

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 9:17 am, Sep 08, 2016

September 6, 2016

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

Re: Basis for Site Remedy Addendum  
39155 and 39183 State Street Center, Fremont, CA

Dear Mr. Detterman:

Submitted herewith for your review is the Basis for Site Remedy Addendum regarding 39155 and 39183 State Street Center in 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  
Executive Vice President  
SummerHill Homes LLC

Cc: Carl Michelsen, PES Environmental, Inc.



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**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:** September 6, 2016

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



**Project No.: 220.003.03.003**

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As requested in a conference call with Alameda County Environmental Health (ACEH) on August 29, 2016, this 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,<sup>1</sup> the Human Health Risk Evaluation Sensitivity Analysis<sup>2</sup> [including PES boring logs and cross sections], and copies of City approved building plan sets) have been 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) 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

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<sup>1</sup> PES, 2016a. *Soil Excavation Implementation Report, 39155 and 39183 State Street, Fremont, California.* September 1.

<sup>2</sup> 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.

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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.<sup>3</sup> 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 interfingering 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,<sup>4</sup> 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;<sup>5</sup> (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 the installation of the proposed trench dams and the VMS, the potential for future lateral migration and vapor intrusion is minimized.

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<sup>3</sup> 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.

<sup>4</sup> PES, 2016b. *Basis of Site Remedy*, 39155 and 39183 State Street, Fremont, California. August 19.

<sup>5</sup> It is PES' understanding that all former storm drains and sewer lines have been removed from the property.

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### **Trench Dam 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 dam shall be installed in the utility trench immediately adjacent to the exterior of the building foundation to prevent soil gas migration beneath that foundation. The attached Plate 1 provides the proposed locations where utility will require trench dams.

### **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 schedule provided in Appendix B.

### **Project Schedule**

The attached project schedule provides the various report submittals, approvals and building construction timelines for the project.

Attachments: Plate 1 – Proposed Trench Dam Locations

Appendix A – Geologic Cross Sections  
Appendix B - Project Schedule

**PLATES**



Town Fair Shopping Center

Tree Roots

Tree Roots

State Street

Sag in Sewer Line

Vapor Mitigation of Elevator Pits

Building 8

Building 9

Building 10

Building 11

Building 7

Declaration Street

Building 6

Building 3

Building 4

Nation Avenue

Fremont Professional Park (Office Complex)

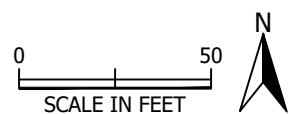
**Explanation**

- Proposed Development Plan
- - - Approximate Former Building Location
- B17 ◆ Soil Vapor Sampling Location (PES, 2014-2015)
- B6 ⊕ Soil Vapor and Soil Sampling Location (PES, 2014-2015)
- B13 ⊙ Soil Sampling Location (PES, 2014-2015)
- B53 ◆ Soil Vapor Sample Location (PES, 2016)
- B57 ◆ Soil Vapor Sample Location within planned elevator pit (PES, 2016)
- ss — Sanitary Sewer Line
- — Storm Drain Line
- — Water Line

Area of Excavation

PCE Isoconcentration contour in  $\mu\text{g}/\text{m}^3$  (Dashed where inferred; queried where uncertain)

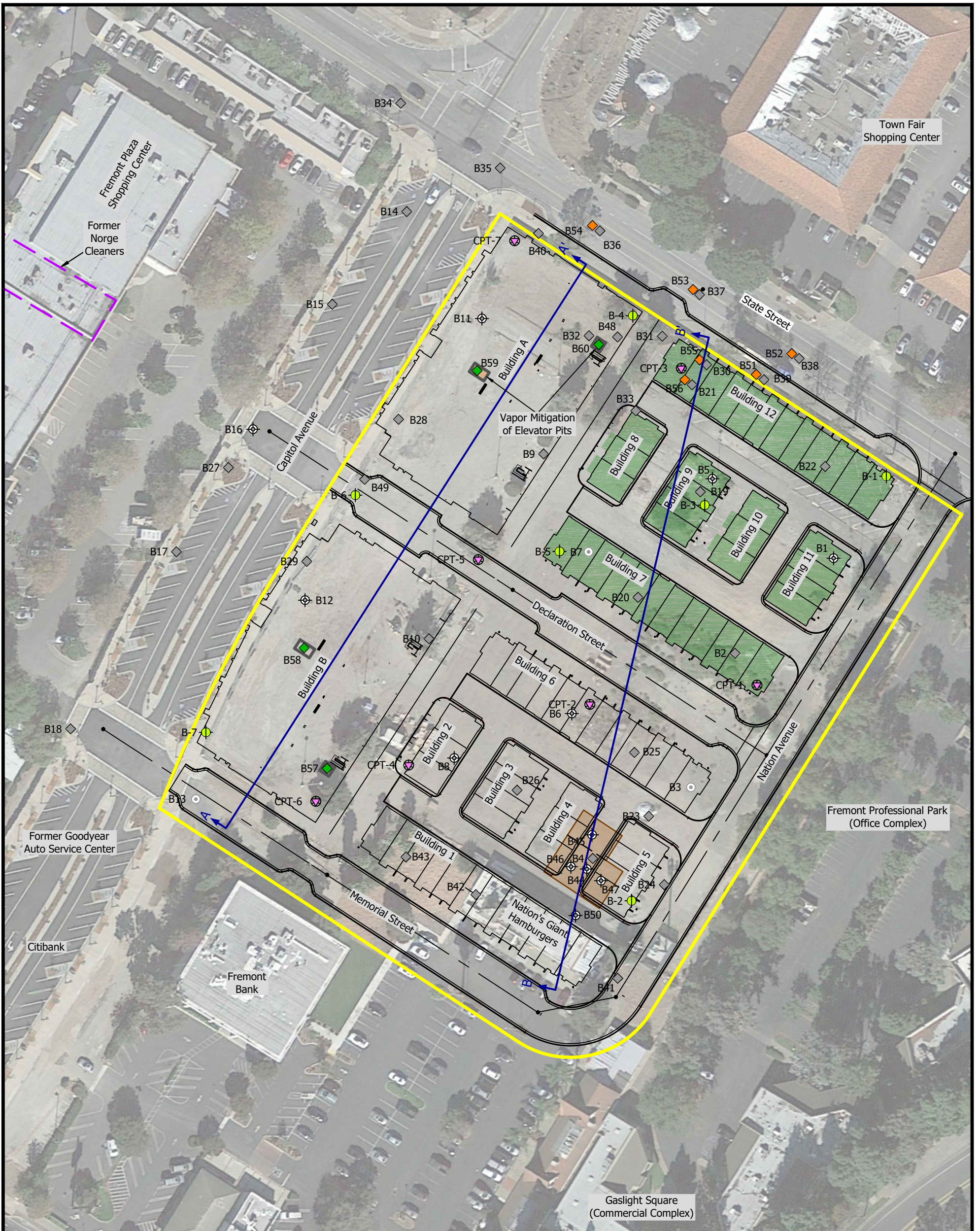
- Vapor Mitigation Areas for Slab-On-Grade Townhomes
- Vapor Mitigation Areas for Below Grade Parking Elevator Pits
- Landscape Planting Areas
- Permeable Unit Paving Area
- Trench Dam



Aerial Photo: October 30, 2015 (Google 2016)

**APPENDIX A**

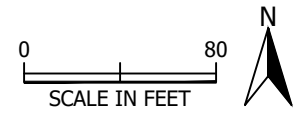
**GEOLOGIC CROSS SECTIONS**



- 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

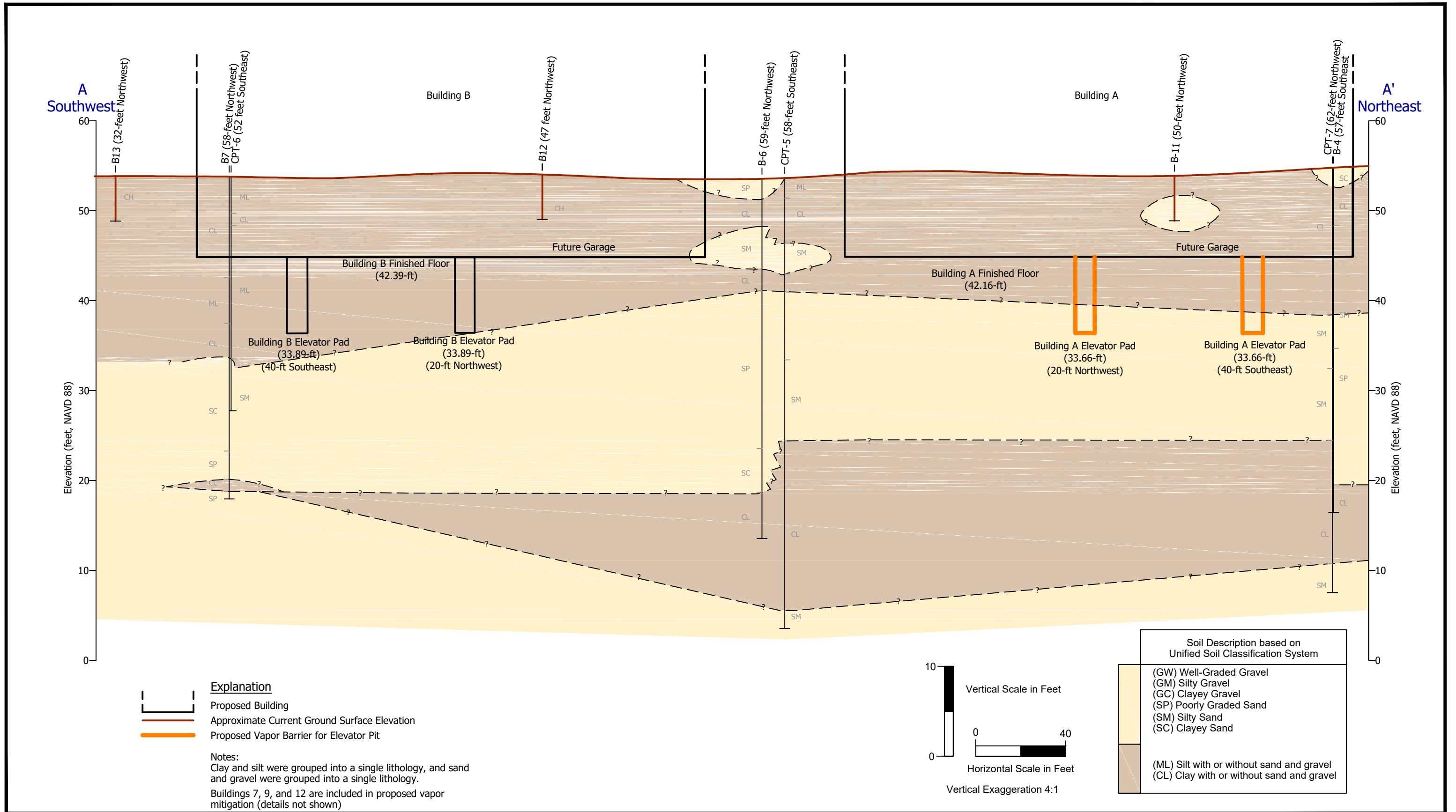
- A A' Cross-Section Location (Arrows show direction of view)
- Area of Excavation

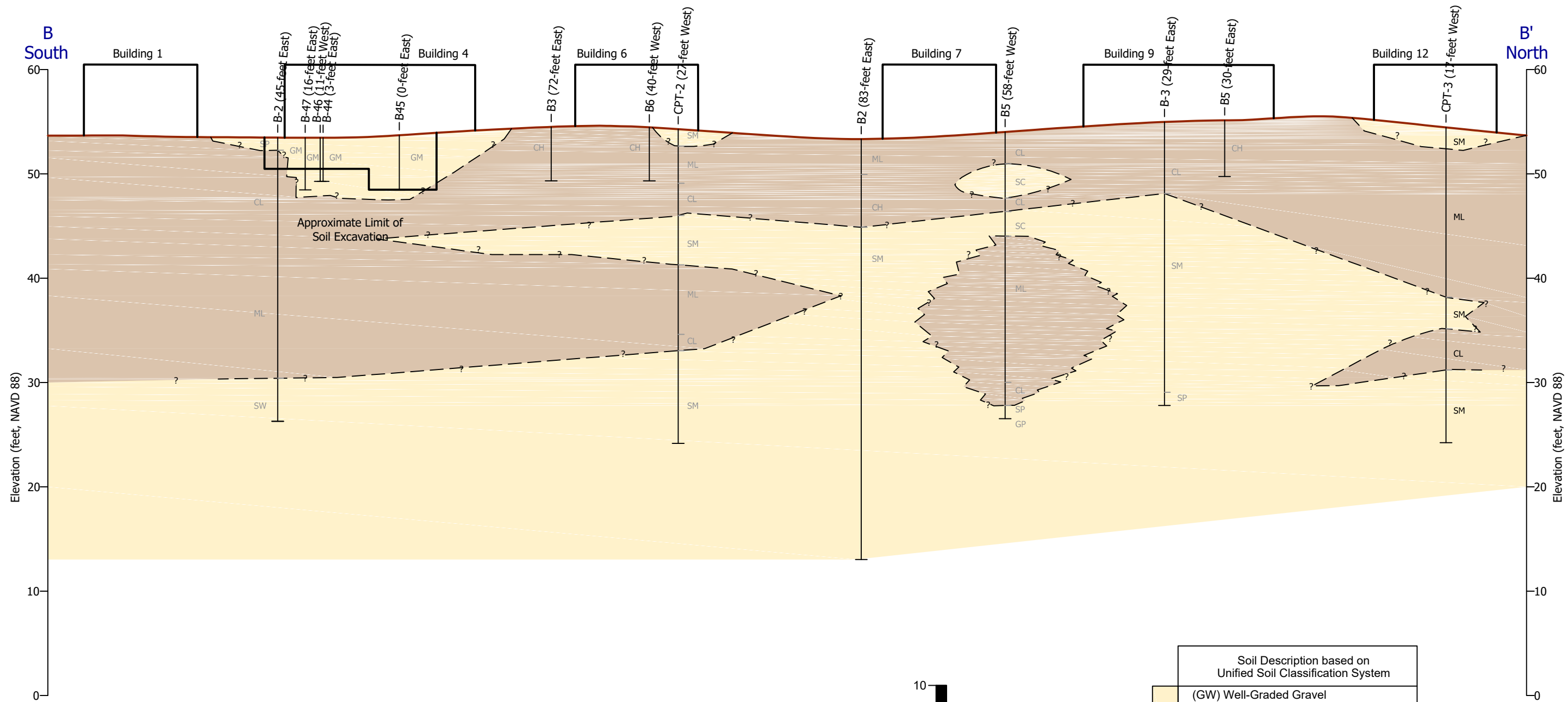
- Planned Vapor Mitigation Areas for at-grade Townhomes
- Planned Vapor Mitigation Areas for Below Grade Parking Elevator Pits





Aerial Photo: October 30, 2015 (Google 2016)



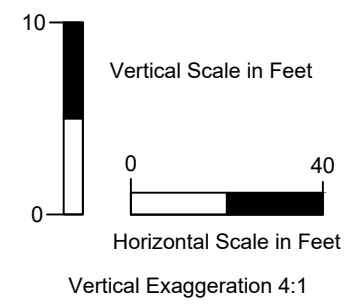






**Explanation**

 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.



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

**APPENDIX B**

**PROJECT SCHEDULE**

