US TP SRM Temescal, LLC

111 N. Post St. Ste. 200
Spokane, WA 99201
509-455-5477
509-838-0933 Fax

RECEIVED
By Alameda County Environmental Health 1:56 pm, May 09, 2017

Mr. Mark Detterman
Alameda County Environmental Health
Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502-6577

Re: **Remedial Action Workplan**
4974, 4970, 4966 and 4964 Desmond Street;
Oakland, California

Dear Mr. Detterman:

On behalf of US TP SRM Temescal, LLC, Pangea Environmental Services, Inc. (Pangea) is submitting the attached report.

I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document or report submitted on my behalf to ACDEH's FTP server and the State Water Resources Control Board's GeoTracker website.

Sincerely,

Trevor Ashenbrener
US TP SRM Temescal, LLC

May 5, 2017

Mr. Trevor Ashenbrener
US TP SRM Temescal, LLC
101 North Post, Suite 200
Spokane, WA 99201

Re: **Remedial Action Workplan**
4974, 4970, 4966 and 4964 Desmond Street
Oakland, California
ACDEH Case No. RO0003186
GeoTracker Global ID T0000007664

Dear Mr. Ashenbrener:

On behalf of US TP SRM Temescal, LLC, PANGEA Environmental Services, Inc. (PANGEA) prepared this *Remedial Action Workplan* (RAW) for the subject property. This RAW was prepared to investigate and cleanup any shallow lead impact found above appropriate regulatory screening levels at the site. This plan addresses concerns expressed by the lead regulatory oversight agency for this case, Alameda County Department of Environmental Health.

If you have any questions or comments, please call me at (510) 435-8664 or email briddell@pangeaenv.com.

Sincerely,
PANGEA Environmental Services, Inc.

Bob Clark-Riddell, P.E.
Principal Engineer

Attachment: *Remedial Action Workplan*

REMEDIAL ACTION WORKPLAN

4974, 4970, 4966 and 4964 Desmond Street
Oakland, California
ACDEH Case No. RO0003186
GeoTracker Global ID T0000007664

May 5, 2017

Prepared for:

US TP SRM Temescal, LLC
101 North Post, Suite 200
Spokane, WA 99201

Prepared by:

PANGEA Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, California 94612

Written by:

Ron Scheele, P.G.
Principal Geologist

Bob Clark-Riddell, P.E.
Principal Engineer

Table of Contents

ATTACHMENTS

1.0 INTRODUCTION

On behalf of US TP SRM Temescal, LLC, PANGEA Environmental Services, Inc. (PANGEA) prepared this *Remedial Action Workplan* (RAW) for the property located 4974, 4970, 4966 and 4964 Desmond Street, Oakland, California (Site). This RAW was prepared to investigate and cleanup any shallow lead impact found above appropriate regulatory screening levels at the site. This workplan was requested during an April 20, 2017 meeting with Alameda County Department of Environmental Health. The Site background, proposed assessment, and contingent remedial soil excavation are presented below.

2.0 SITE BACKGROUND

The subject Site consists of a four new parcels for four new rental units on Desmond Street in Oakland, California (Figure 1). The assessor parcel numbers (APNs) for the Site, shown in Appendix A, include 013-1136-034 through 013-1136-037 (City parcel 1-3 encompasses the sidewalk and 51st Street). In 2015, a mixed commercial and residential development was planned for the subject Site, and for the adjacent prior parcels located along Broadway Avenue and 51st Street. The subject Site was formerly vacant and used for car dealership parking. The adjacent eastern parcels were formerly occupied by a dry cleaning business, furniture sales, and parking for a car dealership.

2.1 Prior Site Assessment

Environmental investigation commenced at the Site in November 2015 to evaluate potential impact during planned soil excavation and soil export for site development. During the November 2015 assessment, total lead (TTLC) concentrations of 87 and 110 milligrams/kilogram (mg/kg) were reported for the one soil sample (S12) collected from 0.5 ft below grade surface (bgs). These concentrations slightly exceeded the 2016 Tier 1 environmental screening levels (ESLs) of 80 mg/kg established by the San Francisco Bay Region Water Quality Control Board (RWQCB).

In March and April 2016, subsequent assessment delineated the lateral and vertical extent of lead impact to meet requirements for offsite soil disposal. Lead impact above ESLs was only detected in site samples from 0.5 ft bgs. All analyzed samples from 1, 1.5, 2 and 2.5 ft bgs contained lead concentrations below the 80 mg/kg ESL. Soil sampling locations are shown on Figure 2.

To determine if waste soil would be classified as hazardous waste, STLC lead and/or TCLP lead analysis were performed. Any total lead (TTLC) above the 2016 Tier 1 ESL of 80 mg/kg required disposal as Class II material. STLC lead above 5 mg/L required disposal as Class I RCRA or Non-RCRA hazardous waste. Based on STLC and TCLP analysis, select soil was classified as Class I Non-RCRA hazardous waste. Lead analytical data are summarized on Table 1. The approximate extent of the lead impact above ESLs is shown on Figure 2.

2.2 Lead-Impacted Soil Removal

All identified shallow site soil with lead impact above ESLs was overexcavated and disposed offsite in May and June 2016. The approximate extent of the lead impact removal is shown on Figure 2. The lead removal involved soil excavation down to a maximum of 1.5 ft bgs at this Site, for a total offsite disposal weight of approximately 205 tons. The lead removal action is documented in the *Excavation Report* dated November 28, 2016.

2.3 Planned Soil Excavation for Grading and Development

Site grading and excavation for the planned development will remove all soil site down to 1.5 ft bgs along the perimeter and approximately 2 to 6 ft bgs beneath the planned townhomes. The extent and approximate depth of the site grading is shown on Figure 3. The graded soil will be disposed offsite. At least 12 inches of clean commercial top soili will be imported for the landscaped areas. Additional drawings are illustrations of the planned development and grading depths are included in Appendix A.

3.0 PROPOSED SOIL ASSESSMENT

Of particular interest is the potential for expose to lead present in shallow soil *after* site development. The proposed soil sampling program primarily involves extensive sampling of perimeter shallow soil that would otherwise remain at the site after construction. And although prior analytical results did not identify lead impact below 0.5 ft bgs, additional soil sampling is proposed to characterize deeper soil near the bottom of the construction grade within the future building footprint.

3.1 Sampling Preparation

Prior to initiating field activities, the following tasks will be conducted:

- Coordinate public notice with ACDEH;
- Pre-mark the excavation area with white paint and notify Underground Service Alert (USA) of the excavation activities at least 48 hours before work begins; and
- Coordinate with excavation and laboratory contractors and with involved parties.

3.2 Soil Sampling

Soil samples will be collected from locations shown on Figure 4. The initial plan is to grade/remove the top 1.5 ft of site material to facilitate soil sampling of the final perimeter construction grade (grade before subsequent import of top soil for landscaped area). Alternatively, the soil sampling will be performed before removal of the top 1.5 ft of material. As necessary to reach sampling depth, soil borings will be conducted using hand auger drilling techniques.

Shallow Soil Sampling: The sampling program on Figure 4 includes shallow soil sampling every 200 square feet or less for the rear and perimeter sampling locations. This includes a total of 11 samples around the site perimeter. At each of these *shallow* sampling locations, an initial soil samples will be collected at 1.5 ft below the current grade to correspond with the depth of the planned construction grade (which will subsequently have a minimum of 12 inches of imported top soil). Additional deeper samples will be collected for possible future analysis at depths of 2.0, 3.0, and 4.0 ft below the current grade.

Each sample from 1.5-ft depth will be analyzed for total lead (TTLC) by Method SW6020. If total lead exceeds the 80 mg/kg ESL, the 2.0-ft sample will be analyzed for total lead. The 3.0-ft sample will be analyzed if total lead exceeds the 80 mg/kg ESL in the 2.0-ft sample. The 4.0-ft sample will be analyzed if total lead exceeds the 80 mg/kg ESL in the 3.0-ft sample. Note that one of the shallow sampling location is proposed within the former lead removal area, to help confirm no lead in the native material in this area that was previously characterized.

Deeper Soil Sampling: The program also includes 4 soil samples within the footprint of the deeper grading for the future buildings. This includes one sample beneath each of the four future units, with one sample within the former lead removal area. This is approximately one sample every 1,000 square feet. The rationale for a lower sampling density within deeper soil is justified by the lack of lead impact above ESLs during prior sampling of soil below 0.5 ft bgs (Table 1).

The deeper sample depths shown at each location on Figure 4 corresponds to the approximate construction grade. At each sample location Pangea may collect and hold an additional sample 1 ft deeper to facilitate vertical characterization, if merited. If necessary for additional lead characterization of shallow or deeper soil after initial analytical results, Pangea will return to the site collect additional lateral or vertical soil samples for analysis.

Pangea will also coordinate sample analysis for soluble and leachable lead as necessary to profile soil for offsite disposal. As required, samples will be analyzed for soluble threshold limit concentration (STLC) lead using the Waste Extraction Test (WET) extraction method California Title 22 and analytical method SW6010B. As required, samples will be analyzed for toxicity characterization leaching procedure (TCLP) using extraction method SW1311/SW3010 and analytical method SW6010B.

Soil samples will be collected within 6-inch stainless steel tubes capped with Teflon® tape and plastic caps. The samples will be placed into a cooler filled with ice and delivered under chain-of-custody procedures to a State-certified laboratory. Completed borings will be tremie-grouted from the bottom of the hole to the surface. Sampling will be performed in general accordance with the Standard Operating Procedures (SOPs) provided in Appendix B. All site investigation activities will be performed under the supervision of a California Registered Civil Professional Engineer (P.E.) or a California Registered Professional Geologist (P.G.).

4.0 CONTINGENT SOIL EXCAVATION

The section describes contingent soil excavation and offsite disposal, in the event site assessment identifies any lead impact about ESLs. If merited or required by ACDEH, additional soil sampling will be conducted as confirmation sampling to ensure removal of lead impact. This section also references approved plans for proper soil handling during construction and removal action to help safeguard human health from undo exposure to lead via dust generation.

4.1 Contingent Remedial Soil Excavation Design

The excavation will target any total lead (TTLC) impact that exceeds 2016 Tier 1 ESLs. As an example, one possible scenario involves excavation of select areas down to 2.5 ft depth to target any lead impact found at 1.5 ft depth. In this scenario, lead impact above ESLs would be removed laterally to the boundary of the closest acceptable analytical results and the boundary of the planned future grade/slope area shown on Figure 4.

4.2 Excavation and Soil Handling Procedures

If required, soil excavation will be performed in accordance with the following agency-approved plans: Pangea's *Soil and Groundwater Management Plan* (SMP) dated October 7, 2015; *Revised Soil and Groundwater Management Plan* (Revised SMP) dated November 12, 2015; and *Addendum to the Revised Soil and Groundwater Management Plan* (SMP Addendum) dated November 12, 2015. The SMP, Revised SMP, and SMP Addendum are considered the 'SMP'. The excavation and soil handling and trucking will follow procedures in the Storm Water Pollution Prevention Plan (SWPPP) approved for the site grading operation. Grading and erosion control best management practices (BMP) will be observed and implemented throughout excavation activities.

As required by the plan, excavation will be conducted by an appropriately licensed contractor. Prior to initiating field activities, the following tasks will be conducted:

- Obtain authorization from ACDEH, as necessary.
- Pre-mark the excavation area with white paint and notify Underground Service Alert (USA) of the excavation activities at least 48 hours before work begins; and
- Coordinate with excavation and laboratory contractors and with involved parties.

Perimeter barriers will be installed and maintained throughout excavation and backfilling activities.

4.3 Dust Mitigation and Control

All soil handling will be conducted following approved plans and best management practices. Perimeter air monitoring for visible dust will be performed during excavation activities to ensure that dust is kept at a minimum and complies with air permit requirements. Trucks hauling excavated soil will be covered with tarps and follow the routes prescribed in an approved traffic control plan.

All graded surfaces of any nature shall be wetted, or otherwise suitably contained to prevent nuisance from dust or spillage on city streets or adjacent properties. Equipment, materials and roadways on the Site shall be used in a manner or treated as to prevent excessive dust conditions. Dust and dirt control activities shall not result in any material entering the storm drain system. Additional procedures are included in the Storm Water Pollution Prevention Plan (SWPPP) approved for the site grading operations.

Dust control measures during excavation, backfilling, and handling of soil will consist of spraying the minimum amount of water needed to suppress the dust onto the soil and work area. Any soil not off-hauled from the Site the same day will be stockpiled on plastic sheeting and covered with plastic, if significant rain is expected, or if suspicious odors or visible dust is being generated from the stockpiles.

4.4 Soil Backfilling

The deeper excavation areas will be backfilled with clean structural fill only as required for construction. All landscaped areas will be backfilled with a minimum of 12” thickness of clean imported top soil.

4.5 Offsite Soil Disposal

Soil for offsite disposal will be profiled according to requirements of the soil accepting facility. The soil accepting facility may require additional analysis, or approval on existing profiles. A State-licensed waste hauler will be used to transport any offsite disposal soil to an appropriate facility.

4.6 Confirmation Soil Sampling

If required by ACDEH, additional soil sampling will be conducted as confirmation sampling to ensure removal of lead impact. Confirmation soil samples would be taken from the bottom and sidewalls excavation areas as directed. Any required confirmation soil samples would analyzed for total lead using at a California-certified laboratory.

4.7 Reporting

PANGEA will prepare a Remedial Action Completion Report documenting procedures and results of the site assessment and any contingent excavation.

Source Map: ERS

0 1/4 1/2

Approximate Scale (in Miles)

N

Figure 1

4901 Broadway
Oakland, California

PANGEA

Site Vicinity Map

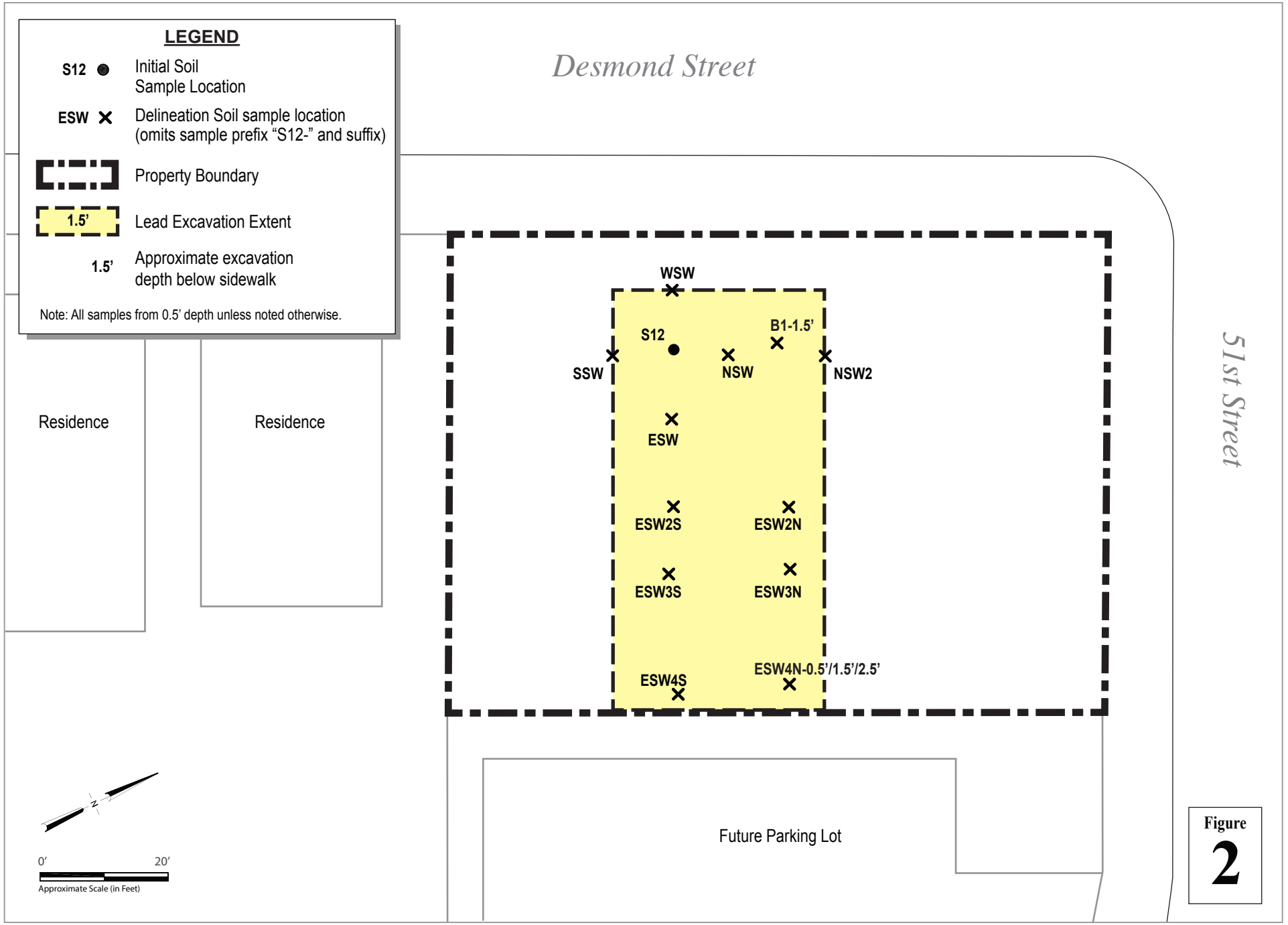


Figure 2

4974, 4970, 4966 and 4964 Desmond Street
Oakland, California

Site Map

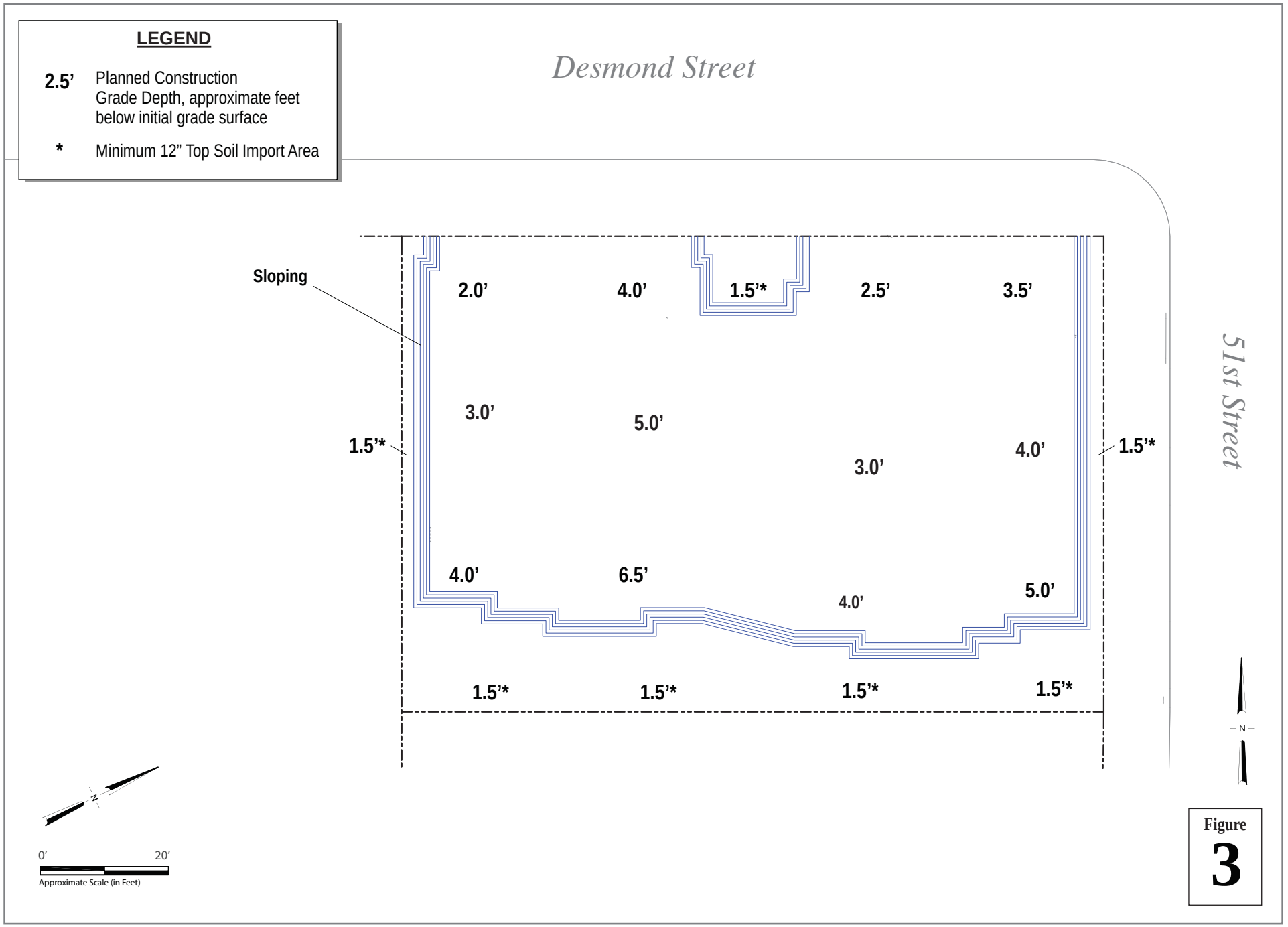


Figure 3

4974, 4970, 4966 and 4964 Desmond Street
Oakland, California

PANGEA

Planned Construction Grade Depth

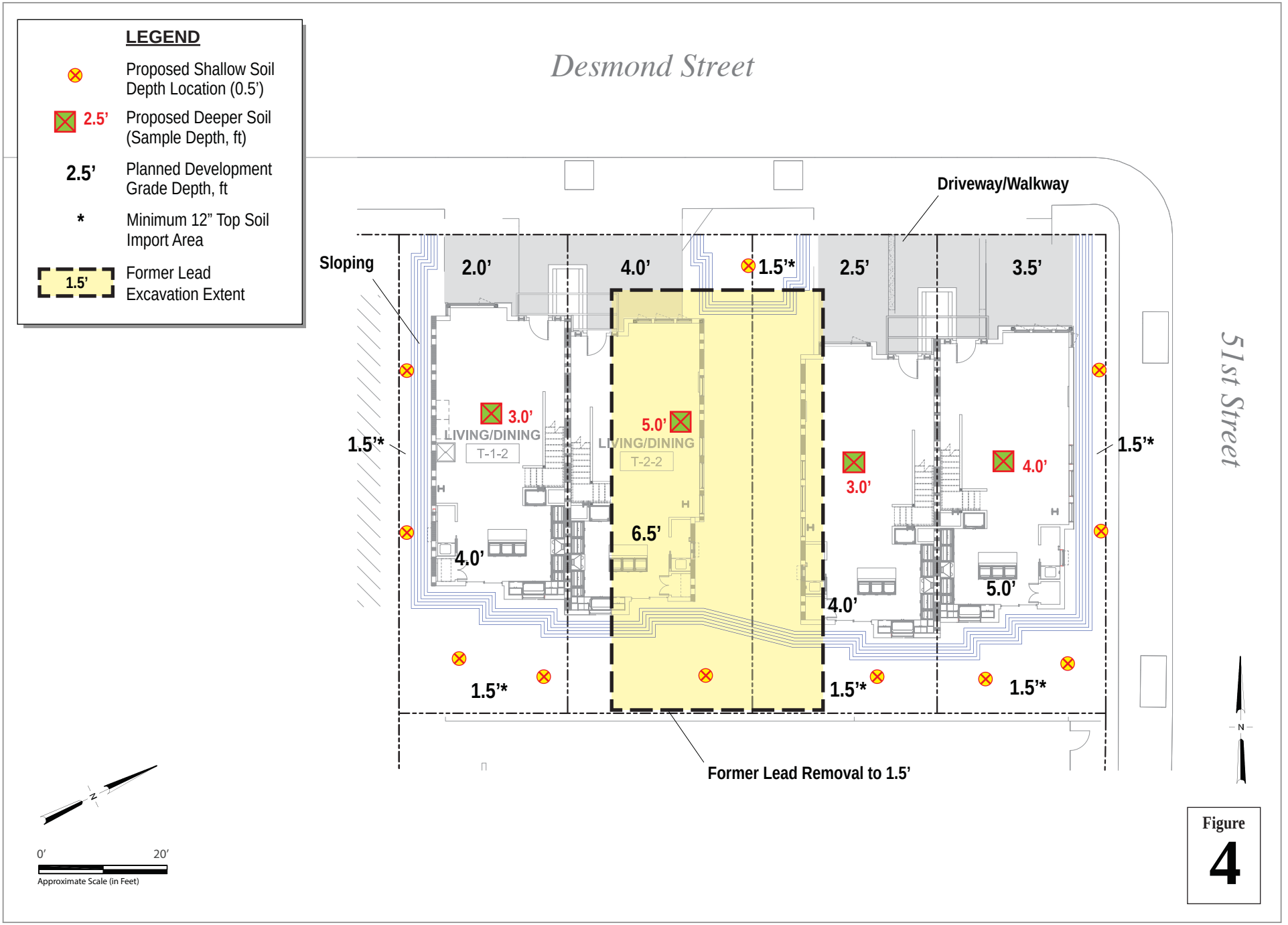


Figure 4

4974, 4970, 4966 and 4964 Desmond Street
Oakland, California

PANGEA

Proposed Soil Sample Locations

Pangea

Table 1. Soil Analytical Data - 4901 Broadway, Oakland, California

Boring/ Sample ID	Date Sampled	Sample Depth (ft bgs)	TPHg	TPHd (TPHss)	TPHmo	VOCs	SVOCs	PCBs	OC Pesticides	Asbestos	Arsenic	Barium	Beryllium	Chromium (TTLC)	Cobalt	Copper	Lead (TTLC)	Lead (STLC*)	Lead (TCLP*)	Mercury	Nickel	Vanadium	Zinc	Other Metals	Notes
			mg/kg																						
Soil Tier 1 ESL (Shallow Soil)			**100**	**230 (100)**	**5,100**	**varies**	**varies**	**0.25**	**varies**	**NA**	**0.067**	**3000**	**42**	**NV**	**23**	**3,100**	**80**	**NA**	**NA**	**13**	**86**	**390**	**23000**	**Varies**	
Direct Exposure: Any Land Use, Any Depth (CW):			**2,800**	**880 (630)**	**32,000**	**varies**	**varies**	**5.6**	**varies**	**NA**	**0.98**	**3,000**	**42**	**NV**	**23**	**14,000**	**160**	**NA**	**NA**	**44**	**86**	**470**	**110,000**	**Varies**	
Odor/Nuisance: Any Land Use, Deep Soil (CW):			**500**	**1000 (500)**	**---**	**varies**	**varies**	**1000**	**varies**	**NA**	**NV**	**NV**	**NV**	**NV**	**NV**	**NV**	**NV**	**NA**	**NA**	**1000**	**NV**	**NV**	**NV**	**Varies**	
S12-0.5'(B1)	11/19/2015	0.5	<10	<10	<10	<0.010	--	--	--	ND	5.4 c	200	<1.0	12	6.0	15	**87**	**a**	--	0.26	14	12	12	ND	Insufficient soil for all analyses.
S12-0.5'(B1)(2)	11/25/2015	0.5	--	--	--	--	**b**	<0.010	<0.20	--	--	--	--	--	--	--	**110**	3.4	<0.20	--	--	--	--	--	Second sample due to insufficent soil.
S12-NSW-0.5'	3/18/2016	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**160**	**7.9**	0.21	--	--	--	--	--	
S12-NSW2-0.5'	3/30/2016	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13	--	--	--	--	--	--	--	
S12-SSW-0.5'	3/18/2016	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	23	--	--	--	--	--	--	--	
S12-WSW-0.5'	3/18/2016	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	55	2.1	<1.0	--	--	--	--	--	
S12-ESW-0.5'	3/18/2016	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**93**	4.1	<1.0	--	--	--	--	--	
S12-ESW2N-0.5'	4/4/2016	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**400**	**36**	0.35	--	--	--	--	--	
S12-ESW2S-0.5'	4/4/2016	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**110**	**5.3**	<0.050	--	--	--	--	--	
S12-ESW3N-0.5'	4/4/2016	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**260**	**16**	0.066	--	--	--	--	--	
S12-ESW3S-0.5'	4/4/2016	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**110**	4.3	--	--	--	--	--	--	
S12-ESW4N-0.5'	4/8/2016	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**140**	4.4	<0.050	--	--	--	--	--	
S12-ESW4N-1.5'	4/8/2016	1.5	--	--	--	--	--	--	--	--	--	--	--			This 1.5' bottom OK	32	--	--	--	--	--	--	--	
S12-ESW4N-2.5'	4/8/2016	2.5	--	--	--	--	--	--	--	--	--	--	--			This 2.5' bottom OK	17	--	--	--	--	--	--	--	
S12-ESW4S-0.5'	4/8/2016	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**98**	4.4	<0.050	--	--	--	--	--	
S12-B1-1.5'	4/4/2016	1.5	--	--	--	--	--	--	--	--	--	--	--			This 1.5' bottom OK	16	--	--	--	--	--	--	--	

Notes and Abbreviations:

TPH (g, d, and m) - Total Petroleum Hydrocarbons (as gasoline, diesel, and motor oil) by EPA Method 8015C. Silica gel cleanup on 1/27/16 analyses for TPHd and TPHmo.

VOCs = Volatile Organic Compounds by EPA Method 8260B; January 2016 analysis included BTEX analyses by Method 8021 (sample PB-4-5' reported full 8260 list).

H = VOCs by EPA Method 8260B (reported Method 8010 list for chlorinated VOCs).

SVOCs = Semivolatile Organic Compounds by EPA Method 8270C.

PCB = Polychlorinated Biphenyls by EPA Method 8082.

OC Pesticides = Organochloride Pesticides by EPA Method 8081A.

Asbestos = Asbestos by EPA Method 600 with CARB 435 and 0.25% Target Sensitivity.

Metals by EPA Method 6010B.

mg/Kg = milligrams per Kilogram.

ft bgs = Depth below ground surface (bgs) in feet.

< n = Chemical not present at a concentration in excess of detection limit shown.

Bold = Lead concentrations above 80 mg/kg ESL are bold.

11 = Exceeds **Non-RCRA hazardous** waste screening criteria for lead.

140 = Exceeds **Class II waste** screening criteria for lead of 80 mg/kg.

-- = Not analyzed

TTLC = Total Threshold Level Concentration. TCLP = Toxic Characteristic Leaching Potential

STLC = Solubility Threshold Level Concentration. TCLP = Toxic Characteristic Leaching Potential

APPENDIX A

Development Grading and Construction Plans

For Assessment Use Only

ASSESSOR'S MAP 13

1136

SCALE: 1" = 50'

Code Area Nos. 17-001

(A) MAP of PLOT No. 13
as per Kellersberger's Map of the Ranchos of D. & V. Peralta 7/10

(B) P.M. 8795 294/50

(C) P.M. 9456 304-17-18

(D) P.M. 10173 328/13-14

(E) TR. 8185 337/89-91

REVISED:

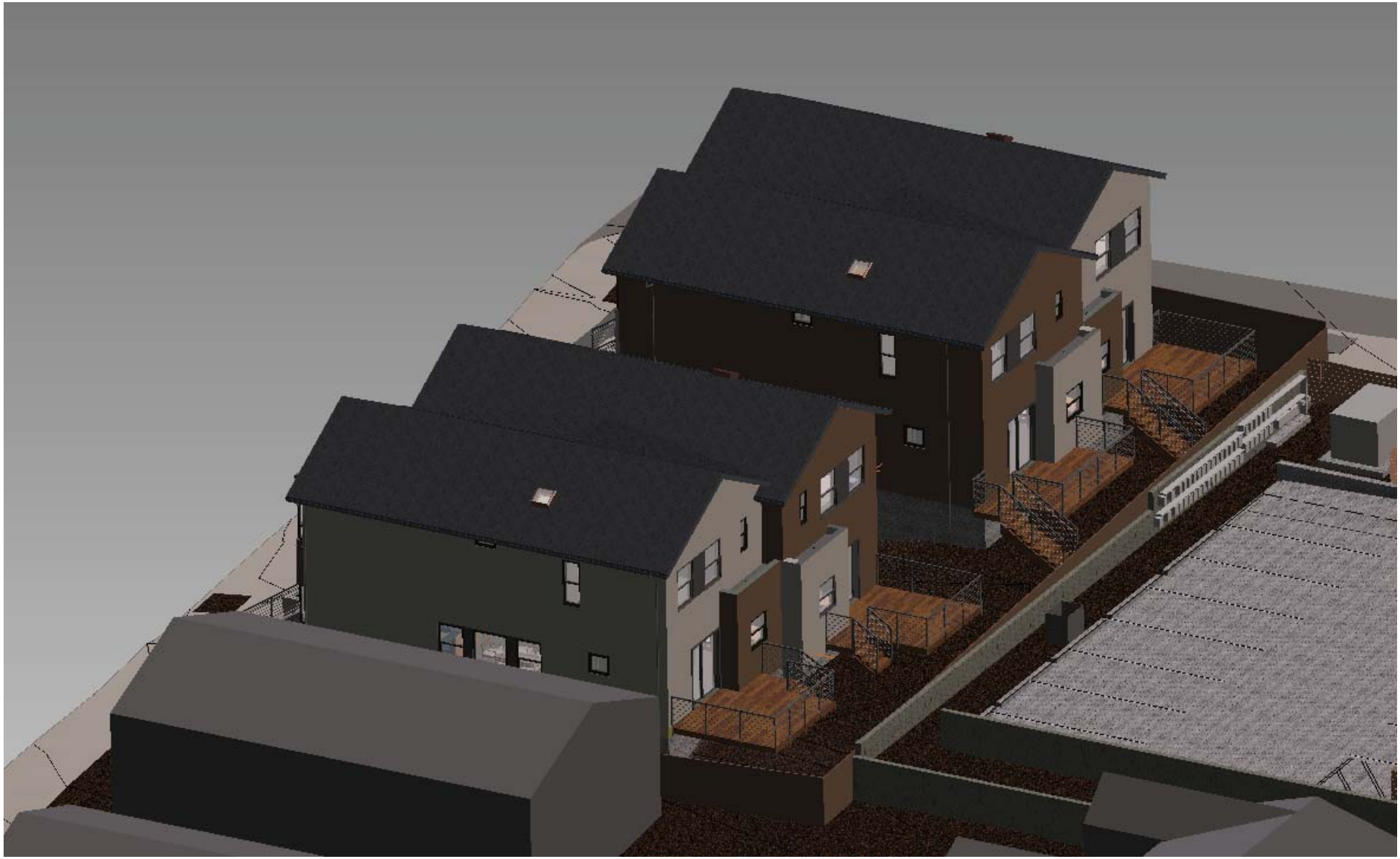
DRAWN: 07-29-16 CC

FORMERLY:

TRA: 004B, 004D REF: .

HPN: 38

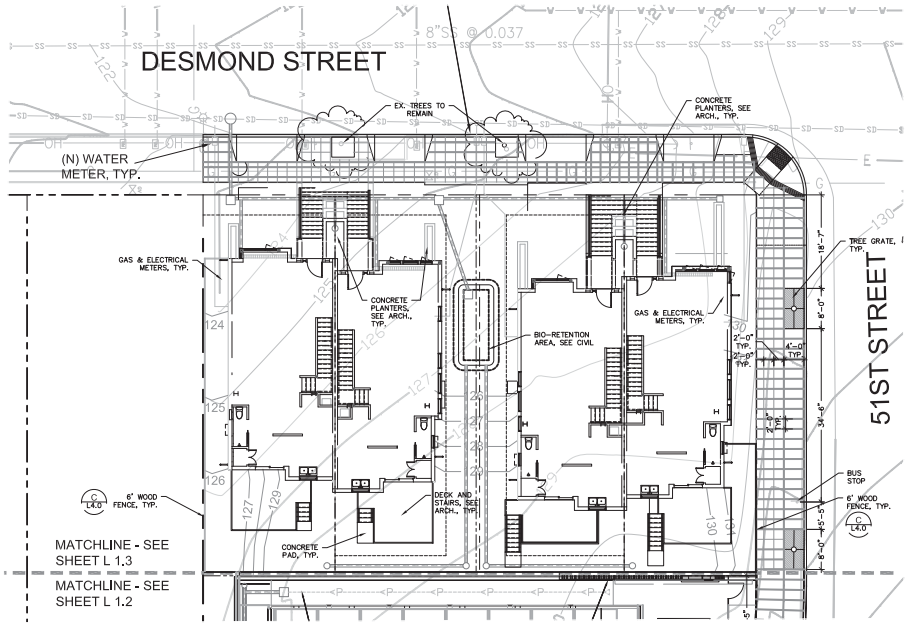
IND PG: 3



SITE IMPROVEMENTS LEGEND

(Symbols shown at 1"=10'-0")

SYMBOL	ITEM	
	EXPANSION/COLD JOINT	See Site Plan for layout and pattern. See Civil drawings for detail, and specification section 32 13 13 Concrete Paving.
	CONTROL JOINT	See Site Plan for layout and pattern. See Civil drawings for detail, and specification section 32 13 13 Concrete Paving.
	CONCRETE PEDESTAL PAVERS TYPE 1	See specifications and detail, all pavers to be sealed (A L4.0)
	CONCRETE PEDESTAL PAVERS TYPE 2	See specifications and detail, all pavers to be sealed (A L4.0)
	CONCRETE PEDESTAL PAVERS TYPE 3	See specifications and detail, all pavers to be sealed (A L4.0)
	TURF AT DOG RUN	See specifications and details. (F L4.1)
	WOOD SCREEN WALL	See specifications and details. (D L4.0)
	WOOD FENCE AT PARAPET WALL	See specifications and details. (B L4.0)
	WOOD FENCE	See specifications and details. (C L4.0)
	WOOD BENCH	See site plan for locations. See specifications. (F L4.0)
T	TRASH RECEPTACLE	See arch.
	PLANTER 'A'	See site plan for locations. See specifications. (G L4.2)
	PLANTER 'B'	See site plan for locations. See specifications.
	PLANTER 'C'	See site plan for locations. See specifications.
	PLANTER 'D'	See site plan for locations. See specifications.
	PLANTER 'E'	See site plan for locations. See specifications.
	PLANTER 'F'	See site plan for locations. See specifications.
	PLANTER 'G'	See site plan for locations. See specifications.
	LARGE DINING TABLE	FFE, To be selected by interior designer.
	DINING TABLES	FFE, To be selected by interior designer.
	COUCH, CHAIRS & COFFEE TABLES	FFE, To be selected by interior designer.
	BAR HEIGHT TABLE & CHAIRS	FFE, To be selected by interior designer.
	TABLE AND UMBRELLA	FFE, To be selected by interior designer.
	RAISED GARDEN BED	See site plan for locations. See specifications and detail. (F L4.0)
	TREE GRATES	See site plan for locations. See specifications and detail. (F L4.1)
	SCREEN WALL TRELLIS	See site plan for locations. See specifications and detail. (A L4.1)
	ROOFTOP KITCHEN COUNTER AND TRELLIS	See site plan for locations. See specifications and detail. (C L4.1)
	ROOFTOP PERGOLA	See site plan for locations. See specifications and detail. (B L4.1)



SCALE: 1"=10'-0"

0' 5' 10' 20' 40'

brick.

ARCHITECT
brick., llp
1266 66th street, suite 1
emeryville, ca 94608
510.244.3713
www.brick-llp.com

CLIENT
srm development
111 n post, suite 200
spokane, wa 99201

consultant logo

WEISMANDESIGNGROUP

LICENSED LANDSCAPE ARCHITECT
STATE OF CALIFORNIA

rev	date	issue
3	05.11.16	CD REV. 01
2	01.19.16	2nd plan check respse, (CD)
1	11.05.15	plan check response
-	10.22.15	95% CD
-	07.30.15	85% CD
-	07.10.15	75% CD
-	06.01.15	permit submittal
-	05.05.15	45% CD
-	04.10.15	25% CD

temescal apartments

4901 broadway ave,
oakland, california 94611

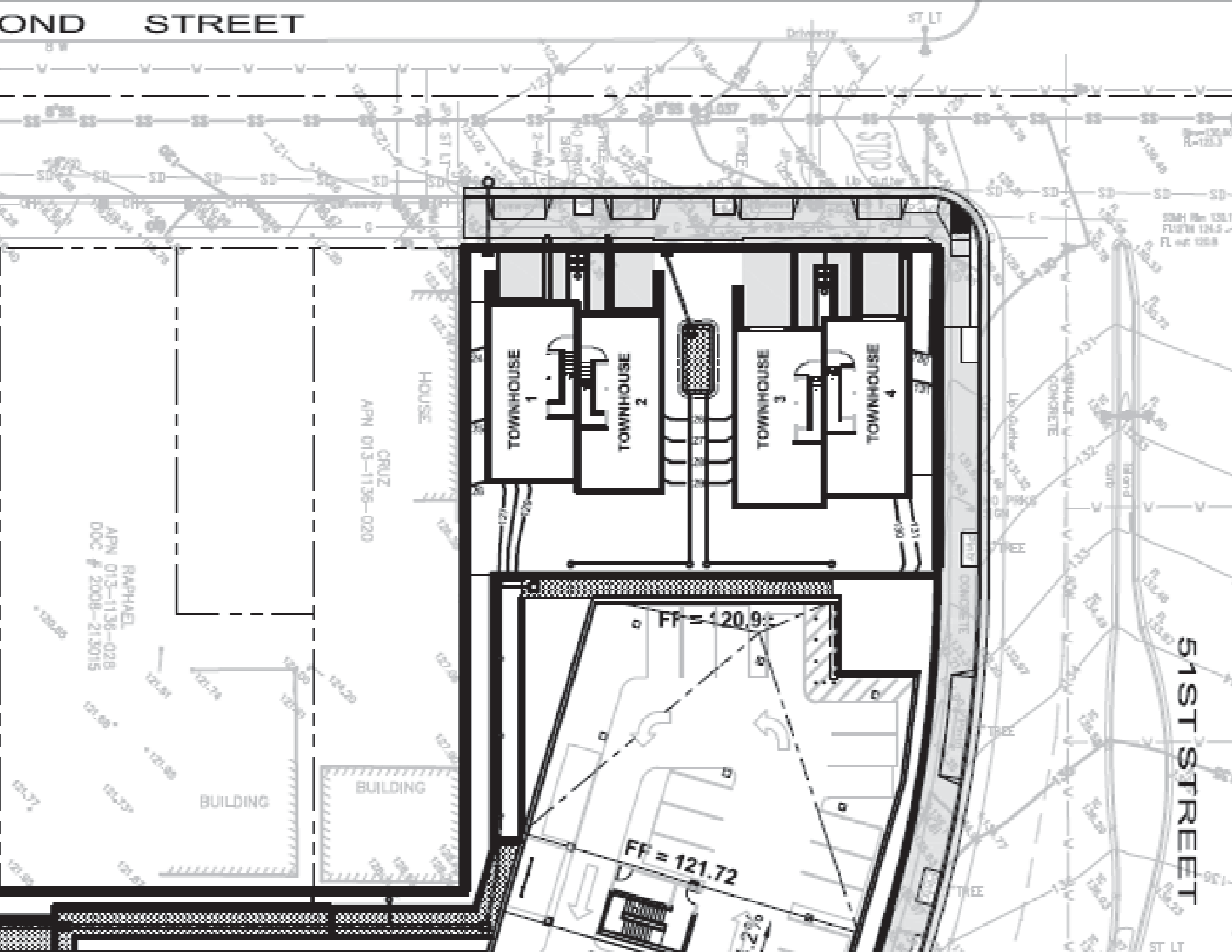
project number: 12-038
plot date: 05.11.16

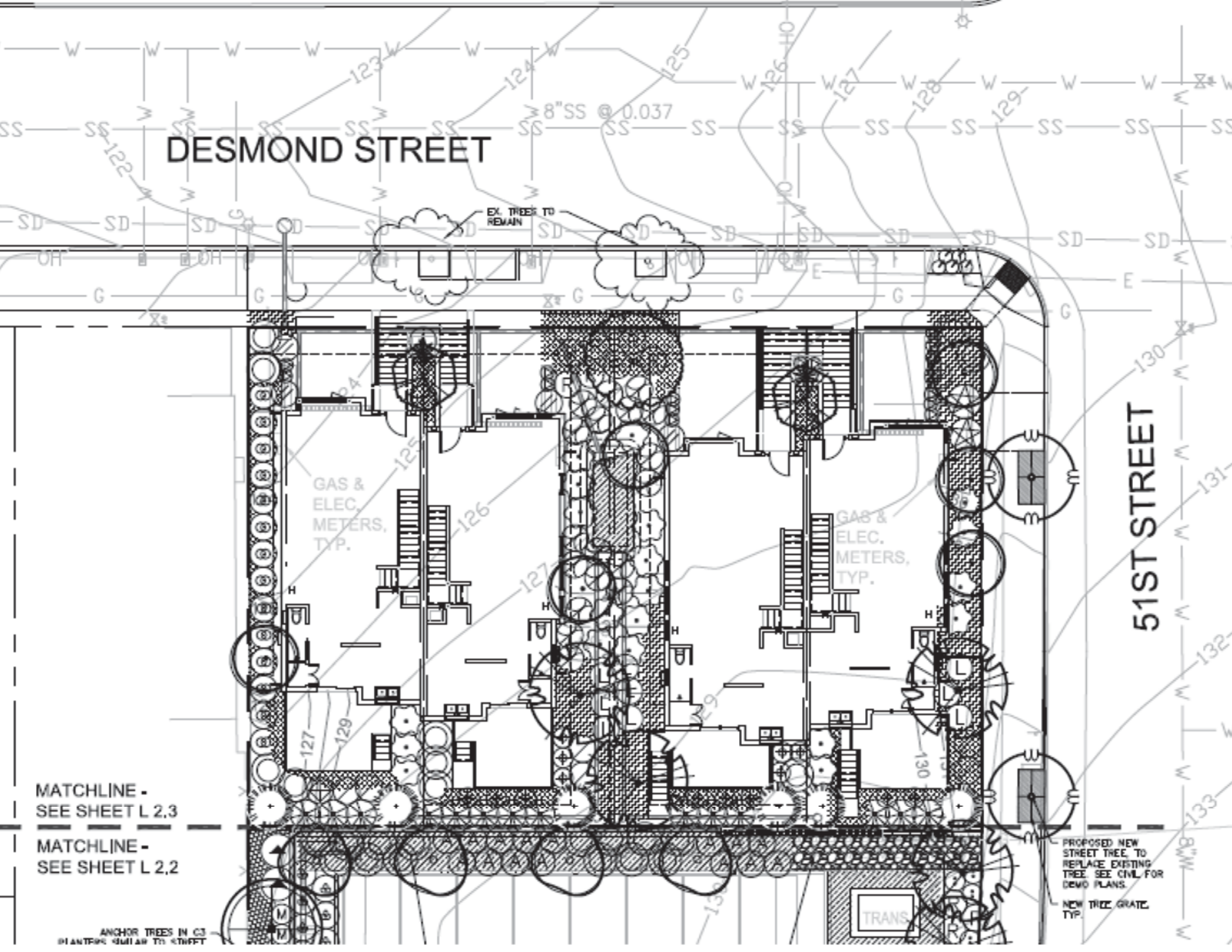
scale: as noted
date: 05.11.16

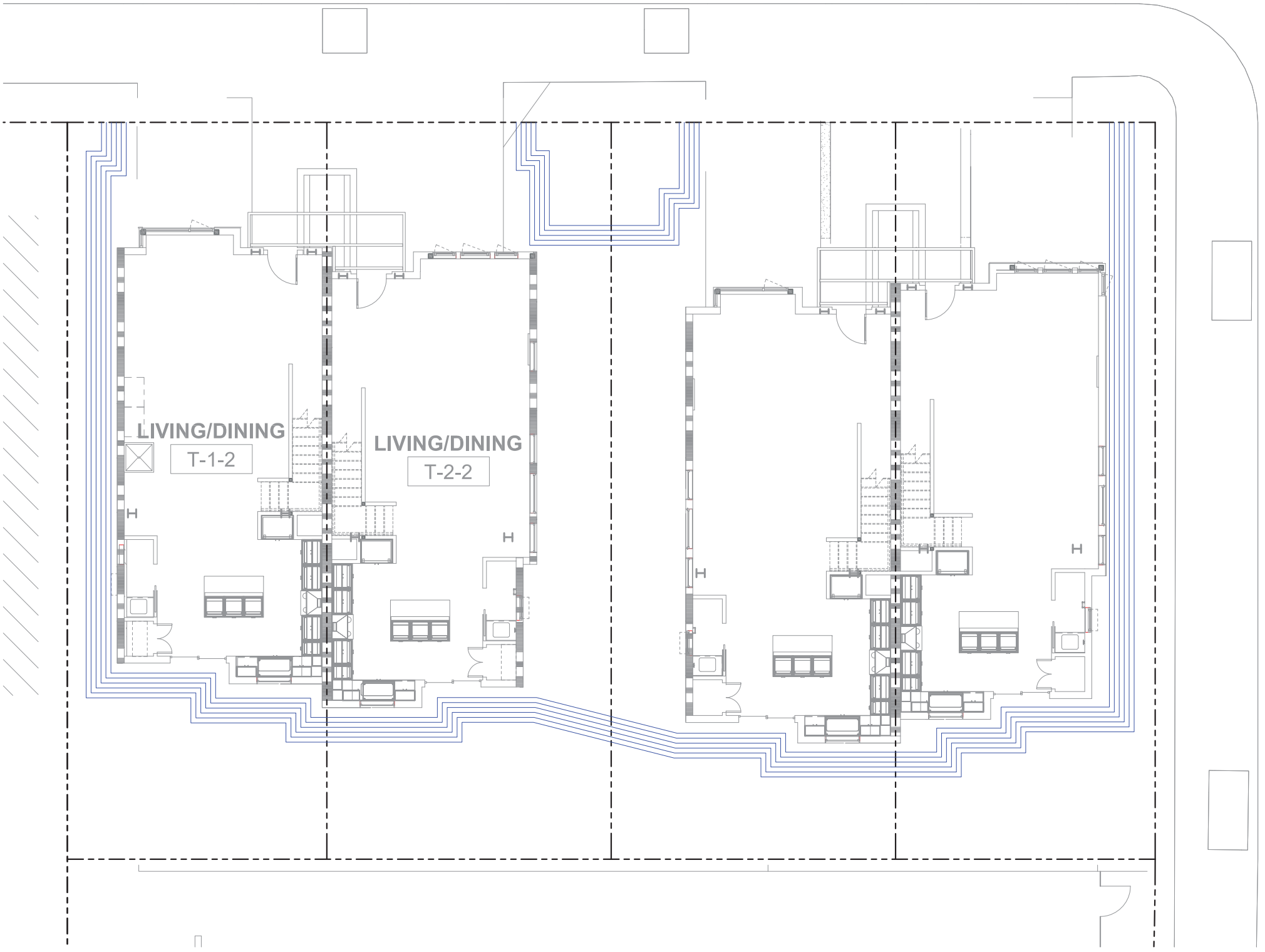
CD REV. 01

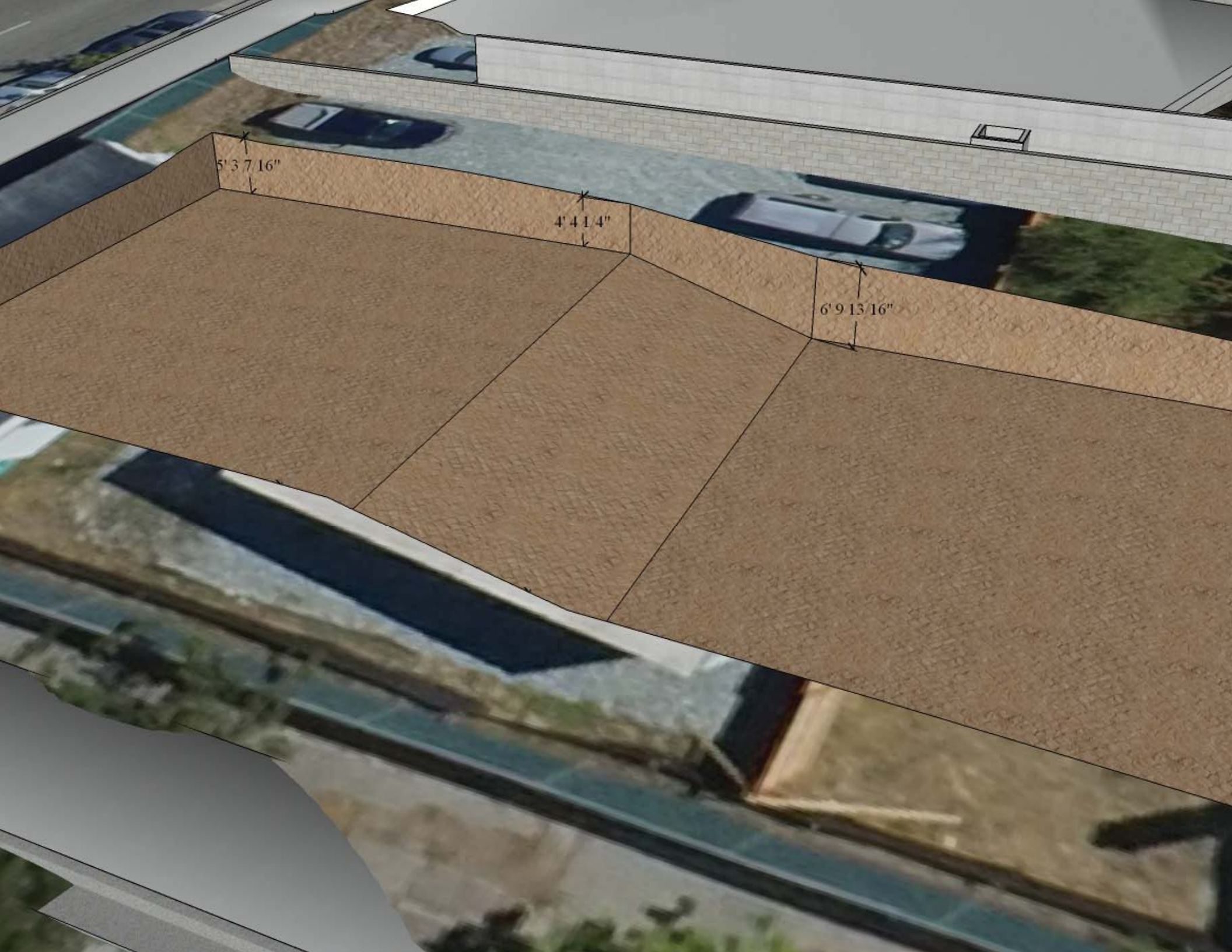
SITE PLAN - AT GRADE

L1.3


OND STREET
51ST STREET
TOWNHOUSE 1
TOWNHOUSE 2
TOWNHOUSE 3
TOWNHOUSE 4
FF = 120.9
FF = 121.72
HOUSE
APN 013-1136-020
CRUZ
APN 013-1136-028
DOC # 2008-213015
RAPHAEL
BUILDING
BUILDING
TREE
TREE
TREE
STOP
Driveway
ST LT
ST LT
CONCRETE
CONCRETE
ASPHALT


DESMOND STREET
51ST STREET
EX. TREES TO REMAIN
GAS & ELEC. METERS, TYP.
GAS & ELEC. METERS, TYP.
MATCHLINE - SEE SHEET L 2.3
MATCHLINE - SEE SHEET L 2,2
PROPOSED NEW STREET TREE, TO REPLACE EXISTING TREE. SEE CIVIL FOR DEMO PLANS.
NEW TREE GRATE, TYP.
TRANS
8"SS @ 0.037


LIVING/DINING
T-1-2
LIVING/DINING
T-2-2
H
H
H
H


5' 3 7/16"
4' 4 1/4"
6' 9 13/16"


3' 10 7/16"
2' 1 7/8"
4' 2 3/4"
2' 1 13/16"

APPENDIX B

Standard Operating Procedures

STANDARD FIELD PROCEDURES FOR HAND-AUGER SOIL BORINGS

This document describes Pangea Environmental Services' standard field methods for drilling and sampling soil borings using a hand-auger. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor odor or staining, estimate ground water depth and quality, and to submit samples for chemical analysis.

Soil Classification/Logging

All soil samples are classified according to the Unified Soil Classification System by a trained geologist or engineer working under the supervision of a California Registered Geologist (RG), Certified Engineering Geologist (CEG), or Professional Engineer. The following soil properties are noted for each soil sample:

- Principal and secondary grain size category (i.e. sand, silt, clay or gravel)
- Approximate percentage of each grain size category,
- Color,
- Approximate water or product saturation percentage,
- Observed odor and/or discoloration,
- Other significant observations (i.e. cementation, presence of marker horizons, mineralogy), and
- Estimated permeability.

Soil Boring and Sampling

Hand-auger borings are typically drilled using a hand-held bucket auger to remove soil to the desired sampling depth. Samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments beyond the bottom of the augered hole. The vertical location of each soil sample is determined using a tape measure. All sample depths use the ground surface immediately adjacent to the boring as a datum. The horizontal location of each boring is measured in the field from an onsite permanent reference using a measuring wheel or tape measure.

Augering and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Storage, Handling and Transport

Sampling tubes chosen for analysis are trimmed of excess soil and capped with Teflon tape and plastic end caps. Soil samples are labeled and stored at or below 4°C on either crushed or dry ice, depending upon local regulations. Samples are transported under chain-of-custody to a State-certified analytic laboratory.

Field Screening

One of the remaining tubes is partially emptied leaving about one-third of the soil in the tube. The tube is capped with plastic end caps and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable photoionization detector (PID) measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. PID measurements are used along with the field observations, odors, stratigraphy and ground water depth to select soil samples for analysis.

Water Sampling

Water samples, if they are collected from the boring, are collected from the open borehole using bailers. The ground water samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory.

Duplicates and Blanks

Blind duplicate water samples are collected usually collected only for monitoring well sampling programs, at a rate of one blind sample for every 10 wells sampled. Laboratory-supplied trip blanks accompany samples collected for all sampling programs to check for cross-contamination caused by sample handling and transport. These trip blanks are analyzed if the internal laboratory QA/QC blanks contain the suspected field contaminants. An equipment blank may also be analyzed if non-dedicated sampling equipment is used.

Grouting

The borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

Waste Handling and Disposal

Soil cuttings from drilling activities are usually stockpiled onsite on top of and covered by plastic sheeting. At least four individual soil samples are collected from the stockpiles for later compositing at the analytic laboratory. The composite sample is analyzed for the same constituents analyzed in the borehole samples. Soil cuttings are transported by licensed waste haulers and disposed in secure, licensed facilities based on the composite analytic results.

Ground water removed during sampling and/or rinsate generated during decontamination procedures are stored onsite in sealed 55-gallon drums. Each drum is labeled with the drum number, date of generation, suspected contents, generator identification and consultant contact. Disposal of the water is based on the analytic results for the well samples. The water is either pumped out using a vacuum truck for transport to a licensed waste treatment/disposal facility or the individual drums are picked up and transported to the waste facility where the drum contents are removed and appropriately disposed.