SYMBOLS	DESCRIPTION
—————	BOUNDARY LINE
—————	RIGHT OF WAY LINE
—————	ADJOINERS PROPERTY LINE
- · - · - · -	PROPOSED LOT LINE
—————	MONUMENTLINE
—————	INTERIOR LOT LINE TO BE REMOVED
—————	ACCESS EASEMENT
—————	UNDERGROUND UTILITY EASEMENT
▨▨▨▨▨	PROPOSED ACCESS EASEMENT
●	FOUND MONUMENT AS NOTED
MON-TIE	MONUMENT TO TIE DISTANCE
(T)	TOTAL
(R)	RADIAL BEARING
DOC. NO.	DOCUMENT NUMBER
(333.61') (R1)	RECORD DATA REFERENCE
(M-M)	MONUMENT TO MONUMENT
APN	ASSESSOR'S PARCEL NUMBER
SQ. FT.	SQUARE FEET
R/W	RIGHT OF WAY
CALC.	CALCULATED VALUE
MON.	MONUMENT
PTR	PRELIMINARY TITLE REPORT
R/W	RIGHT OF WAY
PTR	PRELIMINARY TITLE REPORT
APN	ASSESSOR'S PARCEL NUMBER



BOUNDARY SURVEY

PARCEL MAP WAIVER

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CITY OF OAKLAND, COUNTY OF ALAMEDA
 STATE OF CALIFORNIA
 LUK AND ASSOCIATES
 738 ALFRED NOBEL DRIVE
 HERCULES, CALIFORNIA 94547
 510 724-3388
 APRIL 2017

MATCH LINE SEE SHEET 4

N49°03'00"W 464.06'

APPROXIMATE COVERED AREA WITH CONCRETE FLOOR

BUILDING

161.13'

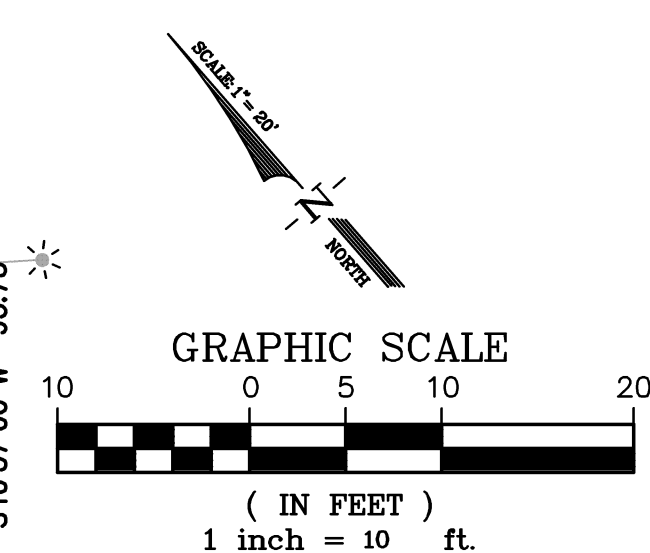
BUILDING

LUCASEY LOFTS LP

PARCEL A
PM 3650
131 PM 24

APN 019-0093-013

PARCEL ONE
2017-040492



N40°56'13"E 99.51'

N49°3'47"W 10.75'

10.75'

RWL

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BUILDING

S49°03'00"E 254.06'

CONC.

CONC.

CONC.

EAST 11TH STREET
(60' WIDE)

15"SS

15"SS

15"SS

15"SS

15"SS

PARCEL MAP WAIVER

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STATE OF CALIFORNIA

LUK AND ASSOCIATES
738 ALFRED NOBEL DRIVE
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510 724-3388

APRIL 2017

TOPOGRAPHIC SURVEY

SEE LEGEND ON SHEET 4

CITY OF OAKLAND
APN 019-0093-016-2
DOC. NO. 95-298687

PARCEL 1
PM 6301
205 PM 47

PARCEL THREE
2017-040492
PARKING AREA PER 97-224713

APN 019-0093-016-01
BACKUP AREA
PER 97-224713

PARCEL TWO
2017-040492

N49°03'00"W 37.00'

S49°03'00"E 14.00'

S40°57'00"W 25.00'

S49°03'00"E 23.00'

S40°57'00"W 88.00'

S49°03'00"E 14.00'

S40°57'00"W 25.00'

S49°03'00"E 14.00'

S40°57'00"W 25.00'

S49°03'00"E 14.00'

S40°57'00"W 25.00'

S49°03'00"E 14.00'

S40°57'00"W 25.00'

S49°03'00"E 14.00'

S40°57'00"W 25.00'

S49°03'00"E 14.00'

S40°57'00"W 25.00'

S49°03'00"E 14.00'

S40°57'00"W 25.00'

S49°03'00"E 14.00'

S40°57'00"W 25.00'

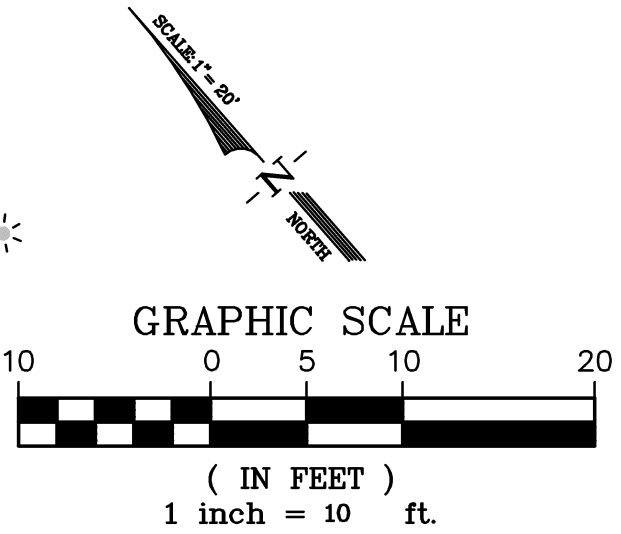
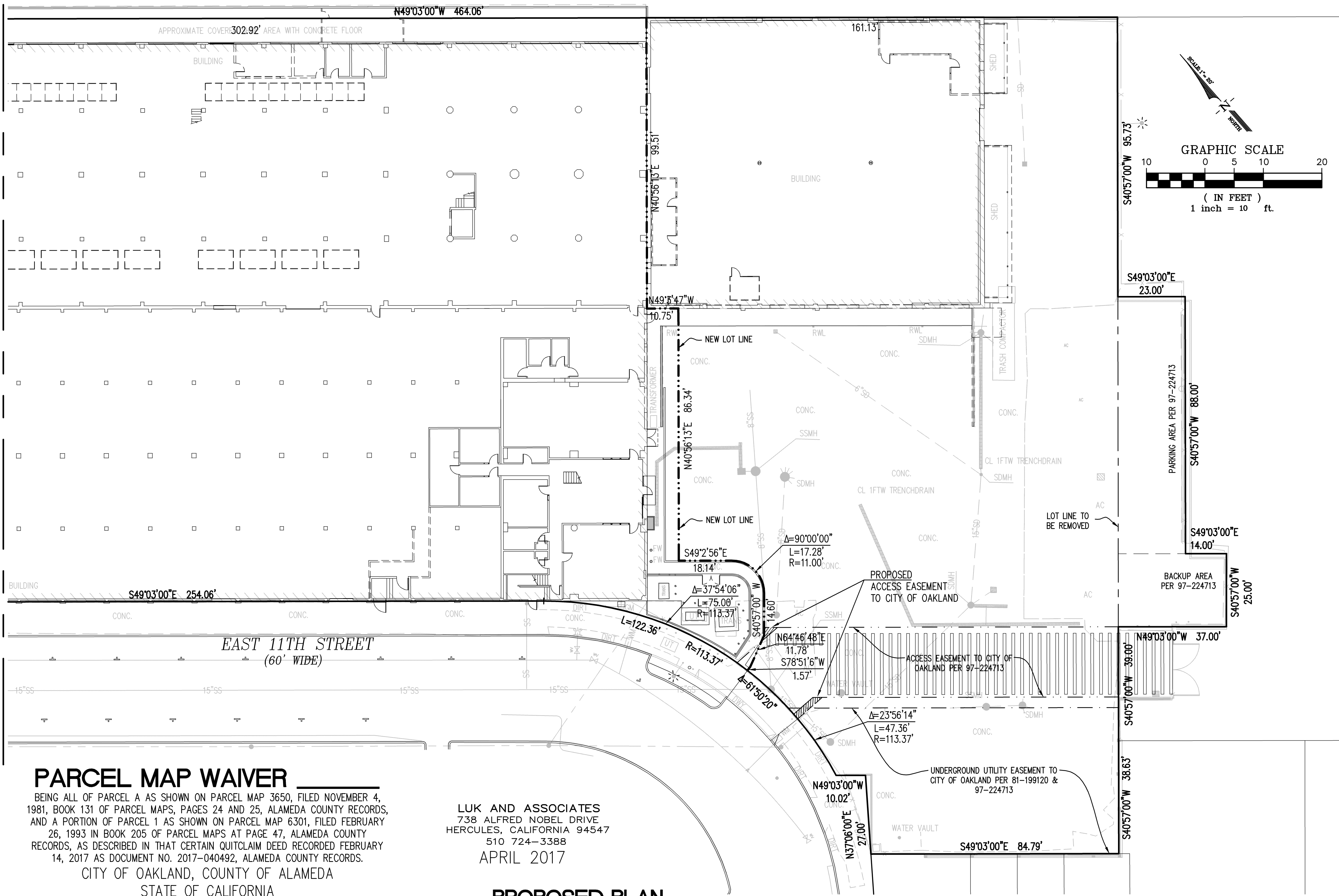
S49°03'00"E 14.00'

S40°57'00"W 25.00'

TRACT 6717
222 M 54

55

MATCH LINE SEE SHEET 6

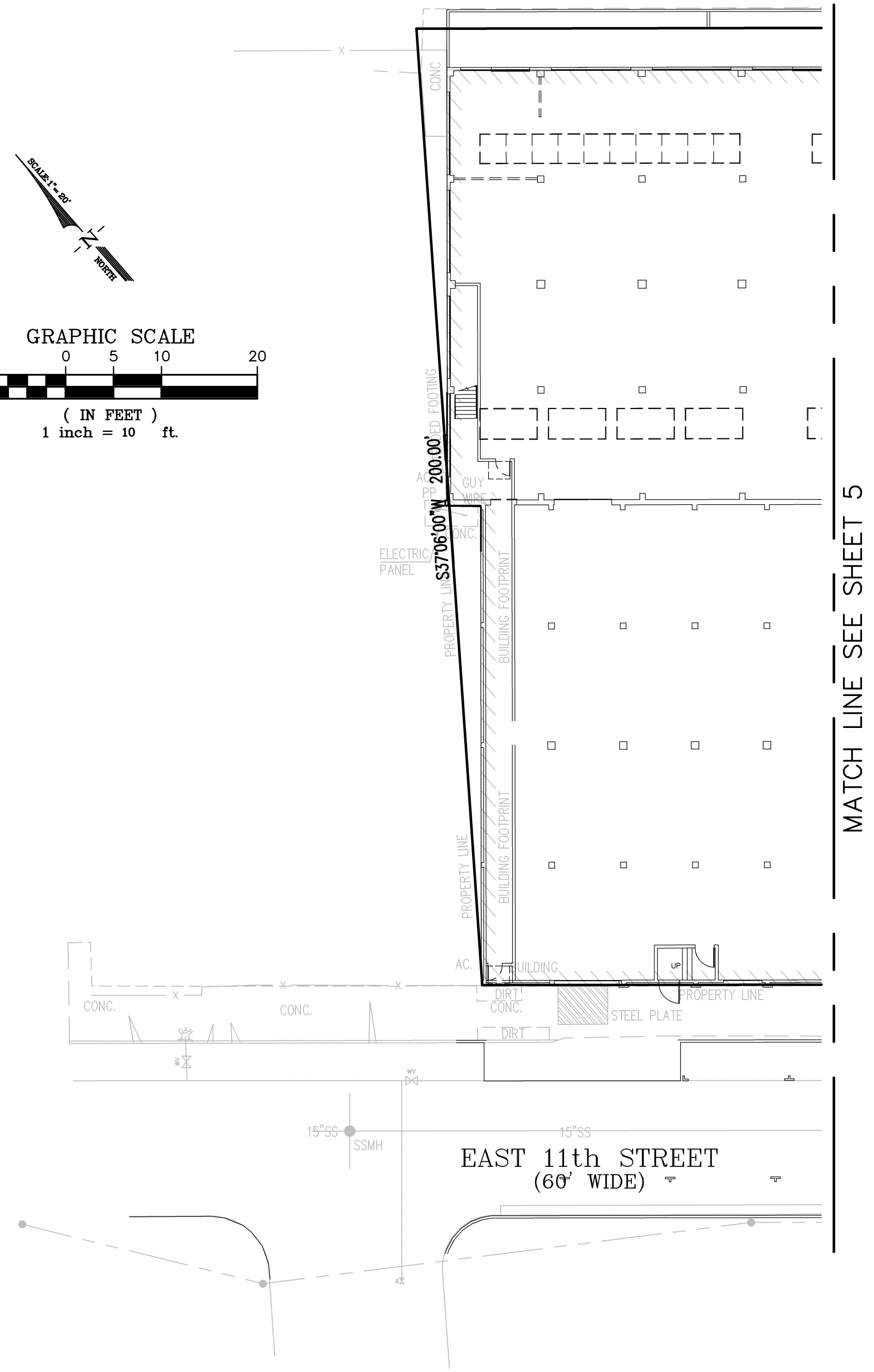
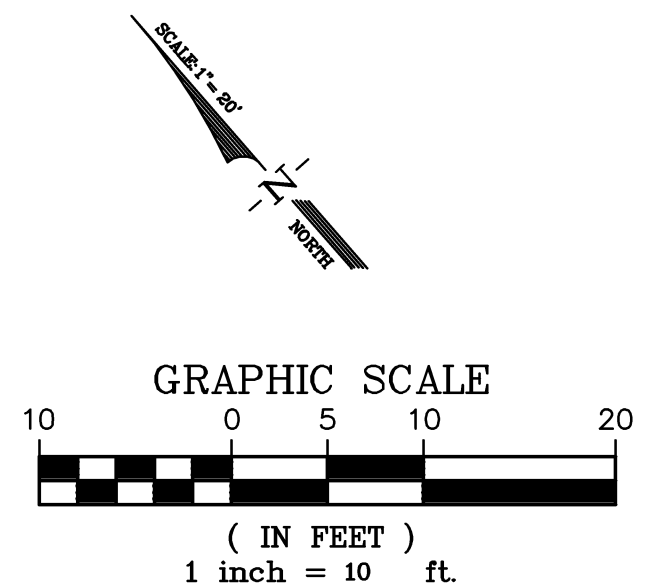


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 STATE OF CALIFORNIA

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 HERCULES, CALIFORNIA 94547
 510 724-3388
 APRIL 2017

PROPOSED PLAN
 SEE LEGEND ON SHEET 4

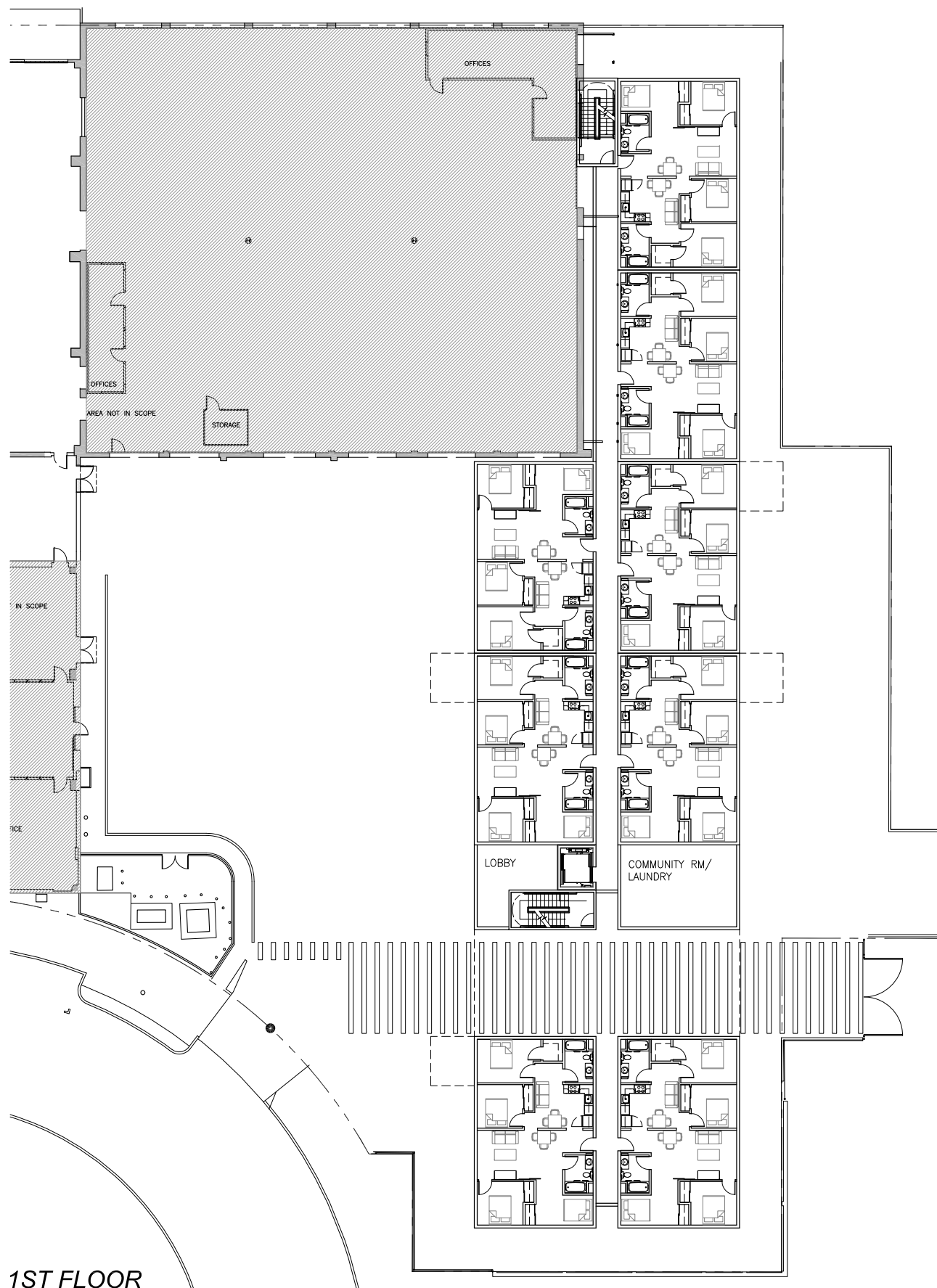


MATCH LINE SEE SHEET 5

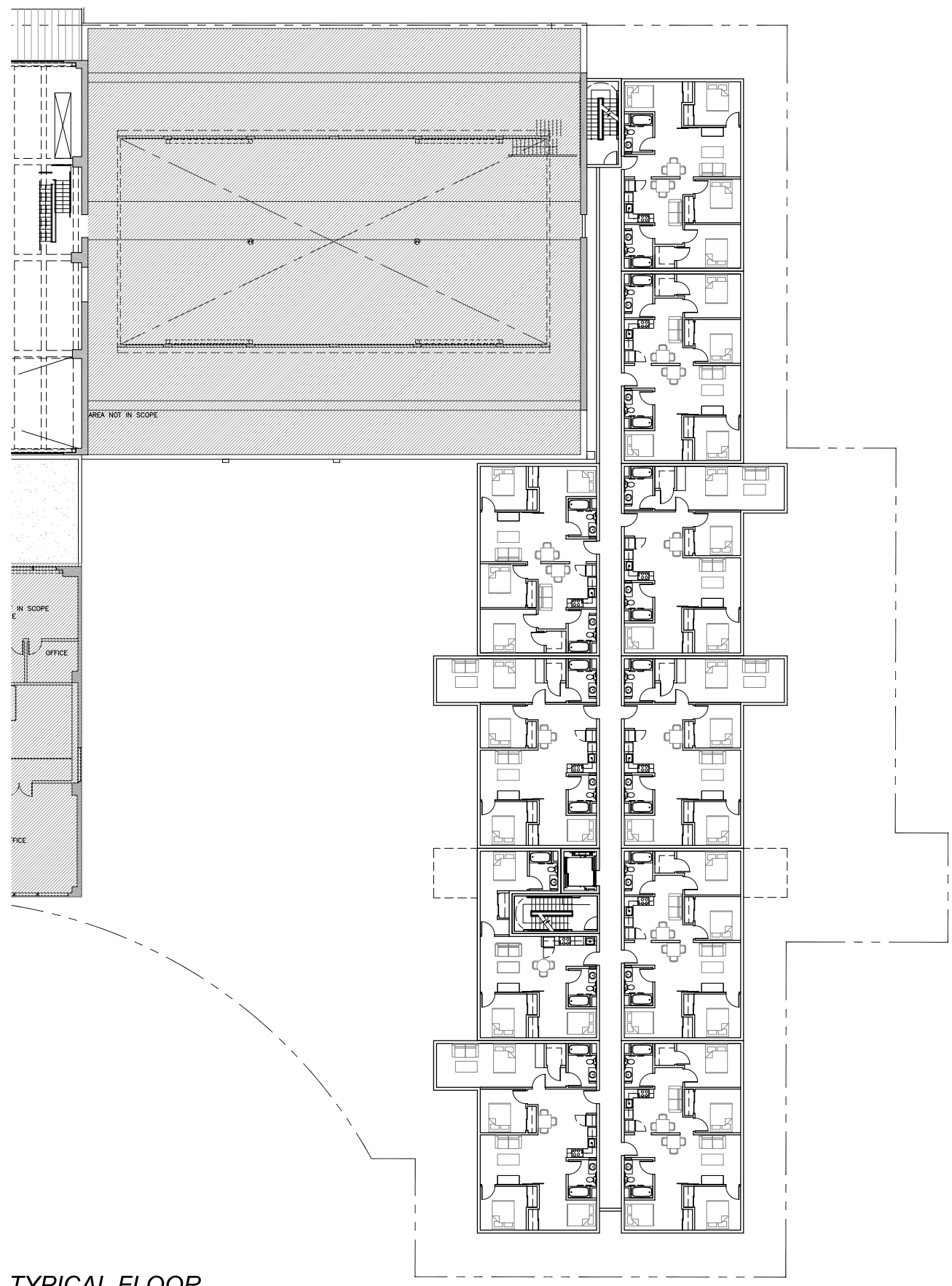
PROPOSED PLAN
SEE LEGEND ON SHEET 4

PARCEL MAP WAIVER
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APPENDIX D
PROPOSED ARCHITECTURAL DRAWINGS



1ST FLOOR
- 8 UNITS



TYPICAL FLOOR
- 10 UNITS/FLOOR

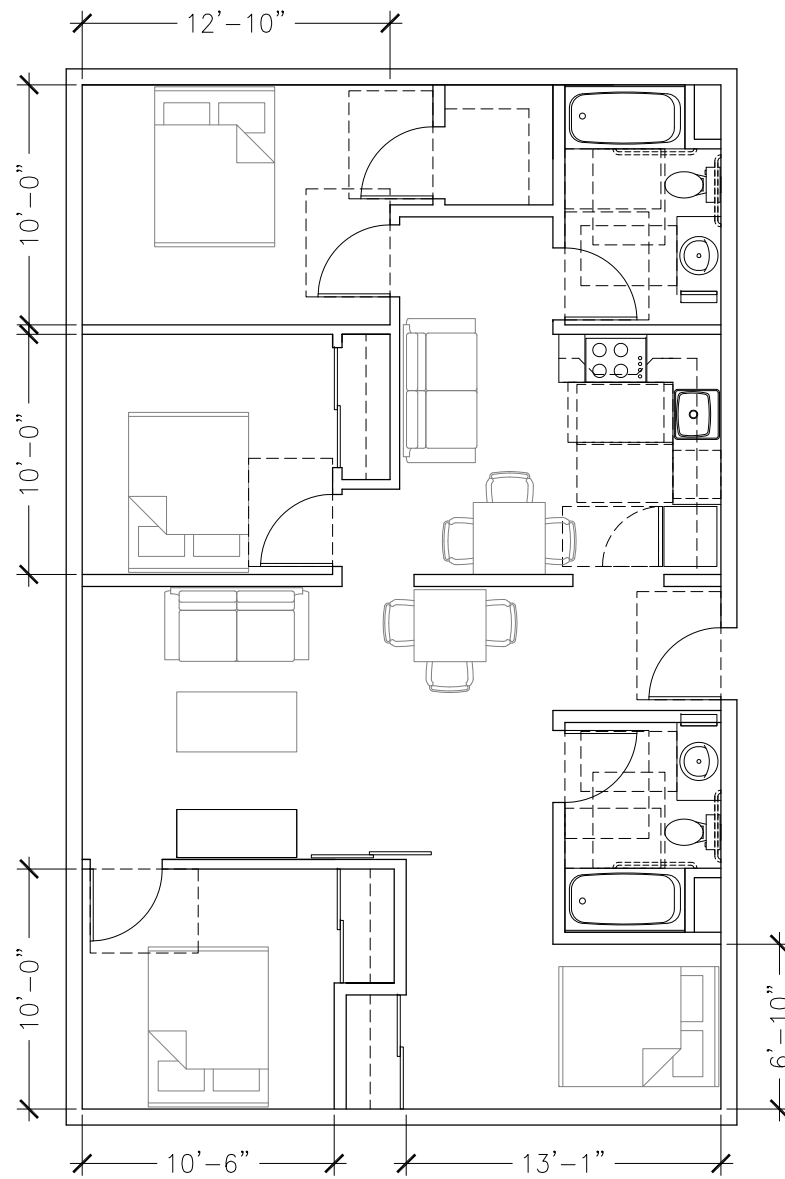


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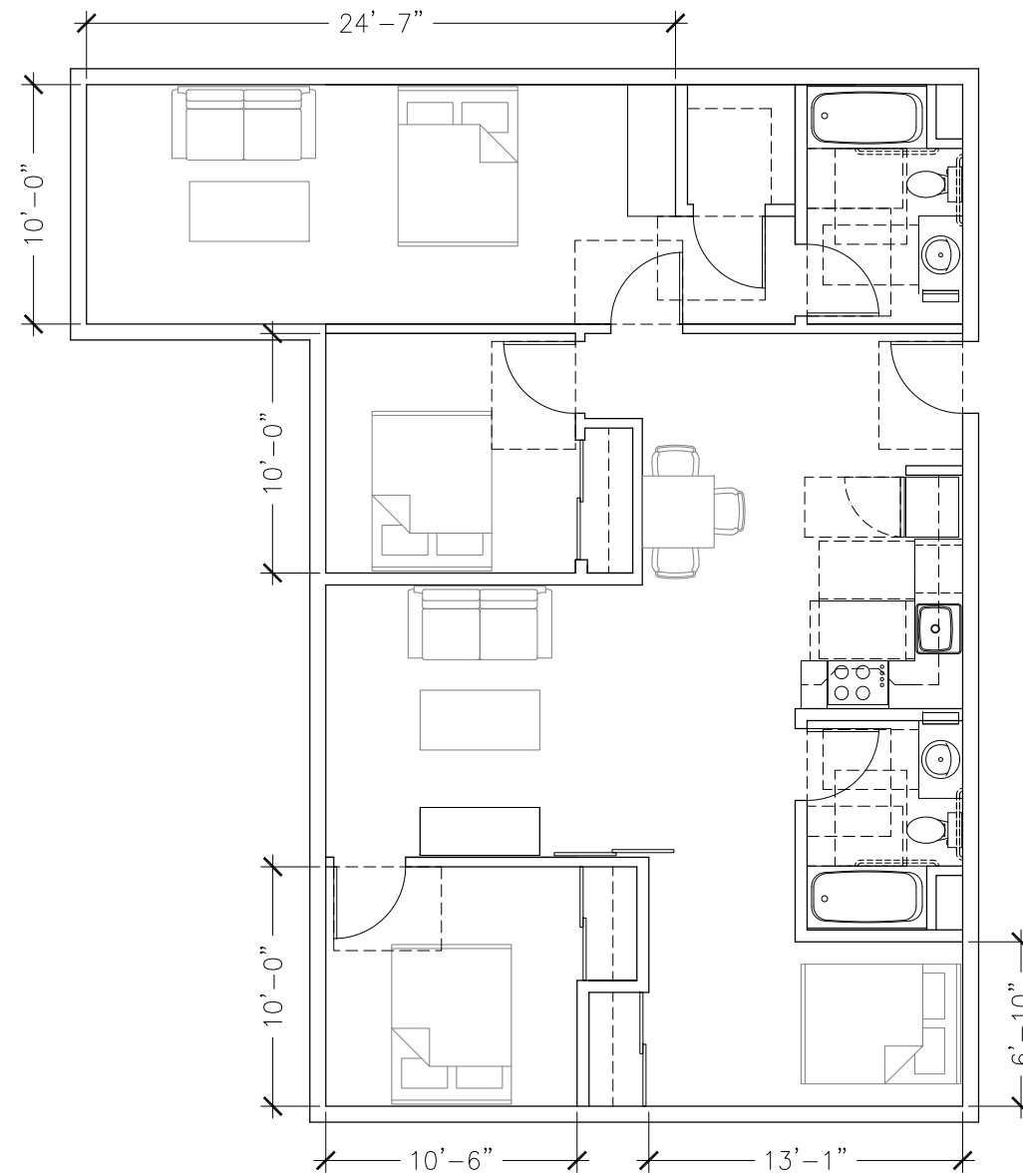
LUCASEY

SCALE: 1/32"=1'-0"
02.23.2017

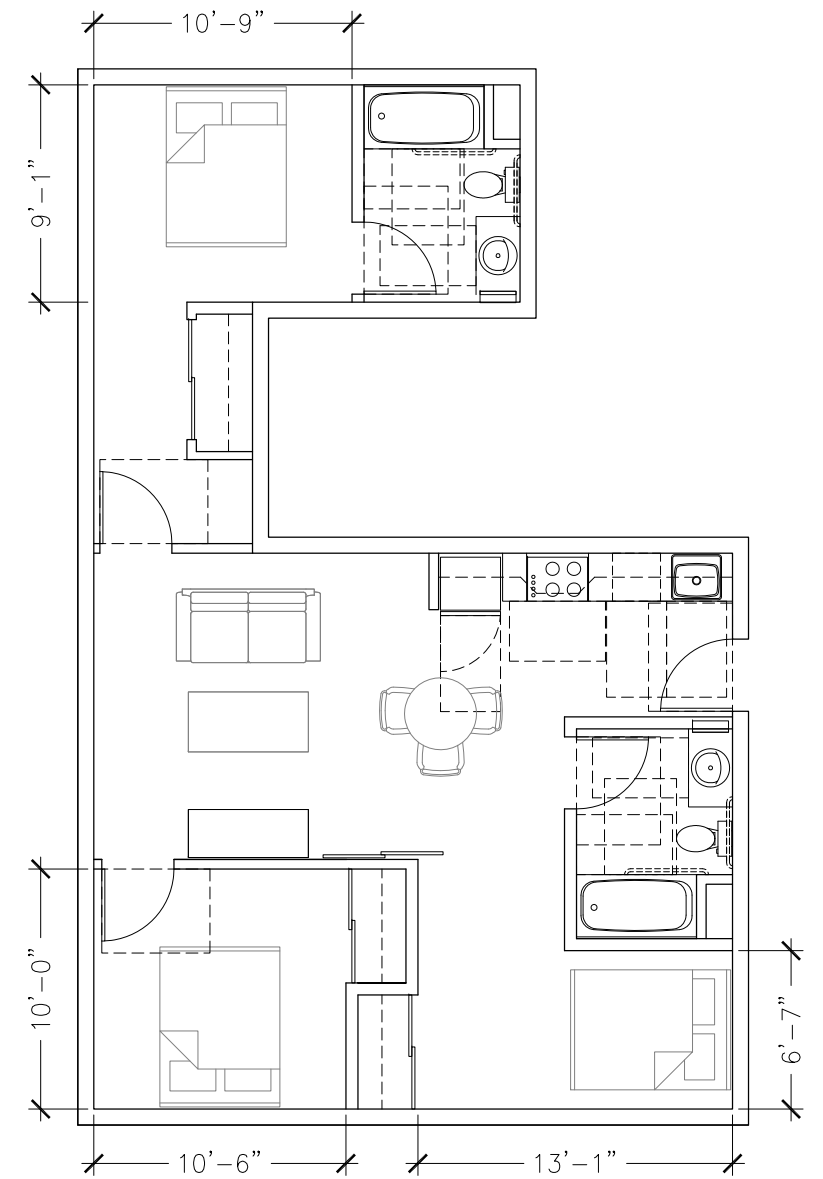
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(2 BD/1 BA) + (1BD & DEN/1 BA)
 1130 SF
 9 PER FLOOR



(3 BD & DEN/1 BA) + (1BD & 1 BA)
 1200 SF
 6-10 IN PROJECT



2 BD & DEN/2 BA
 840 SF
 1 PER FLOOR

UNIT PLANS

SCALE: 1/8"=1'-0"

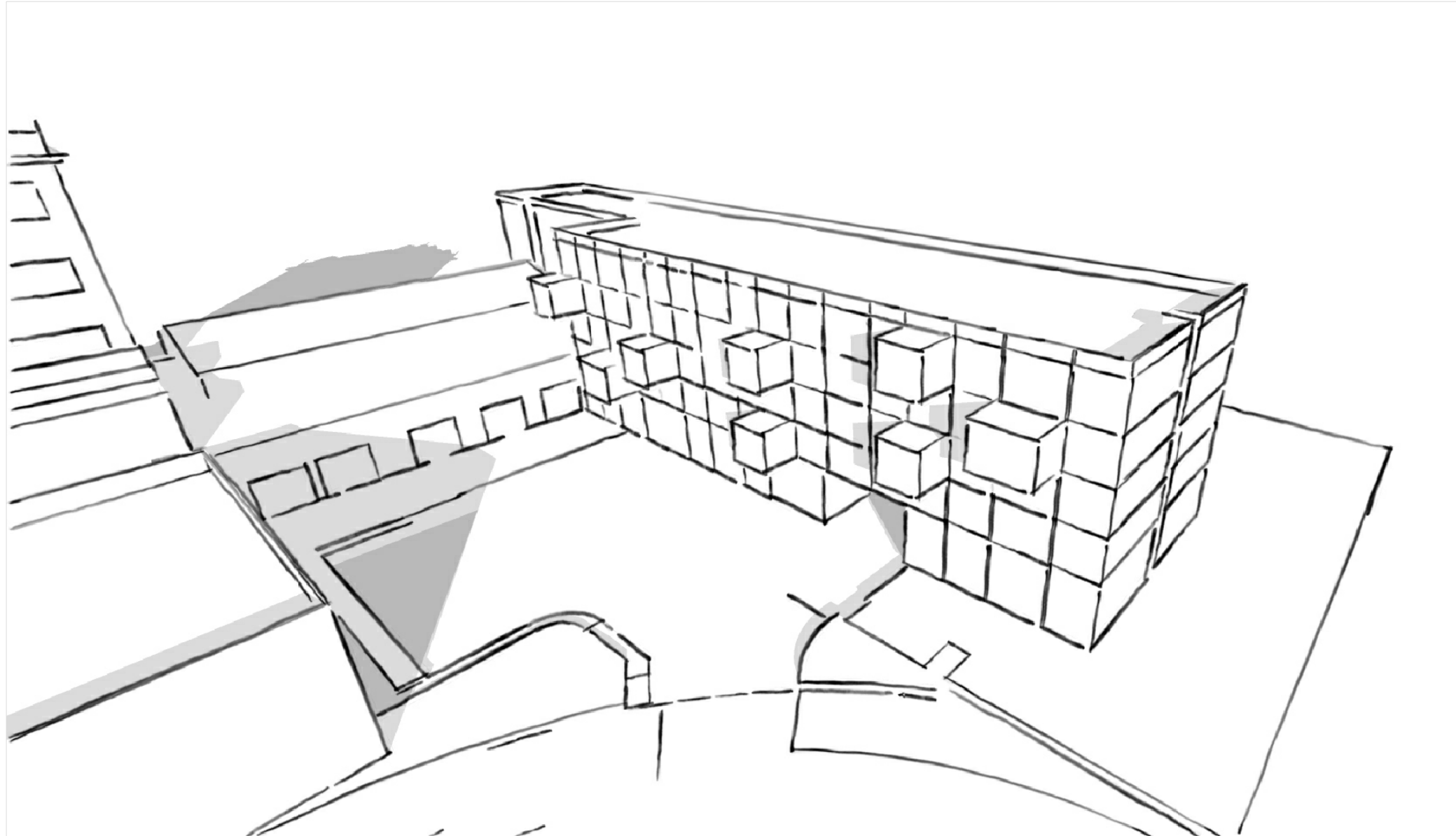
02.23.2017



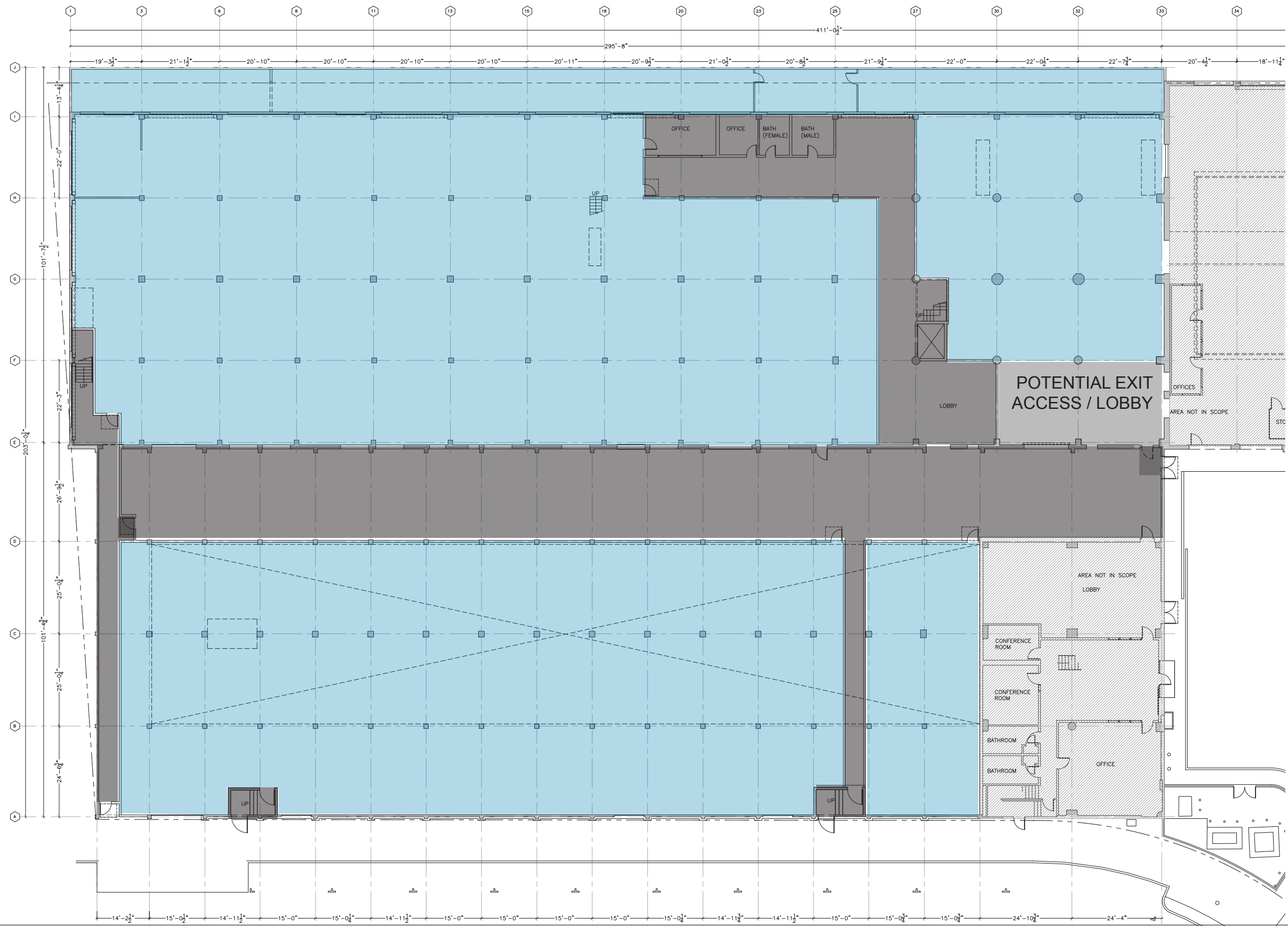
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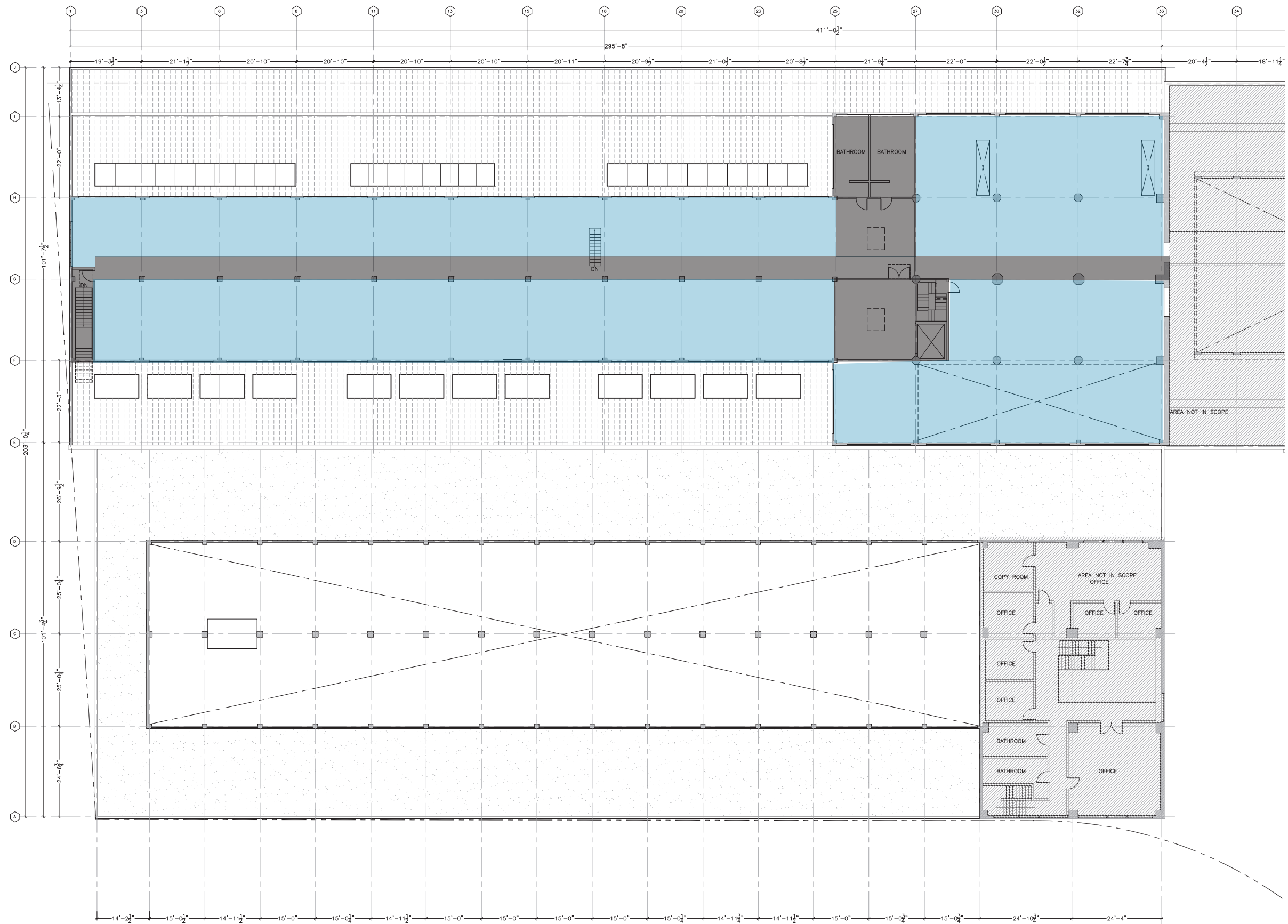


LUCASEY

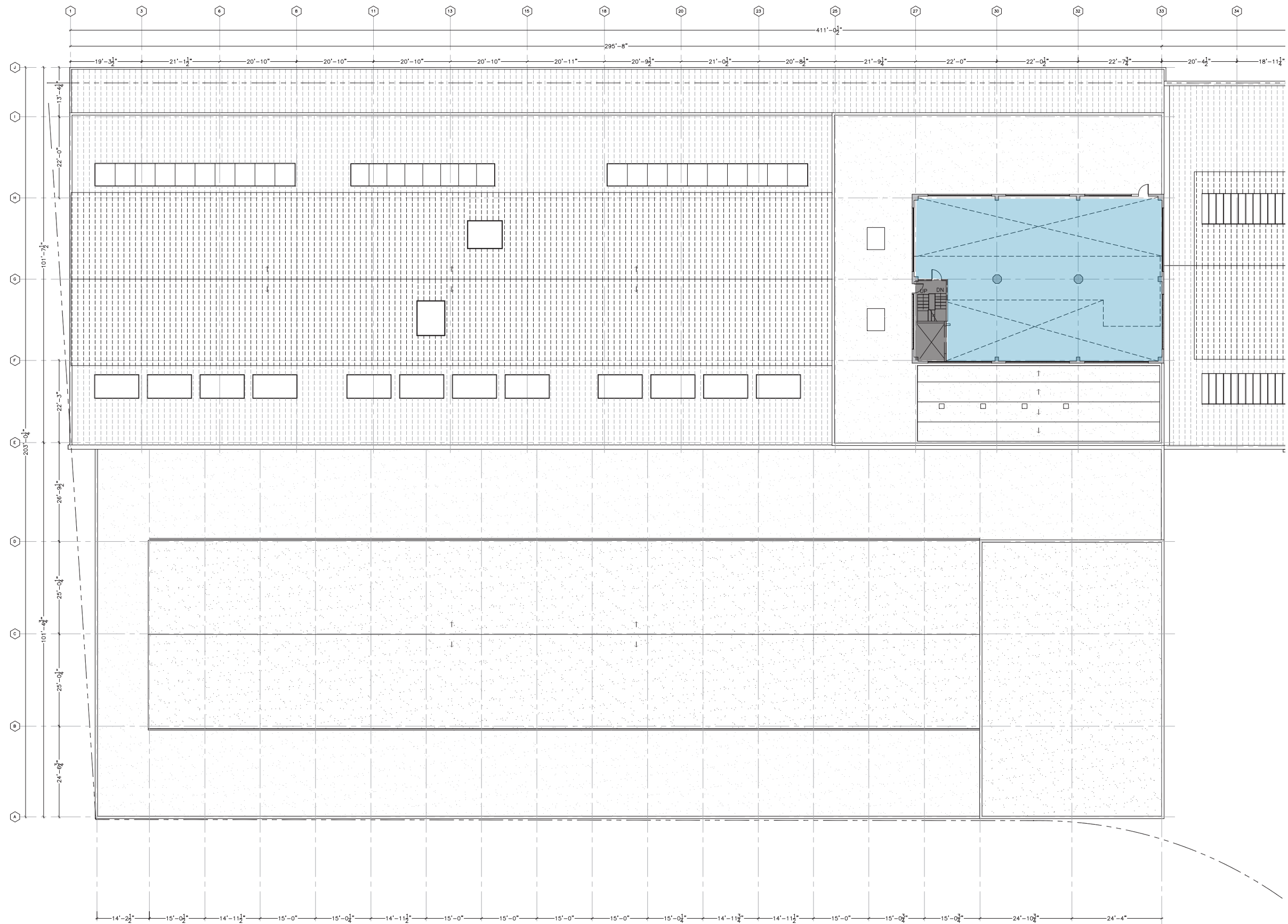


LOBBY,
 CIRCULATION &
 SERVICE

 INDUSTRIAL



- LOBBY, CIRCULATION & SERVICE
- INDUSTRIAL



LOBBY,
 CIRCULATION &
 SERVICE

 INDUSTRIAL