Fremont State Street Center, LLC
c/o SummerHill Homes LLC
3000 Executive Parkway, Suite 450
San Ramon, CA 94583

RECEIVED
By Alameda County Environmental Health 8:21 am, Nov 02, 2016

October 31, 2016

Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502
Attention: Mr. Mark Detterman, PG, CEG

Transmittal
Report of Results
Basis for Site Remedy Revised Addendum
39155 and 39183 State Street
Fremont, California

Dear Mr. Detterman:

Submitted herewith for your review is the *Report of Results, Basis for Site Remedy Revised Addendum, 39155 and 39183 State Street, Fremont, California* prepared by PES Environmental, Inc.

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

Very truly yours,

Katia Kamangar

Katia Kamangar
Executive Vice President

PES Environmental, Inc.
Engineering & Environmental Services

MEMORANDUM

To: Ms. Denise Cunningham
Fremont State Street Center, LLC

From: Scott Morrison, P.E.
Carl J. Michelsen, P.G., C.HG.
PES Environmental, Inc.

Date: October 31, 2016

Subject: Basis for Site Remedy Revised Addendum
39155 and 39183 State Street
Fremont, California

Project No.: 220.003.03.003

As requested in a conference call with Alameda County Environmental Health (ACEH) on August 29, 2016 and as requested in a subsequent emails from ACEH on October 11 and October 24, 2016, this revised memorandum provides additional information in support of ACEH's review of the case file in anticipation of approval of the selected remedy. Other requested items not included in this Addendum (e.g., the Soil Excavation Implementation Report,[1] the Human Health Risk Evaluation Sensitivity Analysis[2] [including PES boring logs and cross sections], and copies of City approved building plan sets) have been provided separately. Updates required for these other items will be provided separately.

Vapor Mitigation System (VMS) Operations and Maintenance

An Operation and Maintenance (O&M) Plan will be prepared for inspecting and maintaining the vapor mitigation system (VMS) located at the on-grade townhomes (Buildings 7, 8, 9, 10, 11 and 12) at the site. The goal of the inspection and maintenance actions is to ensure that the integrity of the VMS is maintained. The VMS consists of the vapor barrier and passive vent system. The vapor barrier is installed directly beneath the concrete floor of the buildings. The passive vent system consists of subslab perforated vent lines installed in the gravel layer beneath the vapor barrier with vent risers that run from the subslab vent piping, through the building, and discharge at the roof.

The O&M plan will specify annual inspections of the VMS and performing the requested five-year reviews. The annual inspections will include inspection of the building exterior and roof to document the continued integrity of the VMS. The inspection will also include interview(s)

[1] PES, 2016a. *Soil Excavation Implementation Report, 39155 and 39183 State Street, Fremont, California*. September 1.

[2] Apex, 2016. *Addendum to Human Health Risk Evaluation of Subsurface Data – Vapor Intrusion Model Sensitivity Analysis, 39155 and 39183 State Street, Fremont, California*. September 2.

with persons knowledgeable of any construction work conducted over the past year that may have encountered the VMS system; such areas, if any, will also be inspected. If damage or other deleterious conditions of the subslab vapor barrier and passive vent system components are observed, the damaged component will be repaired or replaced to its original condition. The five-year review will describe the inspection and maintenance activities conducted over the past five years and include a review of the status and protectiveness of the VMS. The O&M plan will be submitted to ACEH for review and approval within 30 days, as summarized in the project schedule discussed below.

Conceptual Model of Vapor Migration

As summarized in Apex's Human Health Risk Evaluation of Subsurface Data report, the predominant soil type at the site, as identified in Rockridge Geotechnical's geotechnical investigation and PES' various environmental investigations, is a sandy clay loam, using the USDA soil type definition. Although coarser grained units are present locally, the bulk of the shallow soils at the site are fine grained as depicted in the cross sections provided in Apex's Addendum to Human Health Risk Evaluation of Subsurface Data – Vapor Intrusion Model Sensitivity Analysis report.[3] The cross sections (Appendix A, attached) indicate the site is largely capped with clay with varying sand content that extends to depths on the order of 12 feet to 15 feet below ground surface (bgs) and locally up to about 20 feet bgs. Underlying the clay cap are heterogeneous alluvial deposits consisting of clayey sand, silty sand, and sand with varying gravel content interfingered with silt and clay with varying sand content. Groundwater was not encountered in any of the borings to total depths explored.

These finer grained silt and clay soils in the shallow subsurface act to retard the lateral migration and/or the upward migration of volatile organic compounds (VOCs) in the subsurface.

As noted in the Basis for Site Remedy memorandum,[4] in the northeastern corner of the site, PCE is present in soil vapor, generally centered around the boring B21 area (see Plate 1 of the Basis of Site Remedy memorandum). There are several reasons for this pattern: (1) PCE laden wastewaters (from Norge Cleaners) apparently leaked out of tree root-damaged pipe joints and an apparent sag in the sewer line within State Street, directly adjacent to the property; (2) the PCE volatilized into the soil vapor and migrated laterally along the preferential pathways of former sewer lines and/or storm drain that serviced the former buildings at the site;[5] (3) the predominantly fine-grained, lower permeability soils in the vicinity of the boring B21 area acted to retard the lateral spread of VOCs in soil vapor. With

[3] Apex, 2016. *Addendum to Human Health Risk Evaluation of Subsurface Data – Vapor Intrusion Model Sensitivity Analysis, 39155 and 39183 State Street, Fremont, California*. September 2.
[4] PES, 2016b. *Basis of Site Remedy, 39155 and 39183 State Street, Fremont, California*. August 19.
[5] It is PES' understanding that all former storm drains and sewer lines have been removed from the property.

the installation of the proposed VMS, trench dams and trench plugs, the potential for future lateral migration and vapor intrusion is minimized.

Trench Dam and Trench Plug Location and Design

Trench dams will be used as a gas migration barrier (to minimize PCE soil vapor intrusion into the buildings north of Declaration Street) and shall be installed in all utility trenches that extend beneath the foundation from areas outside the perimeter of the building. The trench dams shall be installed in the utility trenches immediately adjacent to the exterior of the building foundation to prevent soil gas migration beneath that foundation. It has been determined that the sanitary sewer laterals for Buildings 7 through 12 are the only utility that extend beneath those building foundations from outside the perimeter of the building. The attached Plate 1 provides the proposed locations where the sanitary sewer utility lines will require trench dams. The trench dams will be installed in the sanitary sewer utility trench immediately adjacent to the exterior of the building foundation and be approximately 3 feet in length and 1.5 feet in width. The trench dam detail was developed in accordance with the City of Los Angeles, Department Building and Safety's Methane Hazard Mitigation Standard Plan details. Appendix B includes the Trench Dam & Trench Plug Plan construction drawing that shows the proposed trench dam locations and a trench dam detail. As shown on the trench dam detail, there will be a sanitary sewer riser/cleanout within each trench dam.

In order to prevent the potential migration of soil vapors along main utility line corridors that run from the State Street area to other areas of the site located south of Declaration Street, trench plugs are now proposed to be included along Nation Avenue. The attached Plate 1 provides the proposed locations where utility lines will require trench plugs. The trench plugs are proposed to be installed along the water, storm and sanitary sewer main lines near the intersection of Nation Avenue and State Street and near the intersection of Nation Avenue and Declaration Street. Appendix B includes the Trench Dam & Trench Plug Plan construction drawing that shows the proposed trench plug locations and a trench plug detail.

The trench dams and trench plugs will be constructed using bentonite cement slurry. The bentonite cement slurry will consist of a mixture of 4% Type II cement and 2% powdered bentonite with clean sand and water. A temporary plywood frame will be constructed in the trench to serve as a form into which the slurry is placed. The slurry will be poured directly into the trench and allowed to harden in place for at least 24 hours. After the slurry has hardened, the temporary form can then be removed or remain in place. The trench dams and trench plugs will be shown on construction plans to be approved by the City of Fremont. Inspection of the trench dam and trench plug construction activities will be performed to verify conformance with the attached Trench Dam & Trench Plug Plan construction drawing included in Appendix B. The trench dams and plugs will also be surveyed. The trench dam and trench plug installation activities will be documented in the VMS construction completion report that will be submitted to ACEH for review and approval following installation of the VMS.

Homeowners Association CCRs and Deed Notification

As noted below, draft CCRs and Deed Notification language will be provided to ACEH for review and approval and will be finalized in the next few months, according to the revised schedule provided in Appendix C.

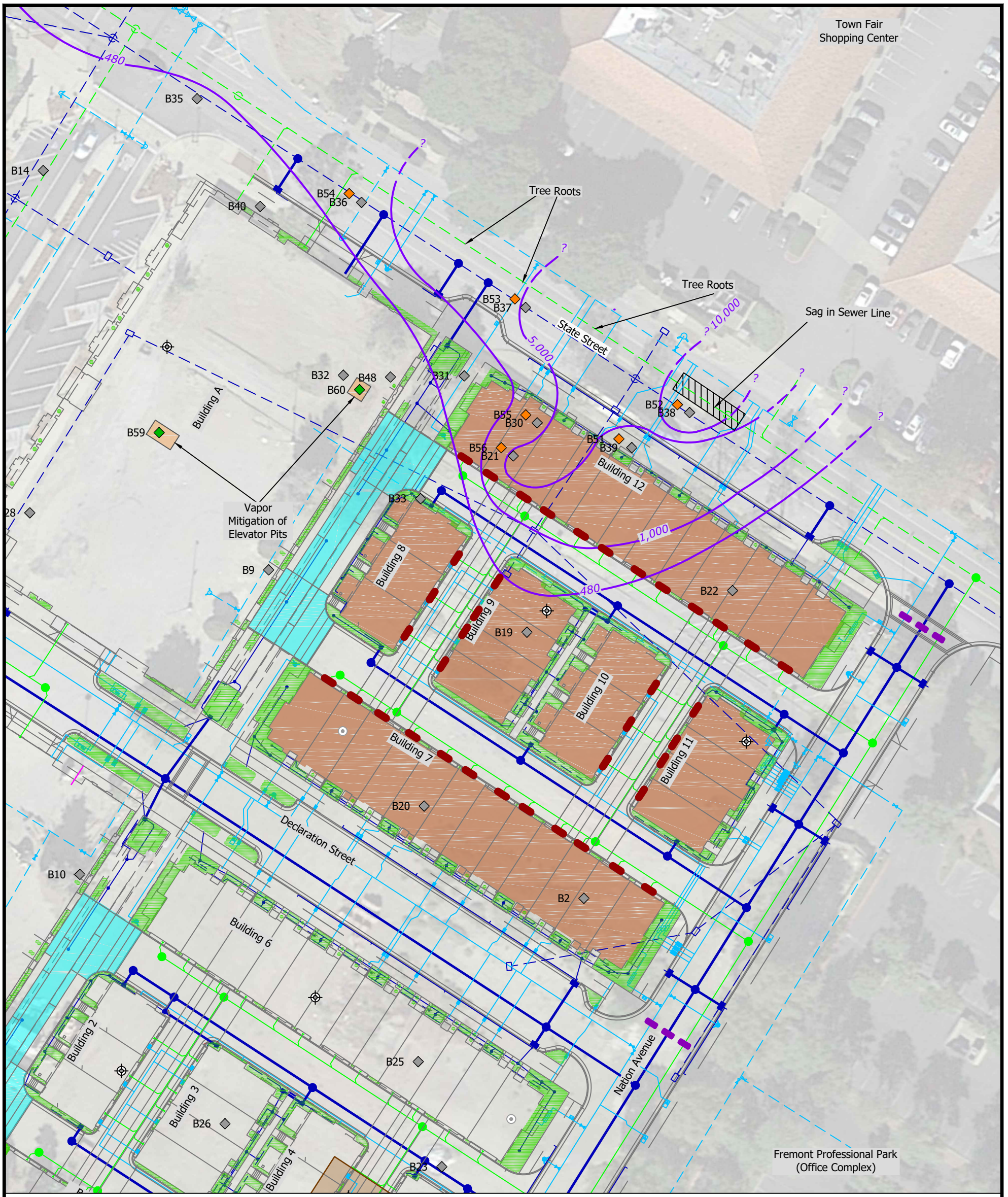
Revised Project Schedule

The attached revised project schedule dated October 31, 2016 provides the various report submittals, approvals and building construction timelines for the project.

Attachments: Plate 1 – Proposed Trench Dam and Trench Plug Locations

Appendix A – Geologic Cross Sections
Appendix B – Trench Dam & Trench Plug Plan Construction Drawing
Appendix C – Revised Project Schedule (October 31, 2016)

PLATES



PES Environmental, Inc.
Engineering & Environmental Services

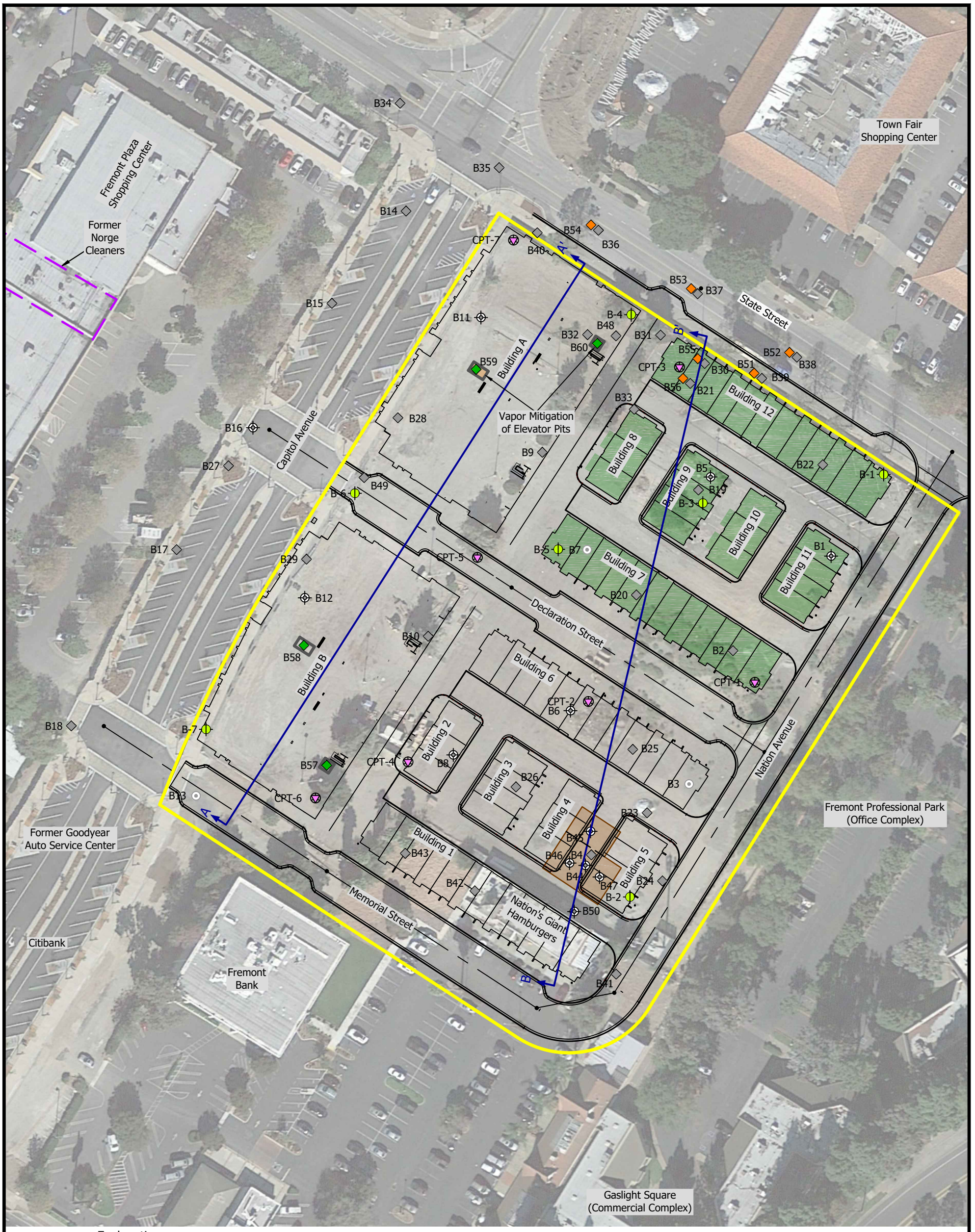
Proposed Trench Dam and Trench Plug Locations
State Street Center
Fremont, California

PLATE
1

220.003.03.003	22000303003_TD_1-4_r2	SM	10/16
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

APPENDIX A

GEOLOGIC CROSS SECTIONS



Explanation

- Approximate Property Boundary
- B17 — Soil Vapor Sampling Location (PES)
- B6 — Soil Vapor and Soil Sampling Location (PES)
- B13 — Soil Sampling Location (PES)
- B53 — Soil Vapor Sample Location
- B57 — Soil Vapor Sample Location within planned elevator pit
- B-1 — Approximate Location of Boring by Rockridge Geotechnical Inc. June 2015
- CPT-1 — Approximate Location of Cone Penetration Test by Rockridge Geotechnical, Inc., June 2015
- A A' — Cross-Section Location (Arrows show direction of view)
- Area of Excavation
- Planned Vapor Mitigation Areas for at-grade Townhomes
- Planned Vapor Mitigation Areas for Below Grade Parking Elevator Pits

0 80 SCALE IN FEET

N

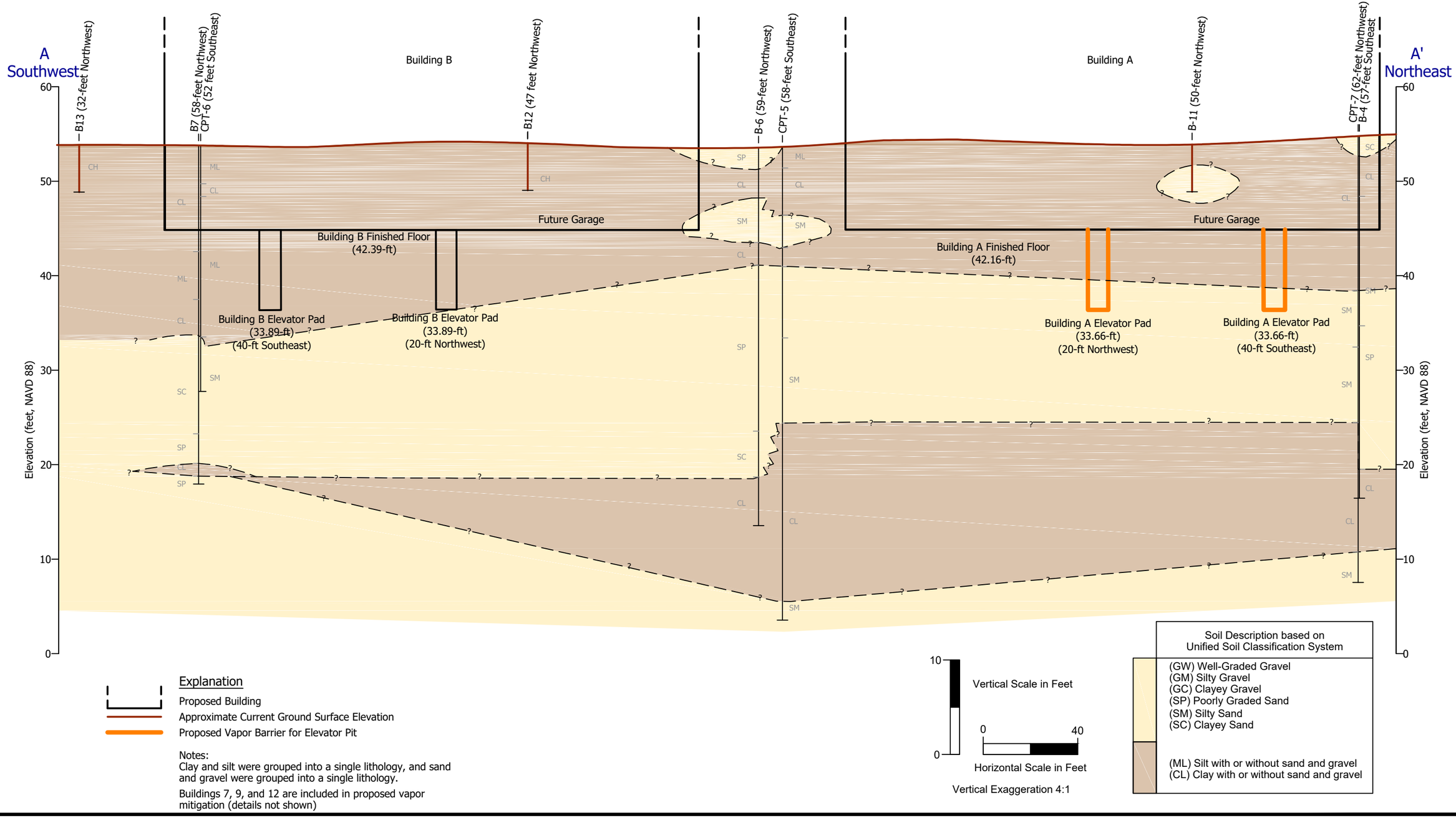
Aerial Photo: October 30, 2015 (Google 2016)

PES Environmental, Inc.
Engineering & Environmental Services

Site Plan and Cross Section Locations
State Street Center
Fremont, California

PLATE 1

220.003.03.003	22000303003_ADD_1_r1	CJM	10/16
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



Explanation

Proposed Building

Approximate Current Ground Surface Elevation

Proposed Vapor Barrier for Elevator Pit

Notes:
Clay and silt were grouped into a single lithology, and sand and gravel were grouped into a single lithology.

Buildings 7, 9, and 12 are included in proposed vapor mitigation (details not shown)

10 — 0 Vertical Scale in Feet

0 — 40 Horizontal Scale in Feet

Vertical Exaggeration 4:1

Soil Description based on Unified Soil Classification System

(GW) Well-Graded Gravel
(GM) Silty Gravel
(GC) Clayey Gravel
(SP) Poorly Graded Sand
(SM) Silty Sand
(SC) Clayey Sand

(ML) Silt with or without sand and gravel
(CL) Clay with or without sand and gravel

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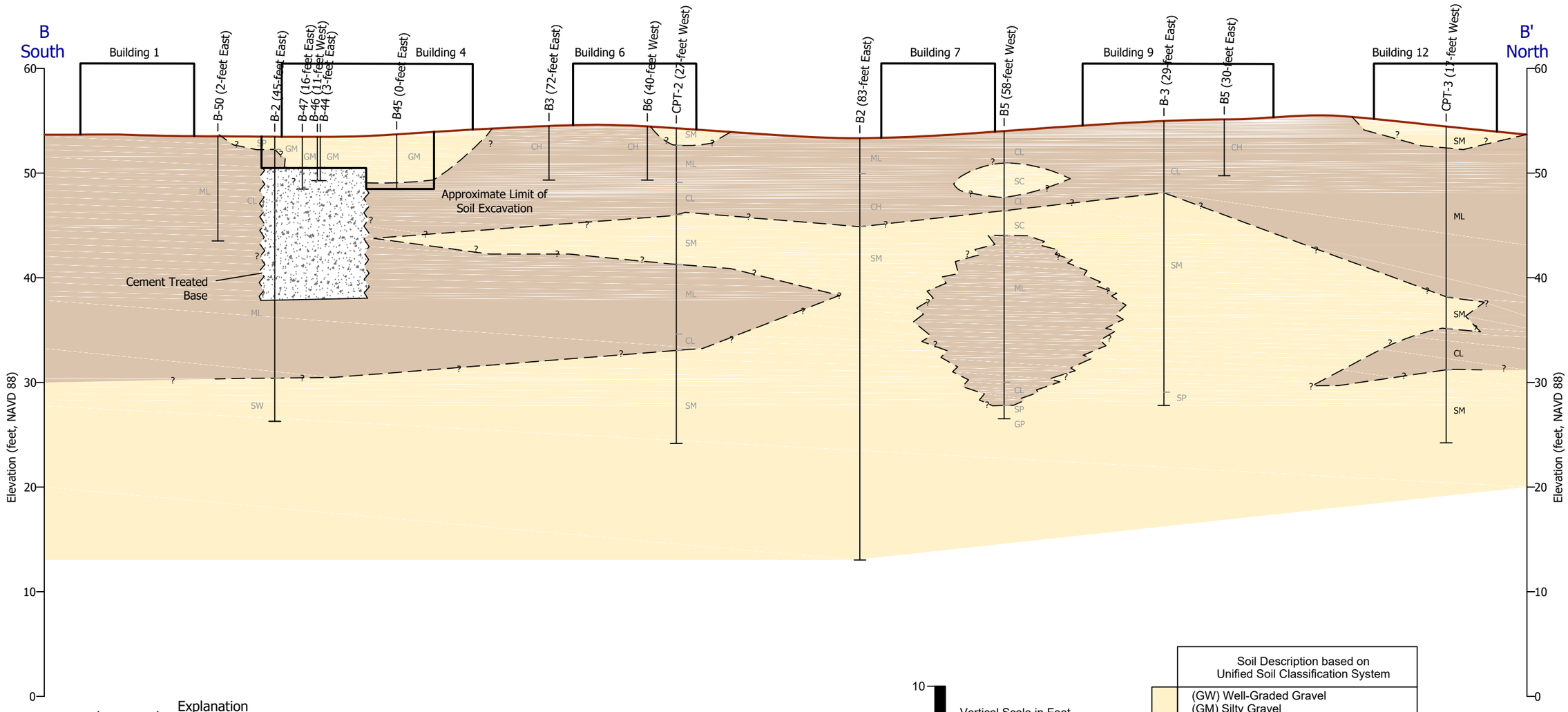
Geologic Cross Section A-A'
39155 and 39183 State Street
Fremont, California

PLATE
2

220.003.03.003	22000303003_ADD_2-3_r1	CJM	10/16
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



Explanation

Projected Location of Proposed Building (Future Pad not shown)

Approximate Current Ground Surface Elevation

Notes:
Clay and silt were grouped into a single lithology, and sand and gravel were grouped into a single lithology.

10 — Vertical Scale in Feet

0 — 40 — Horizontal Scale in Feet

Vertical Exaggeration 4:1

Soil Description based on Unified Soil Classification System
(GW) Well-Graded Gravel
(GM) Silty Gravel
(GC) Clayey Gravel
(SP) Poorly Graded Sand
(SM) Silty Sand
(SC) Clayey Sand
(ML) Silt with or without sand and gravel
(CL) Clay with or without sand and gravel

PES Environmental, Inc.
Engineering & Environmental Services

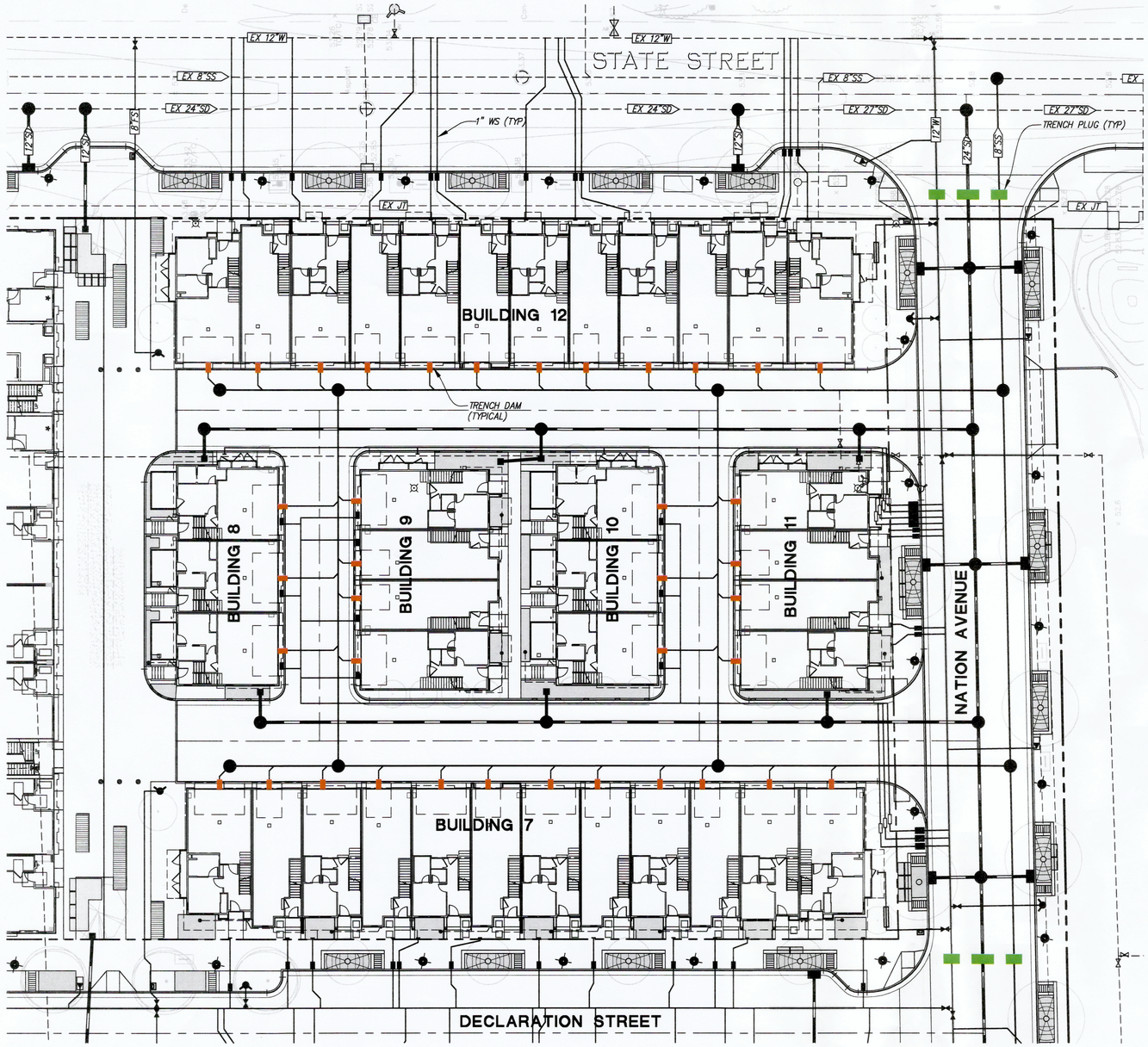
Geologic Cross Section B-B'
39155 and 39183 State Street
Fremont, California

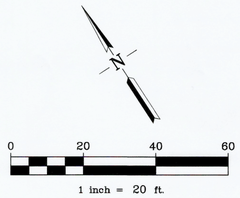
PLATE
3

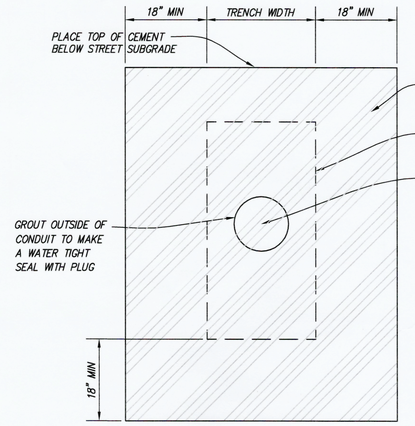
220.003.03.003	22000303003_ADD_2-3_r1	CJM	10/16
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

APPENDIX B

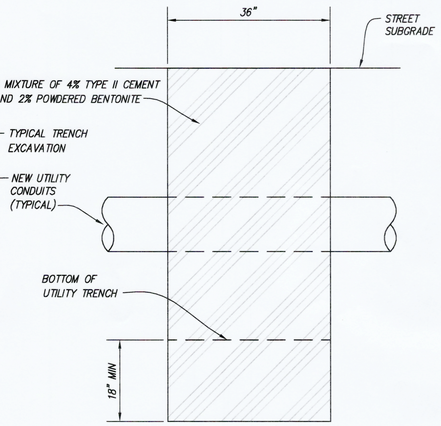
TRENCH DAM & TRENCH PLUG PLAN
CONSTRUCTION DRAWING



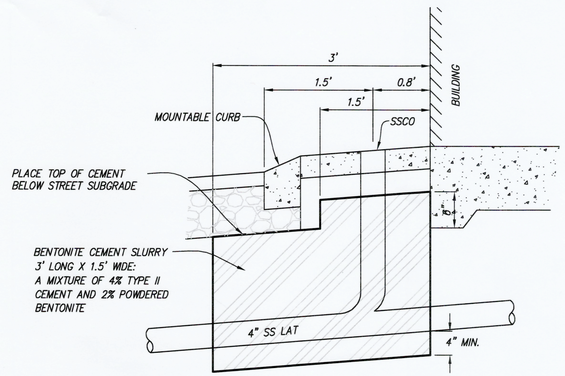




TRENCH PLUG SECTION
NOT TO SCALE



TRENCH PLUG PROFILE
NOT TO SCALE



TRENCH DAM SECTION
NOT TO SCALE

LEGEND

- TRENCH DAM
- TRENCH PLUG

TRENCH DAM & TRENCH PLUG PLAN

STATE STREET CENTER

CITY OF FREMONT, ALAMEDA COUNTY, CALIFORNIA
FOR: FREMONT STATE STREET CENTER, LLC.

REGISTERED PROFESSIONAL ENGINEER
EDDIE K. SIOU
No. 44189
CIVIL
STATE OF CALIFORNIA

RJA
RUGGERI-JENSEN-AZAR
ENGINEERS ▪ PLANNERS ▪ SURVEYORS
4690 CHABOT DRIVE, SUITE 200 PLEASANTON, CA 94588
PHONE: (925) 227-9100 FAX: (925) 227-9300

DATE: SEPTEMBER 26, 2016 JOB NO. 151070 SHEET 1 OF 1

G:\JOBS\151070\CAD FILES\00-EXHIBITS\TRENCH PLUG EXHIBIT-2.DWG 9/26/2016 6:03:28 PM ROBERT FONG

APPENDIX C

REVISED PROJECT SCHEDULE
(OCTOBER 31, 2016)

State Street Overall Schedule
October 31, 2016

Task	Sept 16	Oct 16	Nov 16	Dec 16	Jan 17	Feb 17	Mar 17	Apr 17	May 17	Jun 17	Jul 17	Aug 17	Sep 17	Oct 17	Nov 17	Dec 17	Jan 18	Feb 18	Mar 18	Apr 18	May 18	Jun 18	Jul 18	Aug 18	Sep 18	Oct 18	Nov 18	Dec 18	Jan 19
Permitting																													
Submit Draft Deed Restriction				XX																									
Finalize and Record Deed Restriction					XX	XX	XX	XX																					
Submit Draft CC&R language			XX																										
Finalize CC&R language				XX	XX	XX	XX	XX																					
Submit Draft O & M manual					XX																								
Finalize O & M manual						XX	XX																						
Submittal of Soil Excavation report	XX																												
Approval and NFA for Benzene			XX																										
Submit Basis for Site Remedy Addendum	XX																												
Submit Human Health Risk Evaluation of Subsurface Data Addendum	XX																												
Approval Basis Site Remedy (Permit Approval)			XX																										
Final Approval by ACEH				XX	XX	XX	XX																						
Site Work																													
Grading Complete		XX																											
Utilities Complete				XX	XX	XX			XX	XX																			
Pave Streets					XX	XX	XX	XX																					
Row Home Construction																													
Ph 1 (Bldg 12)			XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Vapor Mitigation System Performance monitoring/VMS Implementation								XX	XX																				
Ph 2 (Bldg 7)					XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Vapor Mitigation System Performance monitoring/VMS Implementation										XX																			
Ph 3 (Bldg 10)							XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Vapor Mitigation System Performance monitoring/VMS Implementation												XX																	
Ph 4 (Bldg 9)									XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Vapor Mitigation System Performance monitoring/VMS Implementation														XX															
Ph 5 (Bldg 6)											XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Vapor Mitigation System Performance monitoring/VMS Implementation																XX													
Ph 6 (Bldg 1)													XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Vapor Mitigation System Performance monitoring/VMS Implementation																	XX												
Ph 7 (Bldg 2)															XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Vapor Mitigation System Performance monitoring/VMS Implementation																				XX									
Ph 8 (Bldg 3)																XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Vapor Mitigation System Performance monitoring/VMS Implementation																					XX								
Ph 9 (Bldg 4)														XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Vapor Mitigation System Performance monitoring/VMS Implementation																			XX										
Ph 10 (Bldg 5)															XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Vapor Mitigation System Performance monitoring/VMS Implementation																				XX									
Ph 11 (Bldg 11)																XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Vapor Mitigation System Performance monitoring/VMS Implementation																									XX				
Podium Construction																													
Bldg A																													
Shoring/Excavation				XX	XX	XX	XX																						
Foundation						XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Framing thru TCO											XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Bldg B																													
Shoring/Excavation								XX	XX	XX	XX																		
Foundation											XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Framing															XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX