660 UNIVERSITY AVE.
PALO ALTO, CA

PLANNING RESUBMITTAL #7
02.07.2024

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SHEET INDEX:

UNIVERSITY AVE

BYRON STREET

MIDDLEFIELD ROAD

TWO SHORT-TERM BIKE RACKS IN 5'X14' INDENT IN PLANTER SEE L2.1 FOR IMAGE

4 x 6' TREE WELL WITH DECOMPOSED GRANITE AND NEW STREET TREE

4 x 6' TREE WELL WITH DECOMPOSED GRANITE AND NEW STREET TREE

ACCENT PAVING

RAMP WITH HANDRAIL

4 x 6' TREE WELL WITH DECOMPOSED GRANITE AND NEW STREET TREE

EXISTING TREE TO REMAIN, WITH DECOMPOSED GRANITE AT BASE,TYP.

ACCENT PAVING

DASHED LINE INDICATES BUILDING OVERHANG ABOVE,TYP.

EXISTING TREE TO REMAIN, WITH DECOMPOSED GRANITE AT BASE,TYP.

RAISED CONCRETE TREATMENT PLANTER, TYP. SEE L2.1 FOR IMAGE

EXISTING BENCH AT BUS STOP TO REMAIN

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FLOOD PROTECTION WALL

RESIDENTIAL LOBBY

6" THICK FLOOD PROTECTION CURB BETWEEN RAMP AND BUILDING, TYP.

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OFFICE ENTRY

ONE SHORT-TERM BIKE RACK IN 5'X7' INDENT IN PLANTER SEE L2.1 FOR IMAGE; SEE ENLARGEMENT BELOW

A

A

SEE SECTION AA BELOW

FLOOD PROTECTION WALL

GARAGE OUTLINE BELOW

EXISTING ASPHALT TO REMAIN(RED DASH LINE)

PRECAST RECTANGULAR PLANTER

BOLLARD LIGHT, TYP.

WOOD DECK ON PEDESTALS BUILT ON TOP OF THE EXISTING ASPHALT. DO NOT REMOVE ASPHALT AT DECK

PRECAST RECTANGULAR PLANTER

PLANTERS ON DECORATIVE GRAVEL, TYP.

GARAGE OUTLINE BELOW

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GRAVEL TURF BLOCK, DRIVABLE SURFACE IN FRONT OF TRANSFORMERS

1 L1.1

HORIZONTAL WOOD SLAT SCREEN ON OPERABLE GATES IN FRONT OF TRANSFORMERS. SEE DETAIL

PLANTED TURF BLOCK, DRIVABLE SURFACE IN FRONT OF TRANSFORMERS

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HORIZONTAL WOOD SLAT SCREEN ON OPERABLE GATES IN FRONT OF TRANSFORMERS. SEE DETAIL

TRANSFORMER PAD

TRANSFORMER PAD

RES. TRASH COMPACTOR ROOM

4 x 4' TREE WELL WITH DECOMPOSED GRANITE AND NEW STREET TREE

GARAGE ENTRY RAMP

PLANTING ON GRADE

NEW TREES

PROPOSED CONCRETE WALL, PAINTED WHITE, SMOOTH FINISH

6' TALL OMEGA OPEN WIRE FENCE

PRECAST POTS ON DECORATIVE GRAVEL OVER EXISTING ASPHALT, TYP.

SECTION AT WOOD DECK

7' TALL, PROPOSED HORIZONTAL WOOD SLAT SCREEN FENCE MOUNTED ON EXISTING CONCRETE WALL (TO REMAIN WITHIN ENTIRE TPZ)

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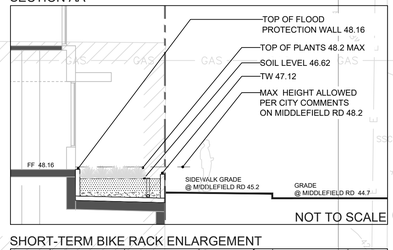
SLOPED CONCRETE WALKWAY

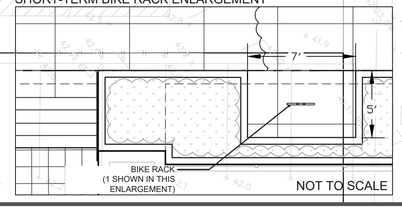
RETAINING WALL ON STRUCTURE

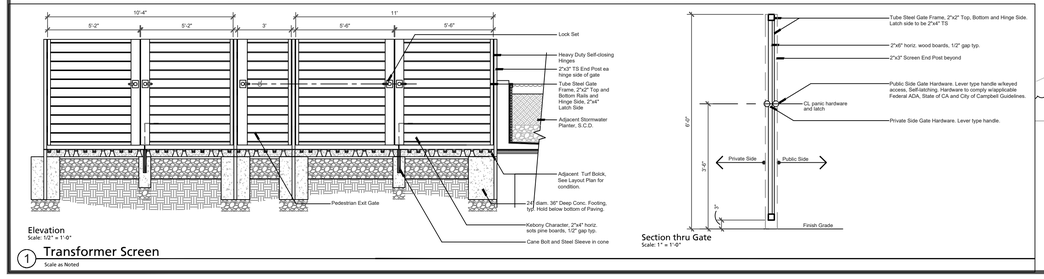
MOUNTED PLANTING AREA WITH NEW TREES ON STRUCTURE

SECTION AA



SHORT-TERM BIKE RACK ENLARGEMENT





SMITH DEVELOPMENT

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PROJECT NUMBER
21003

SHEET TITLE
LANDSCAPE PLAN - GROUND FLOOR

SCALE

PROJ NORTH
TN

SCALE: 1" = 10'-0"
0' 5' 10' 20'

SHEET NUMBER
L 1.1

UNIVERSITY AVE

BYRON STREET

MIDDLEFIELD ROAD

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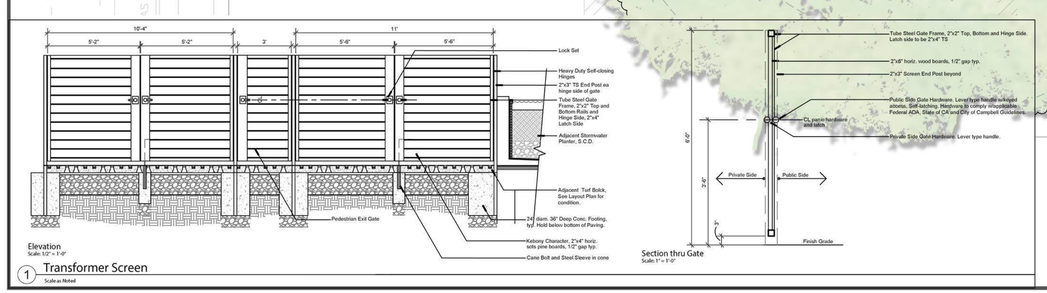
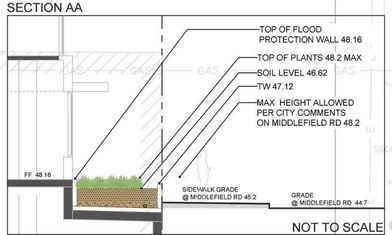


SECTION AA



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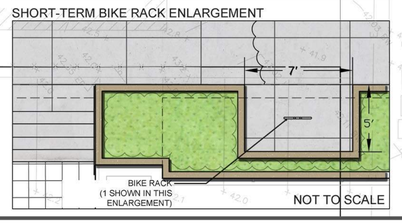

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PROJECT NUMBER
21003

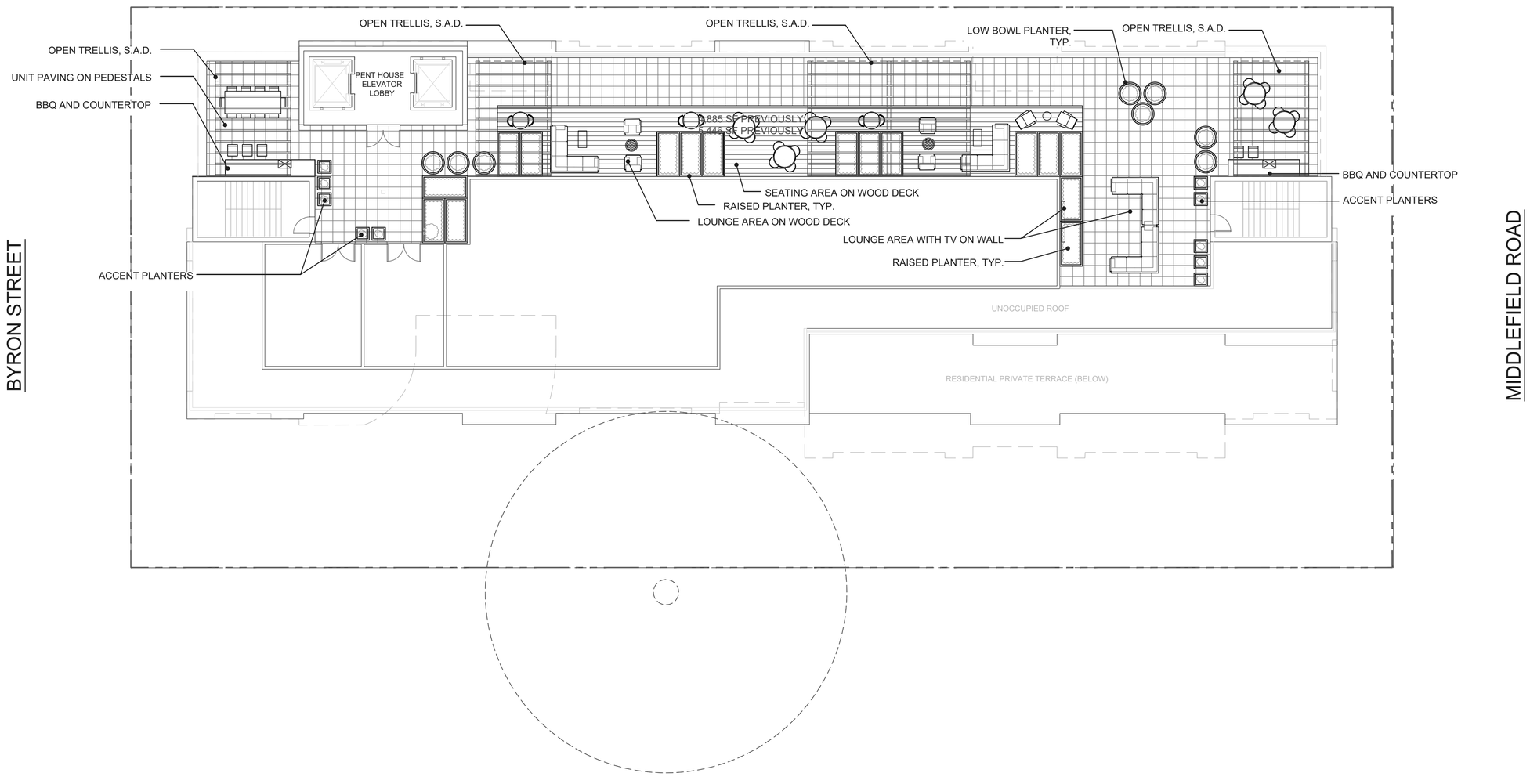
SHEET TITLE
LANDSCAPE PLAN - GROUND FLOOR

SCALE

PROJ NORTH
TN

SCALE: 1" = 10'-0"
0' 5' 10' 20'

SHEET NUMBER
L 1.1A



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PROJECT NUMBER
21003

SHEET TITLE
LANDSCAPE PLAN - ROOF

SCALE

PROJ NORTH
TN

SCALE: 1" = 10'-0"
0' 5' 10' 20'

SHEET NUMBER

L 1.2

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LANDSCAPE PLAN - ROOF

SCALE

PROJ NORTH
TN
SCALE: 1" = 10'-0"
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SHEET NUMBER
L 1.2 A

Site

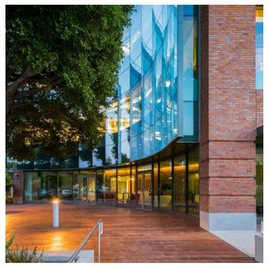
Pedestrian Unit Paver Pattern

Pedestrian Accent Paving Color

Open Wire Omega Fence near Public Rights of Way for Pedestrian and Vehicular Visibility-6' Height

Existing Concrete Foundation Wall (Along Property Line Near Large Coast Live Oak) to Remain

Horizontal Wood Slat Screen Fence - 7' Height



Wood Deck on Grade

Welle Circular Bike Rack-Silver

Bollard Light

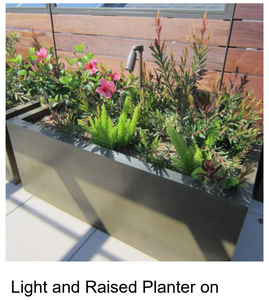
Bollard Light

Precast Planter on Decorative Gravel over Existing Asphalt

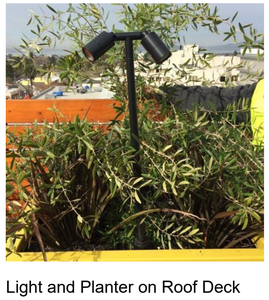
Precast Planter on Decorative Gravel over Existing Asphalt

Raised Concrete Treatment Planter
Height above grade varies in different site conditions. See plans

Roof Deck



Light and Raised Planter on Roof Deck



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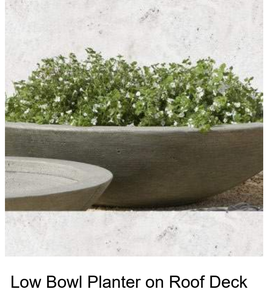
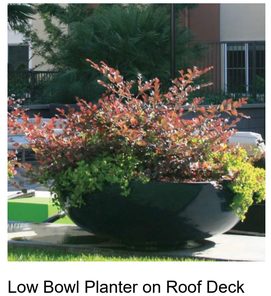


Low Bowl Planter on Roof Deck



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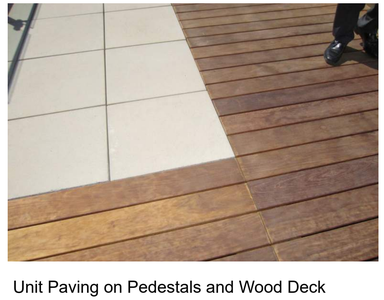

Unit Paving on Pedestals and Wood Deck

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PROJECT NUMBER
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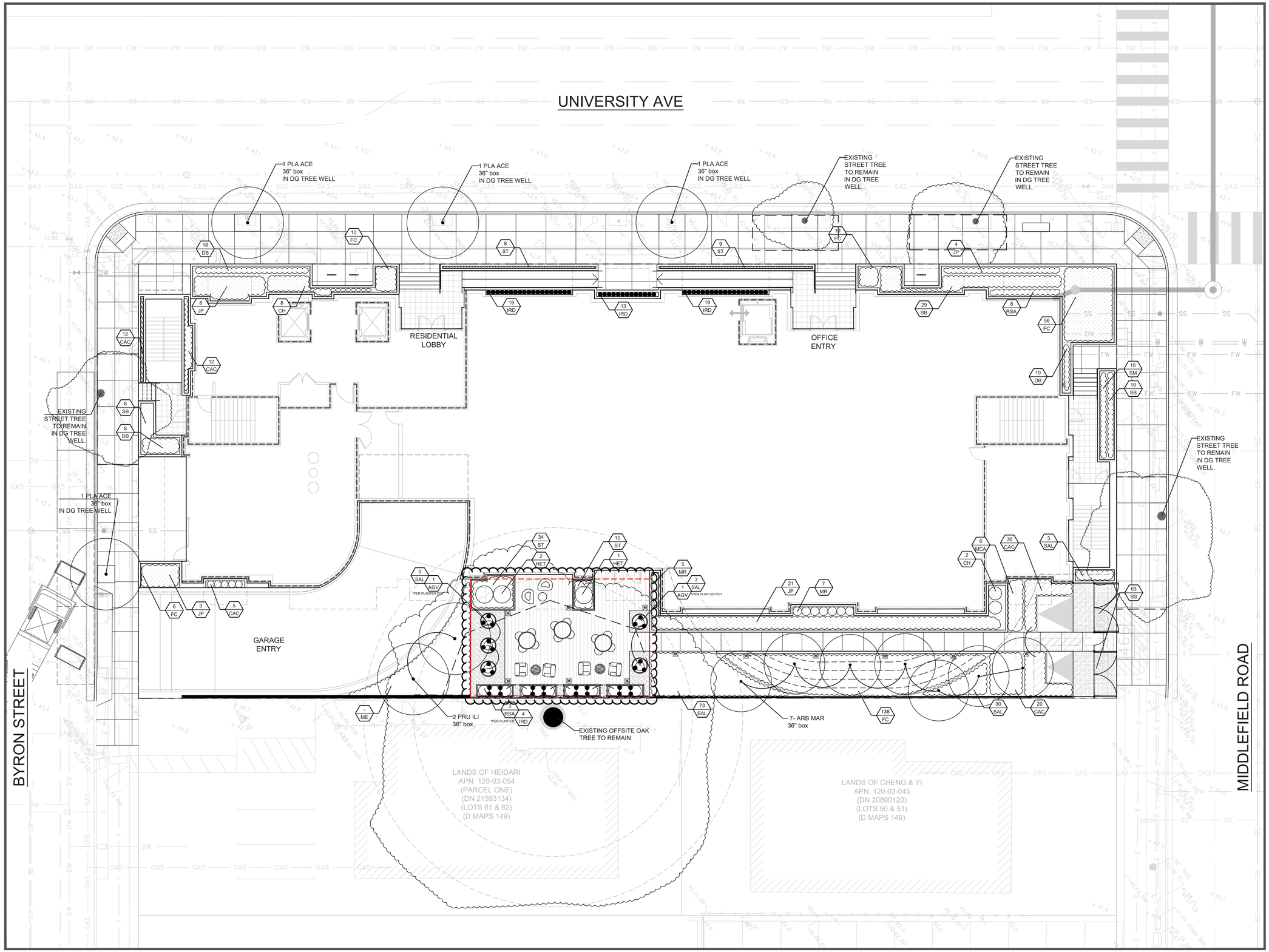
SHEET TITLE
LANDSCAPE IMAGERY

SCALE

SHEET NUMBER

L 2.1



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PROJECT NUMBER
21003

SHEET TITLE
PLANTING PLAN - SITE

SCALE
SCALE: 1" = 10'-0"
0' 5' 10' 20'

SHEET NUMBER
L 3.1

PLANT PALETTE

TREES- all 36" box							HABITAT FORMING
KEY	QTY	BOTANICAL NAME	COMMON NAME	COMMENTS/SPACING	WUCOLS	NOTES	
PLA ACE	4	Platanus acerifolia "Columbia"	Columbia London Plane Tree	Standard	Medium	Regionally Appropriate	
PRU ILI	2	Prunus ilicifolia ssp. lyonii	Catalina Cherry	Standard	Low	California Native	Food
ARB MAR	7	Arbutus 'Marina'	Marina Strawberry Tree	Multi	Low	California Native	Food
SHRUBS, GROUNDCOVERS AND GRASSES --all 5 gallon size							
KEY	QTY	BOTANICAL NAME	COMMON NAME	COMMENTS/SPACING	WUCOLS	CALIFORNIA NATIVE	
AGV	31	Anigozanthos 'Gold Velvet'	Gold Kangaroo Paw	24" o.c.	Low	Regionally Appropriate	Food
CAC	75	Carex californica	California Sedge	24" o.c.	Low	California Native	
CEO	4	Cephalanthus occidentalis	Buttonbush	48" o.c.	Medium	California Native	Food
HET	5	Heteromeles arbutifolia	Toyon	48" o.c.	Low	California Native	Food
IRD	67	Iris douglasiana	Pacific Coast Iris	12" o.c.	Low	California Native	
MCA	6	Myrica californica	California Wax Myrtle	36" o.c.	Medium	California Native	Food
RSA	26	Ribes sanguineum	Red Flowering Currant	30" o.c.	Low	California Native	Food
SAL	136	Salvia clevelandii 'Winfred Gillman'	Cleveland Sage	24" o.c.	Low	California Native	Food
ACCENT SHRUBS, GRASSES AND PERENNIALS- all one gallon size							
CK	8	Calamagrostis x a. 'Karl Foerster'	Feather Reed Grass	36" o.c.	Medium	California Native	Food
ST	66	Stipa arundinacea	New Zealand Wind Grass	18" o.c.	Low	Regionally Appropriate	Food
SM	34	Senecio madraliscae	Blue Chalk Sticks	24" o.c.	VeryLow	Regionally Appropriate	
GROUNDCOVERS- all one gallon size							
SS	63	Sedum spectabile 'Crystal Pink'	Stonecrop	24" o.c.	VeryLow	Regionally Appropriate	
STORMWATER TREATMENT PLANT							
CH	10	5 Gal	Chondropetalum tectorum	Small Cape Rush	36" o.c.	Low	Regionally Appropriate	Food
DB	36	5 Gal	Dietes iridioides	Fortnight Lily	24" o.c.	Low	Regionally Appropriate	
FC	220	5 Gal	Festuca californica	California Fescue	24" o.c.	Low	California Native	Food
JP	36	1 Gal	Juncus patens 'Elk Blue'	Elk Blue Gray Rush	48" o.c.	Low	California Native	
ME	12	1 Gal	Mahonia repens	Creeping Oregon Grape	24" o.c.	Low	California Native	Food
MR	26	1 Gal	Muhlenbergia rigens	Deer Grass	36" o.c.	Low	California Native	Food
SB	25	1 Gal	Sisyrinchium bellum	Blue-eyed grass	24" o.c.	VeryLow	California Native	

Notes:

- Plants with low WUCOLS ratings are drought tolerant and regionally appropriate species. Plants noted are Native to California. Other plants, not in either of these two categories are well adapted to Palo Alto. Habitat forming column refers to food value of flowers or fruit for small animals, birds, butterflies and other insects in addition to shelter for some insects.
- Do not use chemical fertilizers, pesticides, herbicides or commercial soil amendment. Use Organic Materials Review Institute (OMRI) materials and compost. Refer to the Bay-Friendly Landscape Guidelines: http://www.stopwaste.org/resource/brochures/bay-friendly-landscape-guidelines-sustainable-practices-landscape-professional for guidance
- Avoid compacting soil in areas that will be unpaved. All planting areas to receive 3" layer of bark mulch.

The approximate total quantity of plants proposed is 894. Of these plants, 755 are native which totals 84.4% Native plantings.

Reference Evapotranspiration (ETo) 43.1 City of Palo Alto

Hydrozone # /Planting Description[a]	Plant Factor (PF)	Irrigation Method[b]	Irrigation Efficiency (IE)[c]	ETAF (PF/IE)	Landscape Area (sq. ft.)	ETAF x Area	Estimated Total Water Use (ETWU)[d]
Regular Landscape Areas							
Low Water-Use Plants	0.30	Drip	0.81	0.37	3,125	1,156	30,897
Moderate Water- Use Plants	0.50	Drip	0.81	0.62	322	200	5,335
					(A)	(B)	
				Totals	3,447	1,356	36,232
Special Landscape Areas							
Water Feature					77		
					(C)	(D)	
				Totals	0	0	
						ETWU Total	36,232
			Maximum Allowed Water Allowance (MAWA)[e]				41,450

[a] Hydrozone #/Planting Description
E.g
1.) front lawn
2.) low water use plantings
3.) medium water use planting

[b] Irrigation Method
overhead spray
or drip

[c] Irrigation Efficiency
0.75 for spray head
0.81 for drip

[d] ETWU (Annual Gallons Required) = Eto x 0.62 x ETAF x Area
where 0.62 is a conversion factor that converts acre- inches per acre per year to gallons per square foot per year.

[e] MAWA (Annual Gallons Allowed) = *(Eto) (0.62) [(ETAF x LA) + ((1-ETAF) x SLA)]*
where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year, LA is the total landscape area in square feet, SLA is the total special landscape area in square feet, and ETAF is .55 for residential areas and 0.45 for non-residential areas.

ETAF Calculations

Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas, and 0.45 or below for non-residential areas.

Regular Landscape Areas

Total ETAF x Area (B)	1,356
Total Area (A)	3,447
Average ETAF	**0.393353640**

All Landscape Areas

Total ETAF x Area (B+D)	1,356
Total Area (A+C)	3,447
Sitewide ETAF (B+D) ÷ (A+C)	**0.393353640847113**


Festuca californica

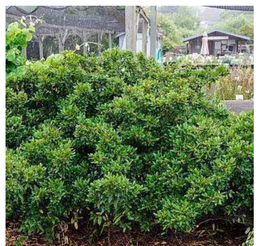

Helictotrichon sempervirens


Heteromeles arbutifolia


Lomandra ‘Lime Turf’


Muhlenbergia rigens


Myrica californica


Rhamnus c. ‘Mound San Bruno’


Salvia c. ‘Winifred Gilman’


Stipa arundinacea


Sysyrinchium angustifolium


Calamagrostis acutiflora ‘Stricta’


Anigozanthos 'Gold Velvet"


Sisyrinchium bellum


Mahonia repens

SMITH DEVELOPMENT

660 UNIVERSITY
PALO ALTO, CA 94301

THE Guzzardo Partnership, INC.
Landscape Architects | Land Planners
Pier 9, The Embarcadero, Suite 115
San Francisco, CA 94111 | www.tgp-inc.com

ISSUES AND REVISIONS

NO.	DATE	DESCRIPTION
	12.01.21	PLANNING SUBMITTAL
	05.13.22	PLANNING RESUBMITTAL #1
	08.15.22	PLANNING RESUBMITTAL #2
	11.02.22	PLANNING RESUBMITTAL #3
	08.28.23	PLANNING RESUBMITTAL #4
	10.31.23	PLANNING RESUBMITTAL #5
	12.21.23	PLANNING RESUBMITTAL #6
	02.07.24	PLANNING RESUBMITTAL #7

PROJECT NUMBER
21003

SHEET TITLE
PLANTING PALETTE & IMAGERY & WELO CALCULATIONS

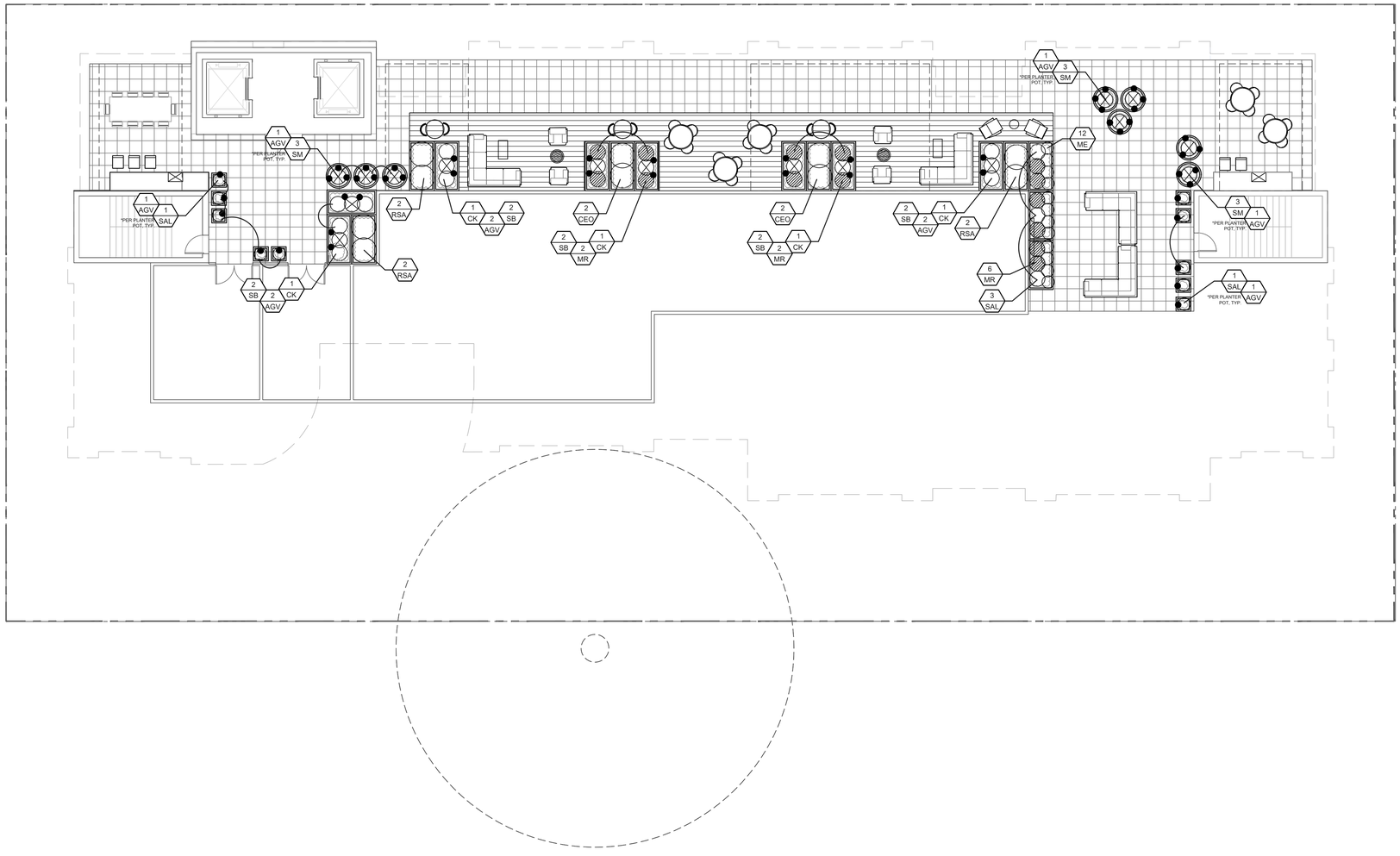
SCALE

SHEET NUMBER
L 3.2

UNIVERSITY AVE

BYRON STREET

MIDDLEFIELD ROAD



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	12.21.23	PLANNING RESUBMITTAL #6
	02.07.24	PLANNING RESUBMITTAL #7

PROJECT NUMBER
21003

SHEET TITLE
PLANTING PLAN - ROOF DECK

SCALE

PROJ NORTH
TN

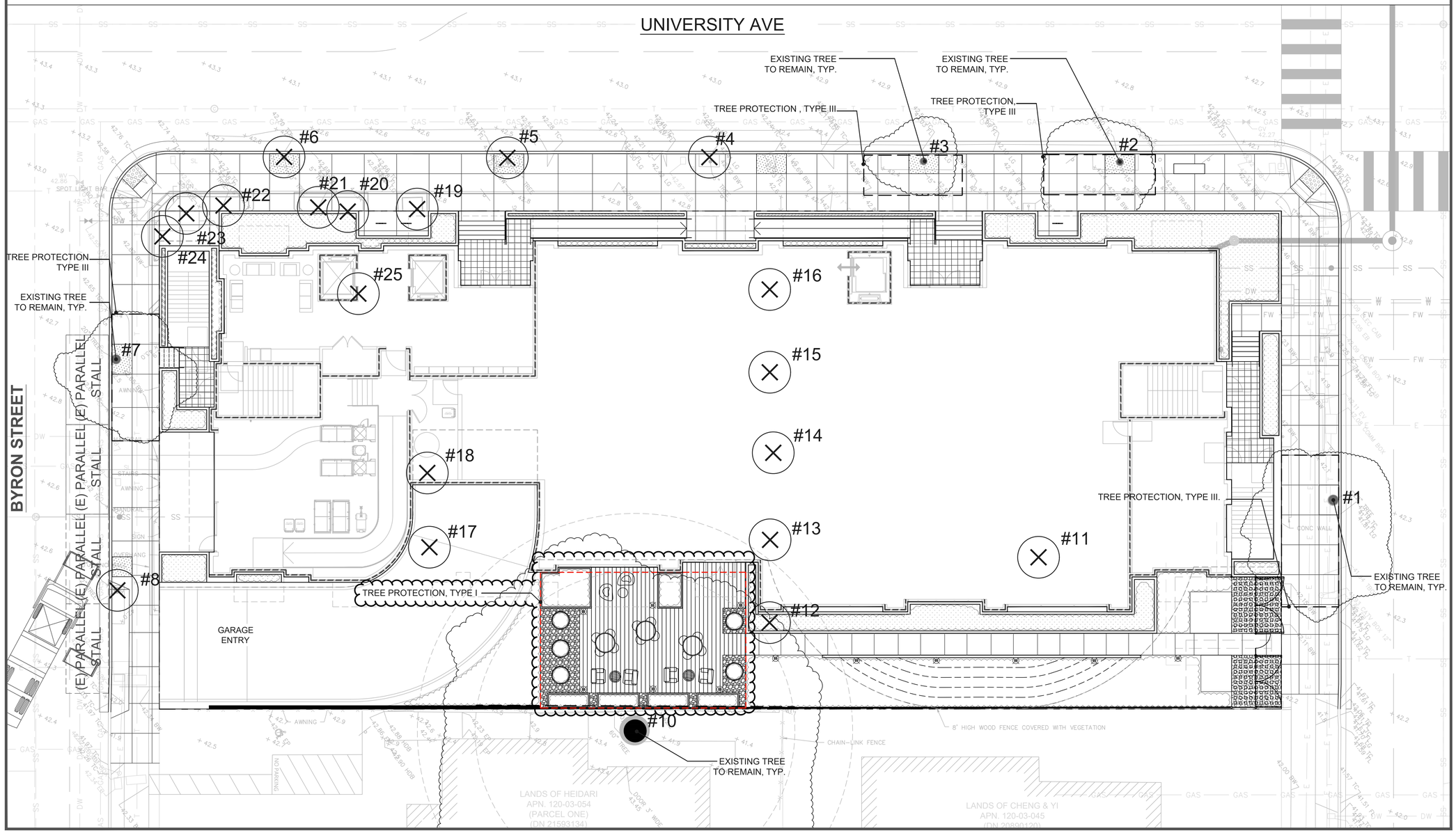
SCALE: 1" = 10'-0"
0' 5' 10' 20'

SHEET NUMBER
L 3.3

TREE DISPOSITION LEGEND

Total Existing Trees on Site	24
Disposition	Regulated Trees
Tree to be Preserved	0
Tree to be Preserved Off-Site	5
Total Trees Preserved	5
Removed, Poor Condition	3
Removed, Project Re-Design	16
Total Trees Removed	19
Total Proposed Trees	13
Total Trees on Future Site	16

Note:
- See Arborist Report by Arbor Resources dated February 07, 2024 for specific information about existing trees. Contact project Arborist prior to performing any work within the Tree Protection Zones noted in the Arborist report and shown on this drawing as well.



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	10.31.23	PLANNING RESUBMITTAL #5
	12.21.23	PLANNING RESUBMITTAL #6
	02.07.24	PLANNING RESUBMITTAL #7

PROJECT NUMBER
21003

SHEET TITLE
TREE DISPOSITION PLAN - SITE

SCALE
TN
SCALE: 1" = 10'-0"
0' 5' 10' 20'

SHEET NUMBER
L 4.1

City of Palo Alto
Tree Protection - It's Part of the Plan!

Make sure your crews and subs do the job right!

Fenced enclosures around trees are essential to protect them by keeping the foliage canopy and branching structure clear from contact by equipment, materials and activities, preserving roots and soil conditions in an intact and non-compacted state, and identifying the Tree Protection Zone (TPZ) in which no soil disturbance is permitted and activities are restricted, unless otherwise approved. **An approved tree protection report must be added to this sheet when project activity occurs within the TPZ of a regulated tree.**
For detailed information on Palo Alto's regulated trees and protection during development, review the **City Tree Technical Manual** (TTM) found at www.cityofpaloalto.org/trees/.

TREE DISCLOSURE STATEMENT

CITY OF PALO ALTO
Planning Division, 250 Hamilton Avenue
Palo Alto, CA 94301
(650) 329-2441
http://www.cityofpaloalto.org

Palo Alto Municipal Code, Chapter 8.10.040, requires disclosure and protection of certain trees located on private and public property, and that they be shown on approved site plans. A completed disclosure statement must accompany all building permit applications that include exterior work, all demolition or grading permit applications, or other development activity.

PROPERTY ADDRESS: _____

Are there Regulated[1] trees on or adjacent to the property? **YES** **NO** (If no, proceed to Section 4)

[Sections 1- 4 MUST be completed by the applicant. Please circle and/or check where applicable.]

1. Where are the trees? Check those that apply. **(Plans must be submitted showing over 4" diameter trees)**
   - ☐ On the property
   - ☐ On adjacent property overhanging the project site
   - ☐ In the City planter strip or right-of-way easement within 30' of property line (Street Trees)*

*Street trees[1] **require special protection by a fenced enclosure,** per the attached instructions. Prior to receiving any permit, you must provide an authorized Street Tree Protection Verification form by calling Public Works Operations at 493-5953 for inspection of required type I, II or III fencing (see attached Detail #605).

2. Are there any Protected[1] or Designated[1] Trees? **YES** (Check where applicable) **NO**
   - ☐ Protected Tree (s)
   - ☐ Designated Tree (s)
   - ☐ On or overhanging the property

3. Is there activity or grading within the dripline? (radius 10 times the trunk diameter) of these trees? **YES** **NO**
*If Yes, a **Tree Preservation Report** must be prepared by an ISA certified arborist and submitted for staff review (see TTM , Section 6.25). Attach this report to Sheet T-1, Tree Protection, its Part of the Plan!", per Site Plan Requirements.*

4. Are the Site Plan Requirements** completed? **YES** **NO**

**Protection of Regulated trees during development require the following: (1) Plans must show the measured trunk diameter and canopy dripline; (2) Plans must denote, as a bold dashed line, a fenced enclosure area out to the dripline, per Sheet T-1 and Detail #605 - http://www.cityofpaloalto.org/trees/forms.htm (See also TTM , Section 2.15 for area to be fenced)

I, the undersigned, agree to the conditions of this disclosure. I understand that knowingly or negligently providing false or misleading information in response to this disclosure requirement constitutes a violation of the Palo Alto Municipal Code Section 8.10.040, which can lead to criminal and/or civil legal action.

Signature: _____ Print: _____ Date: _____
(Prop. Owner or Agent)

FOR STAFF USE:

Protective Fencing
Sections 5-6 must be **completed by staff** for the issuance of any development permit (demolition, grading or building permit).

5. Protected Trees. The specified tree fencing is in place. A written statement is attached verifying that protective fencing is correctly in place around protected and/or designated trees. **YES** **NO**
(N/A if there are no protected trees, check here ☐)

6. Street Trees. A signed Public Works Street Tree Protection Verification form is attached. **YES** **NO**
(N/A if there are no street trees, check here ☐).

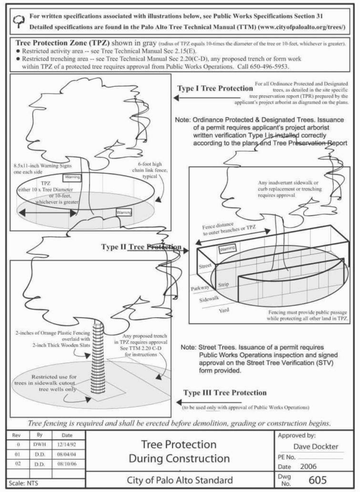
[1] Regulated Trees – a) Street trees – trees on public property; b) Protected trees – Coast Live Oaks or Valley Oaks which are 11.5" in diameter or larger, Coast Redwoods which are 18" in diameter or larger, when measured 54" above natural grade; and Heritage trees are trees designated by City Council; and c) Designated Trees – commercial or non-residential property trees, which are part of an approved landscape plan.

Palo Alto Tree Technical Manual (TTM) contains instructions for all requirements on this form, available at http://www.cityofpaloalto.org/planning-community/ttm_technical-manual.html

S:Plan/Padv/Arborist/Tree Protection Info/Tree Disclosure Statement — Revised 08/06

For written specifications associated with illustrations below, see Public Works Specifications Section 31
Detailed specifications are found in the Palo Alto Tree Technical Manual (TTM) (www.cityofpaloalto.org/trees/)

Tree Protection Zone (TPZ) shown in gray (radius of TPZ equals 10-times the diameter of the tree or 10-feet, whichever is greater).
- Restricted activity area – see Tree Technical Manual Sec 2.15(F).
- Restricted trenching area – see Tree Technical Manual Sec 2.20(C-D), any proposed trench or form work within TPZ of a protected tree requires approval from Public Works Operations. Call 650-496-5953.



Tree fencing is required and shall be erected before demolition, grading or construction begins.

Rev	By	Date
0	DWH	12/14/92
01	D.D.	08/04/04
02	D.D.	08/10/06

Tree Protection During Construction

Approved by: Dave Dockter
PE No.
Date 2006
Dwg No. 605

Scale: NTS — City of Palo Alto Standard

Table 2-2 Palo Alto Tree Technical Manual

ARBORIST INSPECTION SCHEDULE

All Checked Items Apply to this project:

1. ☑ **Inspection of Protective Tree Fencing**. The Street Tree Verification Form shall be signed by the City Arborist. For other Protected Trees, the project arborist shall provide a written statement with a photograph verifying that he has conducted a field inspection of the trees and that the protective tree fencing is in place prior to issuance of a demolition, grading, or building permit. (see Verification of Tree Protection, Section 1.39).
2. ☐ **Pre-Construction Meeting**. Prior to commencement of construction, the applicant or contractor shall conduct a pre-construction meeting to discuss tree protection with the job site superintendent, grading equipment operators, project arborist, City Arborist, and, if a city maintained irrigation system exists, the Parks Manager (Contact 650-496-6962).
3. ☐ **Inspection of Rough Grading**. The project arborist shall perform an inspection during the course of rough grading adjacent to the TPZ to ensure trees will not be injured by compaction, cut or fill, drainage and trenching, and if required, inspect aeration systems, tree wells, drains and special paving. The contractor shall provide the project arborist at least 48 hours advance notice of such activity.
4. ☐ **Monthly Inspections**. The project arborist shall perform a monthly activity inspection to monitor and advise for conditions and tree health. The City Arborist shall be in receipt of the activity report during the first week of each calendar month or, immediately if there are ***any revisions*** to the approved plans or protection measures. Fax to (650) 329-2154. (see Monthly Inspection Report, Section 1.17).
5. ☐ **Special activity within the Tree Protection Zone**. Work in this area (TPZ - described in #7 below) requires the direct onsite supervision of the project arborist (see Trenching, Excavation and Equipment, TTM Section 2.20 C).
6. ☐ **Landscape Architect Inspection**. For discretionary development projects, prior to temporary or final occupancy the applicant or contractor shall arrange for the Landscape Architect to perform an on site inspection of all plant stock, quality of the materials and planting (see Quality, Section 5.20.1 A) and that the irrigation is functioning consistent with the approved construction plans. The City shall be in receipt of written verification of Landscape Architect approval prior to scheduling the final inspection, unless otherwise approved.
7. ☐ **Other** (please describe) _____

---WARNING---
Tree Protection Zone

This fencing shall not be removed without City Arborist approval (650-496-5953)

Removal without permission is subject to a $500 fine per day*

Palo Alto Municipal Code Section 8.10.110

City of Palo Alto Tree Protection Instructions are located at http://www.city.palo-alto.ca.us/trees/technical-manual.html

City of Palo Alto
250 Hamilton Avenue, Palo Alto, CA 94301

Search: Advanced — Browse By Topic
Home > Planning & Community Environment

Home
City-owned Trees
Privately-owned Trees
About the Tree Ordinance
Title 8.10
Heritage Trees
Forms
Tree Technical Manual
FAQs
Contact Us
Resources

Tree Technical Manual

To purchase the Tree Technical Manual

June, 2001 First Edition

View by section:

- Table of Contents (PDF, 87KB)
- Intent and Purpose (PDF, 1.05MB)
- Introduction - Use of Manual (PDF, 1.05MB)
- Section 1.0 - Definitions (PDF, 96KB)
- Section 2.0 - Protection of Trees During Construction (PDF, 259KB)
- Section 3.0 - Removal, Replacement & Planting of Trees (PDF, 117KB)
- Section 4.0 - Hazardous Trees (PDF, 105KB)
- Section 5.0 - Tree Maintenance Guidelines (PDF, 110KB)
- Section 6.0 - Tree Reports (PDF, 84KB)

View ALL sections:

- Tree Technical Manual - Full (PDF, 1.84MB)

APPENDICES
A. Palo Alto Municipal Code Chapter 8.10, Tree Preservation & Management Regulations
B: Tree City - USA
C: ISA Hazard Evaluation Form
D: List of Inherent Failure Patterns for Selected Species (Reference source)
E: ISA Tree Pruning Guidelines (PDF, 1.85MB)
F: Tree Care Safety Standards, ANSI Z133.1-1994 (Reference source)
G: Pruning Performance Standards, ANSI A300-1995 (Reference source) H: Tree Planting Details, Diagram 504 & 505
I: Tree Disclosure Statement
J: Palo Alto Standard Tree Protection Instructions

APPENDIX J

PALO ALTO
STREET TREE PROTECTION INSTRUCTIONS
--SECTION 31--

31-1 General
- a. **Tree protection has three primary functions.** 1) to keep the foliage canopy and branching structure clear from contact by equipment, materials and activities; 2) to preserve roots and soil conditions in an intact and non-compacted state and 3) to identify the Tree Protection Zone (TPZ) in which no soil disturbance is permitted and activities are restricted, unless otherwise approved.
- b. **The Tree Protection Zone (TPZ)** is a restricted area around the base of the tree with a radius of ten-times the diameter of the tree's trunk or ten feet; whichever is greater, enclosed by fencing.

31-2 Reference Documents
- a. **Detail 605** – Illustration of situations described below.
- b. **Tree Technical Manual (TTM) Forms** (http://www.cityofpaloalto.org/trees/)
  1. Trenching Restriction Zones (TTM, Section 2.20(C))
  2. Arborist Reporting Protocol (TTM, Section 6.30)
  3. Site Plan Requirements (TTM, Section 6.35)
  4. Tree Disclosure Statement (TTM, Appendix J)
- c. **Street Tree Verification (STV) Form** (http://www.cityofpaloalto.org/trees/forms)

31-3 Execution
- a. **Type I Tree Protection:** The fence shall enclose the entire TPZ of the tree(s) to be protected throughout the life of the construction project. In some parking areas, if fencing is located on paving or concrete that will not be demolished, then the posts may be supported by an appropriate grade level concrete base, if approved by Public Works Operations.
- b. **Type II Tree Protection:** For trees situated within a planting strip, only the planting strip and yard side of the TPZ shall be enclosed with the required chain link protective fencing in order to keep the sidewalk and street open for public use.
- c. **Type III Tree Protection:** To be used only with approval of Public Works Operations. Trees situated in a tree well or sidewalk planter pit, shall be wrapped with 2-inches of orange plastic fencing from the ground to the first branch and overlaid with 2-inch thick wooden slats bound securely (slats shall not be allowed to dig into the bark). During installation of the plastic fencing, caution shall be used to avoid damaging any branches. Major limbs may also require plastic fencing as directed by the City Arborist.
- d. **Size, type and area to be fenced.** All trees to be preserved shall be protected with six (6') foot high chain link fences. Fences are to be mounted on two-inch diameter galvanized iron posts, driven into the ground to a depth of at least 2-feet at no more than 10-foot spacing. Fencing shall extend to the outer branching, unless specifically approved on the STV Form.
- e. **"Warning" signs.** A warning sign shall be weather proof and prominently displayed on each fence at 20-foot intervals. The sign shall be minimum 8.5-inches x 11-inches and clearly state in half inch tall letters: "WARNING - Tree Protection Zone - This fence shall not be removed and is subject to a fine according to PAMC Section 8.10.110."
- f. **Duration**. Tree fencing shall be erected before demolition; grading or construction begins and remain in place until final inspection of the project, except for work specifically allowed in the TPZ. Work or soil disturbance in the TPZ requires approval by the project arborist or City Arborist (in the case of work around Street Trees). Excavations within the public right of way require a Street Work Permit from Public Works.
- g. **During construction**
  1. All neighbors' trees that overhang the project site shall be protected from impact of any kind.
  2. The applicant shall be responsible for the repair or replacement plus penalty of any publicly owned trees that are damaged during the course of construction, pursuant to Section 8.04.070 of the Palo Alto Municipal Code.
  3. The following tree preservation measures apply to all trees to be retained:
     - a. No storage of material, topsoil, vehicles or equipment shall be permitted within the TPZ.
     - b. The ground under and around the tree canopy area shall not be altered.
     - c. Trees to be retained shall be irrigated, aerated and maintained as necessary to ensure survival.

END OF SECTION

City of Palo Alto 2004 Standard Drawings and Specifications
Street Tree Verification of Protection, PWE, Section 31 — Revised 08/06

City of Palo Alto
Tree Department
Public Works Operations
PO Box 10250 Palo Alto, CA 94303
650/496-5953 FAX: 650/852-9289
treeprotection@CityofPaloAlto.org

Verification of Street Tree Protection

Applicant Instructions: Complete upper portion of this form. Mail or FAX this form along with signed Tree Disclosure Statement to Public Works Dept. Public Works Tree Staff will inspect and notify applicant.

APPLICATION DATE:	
ADDRESS/LOCATION OF STREET TREES TO BE PROTECTED:	
APPLICANT'S NAME:	
APPLICANT'S ADDRESS:	
APPLICANT'S TELEPHONE & FAX NUMBERS:	

This section to be filled out by City Tree Staff

1. The Street Trees at the above address(es) are adequately protected. The type of protection used is:	YES ☐ NO* ☐ * If NO, go to #2 below
Inspected by:	
Date of Inspection:	
2. The Street Trees at the above address are **NOT** adequately protected. The following modifications are required: Indicate how the required modifications were communicated to the applicant.	

Subsequent Inspection

Street trees at above address were found to be adequately protected:	YES ☐ NO* ☐ * If NO, indicate in "Notes" below the disposition of case.
Inspected by:	
Date of Inspection:	
Notes: List City street trees by species, site, condition and type of tree protection installed. *Also note if pictures were taken.* Use back of sheet if necessary.	

Return approved sheet to Applicant for demolition or building permit issuance.

S:\PAVOPS\Tree\DS\St.TreeProtect — 9/17/06

T-1

All other tree-related reports shall be added to the space provided on this sheet (adding as needed)
Include this sheet(s) on Project Sheet Index or Legend Page.
A copy of T-1 can be downloaded at www.cityofpaloalto.org/arb/forms

Special Tree Protection Instruction Sheet
City of Palo Alto

T-1

SMITH DEVELOPMENT

660 UNIVERSITY
PALO ALTO, CA 94301

THE Guzzardo Partnership, INC.
Landscape Architects | Land Planners
Pier 9, The Embarcadero, Suite 115
San Francisco, CA 94111 | www.tgp-inc.com

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	12.21.23	PLANNING RESUBMITTAL #6
	02.07.24	PLANNING RESUBMITTAL #7

PROJECT NUMBER
21003

SHEET TITLE
TREE DISPOSITION PLAN - SITE
ARBORIST REPORT

SCALE

SHEET NUMBER

L 4.2

City of Palo Alto
Tree Protection - It's Part of the Plan!

Make sure your crews and subs do the job right!

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ARBOR RESOURCES
professional consulting arborists and tree care

TREE PROTECTION REPORT

660 UNIVERSITY AVENUE
PALO ALTO, CALIFORNIA
(511 BYRON ST., 660 & 680 UNIVERSITY AVE.)

Submitted to:

Smith Development
682 Villa Street, Suite G
Mountain View, CA 94041

Prepared by:

David L. Babby
Registered Consulting Arborist® #399
Board-Certified Master Arborist® #WE-4001B

Prior: December 20, 2023
Current: February 7, 2024

p.o. box 25295, san mateo, california 94402 • email: arborresources@comcast.net
office: 650.654.3351 • cell: 650.274.3656 • licensed contractor #796763

TABLE OF CONTENTS

TABLE

EXHIBITS

Nine (9) trees, #1 thru 9, have trunks within the public right-of-way and are defined and regulated by the PAMC as street trees. Tree #1 is along Middlefield Road, #2 thru 6 align University Avenue, and #7 thru 9 align Byron Street. Of these, #1 thru 8 are along the street frontage of the project site, whereas #9 is along the frontage of the neighboring southeastern property (and included to conform with CPA report standards).

Tree #10 is located offsite in close proximity to the property boundary. Trees #11 thru 25 have trunks situated within the property.

Two (2) trees, #9 and 19, are not shown on the topo survey used for Exhibit B. As such, consider their trunk locations represented in Exhibit B as being only roughly approximate locations and not surveyed by me.

Trees #1-9 and 11-25 are considered ornamentals and not native to the local region. Tree #10 is a coast live oak is native, and represents the largest, most visible tree inventoried for this project.

Tree #10 (coast live oak)

Tree #10 is defined by the CPA as a protected tree (refer to Section 3.0 in this report for additional information). Its trunk diameter is 50 inches[4] at 54 inches above soil grade, is around 60 feet tall, and has a mostly balanced canopy spreading nearly 90 feet across.

As part of the initial site study, Smith Development retained me in January 2021 to evaluate #10's condition, as well as provide development setbacks to adequately protect its root zone and canopy while achieving a reasonable assurance of survival, structural integrity and form. A summary of additional observations obtained on 1/16/21 follows (and confirmed to be the same on 12/12/23), and photos obtained on 1/16/21 then can be observed in Exhibit C (page C-3). Information regarding my recommended setbacks and review of potential impacts are presented in Section 5.0.

The oak appears viable and healthy, and exhibits no symptoms or signs of being infected or infested by harmful pathogens. Shoot growth, color and density appear typical for a coast live oak, and woundwood has favorably closed off the vast majority of prior wounds.

[4] The diameter represents an approximation using a Biltmore stick.

Existing features beneath its canopy and surrounding the trunk appear dated, and based on its generally healthy condition, I conclude the tree has adapted well to current site and growing conditions. Its base is buried by leaf debris, and is situated roughly 6 inches or less from a 2-foot tall wall. Northeast of its trunk is barren soil, surface roots, and a raised deck which nears 2 feet above grade and serves as a walkway. Towards the southwest, this walkway continues by nearly 30 feet from the trunk, steadily descending and serving as an ADA ramp leading to the neighbor's parking lot.

Beneath the section of canopy overhanging the project site is an asphalt parking lot elevated above original grade by roughly 2 feet. There are no signs of roots forming cracks or mounds of the asphalt surface; however, given the dated age of the wall and surrounding features, I suspect roots are present, but highly limited as compared to the more favorable root-growing conditions on the neighboring property. A parking lot medium, particularly elevated as this one, is quite unsuitable for root growth, and the retaining wall footing also contributes towards deflecting root growth away from the lot.

Its structure also appears intact and stable, consisting of a main trunk dividing into five leaders at 10 feet high; their unions are favorably spaced apart, although visual and manual examination of the junction should occur once neighboring site access can be obtained to identify the presence of any defects, or lack thereof. The section of trunk and root collar buried by leaf debris should also be examined at that time.

The canopy is highly elevated above the parking lot, and appears to have been regularly pruned over its many years. The elevated canopy, however, does unfavorably displace limb and branch weight towards the canopy's edges, and potentially increases the possibility of limb and branch failure (although the regular maintenance provided certainly helps minimize this risk).

Review of Arborist Reports

Two arborist reports were provided to the project team by the CPA; one authored by Arborist OnSite, dated 5/23/22, and the other by Walter Levison Consulting Arborist, dated 12/21/22. Following my review, I maintain that my analysis and recommendations for this project, as presented herein, are accurate.

1.0 INTRODUCTION

Smith Development is planning to construct a mixed-use, four-story building with two levels of underground parking on three properties[1] aligning the southeast side of University Avenue, between Middlefield Road and Byron Street; the project is titled 660 University Avenue. Two existing buildings and a surface parking lot currently occupy the site and will be demolished. As part of their planning submittal, Smith Development has retained me to prepare this *Tree Protection Report*, and specific tasks assigned to execute are as follows (this report serves to update my prior one, dated 12/20/23, prepared for this project):

- Visit the site on 1/16/21, 11/9/21 and 12/12/23 to identify 25 trees which have trunks located within the subject property, on adjoining properties within close proximity to the boundary, and along street frontages up to 30 feet from the boundary.
- Determine each tree's trunk diameter pursuant to the City of Palo Alto's (CPA) *Tree Technical Manual*[2] and the *Guide for Plant Appraisal, 10th Edition*;[3] all diameters represent inches and are rounded to the nearest whole number.
- Estimate each tree's height and average canopy spread (rounded to the nearest fifth).
- Ascertain each tree's health, structural integrity and form, and assign an overall condition rating (e.g. good, fair, poor or dead).
- Rate each tree's suitability for preservation (e.g. high, moderate or low).
- Obtain photographs; see Exhibit C (they represent those obtained in 2021).
- Assign numbers in a sequential pattern from #1 thru 25, and plot on the site map in Exhibit B (base map is a copy of the *Topographic & Boundary Survey* prepared by BKF, dated 2/17/21).
- Affix round metal tags with corresponding, engraved numbers onto the trunks of onsite and street trees (i.e. all but #10).
- Identify which are defined by the PAMC as protected and/or street trees.
- Ascertain the potential tree disposition and potential impacts by reviewing [1] the Planning Resubmittal #5 drawing set, dated 10/31/23, and [2] two landscape plans, dated 2/7/24, showing the proposed deck beneath #10's canopy.
- Provide design guidelines and protection measures to help avoid or mitigate potential impacts to retained trees, as well as conform with the CPA requirements.
- Prepare a written report presenting the above information, and submit via email as a PDF document.

[1] The three property addresses include 511 Byron Street, 660 and 680 University Avenue.
[2] Available for viewing at *www.cityofpaloalto.org/civicax/filebank/blobdload.asp?BlobID=6436.*
[3] Authored by the Council of Tree & Landscape Appraisers, and published by the ISA.

2.0 TREE DESCRIPTION

Twenty-five (25) trees of 11 various species were inventoried for this report. They are sequentially numbered as 1 thru 25, and the table below identifies their common names, assigned numbers, counts and overall percentages.

Table 1 - Tree Count and Composition

NAME	TREE NUMBER(S)	COUNT	% OF TOTAL
Chinese pistache	8	1	4%
Coast live oak	10	1	4%
Crape myrtle	19 thru 24	6	24%
European hackberry	1	1	4%
Glossy privet	4 & 5	2	8%
London plane tree	2, 3 & 6	3	12%
Olive tree	11	1	4%
Purple Robe locust	17 & 18	2	8%
Raywood ash	12 thru 16	5	20%
Southern magnolia	7 & 9	2	8%
Yew pine	25	1	4%
	Total	**25**	**100%**

Specific information regarding each tree is presented within the table in Exhibit A. The trees' assigned numbers and approximate locations can be viewed on the site map in Exhibit B, and photographs are presented in Exhibit C.

3.0 REGULATED TREES

The PAMC regulates specific types of trees on public and private property for the purpose of avoiding their removal or disfigurement without first being reviewed and permitted by the CPA. Three categories within the status of regulated trees include protected trees (PAMC 8.10), street trees (PAMC 8.04.020) and designated trees. Additional Information regarding regulated trees can be viewed on page xiii of the CPA's *Tree Technical Manual*.

One tree, #10, is defined as a protected tree due to being a coast live oak with a trunk diameter of 50 inches (the threshold for coast live oaks is having a trunk diameters of ≥11.5 inches at 54 inches above grade). Note that although a new and expanded definition for protected trees was recently codified by the CPA on 7/21/22, the prior definition, presented herein, applies to this project as the planning application precedes 7/21/22.

Trees #1 thru 9 are situated within the public right-of-way and defined as street trees.

The designated tree category applies to existing trees planted on a commercial or planned development site, for either designated tree landscape or to mitigate tree removal. This category can be enacted by the CPA and applied to any specific tree associated with a proposed development.

4.0 SUITABILITY FOR TREE PRESERVATION

Each tree has been assigned either a high, moderate or low suitability for preservation rating as a means to cumulatively measure its health, structural integrity, anticipated life span, remaining life expectancy, location, size, particular species, tolerance to construction impacts, growing space, and safety to property and persons within striking distance. Descriptions of these ratings are presented below, and the high category comprises 1 tree (4%), the moderate category 15 (or 60%), and the low category 9 (or 36%).

High: Applies to #10.

This coast live oak appears healthy and structurally stable; has no obvious, significant health issues or structural defects; presents a good potential for contributing long-term to the site; and requires only periodic or regular care and monitoring to maintain its longevity and structural integrity.

Moderate: Applies to #1-3, 7, 8, 11 and 17-25.

These trees contribute to the site, but at levels less than those assigned a high suitability; might have health and/or structural issues which may or may not be reasonably addressed and properly mitigated; and frequent care is typically required for their remaining lifespan.

Low: Applies to #4-6, 9 and 12-16.

These trees have significant health and/or structural issues expected to worsen regardless of tree care measures employed (i.e. beyond likely recovery). As a general guideline, they should be removed regardless of future site improvements, and any which are retained require frequent monitoring and care throughout their remaining lifespans to minimize risk to any persons or property within striking distance.

Existing features beneath its canopy and surrounding the trunk appear dated, and based on its generally healthy condition, I conclude the tree has adapted well to current site and growing conditions. Its base is buried by leaf debris, and is situated roughly 6 inches or less from a 2-foot tall wall. Northeast of its trunk is barren soil, surface roots, and a raised deck which nears 2 feet above grade and serves as a walkway. Towards the southwest, this walkway continues by nearly 30 feet from the trunk, steadily descending and serving as an ADA ramp leading to the neighbor's parking lot.

Beneath the section of canopy overhanging the project site is an asphalt parking lot elevated above original grade by roughly 2 feet. There are no signs of roots forming cracks or mounds of the asphalt surface; however, given the dated age of the wall and surrounding features, I suspect roots are present, but highly limited as compared to the more favorable root-growing conditions on the neighboring property. A parking lot medium, particularly as elevated as this one, is quite unsuitable for promoting root growth, and the retaining wall footing (depth unknown) also contributes towards deflecting root growth away from the parking lot.

Its structure also appears intact and stable, consisting of a main trunk dividing into five leaders at 10 feet high; their unions are favorably spaced apart, although visual and manual examination of the junction should occur once neighboring site access can be obtained to identify the presence of any defects, or lack thereof. The section of trunk and root collar buried by leaf debris should also be examined at that time.

The canopy is highly elevated above the parking lot, and appears to have been regularly pruned over its many years. The elevated canopy, however, does unfavorably displace limb and branch weight towards the canopy's edges, and potentially increases the possibility of limb and branch failure (although the regular maintenance provided certainly helps minimize this risk).

5.0 IMPACT ANALYSIS

5.1 Tree Disposition Summary

My review of project plans reveals the following tree disposition:

- **Remove** (19 in total): #4-6, 8 and 11-25.
- **Retain in Place** (6 in total): #1-3, 7, 9 and 10.

Table 2 below, and continued on the next page, summarizes each tree's proposed disposition, and lists their name, trunk diameter, canopy spread, and suitability for preservation.

Table 2 - Tree Disposition Table

TREE #	COMMON NAME	DISPOSITION		DIAM (in.)	CAN (ft.)	SUITABILITY FOR PRESERVATION
		RETAIN	RMV			
1	European hackberry	X	-	20	40	Moderate
2	London plane tree	X	-	15	50	Moderate
3	London plane tree	X	-	14	40	Moderate
4	Glossy privet	-	X	6	15	Low
5	Glossy privet	-	X	13	20	Low
6	London plane tree	-	X	10	35	Low
7	Southern magnolia	X	-	21	35	Moderate
8	Chinese pistache	-	X	14	35	Moderate
9	Southern magnolia	X	-	20	35	Low
10	Coast live oak	X	-	50	90	High
11	Olive tree	-	X	8, 8	10	Moderate
12	Raywood ash	-	X	2	10	Low
13	Raywood ash	-	X	12	15	Low
14	Raywood ash	-	X	11	20	Low
15	Raywood ash	-	X	6	15	Low
16	Raywood ash	-	X	15	20	Low
17	Purple Robe locust	-	X	6	20	Moderate
18	Purple Robe locust	-	X	5	20	Moderate

T-2

All other tree-related reports shall be added to the space provided on this sheet (adding as needed)
Include this sheet(s) on Project Sheet Index or Legend Page.
A copy of T-1 can be downloaded at www.cityofpaloalto.org/arb/forms

Special Tree Protection Instruction Sheet
City of Palo Alto

T-2

SMITH DEVELOPMENT

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ISSUES AND REVISIONS

NO.	DATE	DESCRIPTION
	12.01.21	PLANNING SUBMITTAL
	05.13.22	PLANNING RESUBMITTAL #1
	08.15.22	PLANNING RESUBMITTAL #2
	11.02.22	PLANNING RESUBMITTAL #3
	08.28.23	PLANNING RESUBMITTAL #4
	10.31.23	PLANNING RESUBMITTAL #5
	12.21.23	PLANNING RESUBMITTAL #6
	02.07.24	PLANNING RESUBMITTAL #7

PROJECT NUMBER
21003

SHEET TITLE
TREE DISPOSITION PLAN - SITE
ARBORIST REPORT

SCALE

SHEET NUMBER

L 4.3

Table continued:

TREE #	COMMON NAME	DISPOSITION: RETAIN	DISPOSITION: RMV	DIAM (in.)	CAN (ft.)	SUITABILITY FOR PRESERVATION
19	Crape myrtle	-	X	5	10	Moderate
20	Crape myrtle	-	X	3, 3, 2	5	Moderate
21	Crape myrtle	-	X	6	10	Moderate
22	Crape myrtle	-	X	6	10	Moderate
23	Crape myrtle	-	X	6	15	Moderate
24	Crape myrtle	-	X	4, 3, 2	10	Moderate
25	Yew pine	-	X	8	10	Moderate

LEGEND
RMV = Remove
DIAM = Diameter (trunk)
CAN = Canopy spread (average)

5.2 Proposed Removals

The 19 trees proposed for removal include #4-6, 8 and 11-25. Trees #4 thru 6 are street trees aligning University Avenue, and will be removed due to their poor condition and low suitability for preservation. Trees #4 and 5 are small privets with advanced and extensive decline and decay. Tree #6 is a London plane which has partially uprooted; leans towards the street; and opposite the lean, has formed a pronounced buttress root causing extensive and somewhat dramatic hardscape damage. Removing #4 thru 6 provides the opportunity to significantly improve the future, long-term tree landscape and site/public safety.

Tree #8 is a street tree of moderate suitability for preservation, and requires removal to accommodate the future drive aisle off Byron Street.

Trees #11 thru 25 are located onsite and within the proposed building and parking garage footprint. Each represents a relatively small, non-native assigned either a low or moderate suitability for preservation.

For replacement sizes, amounts and species, refer to the CPA's recommendations.

5.3 Retained Trees

Trees planned for retention include #1-3, 7, 9 and 10. This section provides my analysis for those exposed to impacts, to include all but #9, and discusses general recommendations to minimize described impacts.

Additional and more detailed mitigation measures are presented within the next section of this report. They should be incorporated into project plans; carefully followed throughout the entire demolition, grading and construction stages; and are subject to revision upon reviewing any revised plans.

Trees #1-3 and 7
These street trees align the project site, and their protection zones can be regarded as being from their trunks up to the existing back of sidewalks and street curbs, and 10 feet in all other directions. Each tree will sustain an estimated 15- to 20-percent canopy loss to achieve building construction. Shoring installation for the parking garage may require an additional 5- to 10-percent of additional canopy removal.

Overall, I find the trees will not be adversely impacted provided these items are followed: pruning is judiciously performed through limited and highly-selective cuts by a California State licensed tree-service company approved by the CPA; scaffolding is minimized in width, and manlifts are utilized, where needed, to avoid unnecessary limb removal; and the shoring methodology is carefully studied and locations for drilling or driving piles are strategically placed to minimize canopy loss. Protection for these trees should include what the CPA defines as Type III Protection (aka trunk wrap), plus plywood to cover unpaved ground (i.e. planters) within their TPZ.

Tree #10
The architectural design substantially conforms to my recommendations provided in January 2021, which stipulates a minimum 30-foot setback from the oak's trunk to construct the future building and parking garage, and a minimum setback of 20 feet from the trunk for all ground disturbance beneath the existing asphalt surface.

The CPA's Tree Protection Zone (TPZ) standard is a radial distance from the trunk equal to 10 times its diameter, which for oak #10, identifies a TPZ of 41 feet from the trunk. The proposed project establishes the TPZ to be 30 feet from the trunk, which equates to a multiplier of 7 times the trunk diameter (and 11 feet inside). Information regarding anticipated impacts to the canopy and roots are discussed on the next page.

Canopy
The 30-foot setback from #10's trunk considers an additional 5 to 6 feet towards the tree where pruning would occur to establish clearances from the building, scaffolding, manlifts, and any shoring equipment. The proposed balconies do encroach inside the 30-foot setback by 5 to 6 feet, but provided construction scaffolding does not need to be erected beyond the balconies' edges (i.e. between the balconies and tree's trunk), then the building remains in conformance with the setback. During construction of the parking garage, strategically placing shoring and highly-selective pruning can limit impacts.

The estimated total canopy loss to construct the proposed building is 15-percent, the extent of which will not adversely affect the oak's existing form. This considers removing a low, 17-inch diameter limb overhanging the lot (see page C-3 of Exhibit C for a photo); an 8-inch diameter branch emerging from a 14-inch diameter limb growing mostly upright at a slight westerly angle; and roughly a dozen smaller branches ranging in size from 1 to 6 inches in diameter. All cuts will be highly selective, occur beyond the main trunk, and performed under direct supervision of the project arborist.

Additional and minor sections of canopy may also require removal to facilitate shoring installation to build the underground parking garage; based on my site analysis, I estimate only 5- to 10-percent, provided the shoring methodology is carefully studied and locations for drilling or driving piles are strategically placed.

Roots
The 20-foot setback from #10's trunk for ground disturbance applies to any soil compaction, grading, subexcavation, overexcavation, trenching, drilling/auguring, storm drains, swales, etc. My review of proposed plans reveals this has been achieved, and a large section of existing asphalt within this area will be retained, a wood deck built on top, and section of existing retaining wall within the TPZ kept in place. Exhibit D includes both Sheet L1.1 and a detailed section of the proposed deck.

Based on my site analysis and plan review, I estimate implementing the proposed design will affect approximately 15- to 20-percent of its root zone, a level considered highly tolerable, particularly for inherently resilient species of coast live oaks.

Protection for #10 would consist of CPA Type I Protection (aka chain link mounted on driven posts).

6.0 TREE PROTECTION MEASURES

Recommendations presented within this section are based on my review of the 10/31/23 plan set, and serve as measures to help mitigate or avoid impacts to trees anticipated for retention. I (hereinafter, "project arborist") should be consulted in the event any cannot be feasibly implemented. Please note, unless otherwise stated, all referenced distances from trunks are intended to be from the closest edge, face of, their outer perimeter at soil grade.

6.1 Design Guidelines

1. Consider each Tree Protection Zone (TPZ) as those minimum distances specified within Section 5.0 of this report. The TPZ is the area where the following minimum activities should be avoided: trenching, soil scraping, compaction, mass and finish-grading, overexcavation, subexcavation, tilling, ripping, swales, bioswales, storm drains, dissipaters, equipment cleaning, removal of underground utilities and vaults, altering existing water/drainage flows, stockpiling and dumping of materials, and equipment and vehicle operation. Where an impact encroaches slightly within a setback, it can be reviewed on a case-by-case basis by the project arborist to determine appropriate mitigation measures.

2. The CPA requires all design changes occurring near retained trees are reviewed by the project arborist prior to resubmitting plans, for purposes of identifying potential impacts and any possible mitigation measures.

3. Per CPA requirements, incorporate this report into the project plan set, following the CPA T-1 sheet, and copying onto T-2, T-3, etc. until its entirety is shown (and in a manner which all report text can be clearly read on the plan sheets).

4. On all architectural, civil, landscape and electrical site-related plans, show the trunk locations, trunk diameters (as circles to scale), and assigned numbers of all inventoried trees (see map in Exhibit B). Also, add notes instructing contractors to comply with recommendations presented in this report and on Sheet T-1, and to contact the project arborist prior to permitted work being performed within a TPZ.

5. On L4.1 and SD1.0, include the following: the notes mentioned in item 4 (second sentence), identify which trees are proposed for removal by placing an "X" across their trunks, and identify the Tree Protection Zones and protection fencing types as shown on the map in Exhibit B.

6. On SD1.0, add a note specifying to abandon any underground portions of existing and unused lines, pipes and manholes, etc. within a TPZ (prescribe they are cut off at existing soil grade versus being dug up and causing root damage). Also, to comply with this, modify the utility demolition currently prescribed within #1's TPZ.

7. Route underground utilities and services beyond TPZs, and per CPA guidelines for street trees, establish at least 10 feet from their trunks. Where this is not feasible, consider the following alternative trenching or installation methods (listed in order of least to most impactful): directionally bore by at least 3.5 to 4 feet below grade, tunnel using a pneumatic air device (e.g. an AirSpade®), or manually dig with a shovel (i.e. no jackhammer); these assume pipe bursting, an optimal method, does not apply to this project. For boring, establish access pits and above-ground infrastructure (e.g. splice boxes, meters and vaults) beyond TPZs.

8. Where within 30 feet from #10's trunk, ensure specifications by the geotechnical, soils and structural engineers do not require compaction, overexcavation, subexcavation or fill beyond 2 feet from the parking garage wall (towards the tree) and 5 feet beyond the building's foundation. Shoring utilized to achieve these setbacks, such as a pile driver or drill rig, shall not be used where significant damage to a tree's canopy would occur (can be determined on a case-by-case basis).

9. The proposed sidewalks within the trees' TPZs should be designed and built entirely above existing soil grade and surface roots (i.e. a no-dig design), including for base material, edging and forms. Also, direct compaction of soil shall be avoided (levels comparable to foot-tamping are acceptable), and soil fill used to bevel the top of walk to existing grade should not exceed 18 to 24 inches from a walk's edge, not be compacted, nor placed closer than 10 feet from a tree's trunk. Tensar® BX Geogrid *(www.tensarcorp.com)* is a material which can help address these limited excavation and compaction requirements.

10. For any retaining or landscape wall within a TPZ, utilize a pier and above-grade beam system, establish the beam spanning between footings to be above-grade (i.e. a no-dig design except for footings), and avoid fill and compaction between footings.

11. Design any new bioswales, storm drains and swales well-beyond TPZs.

12. The permanent and temporary drainage design, including downspouts, should not require water being discharged beneath #10's canopy.

13. All electrical routes should be designed and represented on the electrical site plan to be beyond TPZs.

14. Any new light poles should be established beyond tree canopies, or at a minimum, only where minor branch clearance is needed. The proximity of tree trunks should also be considered, and placed as far from them as possible.

15. The future staging area and route(s) of access should be shown on the final site plan and avoided on unpaved areas beneath or near canopies.

16. The erosion control design should represent silt fence and/or straw rolls at locations beyond TPZs, and at a minimum, not against a tree's trunk. Where within a TPZ, the material should not be embedded into the ground by more than 2 inches, nor require the severance of surface or shallow roots.

17. Avoid specifying the use of herbicides use within a TPZ; where used on site, they should be labeled for safe use near trees. Also, liming shall not occur or be prescribed within 50 feet from a tree.

18. The landscape design should conform to the following additional guidelines:
    a. Tilling, ripping, surface scraping and compaction within TPZs should be avoided.
    b. Irrigation should not strike within 12 inches from trunks of existing trees, nor applied against trunks of new trees.
    c. Plant material installed beneath tree canopies should be >12 to 24 inches from their trunks.

    d. New street tree(s) should be designed to be at least 10 feet from any existing or new utility (per CPA guidelines).
    e. All new trees should be installed, including necessary irrigation, by an experienced California state-licensed landscape contractor (C-27) or tree service company (D-49), and performed to professional industry standards. Only if necessary to stand upright, they should be double-staked (no cross-brace) with rubber tree ties or equivalent, and the support stakes cut below the first main lateral branch. All nursery stakes shall be removed. Root crowns of new trees shall be visible and absent of encircling roots.
    f. Irrigation and lighting features (e.g. main line, laterals, valve boxes, wiring and controllers) should not require trenching inside TPZs, including header/lateral lines. In the event this is not feasible, they may require being installed in a radial direction to, and terminate a specific distance from a trunk (versus crossing past it). In certain instances, a pneumatic air device may be needed to avoid root damage, and any Netafim tubing placed on grade.
    g. Irrigation for new trees should be supplied through an automatic timer, separate from other plant material, and supplied by one to two bubblers (minimum two for a 48-inch box). The bubblers should be placed and staked on the rootball's surface (not against a trunk, in a sleeve or on mulch), at around 1/2 to 1/3 the distance between the trunk and rootball edge. Additionally, an 8-inch tall circular berm formed by soil should established around a rootball's perimeter, and a 3-inch layer of mulch spread over their tops, kept 1-inch from the trunks' bases.
    h. Ground cover beneath canopies of existing trees should be comprised of a 3-inch layer of coarse wood chips or other high-quality mulch (gorilla hair, rock, stone, gravel, black plastic or other synthetic ground cover should be avoided). Mulch should kept off the trees' trunks or visible root collars.
    i. Bender board or other edging material proposed beneath the canopies should be established on top of existing soil grade (such as by using vertical stakes).
    j. Herbicides should be avoided within a TPZ, and where used on site, labeled for safe use near trees. Liming shall not occur within 50 feet from a trunk.

6.2 Before Demolition, Grading and Construction

19. Several weeks prior to mobilizing equipment for demolition, and again, prior to shoring, grading and utility work, conduct a site meeting between the general contractor, applicable subcontractors, and project arborist. The purpose for these meetings is to review tree protection, demolition procedures, shoring methodology and vertical clearances needed for the pile driver or drill rig, and excavation for the underground garage, trench routes, limits of grading, supplemental watering, mulching, pruning, routes of access, staging, and other items and protection measures presented in this report.

20. The project arborist must also regularly inspect the project site as outlined on page 2-14 of the *Tree Technical Manual* (Section 2.30 Inspection Schedule), and verify conformance to tree protection measures. Inspections shall occur at least once per month and continue through final inspection, and additional site visits are necessary to observe/advise regarding tree care and/or services. A summary of pertinent observations and recommendations shall coincide with each inspection.

21. Avoid interrupting any existing irrigation. In the event interruption does occur, supplemental with potable water, and discuss the methodology, frequency and amount with the project arborist beforehand.

22. Prior to mobilizing equipment to the site, install tree protection to enclose all unpaved sections of the TPZs. For tree #10, utilize Type I Protection, which include affixing 5- to 6-foot tall chain link onto 2-inch diameter steel posts spaced apart as needed to remain upright. For all street trees, utilize Modified Type III Protection, which consists of wrapping a single straw wattle horizontally around the trunk at roughly 10 feet high and another around its base (loosely); placing boards (2"x4") vertically around the outside, from ground to 10 feet high; then wrapping orange-plastic fencing around the boards two to three times and tying together. Additionally, lay 3/4- to 1-inch thick plywood over unpaved sections of the planters within the TPZs, or if better, chain link panels mounted on concrete blocks or metal stands. All protection shall remain in place until otherwise instructed by the project arborist, and Sheet T-1 for additional information. Note that should fencing for #10 require being temporarily opened, conduct work under supervision by the project arborist.

23. Affix warning signs every 10± feet of #10's fencing, and one onto the trunk wrap of each street tree. The signs shall be at least 8-½ by 11 inches in size, and refer to Sheet T-1 for a CPA template.

24. Prior to utility installation and grading, review the staked locations with the project arborist where within or near a TPZ. Also, identify the precise locations of where underground utilities within TPZs will be capped (i.e. where being abandoned).

25. All pruning shall be performed under the direction of the project arborist, conducted in accordance with the most recent ANSI A300 standards, and implemented by a California licensed tree-service contractor (D-49) with an ISA certified arborist in a supervisory role. All pruning work on oak #10 shall be supervised directly by the project arborist.

6.3 During Demolition, Grading and Construction

26. Where within the assigned TPZs, all work must performed under the presence of and direct supervision by the project arborist; by foot-traffic only without the travel or operation of heavy equipment, including small tractors; and any approved excavation manually conducted using hand tools only (no jackhammers) and/or utilizing a pneumatic air device operated by a tree service.

27. Great care is needed during demolition and construction to avoid excavating into the ground and disturbing roots within TPZs, and equipment shall not travel over newly exposed ground/roots during the process. Additionally, equipment and truck operators must also be aware of existing trees (both along the street and onsite) to avoid damaging limbs, branches and trunks, as well as the scorching of foliage. Contact the project arborist well in advance of a potential conflict (wrap protection around limbs may be necessary before potential damage occurs).

28. Removing existing asphalt and base material located beyond the proposed deck and within #10's TPZ shall be performed under direct supervision by the project arborist. Once work is completed, restrict heavy equipment from traveling over the newly exposed ground, manually spread a 4- to 6-inch layer of coarse wood chips (or as determined by the project arborist), and expand protection fencing.

29. The removal of any existing plant material within a TPZ must be manually performed, and the work reviewed with the project arborist beforehand.

30. Digging for any bollards or permanent fencing within a TPZ, such as for #10, shall be manually performed using a shovel or post-hole digger. For any root encountered during the process with a diameter ≥2 inches, shift the hole over by 12 inches and repeat the process.

31. Spoils generated during demolition, excavation and trenching must not be piled or spread over unpaved ground within a TPZ. If necessary, temporarily pile on existing concrete, plywood or a tarp.

32. Any authorized digging within a TPZ should retain and protect roots encountered with diameters of ≥2 inches. Once exposed, cover with wet burlap and keep continually moist until they can be assessed by the project arborist; note that roots of street trees must be evaluated by the CPA arborist prior to severing. If authorized by the project arborist and/or CPA arborist for cutting, cleanly severe at 90° to the angle of root growth against the cut line using a fine tooth saw, and then immediately after, bury the cut end with soil or keep continually moist by burlap until the dug area is backfilled. Roots encountered with diameters <2 inches can be cleanly severed at a 90° angle to the direction of root growth.

33. All electrical and irrigation routes shall be staked, reviewed and approved by the project arborist prior to trenching occurring within a TPZ.

34. Avoid using tree trunks as winch supports for moving or lifting heavy loads, or for tying rope, cables, chains, signs or other items around.

35. Dust accumulating on trunks and canopies during dry weather periods may need to be periodically washed away (e.g. every three to four months).

36. Where beneath canopies, avoid disposing harmful products (such as cement, paint, chemicals, oil and gasoline) anywhere on site that allows drainage within or near TPZs; do not wash any equipment; and avoid applying herbicides (if applied, they should be labeled for safe use near trees). Avoid liming within 50 feet from a canopy.

City of Palo Alto
Tree Protection - It's Part of the Plan!

Make sure your crews and subs do the job right!

Fenced enclosures around trees are essential to protect them by keeping the foliage canopy and branching structure clear from contact by equipment, materials and activities, preserving roots and soil conditions in an intact and non-compacted state, and identifying the Tree Protection Zone (TPZ) in which no soil disturbance is permitted and activities are restricted, unless otherwise approved. **An appoved tree protection report must be added to this sheet when project activity occurs within the TPZ of a regulated tree.**
For detailed information on Palo Alto's regulated trees and protection during development, review the **City Tree Technical Manual** (TTM) found at www.cityofpaloalto.org/trees/.

T-2

All other tree-related reports shall be added to the space provided on this sheet (adding as needed)
Include this sheet(s) on Project Sheet Index or Legend Page.
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Special Tree Protection Instruction Sheet
City of Palo Alto

T-2

SMITH DEVELOPMENT

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ISSUES AND REVISIONS

NO.	DATE	DESCRIPTION
	12.01.21	PLANNING SUBMITTAL
	05.13.22	PLANNING RESUBMITTAL #1
	08.15.22	PLANNING RESUBMITTAL #2
	11.02.22	PLANNING RESUBMITTAL #3
	08.28.23	PLANNING RESUBMITTAL #4
	10.31.23	PLANNING RESUBMITTAL #5
	12.21.23	PLANNING RESUBMITTAL #6
	02.07.24	PLANNING RESUBMITTAL #7

PROJECT NUMBER
21003

SHEET TITLE
TREE DISPOSITION PLAN - SITE ARBORIST REPORT

SCALE

SHEET NUMBER
L 4.4

City of Palo Alto
Tree Protection - It's Part of the Plan!

Make sure your crews and subs do the job right!

Fenced enclosures around trees are essential to protect them by keeping the foliage canopy and branching structure clear from contact by equipment, materials and activities, preserving roots and soil conditions in an intact and non-compacted state, and identifying the Tree Protection Zone (TPZ) in which no soil disturbance is permitted and activities are restricted, unless otherwise approved. **An appoved tree protection report must be added to this sheet when project activity occurs within the TPZ of a regulated tree.**
For detailed information on Palo Alto's regulated trees and protection during development, review the **City Tree Technical Manual** (TTM) found at www.cityofpaloalto.org/trees/.

EXHIBIT A:

TREE INVENTORY TABLE

(four sheets)

David L. Babby, Registered Consulting Arborist® *February 7, 2024*

7.0 ASSUMPTIONS AND LIMITING CONDITIONS

- All information presented herein covers only the inventoried trees listed in Exhibit A, and reflects their size, condition, and areas viewed from the project site, as well as adjoining streets and sidewalks on 1/16/21 and 12/12/23. I hold no opinion towards other trees on or surrounding the project area.
- The documented condition and suitability ratings of dormant trees are subject to change once they can be observed following their annual regrowth of leaves.
- Observations were performed visually from the ground without probing, coring, dissecting or excavating.
- I cannot provide a guarantee or warranty, expressed or implied, that deficiencies or problems of any trees or property in question may not arise in the future.
- No assurance can be offered that if all my recommendations and precautionary measures (verbal or in writing) are accepted and followed, that the desired results may be achieved.
- I cannot guarantee or be responsible for the accuracy of information provided by others.
- I assume no responsibility for the means and methods used by any person or company implementing the recommendations provided in this report.
- The information provided herein represents my opinion. Accordingly, my fee is in no way contingent upon the reporting of a specified finding, conclusion or value.
- Numbers shown on the site map in Exhibit B are solely intended to represent a tree's roughly approximate location and should not be construed as surveyed points.
- This report is proprietary to me and may not be copied or reproduced in whole or part without prior written consent. It has been prepared for the sole and exclusive use of the parties to who submitted for the purpose of contracting services provided by David L. Babby.
- If any part of this report or copy thereof be lost or altered, the entire evaluation shall be invalid.

Prepared By: David L. Babby Date: February 7, 2024

Registered Consulting Arborist® #399
Board-Certified Master Arborist® #WE-4001B
CA Licensed Tree Service Contractor #796763 (C61/D49)

ISA CERTIFIED ARBORIST RCA #399 Registered Consulting Arborist

ARBOR RESOURCES professional consulting arborists and tree care

TREE INVENTORY TABLE

TREE/ TAG NO.	TREE NAME	SIZE: Trunk Diameter (in.)	SIZE: Height (ft.)	SIZE: Canopy Spread (ft.)	CONDITION: Health Condition (100%=Best, 0%=Worst)	CONDITION: Structural Integrity (100%=Best, 0%=Worst)	CONDITION: Form (100%=Best, 0%=Worst)	CONDITION: Overall Condition (Good/Fair/Poor/Dead)	Suitability for Preservation (High/Moderate/Low)	Proposed for Removal	REGULATED: Protected Tree	REGULATED: Street Tree
1	European hackberry (*Celtis australis*)	20	35	40	60%	40%	80%	Fair	Moderate	-		X
	Comments: Within a 4' wide planter strip between street and sidewalk. Trunk's base abuts curb. Highly elevated canopy. Sidewalk is slightly raised, now and historically. Codominant leaders emerge at 8' high. Has three large, partial girdling roots, one of which grows over a buttress root and can be pruned away.											
2	London plane tree (*Platanus × hispanica*)	15	55	50	60%	70%	60%	Fair	Moderate	-	-	X
	Comments: Dormant. W/in a narrow, 3' wide by 4.5' long planter. Adjacent sidewalk is raised now and historically, and adjacent curb is cracked. Asymmetrical canopy with excessive limb weight, and lowest limb is elongated and grows towards the building. Surface root in lawn adjoining sidewalk.											
3	London plane tree (*Platanus × hispanica*)	14	50	40	60%	70%	80%	Fair	Moderate	-		X
	Comments: Dormant. Within a 3' wide by 15' long planter. Adjacent sidewalk is cracked at E corner of planter. Surface root in lawn adjoining sidewalk. Vertical form.											
4	Glossy privet (*Ligustrum lucidum*)	6	15	15	30%	30%	30%	Poor	Low	X		X
	Comments: Within a 2' wide by 3.5' long planter. Leans slightly NW. Significant decline, and top section is dead. Prior leader cut at 6' val. - the resulting wound is decaying. At light pole and adjacent concrete is raised.											
5	Glossy privet (*Ligustrum lucidum*)	13	20	20	20%	20%	20%	Poor	Low	X	-	X
	Comments: Within a 2' wide by 4' long planter. Adjacent curb is buckled and raised, and adjacent sidewalk has been historically raised at multiple locations. Significant decline, w/ 50%+ being dead. Large decaying wounds at 6' and 9' high. Asymmetrical canopy with multiple large dead limbs.											
6	London plane tree (*Platanus × hispanica*)	10	45	35	70%	30%	60%	Poor	Low	X	-	X
	Comments: Dormant. Within a 2.5' wide by 3.5' long planter. Has a 16" NW lean, and opposite the lean is a large buttress root. Sidewalk and curb have been historically raised at multiple locations. Codominant top. Asymmetrical canopy with an extended limb over street, as well as a low branch lying on top of #22. Deadwood, including a small dead branch suspended in canopy.											

Site: 660 University Avenue, Palo Alto *1 of 4* *February 7, 2024*
Prepared for: Smith Development
Prepared by: David L. Babby, RCA #399

ARBOR RESOURCES professional consulting arborists and tree care

TREE INVENTORY TABLE

TREE/ TAG NO.	TREE NAME	SIZE: Trunk Diameter (in.)	SIZE: Height (ft.)	SIZE: Canopy Spread (ft.)	CONDITION: Health Condition (100%=Best, 0%=Worst)	CONDITION: Structural Integrity (100%=Best, 0%=Worst)	CONDITION: Form (100%=Best, 0%=Worst)	CONDITION: Overall Condition (Good/Fair/Poor/Dead)	Suitability for Preservation (High/Moderate/Low)	Proposed for Removal	REGULATED: Protected Tree	REGULATED: Street Tree
7	Southern magnolia (*Magnolia grandiflora*)	21	30	35	40%	50%	50%	Poor	Moderate	-	-	X
	Comments: Within a 3.5' wide by 15' long planter. Root crown occupies entire planter width. Adjacent curb is buckled at multiple locations, including historically. Advanced and extensive decline. Canopy has been reduced sometime ago.											
8	Chinese pistache (*Pistacia chinensis*)	14	30	35	60%	40%	70%	Fair	Moderate	X	-	X
	Comments: At NW edge of a 2' wide by 9' long planter. Adjacent sidewalk historically raised at multiple locations. Large old wound at canopy's bottom. Low canopy over street and roof. Buried root collar.											
9	Southern magnolia (*Magnolia grandiflora*)	20	35	35	30%	30%	30%	Poor	Low	-	-	X
	Comments: Along frontage of adjoining SE property (offsite), its trunk being nearly 22' from the property's fence. Within a narrow 2.5' wide planter. Trunk is 4' from CPA electrical and PacBell vaults. Sidewalk bulbs out near trunk. Asymmetrical, highly elevated canopy, and a large amount of foliage within its lower canopy consists of watersprouts (rapidly-growing, weakly-attached shoots). Has several large girdling roots over a buttress root. Advanced, extensive decline, and prior deadwood from 2021 was removed.											
10	Coast live oak (*Quercus agrifolia*)	50	60	90	70%	40%	50%	Fair	High	-	X	
	Comments: Offsite on the adjoining SE property. Its base is 6" from a 2' tall wall and buried by leaf litter. Trunk divides into 5 leaders at 10' high and are favorably spaced apart. Canopy is highly elevated over the site (existing parking lot). Low branches overhang neighbor's roof. Dead branches in canopy's upper S side is very minor and from squirrel damage.											
11	Olive tree (*Olea europaea*)	8, 8	15	10	70%	50%	40%	Poor	Moderate	X	-	-
	Comments: Canopy is rounded. Sucker growth has creatively been formed into a shrub surrounding the lower trunk. Trunk bifurcates at 2.5' high and forms a narrow attachment.											
12	Raywood ash (*Fraxinus a. 'Raywood'*)	2	15	10	70%	30%	20%	Poor	Low	X	-	-
	Comments: Dormant. Within a square planter in parking lot. Trunk curves, and has a mostly one-sided canopy due to being suppressed and growing out from beneath #10.											

Site: 660 University Avenue, Palo Alto *2 of 4* *February 7, 2024*
Prepared for: Smith Development
Prepared by: David L. Babby, RCA #399

ARBOR RESOURCES professional consulting arborists and tree care

TREE INVENTORY TABLE

TREE/ TAG NO.	TREE NAME	SIZE: Trunk Diameter (in.)	SIZE: Height (ft.)	SIZE: Canopy Spread (ft.)	CONDITION: Health Condition (100%=Best, 0%=Worst)	CONDITION: Structural Integrity (100%=Best, 0%=Worst)	CONDITION: Form (100%=Best, 0%=Worst)	CONDITION: Overall Condition (Good/Fair/Poor/Dead)	Suitability for Preservation (High/Moderate/Low)	Proposed for Removal	REGULATED: Protected Tree	REGULATED: Street Tree
13	Raywood ash (*Fraxinus a. 'Raywood'*)	12	25	20	30%	30%	30%	Poor	Low	X	-	-
	Comments: Within a square planter. Trunk bifurcates at 6' high. Significant dieback with deadwood. Adjacent asphalt is cracked and forms a short mound. Asymmetrical canopy an multiple tops.											
14	Raywood ash (*Fraxinus a. 'Raywood'*)	11	20	20	40%	30%	30%	Poor	Low	X	-	-
	Comments: Within a square planter. Has many large decaying cuts. Deadwood. Adjacent asphalt is cracked and slightly raised. Has multiple tops.											
15	Raywood ash (*Fraxinus a. 'Raywood'*)	6	15	10	20%	10%	20%	Poor	Low	X	-	-
	Comments: Small tree within a square planter. Has a large decay column along entire trunk, as well as a large decaying wound at 6' high where a prior leader was cut away. Advanced levels of dieback and deadwood. Asymmetrical canopy and multiple tops.											
16	Raywood ash (*Fraxinus a. 'Raywood'*)	15	25	20	30%	20%	20%	Poor	Low	X	-	-
	Comments: Within a square planter. Has a pronounced E lean. Low limb overhangs adjacent parking space. Significant decay throughout. Deadwood. Adjacent asphalt forms a mound. Has multiple tops.											
17	Purple Robe locust (*Robinia 'Purple Robe'*)	6	35	20	60%	40%	70%	Fair	Moderate	X	-	-
	Comments: Dormant. Single support stake should be removed. Overhangs adjacent building.											
18	Purple Robe locust (*Robinia 'Purple Robe'*)	5	25	20	60%	40%	40%	Poor	Moderate	X	-	-
	Comments: Dormant. Excessive limb weight overhangs parking lot. Asymmetrical form away from #17 and the adjacent building.											
19	Crape myrtle (*Lagerstroemia indica*)	5	10	10	60%	40%	50%	Fair	Moderate	X	-	-
	Comments: Is of Tuscarora variety (as well as #20 thru 24). Within a 2' raised planter. Dormant. Multiple trunks originate 8" high. Canopy is slightly asymmetrical.											

Site: 660 University Avenue, Palo Alto *3 of 4* *February 7, 2024*
Prepared for: Smith Development
Prepared by: David L. Babby, RCA #399

ARBOR RESOURCES professional consulting arborists and tree care

TREE INVENTORY TABLE

TREE/ TAG NO.	TREE NAME	SIZE: Trunk Diameter (in.)	SIZE: Height (ft.)	SIZE: Canopy Spread (ft.)	CONDITION: Health Condition (100%=Best, 0%=Worst)	CONDITION: Structural Integrity (100%=Best, 0%=Worst)	CONDITION: Form (100%=Best, 0%=Worst)	CONDITION: Overall Condition (Good/Fair/Poor/Dead)	Suitability for Preservation (High/Moderate/Low)	Proposed for Removal	REGULATED: Protected Tree	REGULATED: Street Tree
20	Crape myrtle (*Lagerstroemia indica*)	3, 3, 2	10	5	60%	40%	50%	Fair	Moderate	X	-	-
	Comments: Within a 2' raised planter. Dormant. Multiple trunks emerge at grade. Canopy is asymmetrical.											
21	Crape myrtle (*Lagerstroemia indica*)	6	15	10	60%	40%	50%	Fair	Moderate	X	-	-
	Comments: Within a 2' raised planter. Dormant. Multiple trunks originate 6" high. Canopy is slightly asymmetrical.											
22	Crape myrtle (*Lagerstroemia indica*)	6	15	10	60%	40%	50%	Fair	Moderate	X	-	-
	Comments: Within a 2' raised planter. Dormant. Multiple trunks originate 5" high. Canopy is slightly asymmetrical. A low limb of #6 is on top of its canopy.											
23	Crape myrtle (*Lagerstroemia indica*)	6	15	15	60%	40%	60%	Fair	Moderate	X	-	-
	Comments: Within a 2' raised planter. Dormant. Multiple trunks originate 5" high. Canopy is slightly asymmetrical.											
24	Crape myrtle (*Lagerstroemia indica*)	4, 3, 2	15	10	60%	40%	60%	Fair	Moderate	X	-	-
	Comments: Within a 2' raised planter. Dormant. Multiple trunks emerge at grade. Canopy is asymmetrical.											
25	Yew pine (*Podocarpus macrophyllus*)	8	10	10	70%	40%	30%	Poor	Moderate	X	-	-
	Comments: Adjacent to building. Shrub form and shaped into a cube. Trunk bifurcates at 3' high.											

Site: 660 University Avenue, Palo Alto *4 of 4* *February 7, 2024*
Prepared for: Smith Development
Prepared by: David L. Babby, RCA #399

EXHIBIT B:

SITE MAP

(one sheet)

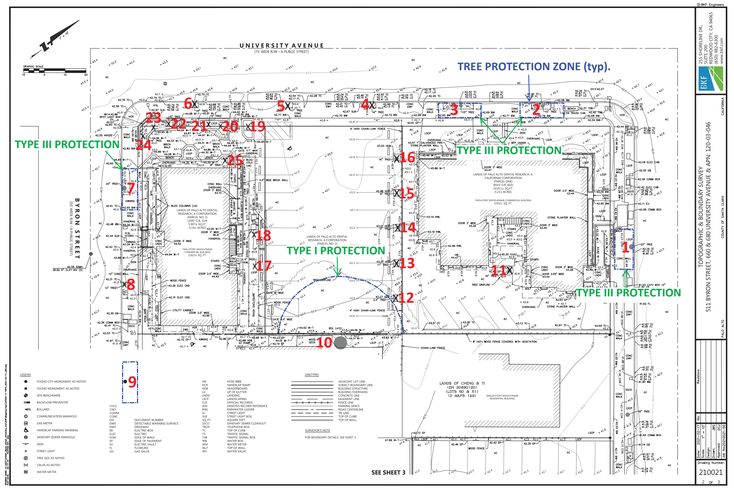

EXHIBIT C:

PHOTOGRAPHS

(five sheets)

Photo Index

660 University Avenue, Palo Alto *Smith Development*

David L. Babby, Registered Consulting Arborist® *February 7, 2024*

660 University Avenue, Palo Alto *Smith Development* *Page C-1*

David L. Babby, Registered Consulting Arborist® *February 7, 2024*

660 University Avenue, Palo Alto *Smith Development* *Page C-2*

David L. Babby, Registered Consulting Arborist® *February 7, 2024*

660 University Avenue, Palo Alto *Smith Development* *Page C-3*

David L. Babby, Registered Consulting Arborist® *February 7, 2024*

660 University Avenue, Palo Alto *Smith Development* *Page C-4*

David L. Babby, Registered Consulting Arborist® *February 7, 2024*

660 University Avenue, Palo Alto *Smith Development* *Page C-5*

T-2

All other tree-related reports shall be added to the space provided on this sheet (adding as needed)
Include this sheet(s) on Project Sheet Index or Legend Page.
A copy of T-1 can be downloaded at www.cityofpaloalto.org/arb/forms

Special Tree Protection Instruction Sheet
City of Palo Alto

T-2

SMITH DEVELOPMENT

660 UNIVERSITY
PALO ALTO, CA 94301

THE **Guzzardo Partnership,** INC.
Landscape Architects | Land Planners
Pier 9, The Embarcadero, Suite 115
San Francisco, CA 94111 | www.tgp-inc.com

ISSUES AND REVISIONS

NO.	DATE	DESCRIPTION
	12.01.21	PLANNING SUBMITTAL
	05.13.22	PLANNING RESUBMITTAL #1
	08.15.22	PLANNING RESUBMITTAL #2
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	10.31.23	PLANNING RESUBMITTAL #5
	12.21.23	PLANNING RESUBMITTAL #6
	02.07.24	PLANNING RESUBMITTAL #7

PROJECT NUMBER
21003

SHEET TITLE
TREE DISPOSITION PLAN - SITE
ARBORIST REPORT

SCALE

SHEET NUMBER

L 4.5

David L. Bubby, Registered Consulting Arborist® *February 7, 2024*

City of Palo Alto
Tree Protection - It's Part of the Plan!

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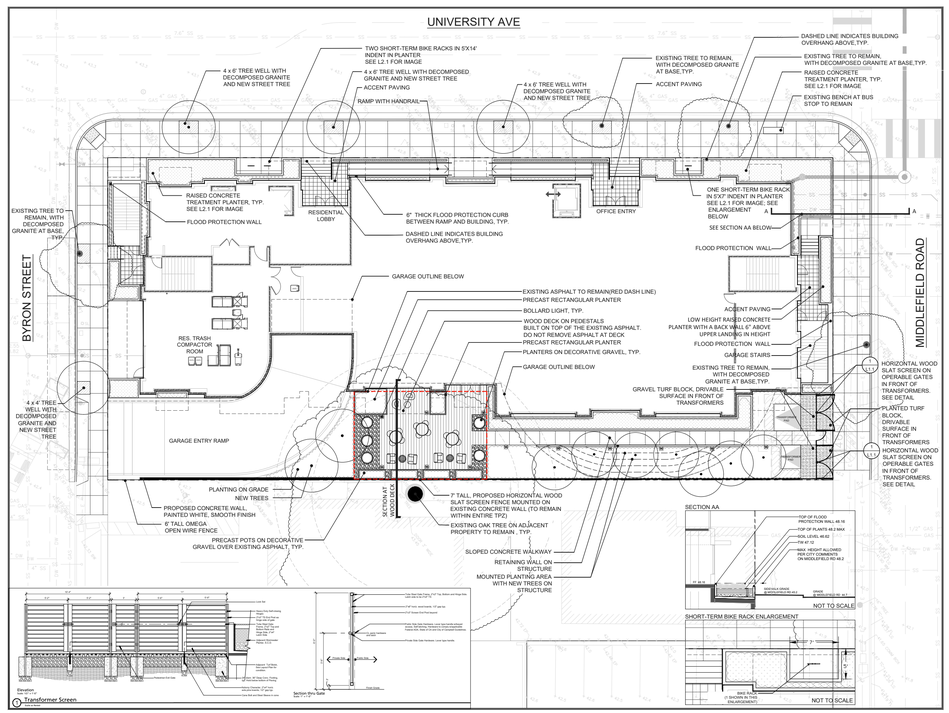
EXHIBIT D:

LANDSCAPE PLANS - DECK BENEATH TREE #10

(two sheets)

Plan Index

660 University Avenue, Palo Alto
Smith Development



SMITH DEVELOPMENT

660 UNIVERSITY
PALO ALTO, CA 94301

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Landscape Architects | Land Planners
Pier 9, The Embarcadero, Suite 115
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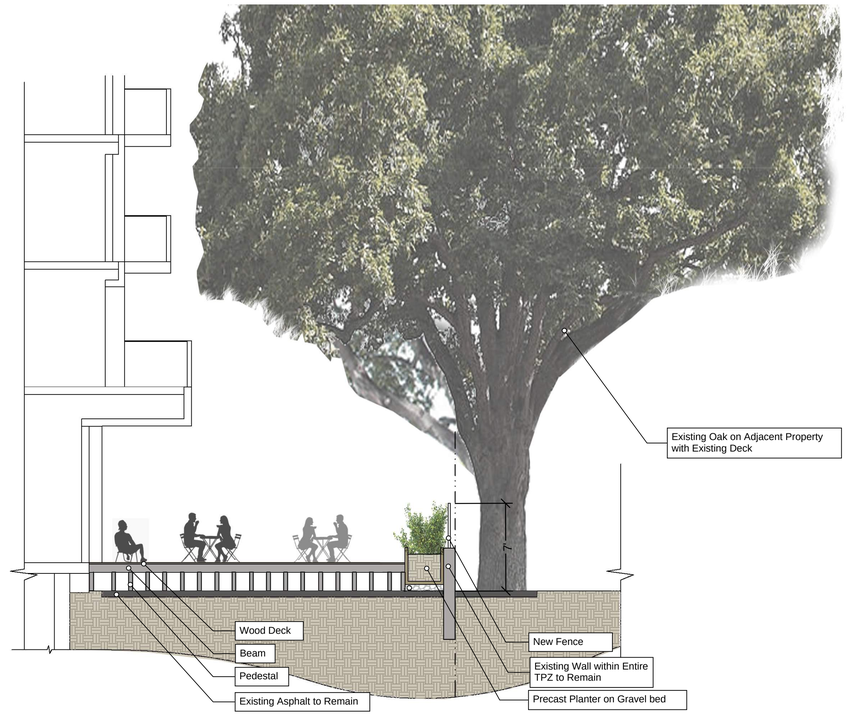
	10.31.23	PLANNING RESUBMITTAL #5
	12.21.23	PLANNING RESUBMITTAL #6
	02.07.24	PLANNING RESUBMITTAL #7

PROJECT NUMBER 21003

SHEET TITLE
LANDSCAPE PLAN - GROUND FLOOR

SCALE
PROJ NORTH
SCALE: 1" = 10'-0"
0 5 10 20

SHEET NUMBER
L 1.1



Landscape Section at Wood Deck

SMITH DEVELOPMENT

660 UNIVERSITY
PALO ALTO, CA 94301

THE Guzzardo Partnership, INC.
Landscape Architects | Land Planners
Pier 9, The Embarcadero, Suite 115
San Francisco, CA 94111 | www.tgp-inc.com

ISSUES AND REVISIONS

NO.	DATE	DESCRIPTION
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	08.28.23	PLANNING RESUBMITTAL #4
	10.31.23	PLANNING RESUBMITTAL #5
	12.21.23	PLANNING RESUBMITTAL #6
	02.07.24	PLANNING RESUBMITTAL #7

PROJECT NUMBER 21003

SHEET TITLE
TREE DISPOSITION PLAN - SITE ARBORIST REPORT

SCALE

SHEET NUMBER
L 4.6

LEGEND:

- PROPERTY LINE
- ADJACENT PROPERTY LINE
- EX FENCE
- EX SANITARY SEWER LINE
- EX STORM DRAIN LINE
- EX DOMESTIC WATER LINE
- EX COMMUNICATIONS LINE
- EX ELECTRIC LINE
- EX OVERHEAD LINE
- EX GAS LINE
- EX TREE
- EX SANITARY SEWER MANHOLE
- EX COMMUNICATIONS MANHOLE
- EX WATER VALVE
- EX STREET LIGHT
- EX SIGN
- BUILDING TO BE DEMOLISHED
- PAVEMENT TO BE DEMOLISHED
- TREE PROTECTION ZONE (SEE NOTE 4)
- TREE TO BE REMOVED

NOTES:

1. DEACTIVATION AND REMOVAL OF GAS AND ELECTRIC LINES TO BE COORDINATED WITH CPAU PRIOR TO DEMOLITION.
2. SERVICE DISCONNECTION REQUIREMENT: WATER, GAS, AND ELECTRIC SERVICES AND METERS MUST BE DISCONNECTED WHENEVER A CONTRACTOR IS PLANNING FOR COMPLETE/PARTIAL BUILDING DEMOLITION OR ANY EXCAVATION. WHERE TO APPLY FOR SERVICE DISCONNECTION: THE APPLICANT SHALL FIRST SUBMIT AN "APPLICATION FOR UTILITIES DISCONNECTION PRIOR TO BUILDING DEMOLITION/REMODELING" INCLUDING A SIGNED "DECLARATION CONCERNING TENANCY OF BUILDING" TO CITY OF PALO ALTO UTILITIES CUSTOMER SERVICE CENTER 250 HAMILTON AVE. (CITY HALL) GROUND FLOOR, PALO ALTO, CA 94301. TELEPHONE (650) 329-2161. FORMS ARE AVAILABLE ONLINE.
3. BENCHMARK STATEMENT: THE ELEVATIONS SHOWN ON THIS SURVEY ARE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), U.S. SURVEY FEET, PER A LEVEL LOOP PERFORMED BY BKF ON JANUARY 23, 2021 FROM CITY OF PALO ALTO BENCHMARK NO. 2189, A CHISELED SQUARE AT THE NORTHWESTERLY CORNER OF THE NORTHEAST CURB RETURN AT THE INTERSECTION OF BYRON STREET AND HAMILTON AVENUE, HAVING A PUBLISHED ELEVATION OF 40.73' (NGVD 29), AND APPLYING A CONVERSION FACTOR (FROM NGVD 29 TO NAVD 88) OF +2.75 FEET AS DIRECTED BY THE CITY OF PALO ALTO. ELEVATION = 43.48'
4. CONTRACTOR TO COMPLY WITH RECOMMENDATIONS PRESENTED IN ARBORIST REPORT BY ARBOR RESOURCES DATED DECEMBER 20, 2023, AND ON SHEET T-1. CONTRACTOR TO CONTACT PROJECT ARBORIST PRIOR TO PERMITTED WORK BEING PERFORMED WITHIN A TREE PROTECTION ZONE.
5. ABANDON ANY UNDERGROUND PORTIONS OF UTILITY PIPES AND STRUCTURES WITHIN A TREE PROTECTION ZONE. CUT OFF AT EXISTING SOIL GRADE TO AVOID CAUSING ROOT DAMAGE. SEE ARBORIST REPORT FOR MORE INFORMATION.

UNIVERSITY AVENUE
(75' WIDE ROW)

BYRON STREET
(50' WIDE ROW)

WATER LATERAL, METER TO BE DEMOLISHED/ ABANDONED BY CPAU SEE NOTE 5

TREE PROTECTION ZONE (TYPE III PROTECTION)

TREE PROTECTION ZONE (TYPE III PROTECTION)

TREE PROTECTION ZONE (TYPE III PROTECTION)

TREE PROTECTION ZONE (TYPE I PROTECTION)

LANDS OF PALO ALTO DENTAL RESEARCH, A CORPORATION
APN. 120-03-042
(PARCEL NO. 1)
(3097 O.R. 324)
5,907± SQ.FT.
0.14± ACRES

TWO-STORY WOOD-FRAME COMMERCIAL BUILDING
2,623± SQ. FT.
TO BE DEMOLISHED

LANDS OF PALO ALTO DENTAL RESEARCH, A CORPORATION
APN. 120-03-043
(PARCEL NO. 2)
(3097 O.R. 324)
6,608± SQ.FT.
0.15± ACRES

LANDS OF PALO ALTO DENTAL RESEARCH, A CALIFORNIA CORPORATION
APN. 120-03-044
(PARCEL ONE)
(8502 O.R. 602)
10,011± SQ.FT.
0.23± ACRES

TWO-STORY WOOD-FRAME COMMERCIAL BUILDING
3,932± SQ. FT.
TO BE DEMOLISHED

LANDS OF HEIDARI
APN. 120-03-054
(PARCEL ONE)
(DN 21593134)
(LOTS 61 & 62)
(D MAPS 149)

LANDS OF CHENG & YI
APN. 120-03-045
(DN 20890120)
(LOTS 50 & 51)
(D MAPS 149)

WATER LATERAL, METER TO BE DEMOLISHED/ ABANDONED BY CPAU

GAS LATERAL, METER TO BE DEMOLISHED/ ABANDONED BY CPAU

EX 14" TREE TO BE DEMOLISHED

SEWER LATERAL, CLEANOUT TO BE DEMOLISHED/ ABANDONED BY CPAU

SIDEWALK AND CURB LIMIT OF DEMOLITION

ELECTRIC LINE TO BE DEMOLISHED/ABANDONED SEE NOTE 1

SEWER LATERAL, CLEANOUT TO BE DEMOLISHED/ ABANDONED BY CPAU

GAS LINE, METER TO BE DEMOLISHED/ABANDONED BY CPAU, (SEE NOTE 5)

TELEPHONE BOX TO BE RELOCATED

BOXES TO REMAIN & BE ADJ. TO GRADE

TELEPHONE LINE TO BE DEMOLISHED/ABANDONED

GAS LINE, METER TO BE DEMOLISHED/ ABANDONED BY CPAU

GRAPHIC SCALE
10 0 10 20

255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

660 UNIVERSITY AVENUE
EXISTING CONDITIONS AND DEMOLITION PLAN

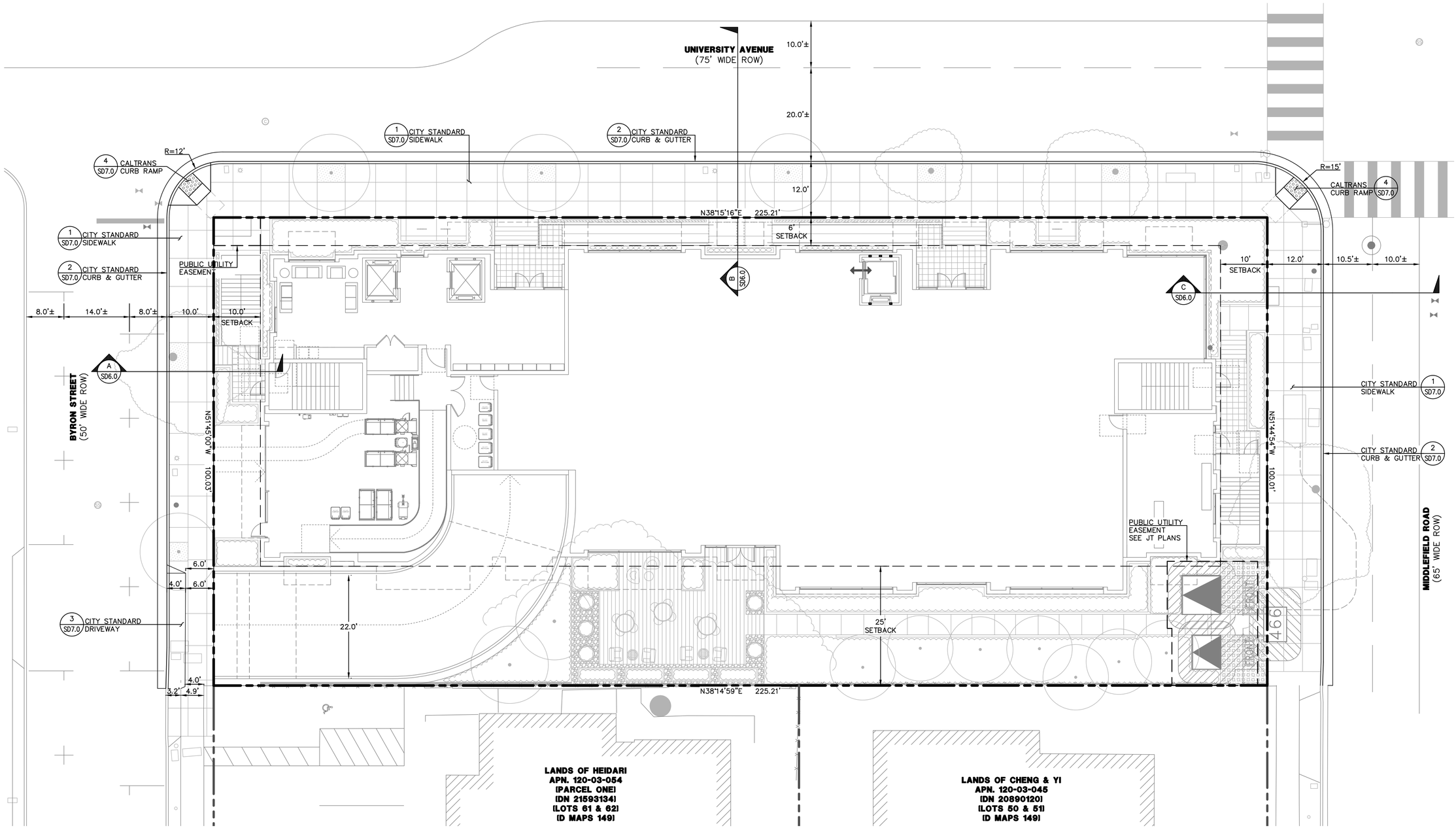
CITY OF PALO ALTO SANTA CLARA COUNTY CALIFORNIA

No.	Revisions	
2	PLANNING RESUBMITTAL #2	08.15.2022
3	PLANNING RESUBMITTAL #3	11.02.2022
4	PLANNING RESUBMITTAL #4	08.28.2023
5	PLANNING RESUBMITTAL #5	10.31.2023
6	PLANNING RESUBMITTAL #6	12.22.2023

Date	10/31/2023
Scale	1" = 10'
Design	MS
Drawn	TKI
Approved	TRM
Job No	20212113

Drawing Number: SD1.0

DRAWING NAME: K:\2021\21213_660_University_Ave\ENG\SD\SD1.0-ExCond_and_Demo_Plan.dwg
PLOT DATE: 12-21-23
PLOTTED BY: inou



GRAPHIC SCALE
10 0 10 20

255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

660 UNIVERSITY AVENUE
SITE PLAN

CITY OF PALO ALTO SANTA CLARA COUNTY CALIFORNIA

No.	Revisions	
2	PLANNING RESUBMITTAL #2	08.15.2022
3	PLANNING RESUBMITTAL #3	11.02.2022
4	PLANNING RESUBMITTAL #4	08.28.2023
5	PLANNING RESUBMITTAL #5	10.31.2023
6	PLANNING RESUBMITTAL #6	12.22.2023

Date	10/31/2023
Scale	1" = 10'
Design	MS
Drawn	TKI
Approved	TRM
Job No	20212113

Drawing Number:
SD2.0

LEGEND:

TC X.X / FL X.X — EXISTING GRADE

TC X.X / FL X.X — PROPOSED GRADE

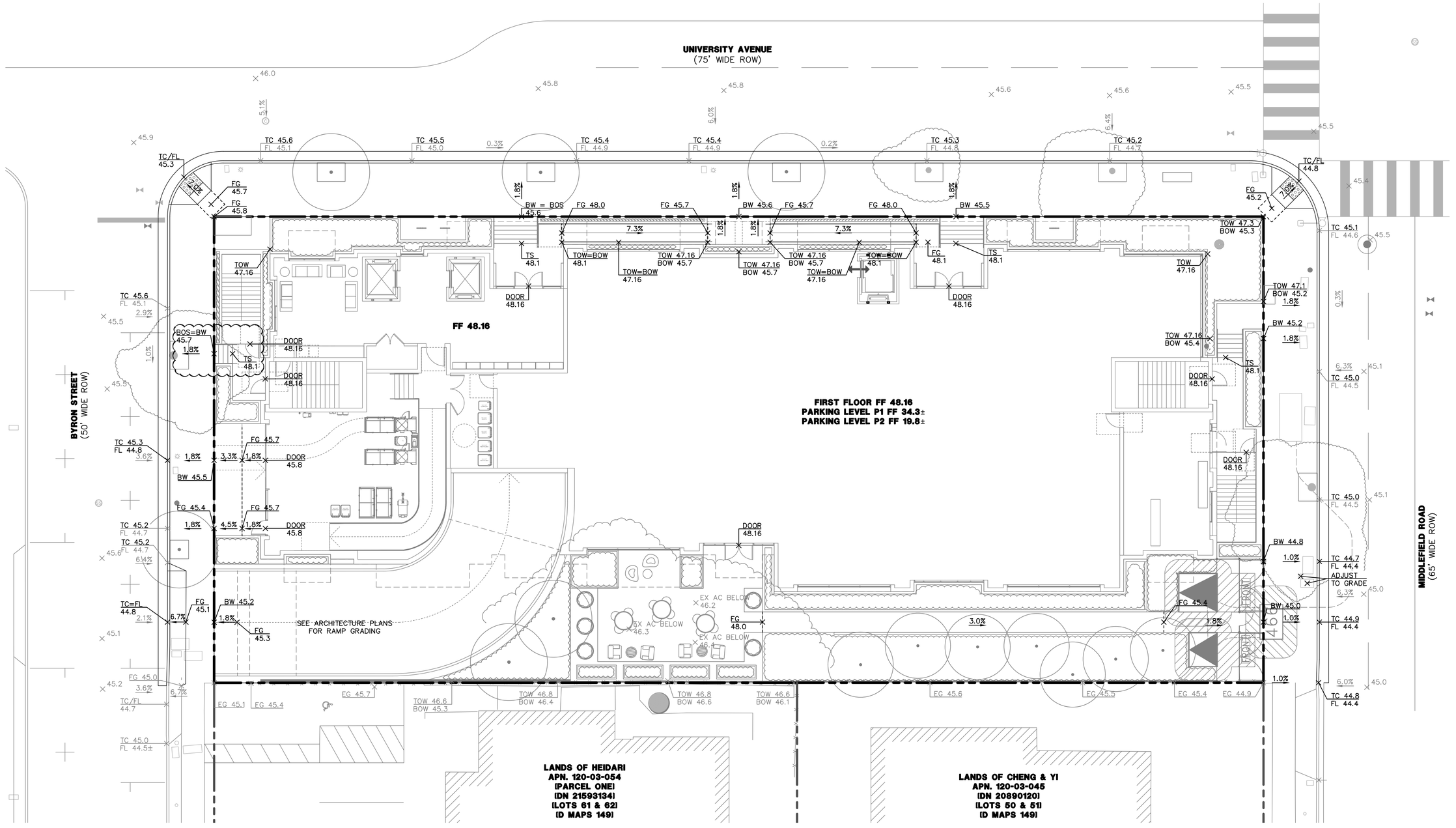
--------- GRADE BREAK

ABBREVIATIONS:

BFE	BASE FLOOD ELEVATION
BOW	BOTTOM OF WALL
BS	BOTTOM OF STEP
BW	BACK OF WALK
EG	EXISTING GRADE
FF	FINISHED FLOOR
FG	FINISHED GRADE
FL	FLOW LINE
GD	GROUND
TC	TOP OF CURB
TOW	TOP OF WALL
TS	TOP OF STEP

NOTE:

1. BASE FLOOD ELEVATION (BFE) FOR PROJECT SITE IS 47. PROPOSED FINISHED FLOOR IS 1 FOOT ABOVE BFE, PLUS APPROXIMATELY 2 INCHES TO ACCOUNT FOR CONSTRUCTION TOLERANCE.



GRAPHIC SCALE
10 0 10 20

255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

660 UNIVERSITY AVENUE
GRADING PLAN

CITY OF PALO ALTO — SANTA CLARA COUNTY — CALIFORNIA

No.	Revisions	
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Date	10/31/2023
Scale	1" = 10'
Design	MS
Drawn	TKI
Approved	TRM
Job No	20212113

Drawing Number:
SD3.0

DRAWING NAME: K:\2021\21213_660_University_Ave\ENG\SD\SD3.0-Grading_Plan.dwg
PLOT DATE: 12-21-23
PLOTTED BY: inou

LEGEND:

- PROPERTY LINE
- ADJACENT PROPERTY LINE
- EX FENCE
- EX SANITARY SEWER LINE
- EX STORM DRAIN LINE
- EX DOMESTIC WATER LINE
- EX COMMUNICATIONS LINE
- EX ELECTRIC LINE
- EX OVERHEAD LINE
- EX GAS LINE
- EX SANITARY SEWER MANHOLE
- EX COMMUNICATIONS MANHOLE
- EX VALVE
- EX STREET LIGHT
- EX FIRE HYDRANT
- PR SANITARY SEWER LINE
- PR STORM DRAIN LINE
- PR DOMESTIC WATER LINE
- PR DOMESTIC WATER LINE
- PR DOMESTIC WATER LINE
- PR CLEANOUT
- PR WATER VALVE
- PR FDC
- PR MANHOLE

ABBREVIATIONS:

CB	CATCH BASIN
CO	CLEANOUT
DW	DOMESTIC WATER
FDC	FIRE DEPARTMENT CONNECTION
FW	FIRE WATER
IRR	IRRIGATION
LT	LATERAL
MH	MANHOLE
RPDA	REDUCED PRESSURE DETECTOR ASSEMBLY
RPPA	REDUCED PRESSURE PRINCIPLE ASSEMBLY
SD	STORM DRAIN
SS	SANITARY SEWER
WM	WATER METER

NOTES:

1. RPPA BACKFLOW PREVENTER TO BE LOCATED IN BASEMENT.
2. RPDA BACKFLOW PREVENTER TO BE LOCATED IN BASEMENT.
3. STORMWATER BEST MANAGEMENT PRACTICES (BMPS) ASSOCIATED WITH REFUSE MANAGEMENT (INCLUDING ACTIONS RELATED TO REFUSE PICK-UP AND THE ENCLOSURE ITSELF) SHALL BE FOLLOWED TO ENSURE POLLUTION PREVENTION AND PREVENTING POTENTIAL DISCHARGES TO THE CITY'S STORM DRAIN SYSTEM. STORMWATER BMPS INCLUDE, BUT ARE NOT LIMITED TO, POWER WASHING THE PAVEMENT ON BOTH THE PRIVATE PROPERTY AND IN THE RIGHT-OF-WAY AND SIDEWALK A MINIMUM OF ONCE A YEAR BEFORE THE WET SEASON BEGINS ON OCTOBER 1ST; UTILIZING A POWER WASHING CONTRACTOR THAT IS A RECOGNIZED SURFACE CLEANER BY THE BAY AREA STORMWATER MANAGEMENT AGENCIES ASSOCIATION (BASMAA); DISPOSING OF WASH WATER ACCORDING TO THE RECOGNIZED SURFACE CLEANER CERTIFICATION REQRUIEMENTS; AND REMOVING ANY POTENTIAL TRASH BUILD-UP ON A REGULAR BASIS.
4. PER CITY OF PALO ALTO UTILITIES RULES & REGULATION 15 METERING, THE CITY WILL PROVIDE A MASTER METER AT AN APPROVED LOCATION NEAR TO THE PUBLIC WATER MAIN AND RIGHT OF WAY TO SERVE THE WHOLE DEVELOPMENT OR BUILDING. THE MULTIUNIT RESIDENTIAL STRUCTURE MUST COMPLY WITH CALIFORNIA WATER METERING FOR MULTI-UNIT STRUCTURES WATER CODE AS AMENDED BY LAW SENATE BILL 7 (WATER CODE, DIVISION 1, CHAPTER 8, ARTICLE 5, SECTION 537-537.5) THAT REQUIRES INDIVIDUAL WATER METERS OR SUBMETERS FOR EACH UNIT FOR STRUCTURES CONSTRUCTED AFTER JANUARY 1, 2018.

UNIVERSITY AVENUE
(75' WIDE ROW)

BYRON STREET
(50' WIDE ROW)

MIDDLEFIELD ROAD
(65' WIDE ROW)

PUBLIC UTILITY EASEMENT

4" RESIDENTIAL DWLT
SEE NOTE 1
4" WATER METER (1 SD7.1)

4" RESIDENTIAL SSLT, CO

SSMH
RIM 42.55
INV 38.82

12" SDLT, CO
4" COMMERCIAL SSLT, CO
2" COMMERCIAL DWLT
SEE NOTE 1
1.5" IRRLT
SEE NOTE 1
8" FWLT
SEE NOTE 2
FDC

SDMH
COMBINED WATER METER (2 SD7.1)

PUBLIC UTILITY EASEMENT
SEE JT PLANS

FRONT

466

LANDS OF HEIDARI
APN. 120-03-054
(PARCEL ONE)
(DN 21593134)
(LOTS 61 & 62)
(D MAPS 149)

LANDS OF CHENG & YI
APN. 120-03-045
(DN 20890120)
(LOTS 50 & 51)
(D MAPS 149)

GRAPHIC SCALE
10 0 10 20

255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
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660 UNIVERSITY AVENUE UTILITY PLAN

CITY OF PALO ALTO — SANTA CLARA COUNTY — CALIFORNIA

No.	Revisions	
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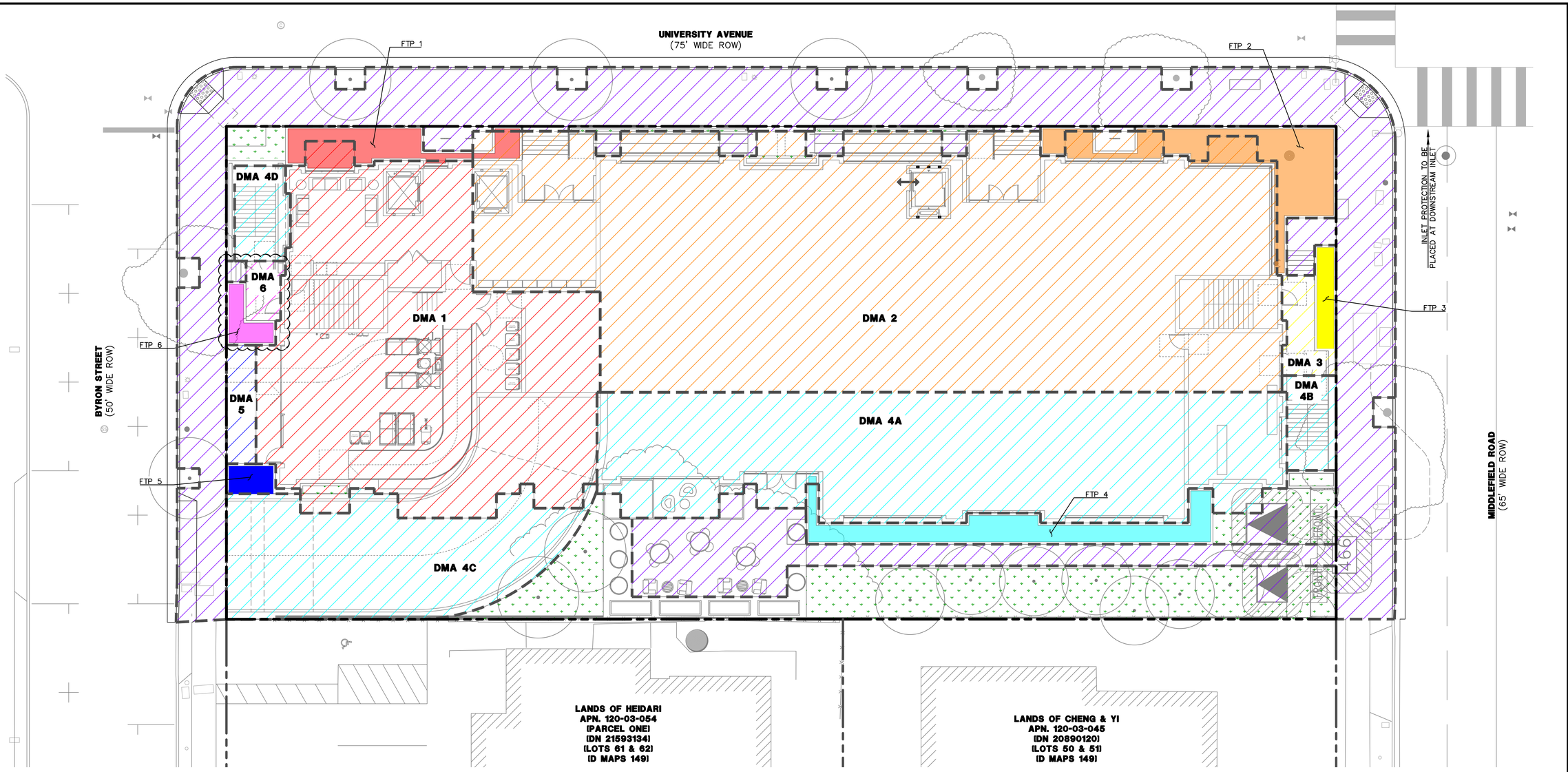
Date	10/31/2023
Scale	1" = 10'
Design	MS
Drawn	TKI
Approved	TRM
Job No	20212113

Drawing Number:
SD4.0

DRAWING NAME: \\Bkf-rc\vol4\2021\212113_660_University_Ave\ENG\SD\SD4.0-Utility_Plan.dwg
PLOT DATE: 12-21-23 PLOTTED BY: monu



LEGEND

STRA* — SELF TREATING/RETAINING AREA

DMA BOUNDARY

NOTE:

1. DO NOT USE CHEMICAL FERTILIZERS, PESTICIDES, HERBICIDES OR COMMERICAL SOIL AMENDMENT. USE ORGANIC MATERIALS REVIEW INSTITUTE (OMRI) MATERIALS AND COMPOST. REFER TO THE BAY–FRIENDLY LANDSCAPE GUIDELINES FOR GUIDANCE.
2. AVOID COMPACTING SOIL IN AREAS THAT WILL BE UNPAVED.
3. FOR ALL C.3 FEATURES, VENDOR SPECIFICATIONS REGARDING INSTALLATION AND MAINTENANCE SHOULD BE FOLLOWED AND PROVIDED TO CITY STAFF. COPIED MUST BE SUBMITTED TO PAM BOYLE RODRIGUEZ AT PAMELA.BOYLERODRIGUEZ@CITYOFPALOALTO.ORG.
4. STAFF FROM STORMWATER PROGRAM (WATERSHED PROTECTION DIVISION) MAY BE PRESENT DURING INSTALLATION OF STORMWATER TREATMENT MEASURES. CONTACT PAM BOYLE RODRIGUEZ, STORMWATER PROGRAM MANAGER, AT (650) 239–2421 BEFORE INSTALLATION.

STORMWATER QUALITY SIZING SUMMARY

DMA ID	DMA (SF)	TREATMENT ID	TREATMENT AREA (SF)	TREATMENT AREA REQUIRED (SF)	MEETS REQUIREMENT?
DMA 1	3,956	FTP 1	237	158	YES
DMA 2	7,913	FTP 2	343	317	YES
DMA 3	152	FTP 3	69	6	YES
DMA 4	5,359	FTP 4	343	214	YES
DMA 5	144	FTP 5	50	6	YES
DMA 6	88	FTP 6	59	4	YES
DMA 7*	6,370	–	SEE NOTE	255	SEE NOTE

* THE APPLICANT AND THE CITY SHALL ENTER INTO AN AGREEMENT ACCEPTABLE TO THE PUBLIC WORKS DIRECTOR OR DESIGNATED REPRESENTATIVE TO PROVIDE ALTERNATIVE COMPLIANCE WITH PAYMENT OF IN–LIEU FEES TO COMPLY WITH THE REGULATED PROJECTS STORMWATER TREATMENT OBLIGATIONS.

GRAPHIC SCALE
10 0 10 20

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SUITE 200
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660 UNIVERSITY AVENUE
STORMWATER MANAGEMENT PLAN

CITY OF PALO ALTO — SANTA CLARA COUNTY — CALIFORNIA

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Date	10/31/2023
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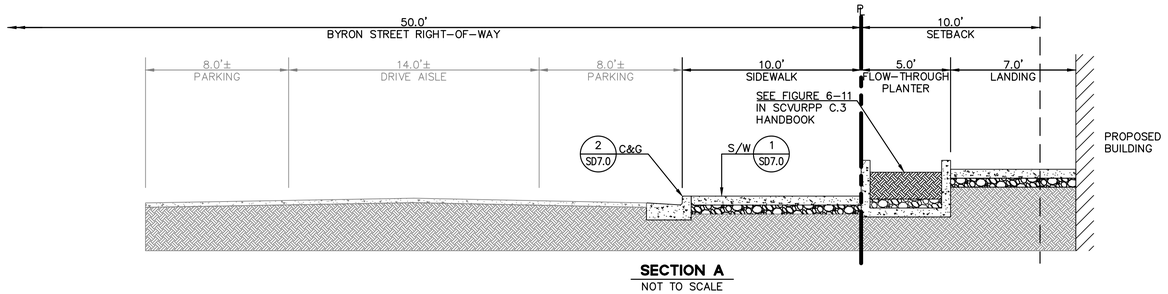
Design	MS
Drawn	TKI
Approved	TRM
Job No	20212113

Drawing Number:
SD5.0



SECTION A
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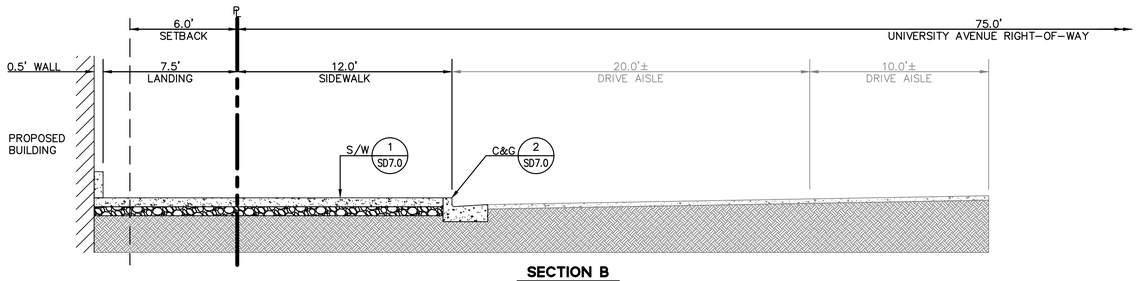
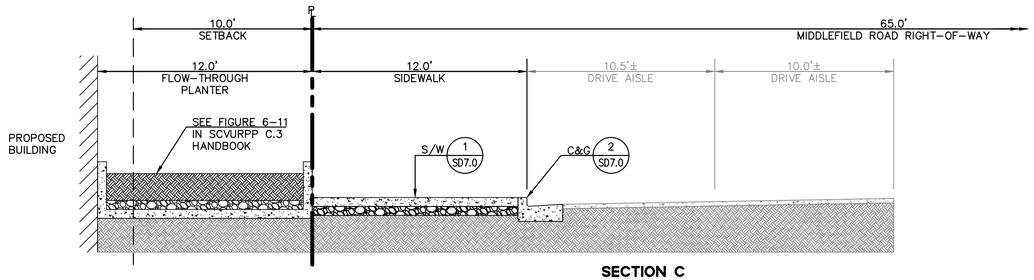


SECTION B
NOT TO SCALE



SECTION C
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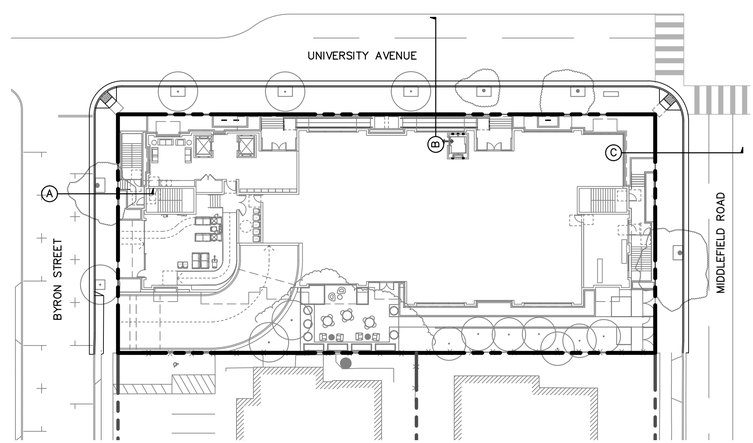

ABBREVIATIONS:

C&G	CURB AND GUTTER
L/S	LANDSCAPE
S/W	SIDEWALK

BKF
255 SHORELINE DRIVE
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660 UNIVERSITY AVENUE
SECTIONS

CITY OF PALO ALTO SANTA CLARA COUNTY CALIFORNIA

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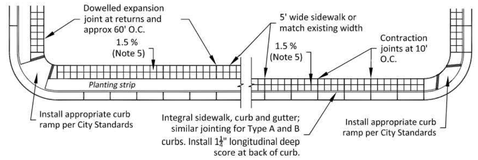
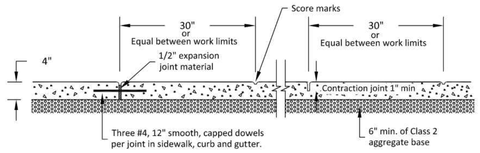
Scale	1" = 10'
Design	MS
Drawn	TKI
Approved	TRM
Job No	20212113

Drawing Number:
SD6.0

DRAWING NAME: K:\2021\212113_660_University_Ave\ENG\SD\SD6.0-Sections.dwg
PLOT DATE: 12-21-23 PLOTTED BY: inou



TYPICAL CITY BLOCK PLAN



Expansion joint Contraction joint

LONGITUDINAL SECTIONS

NOTES:
1. Sidewalks to be marked in 30" squares.
2. Edges to have a 3/4" radius.
3. Score marks shall be minimum 3/8" deep; contraction joints shall be 1" minimum depth at 10 ft. O.C.
4. Contraction joints may be saw-cut.
5. Sidewalks to have 1.5% slope to street.
6. All new sidewalk shall be doweled at 2 ft. O.C. into existing concrete with #4, 12" long dowels and embedded 6".
7. Saw-cut walk full depth and full width on score marks perpendicular to the curb. No saw-cutting on longitudinal score marks.
8. Install longitudinal deep score along entire back of curb that is monolithic with the sidewalk.

Rev	By	Date
0	DWH	12/14/92
1	MN	01/29/02
2	HQN	01/04/07
3	RTN	08/10/17

Scale: NTS

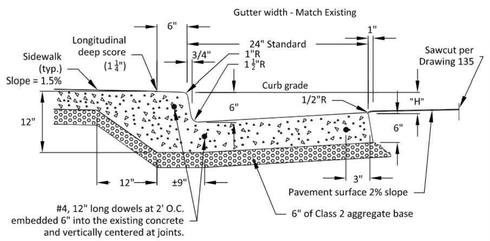
Sidewalk Construction

City of Palo Alto Standard

Approved by:
PE No. 72158
Date 01/10/18
Dwg No. 141

1 - SIDEWALK
NOT TO SCALE

Vertical Curb and Gutter



NOTES:
- Use 1/2" wide felt expansion material at each end of curb returns and a maximum of 60" O.C.
- Use #4, 12" long dowels at each expansion joint and at end of pours (3 dowels for 2 ft. and 3 ft. gutters, 5 dowels for 6 ft. gutters).
- Mark contraction joints 1-1/2" deep at 10 ft. centers.
- Surface finish to be light brooming.
- "H" dim = 5" with 1 ft. gutter;
  "H" dim = 4-1/2" with 2 ft. gutter;
  "H" dim = 4" with 3 ft. gutter
  "H" dim = 3" with 6 ft. gutter;
  Existing gutter widths vary (1 ft., 2 ft., 3 ft., or 6 ft.). Match existing.
- All new Asphalt Concrete patches shall be with 3/8" hot mix.
- No saw-cutting permitted parallel to the face of curb within the width of the gutter pan/
- When possible, pour Type A curb and gutter monolithically with sidewalks, driveways and PCC slabs.
- Install longitudinal deep score along entire back of curb.

Rev	By	Date
1	MN	10/25/04
2	JT	08/14/06
3	HQN	01/04/07
4	RTN	06/10/17

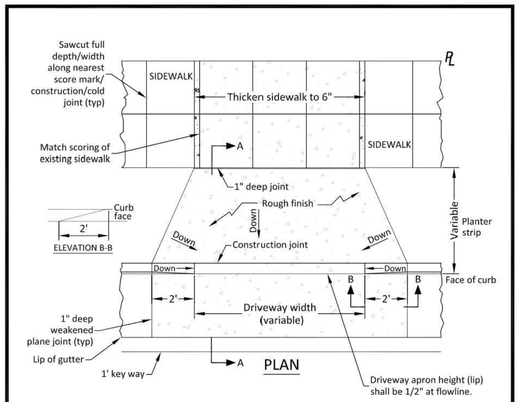
Scale: NTS

Vertical Curb and Gutter Type A Construction Detail

City of Palo Alto Standard

Approved by:
PE No. 72158
Date 01/10/18
Dwg No. 133

2 - CURB AND GUTTER
NOT TO SCALE



NOTE: Refer to Drawing 124 for Notes and Cross-section details and additional notes.

Rev	By	Date
1	MMN	03/19/14
2	RTN	08/14/17

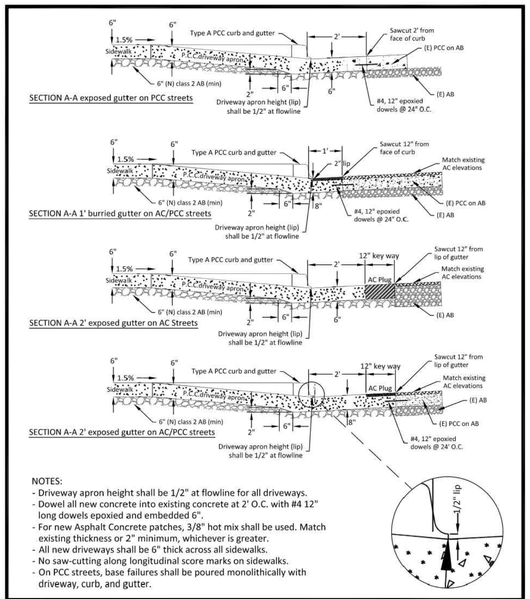
Scale: NTS

Driveway Construction Type A Curb & Gutter

City of Palo Alto Standard

Approved by:
PE No. 72158
Date 01/10/18
Dwg No. 120

3 - DRIVEWAY
NOT TO SCALE



NOTES:
- Driveway apron height shall be 1/2" at flowline for all driveways.
- Dowel all new concrete into existing concrete at 2' O.C. with #4 12" long dowels epoxied and embedded 6".
- For new Asphalt Concrete patches, 3/8" hot mix shall be used. Match existing thickness or 2" minimum, whichever is greater.
- All new driveways shall be 6" thick across all sidewalks.
- No saw-cutting along longitudinal score marks on sidewalks.
- On PCC streets, base failures shall be poured monolithically with driveway, curb, and gutter.

Rev	By	Date
0	RTN	01/25/16

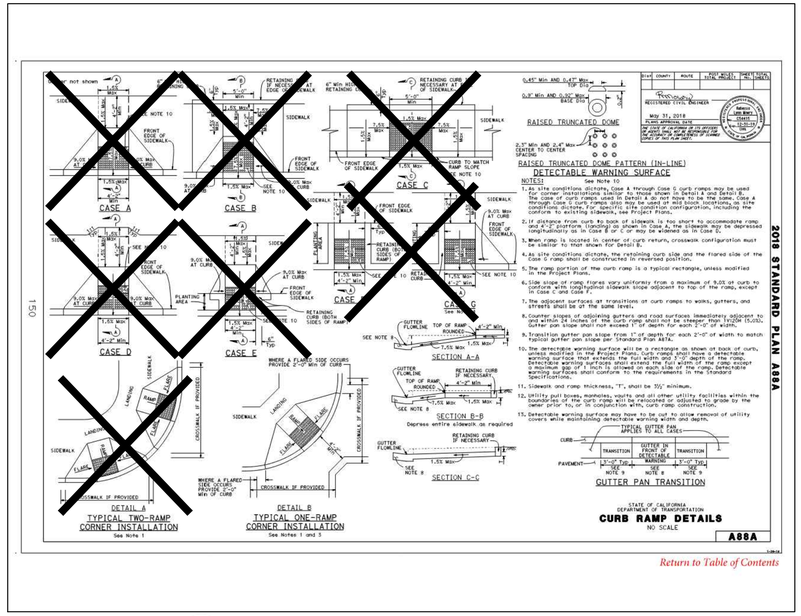
Scale: NTS

Driveway Cross-sections Type A Curb & Gutter

City of Palo Alto Standard

Approved by:
PE No. 72158
Date 01/10/18
Dwg No. 124

3 - DRIVEWAY
NOT TO SCALE



Return to Table of Contents

4 - CURB RAMP
NOT TO SCALE

255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

660 UNIVERSITY AVENUE DETAILS

CITY OF PALO ALTO SANTA CLARA COUNTY CALIFORNIA

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Design	MS
Drawn	TKI
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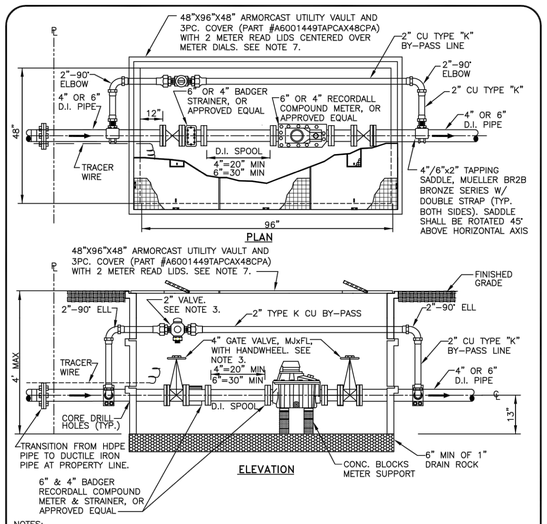
Job No	20212113

Drawing Number:
SD7.0

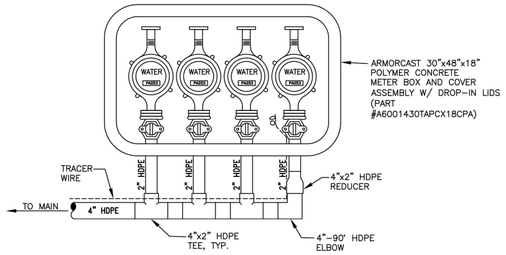


NOTES:

1. FOR WATER PIPE CONNECTION TO MAIN, SEE STANDARD DETAIL WD-03A.
2. BYPASS LINE SERVICE SADDLE CLAMPS FOR DIP LINE SHALL BE MUELLER BR2B BRONZE SERIES WITH DOUBLE STRAP.
3. 2" BALL STRAIGHT CURB VALVE SHALL BE MUELLER B-20287N, OR APPROVED EQUAL. 4" AND 6" GATE VALVES SHALL BE MUELLER A-2361 SERIES, OR APPROVED EQUAL.
4. WATER METERS SHALL NOT BE INSTALLED MORE THAN 4 FEET DEEP.
5. CUSTOMER TO SUPPLY, INSTALL, AND MAINTAIN VAULT TO GRADE PER CITY SPECIFICATIONS.
6. VAULT SHALL BE LOCATED ON PRIVATE PROPERTY NEXT TO THE PROPERTY LINE IN A PUBLIC UTILITY EASEMENT.
7. BOX & LID SHALL HAVE MIN. 10K RATING (TIER 5) FOR SIDEWALK AND PLANTING STRIP APPLICATIONS AND A MIN. 20K RATING (TIER 22) FOR DRIVEWAY AND PARKING LOT APPLICATIONS.

BY	DATE	4" AND 6" WATER METER SET WITH 2" BY-PASS STANDARD DETAIL	APPROVED: MAY 16, 2022 Silvia Lee Santos 50674 SILVIA LEE SANTOS ENGINEERING MANAGER R.E. NO.	SCALE: NONE
DRAWN J.J.	09/91			DWG. NO. STD. WD-04
CHECKED J.J.	05/21			
REVIEWED A.P.	05/21	CITY OF PALO ALTO, CALIFORNIA	REVISION: MAY 5, 2021	APPENDIX B

212



2" QUADRUPLE HEADER

NOTES:

1. APPROVAL FROM UTILITIES DEPARTMENT IS REQUIRED FOR COMBINATION WATER SERVICE CONNECTION.
2. WATER SERVICE SIZE DETERMINED BY TOTAL WATER FLOW RATE DEMAND.
3. WATER METER READING LID SHALL BE CENTERED OVER EACH METER DIAL.
4. ALL BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED ON THE OWNER'S PROPERTY.
5. METER BOX & LIDS SHALL HAVE MINIMUM TIER 22 RATING FOR ALL APPLICATIONS. METER BOXES NOT TO BE INSTALLED IN STREET.

BY	DATE	ARMORCAST METER BOX (30"X48") WITH MULTIPLE HEADERS STANDARD DETAIL	APPROVED: MAY 16, 2022 Silvia Lee Santos 50674 SILVIA LEE SANTOS ENGINEERING MANAGER R.E. NO.	SCALE: NONE
DRAWN R.E.	6/97			DWG. NO. STD. WD-10
CHECKED J.J.	02/20			
REVIEWED R.I.	02/20	CITY OF PALO ALTO, CALIFORNIA	REVISION: MAY 5, 2021	APPENDIX B

221

1 - 4" WATER METER
NOT TO SCALE

2 - COMBINED WATER METER
NOT TO SCALE

255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

660 UNIVERSITY AVENUE DETAILS

SANTA CLARA COUNTY CALIFORNIA

CITY OF PALO ALTO

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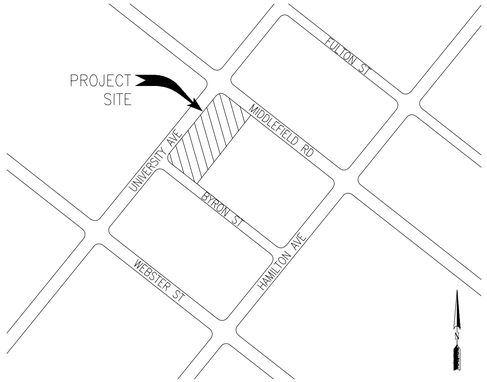
Approved	TRM
Job No	20212113

Drawing Number:

SD7.1



VICINITY MAP
N. T. S.

WORK RESPONSIBILITY JOINT TRENCH

	CPAU ELECTRIC	CPAU GAS	TELEPHONE	C.A.T.V.	CONTRACTOR
TRENCHING					
EXCAVATE & BACKFILL	○	○	○	○	●
GAS MATERIAL					
SUPPLY & INSTALL	○	●	○	○	○
*CPAU ELECTRIC CABLE					
SUPPLY & INSTALL	●	○	○	○	○
ELECTRIC CONDUIT					
SUPPLY & INSTALL	○	○	○	○	●
ELECTRIC BOXES					
SUPPLY & INSTALL	○	○	○	○	●
EXCAVATION	○	○	○	○	●
ELECTRIC PADS					
SUPPLY & INSTALL	○	○	○	○	●
EXCAVATION	○	○	○	○	●
ELECTRIC TRANSFORMERS					
SUPPLY & INSTALL	●	○	○	○	○
ELECTRIC INTERRUPTERS					
SUPPLY & INSTALL	○	○	○	○	○
CPAU ELECTRIC SWITCHES					
SUPPLY & INSTALL	○	○	○	○	○
TELEPHONE CONDUIT					
SUPPLY & INSTALL	○	○	○	○	◉
TELEPHONE CABLE					
SUPPLY & INSTALL	○	○	◉	○	○
TELEPHONE SPLICE BOXES					
SUPPLY & INSTALL	○	○	○	○	◉
EXCAVATION	○	○	○	○	◉
TELEPHONE S.A.I. PADS					
SUPPLY & INSTALL	○	○	○	○	○
EXCAVATION	○	○	○	○	○
C.A.T.V. CONDUIT					
SUPPLY & INSTALL	○	○	○	○	◉
C.A.T.V. SPLICE BOXES					
SUPPLY & INSTALL	○	○	○	○	◉
EXCAVATION	○	○	○	○	◉
C.L.E.C. FIBER CONDUIT ___ACCEPTED ___DECLINED					
SUPPLY & INSTALL	○	○	○	○	●
C.L.E.C. FIBER SPLICE BOXES ___ACCEPTED ___DECLINED					
SUPPLY & INSTALL	○	○	○	○	●
EXCAVATION	○	○	○	○	●

● WORK TO BE PERFORMED BY THE RESPECTIVE CONTRACTOR & UTILITY COMPANIES
◉ ASSUME CONTRACTOR RESPONSIBILITY UNLESS OTHERWISE SPECIFIED
○ NOT APPLICABLE UNLESS OTHERWISE SPECIFIED
* CPAU TO PULL CABLE INTO ENERGIZED ENCLOSURES
NOTE: FOR A MORE DETAILED WORK RESPONSIBILITY BREAKDOWN, SEE CORRESPONDING MATERIAL LIST.

THESE PLANS WERE PREPARED IN CONJUNCTION WITH THE FOLLOWING PLANS:

	RECEIVED	APPROVED
CIVIL IMPROVEMENT PLANS/GRADING PLANS	08-25-2023	PRELIMINARY
ARCHITECTURAL ELECTRONIC FILE	10-27-2023	PRELIMINARY
APPLICANT DESIGN (GAS)		
APPLICANT DESIGN (ELECTRIC)		
TELEPHONE		
C.A.T.V.		
LANDSCAPE	08-25-2023	PRELIMINARY
LIGHT LOCATIONS		
TRAFFIC SIGNAL LOCATIONS		

RADIUS DESIGN is not responsible for any subsequent changes or revisions.

OTHER UTILITIES SHOWN ARE APPROXIMATE AND BASED ON FIELD SURVEY AND AVAILABLE UTILITY INFORMATION. IT IS THE CONTRACTORS' RESPONSIBILITY TO VERIFY THE ACTUAL LOCATION AND EXTENT OF UTILITIES PRIOR TO THE COMMENCEMENT OF WORK. PHYSICAL VERIFICATION OF UTILITY LOCATIONS SHALL BE PERFORMED BY CAREFUL PROBING OR HAND DIGGING IN ACCORDANCE WITH ARTICLE 6 OF THE CAL/OSHA CONSTRUCTION SAFETY ORDERS.

CONSTRUCTION NOTES

1. ALL TRENCHING, BACKFILLING AND INSTALLATION BY CONTRACTOR MUST COMPLY WITH CITY OF PALO ALTO STANDARDS.
2. ALL WORK MUST COMPLY WITH CITY OF PALO ALTO(CPA), TELEPHONE, C.A.T.V., STANDARDS AND PRACTICES. ALL WORK MUST BE INSPECTED AND APPROVED BY RESPECTIVE INSPECTORS. RANDOM SOIL SAMPLES SHALL BE TAKEN FROM A MINIMUM OF THREE LOCATIONS PER 1,000' OF TRENCH. 100% OF THE SAMPLE MUST PASS THROUGH A ½" SIEVE AND 75% MUST PASS THROUGH A #4 SCREEN. ADDITIONAL SAMPLES MUST BE TAKEN IF EXISTING SOIL CONDITIONS CHANGE AND IS TO BE AT THE DISCRETION OF THE CPA REPRESENTATIVE ON SITE. THE SOILS MUST NOT CONTAIN ANY ROCKS THAT HAVE SHARP EDGES OR THAT MAY OTHERWISE BE ABRASIVE. THE SOILS MUST NOT CONTAIN CLODS LARGER THAN ½" IF TO BE USED AS SHADING, BEDDING OR LEVELING MATERIALS. COMPACTION REQUIREMENTS MUST MEET ANY APPLICABLE CPA FEDERAL, STATE, COUNTY OR LOCAL REQUIREMENTS. ANY NATIVE SOILS OR IMPORT MATERIALS USED MUST NOT HINDER THOSE EFFORTS.
3. BACKFILL SHALL BE APPROVED BY THE UTILITY COMPANIES AND THE CITY. COMPACTION WILL BE TESTED AND PASSED BY THE SOILS ENGINEER.
4. IF SOIL IS NOT ROCK FREE, ADD 4" DEPTH OF TRENCH FOR SAND BEDDING.
5. VERIFY SPLICE BOX EXCAVATION SIZES WITH SUPPLIER(S).
6. THE TRENCHING CONTRACTOR SHALL COORDINATE THE UTILITY COMPANIES' INSTALLATION.
7. CONTRACTOR SHALL MAKE HIMSELF FAMILIAR WITH THE PROJECT IMPROVEMENT PLANS AND CONDUCT HIS WORK ACCORDINGLY.
8. IT IS THE TRENCHING CONTRACTOR'S RESPONSIBILITY TO PROTECT IN PLACE ALL EXISTING FACILITIES. NO EXTRA PAYMENT WILL BE CONSIDERED FOR CROSSING OTHER SYSTEMS.
9. RADIUS DESIGN ASSUMES NO RESPONSIBILITY FOR THE PROJECT CONDITIONS. THESE DRAWINGS WERE PREPARED USING DATA SUPPLIED BY CPA, TELEPHONE, C.A.T.V., IMPROVEMENT PLANS AND THE CITY'S VARIOUS "AS BUILT" INFORMATION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PHYSICALLY REVIEW THE PROJECT PRIOR TO SUBMITTING HIS BID.
10. CONTRACTOR WILL COMPLY WITH ALL LAWS, ORDINANCES AND REGULATIONS. CONTRACTOR SHALL BE FAMILIAR WITH O.S.H.A., INDUSTRIAL SAFETY ORDERS AND SHALL CONDUCT HIS WORK ACCORDINGLY. WHEN WORKING NEAR ENERGIZED OR "HOT" EQUIPMENT, THE UTILITY OWNER SHALL BE NOTIFIED TO SUPPLY THE APPROPRIATE MAN POWER. PUBLIC SAFETY AND TRAFFIC CONTROL MEASURES ARE THE CONTRACTOR'S RESPONSIBILITY.
11. THE CONTRACTOR SHALL PROTECT CONSTRUCTION STAKING. HE SHALL COORDINATE STAKING WITH THE PROJECT'S CIVIL ENGINEER.
12. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (USA) TWO WORKING DAYS PRIOR TO START OF WORK. (800) 227-2600.
13. CONTRACTOR SHALL NOTIFY INSPECTORS OF ANY POTENTIAL CONFLICTS PRIOR TO START OF WORK.
14. THIS PLAN IS TO BE USED FOR SOLE PURPOSE OF DIGGING THE JOINT TRENCH. SEE CPA, AT&T, AND COMCAST PLANS FOR EXACT SIZE AND NUMBER OF CONDUITS INSTALLED IN THE JOINT TRENCH. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THE CORRECT NUMBER, SIZE AND TYPES OF CONDUITS ARE INSTALLED PER THE ENGINEERED PLANS BY EACH UTILITY COMPANY.
15. NOTE PLANS ISSUED AT THE PRE-CONSTRUCTION MEETING MAY BE SUBJECT TO REVISIONS, IF FINAL PLANS FROM EACH UTILITY COMPANY WERE NOT AVAILABLE AT THE START OF CONSTRUCTION.
16. WATER, SEWER, DRAINS, SANITARY WASTE, FUELS (INCLUDING DIESEL AND GASOLINE), OIL, PROPANE AND OTHER VOLATILE HEAVIER THAN AIR GASES, SPRINKLER, IRRIGATION, STEAM AND OTHER "WET" FACILITIES SHALL MAINTAIN A MINIMUM OF FOUR FEET FROM THE NEAREST OUTER SURFACE OF CPA DRY FACILITIES WITH NO LESS THAN ONE FOOT OF EARTH (SOIL BARRIER) BETWEEN THE ADJACENT SIDES OF THE INDIVIDUAL TRENCHES.
17. IN THE EXTRAORDINARY CASE THAT THE MINIMUM FOUR FOOT HORIZONTAL SEPARATION CANNOT BE ATTAINED BETWEEN "WET" UTILITIES AND COMPANY DRY FACILITIES, A VARIANCE MAY APPROVED BY THE LOCAL INSPECTION SUPERVISOR AND SUBMITTED TO SERVICE PLANNING SUPPORT PROGRAM MANAGER FOR APPROVAL.
18. THIS JOINT TRENCH PLAN WAS PREPARED BASED ON TOPOGRAPHICAL SURVEY AS PROVIDED BY A CIVIL ENGINEER. THE CONTRACTOR IS CAUTIONED THAT EXPLORATORY WORK IS NECESSARY TO DETERMINE THE ACTUAL LOCATION OF ANY EXISTING UTILITY. RADIUS STRONGLY RECOMMENDS THAT ALL UTILITIES BE PHYSICALLY LOCATED ON THE SITE BEFORE THE ONSET OF SITE WORK. SUBSTRUCTURE LOCATIONS MAY REQUIRE FIELD ADJUSTMENT TO COMPENSATE FOR ACTUAL EXISTING UTILITY LOCATIONS.

CONDUIT NOTES

1. DIRECT BURIED PRIMARY CONDUIT IS NOT AN APPROVED CONSTRUCTION METHOD. PRIMARY CONDUITS SHALL BE CONCRETE ENCASED, UNLESS OTHERWISE APPROVED BY CPAU UTILITIES ENGINEER. APPROVED CONDUIT MATERIALS:
   A. SCHEDULE 40 PVC
   B. TYPE "DB 60" (SECONDARY) OR "DB 120" (PRIMARY) PLASTIC CONDUIT
   C. GALVANIZED RIGID STEEL CONDUIT.
2. EVERY EFFORT MUST BE MADE TO OBTAIN STRAIGHT WATER-TIGHT CONDUIT LINE.
3. SHARP TURNS MUST BE AVOIDED, PER THE TABLE BELOW. NORMALLY, THE PRIMARY DUCT RADIUS IS SPECIFIED. UNLESS APPROVED BY THE PROJECT ENGINEER, FACTORY OFFSETS WILL NOT BE USED.
4. ALL BENDS AND SWEEPS (90 DEGREES) MUST BE ENCASED IN CONCRETE (MINIMUM 3") ALONG THE INSIDE RADIUS.
5. IF THE ELECTRIC UNDERGROUND INSPECTOR DETERMINES THAT THE BOTTOM OF THE TRENCH IS ROCKY, THEN A 2" SAND BEDDING MUST BE INSTALLED BEFORE CONDUIT.
6. BACKFILL IN UNIMPROVED AREAS SHALL BE 12" OF CLEAN NATURAL SAND PER CALTRANS STD SPECS SEC 19-3.025B ON TOP OF THE UPPERMOST CONDUIT, 90% COMPACTION; TOPPED WITH EXCAVATED NATIVE SOIL, 85% COMPACTION.
7. BACKFILL IN IMPROVED AREAS MUST BE IN ACCORDANCE WITH CITY OF PALO ALTO STANDARD SPECIFICATIONS FOR BACKFILLING IN IMPROVED AREAS. (SECTION 21)
8. ALL CONDUITS MUST BE MANDRELLED (STD. DWG DT-SS-U-1025). THIS TEST MUST BE WITNESSED BY THE ELECTRIC UNDERGROUND INSPECTOR.
9. A 3/8" POLYPROPYLENE PULL LINE (MIN. 150 LBS. TEST) MUST BE INSTALLED IN EACH CONDUIT.
10. CONDUIT SPACING SHALL BE MAINTAINED BY SPACERS, APPROVED BY CPA, INSTALLED NO MORE THAN 7' APART. CONDUIT MUST BE SECURELY BOUND TO THE SPACERS.
11. MINIMUM COVER FOR DIRECT BURIED CONDUIT:

-SECONDARY (NOT TRAFFIC)	24"
-COMMUNICATION (NOT TRAFFIC)	24"
-SECONDARY (TRAFFICE)	30"
-COMMUNICATION (TRAFFIC)	30"
-PRIMARY	42"*

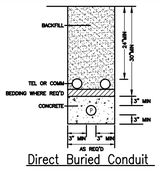
COVER MAY BE REDUCED TO 18" FOR SECONDARY UNDER SIDEWALKS, WITH THE PROJECT ENGINEER'S APPROVAL.

12. HORIZONTAL SPACING BETWEEN SECONDARY, COMMUNICATION, TELEPHONE, AND STREET LIGHTING CABLES OR DUCTS MAY BE RANDOM UNLESS OTHERWISE SPECIFIED.
13. IN EVERY CASE, VERTICAL CLEARANCE BETWEEN ELECTRIC LINES AND UTILITY LINE CROSSINGS MUST BE AT LEAST 12".

* DIRECT PRIMARY CONDUIT IS NO LONGER AN APPROVED CONSTRUCTION METHOD.

ELECTRIC UTILITIES DEPARTMENT COMMENTS & CONDITIONS

1. ALL ELECTRICAL VAULT INSTALLATIONS, REMOVALS AND RELOCATION'S SHALL BE AT CUSTOMER/DEVELOPER'S EXPENSE.
2. PRIMARY CONDUIT SHALL BE CONCRETE ENCASED PER CPA REQUIREMENTS.
3. THE FINAL JOINT TRENCH AND VAULT DETAILS MUST BE APPROVED BY THE CITY'S ELECTRICAL ENGINEERING DEPARTMENT.
4. APPLICANT SHALL NOTIFY THE ELECTRIC UTILITY INSPECTOR PRIOR TO CONSTRUCTION OF ANY ELECTRICAL UTILITY SUBSTRUCTURE.
5. NO STRUCTURES PERMITTED TO BE BUILT WITHIN EXISTING PUBLIC UTILITY EASEMENTS.
6. THE CONTRACTOR SHALL MAINTAIN 12" CLEAR, ABOVE AND BELOW FROM THE EXISTING UTILITIES TO NEW UNDERGROUND FACILITIES.
7. APPLICANTS SHALL PROVIDE PROTECTION FOR UTILITY LINES SUBJECT TO DAMAGE. EXPOSED ELECTRIC CONDUIT OR DUCT SHALL BE INSPECTED BY THE ELECTRICAL UTILITY INSPECTOR PRIOR TO BACKFILLING.
8. ANY EXTENSION OR RELOCATION OF EXISTING DISTRIBUTION LINES OR EQUIPMENT SHALL BE DONE AT CUSTOMER/DEVELOPER'S EXPENSE.



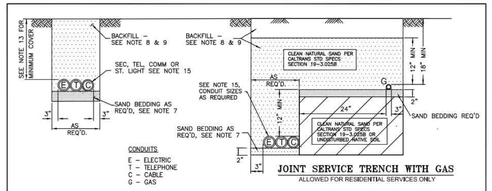
Direct Buried Conduit

ELECTRIC CONDUIT
MINIMUM BEND RADIUS FOR NEW CONSTRUCTION SERVICE

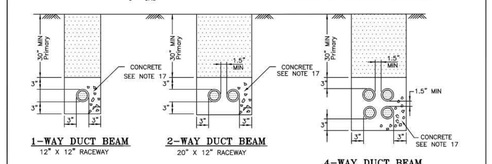
CONDUIT DIAMETER	VERTICAL RADIUS	HORIZONTAL RADIUS
3"	24"	36"
4"	36"	36"
5"	36"	60"

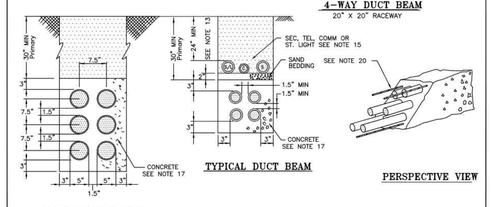
NOTE:
NO MORE THAN 270 DEGREES OF BENDS ARE ALLOWED BETWEEN PULL BOXES IN A SECONDARY CONDUIT RUN.

NO MORE THAN 180 DEGREES OF BENDS ARE ALLOWED BETWEEN PULL BOXES IN A PRIMARY CONDUIT RUN.



JOINT SERVICE TRENCH WITH GAS
ALLOWED FOR RESIDENTIAL SERVICES ONLY





APPROVED ____ 20	ENGINEERING STANDARD				
ENGINEER	UNDERGROUND DUCT LINES	10	7/16	CORRECTED NOTATIONS	TT
DRAWN	TYPICAL TRENCH SECTION DETAILS	4	6/13	ADDED JOINT TRENCH & NOTES	TT
CHECKED PV		3	10/09	REVISED MIN PRIMARY COVER	TT
	CITY OF PALO ALTO	2	8/08	COMBINED DT-SS-U-1003 & DT-SS-C-1005	TT
	CALIFORNIA	1	6/06	REVISED NOTES	JT
		REV	DATE	DESCRIPTION	APPR
		NTS		DT-SS-U-1003	1 OF 4
		SCALE		STANDARD NO.	SHEET NO.

Original signed and approved by Engineering Manager

CONCRETE TRANSFORMER PAD NOTES:

1. DISTURBED EARTH UNDER THE PAD SHALL BE REPLACED BY SAND OR OTHER SUITABLE MATERIAL COMPACTED TO 95% OF MAXIMUM DRY DENSITY (ASTM D-1557).
2. PLACE 6" DEPTH ONE SACK. PER CUBIC YARD, SLURRY IMMEDIATELY BELOW THE PAD.
3. CONCRETE IS REQUIRED BETWEEN ALL CONDUITS, LEVEL TO TOP OF THE PAD.
4. CONCRETE SHALL BE DESIGNED TO ATTAIN STRENGTH OF 3000 PSI IN 28 DAYS.
5. AFTER PLACING, MOIST CURE CONCRETE FOR 7 DAYS.
6. WOOD FLOAT FINISH TOP OF SLAB. ALL SHARP EDGES AND CORNERS TO BE FINISHED SMOOTH.
7. EXPOSED HORIZONTAL SURFACES TO BE SLOPED SLIGHTLY FOR DRAINAGE.
8. A MINIMUM OF 6 FEET SHALL BE MAINTAINED BETWEEN GROUND RODS.
9. CAP ALL CONDUITS.
10. A MINIMUM OF 3 FEET OF RADIAL CLEARANCE BETWEEN THE TRANSFORMER PAD AND ANY OTHER STRUCTURE SHALL BE PROVIDED.
11. IF THE TRANSFORMER IS TO BE LOCATED IN AN AREA SUBJECTED TO VEHICULAR TRAFFIC, BARRIERS SHALL BE REQUIRED PER DT-SS-C-1005. CITY OF PALO ALTO WILL DETERMINE THE TYPE, NUMBER REQUIRED, AND LOCATION.
12. PLASTIC CONDUITS SHALL BE TERMINATED WITH END BELLS. GALVANIZED STEEL CONDUITS SHALL BE TERMINATED WITH GROUND BUSHINGS. ALL CONDUITS AND ENDS WILL BE TO THE FINAL GRADE OF THE PAD.
13. PRIMARY CONDUIT BENDS SHALL HAVE A MINIMUM RADIUS OF 36".
14. PRIMARY CONDUITS SHALL BE LOCATED IN THE LEFT HALF OF THE CONDUIT OPENING. SECONDARY CONDUITS SHALL OCCUPY THE RIGHT HALF.
15. THE TRANSFORMER PAD SHALL BE LOCATED A MINIMUM OF 3 FEET FROM ANY BUILDING OR OVERHANG.
16. ALL REBAR SHALL BE A-615 GRADE 40. REBAR JOINTS SHALL BE FIRMLY AND SECURELY HELD IN POSITION BY WIRING AT INTERSECTIONS WITH NO. 16 GAGE WIRE.
17. MAXIMUM NUMBER OF CONDUITS ENTERING SECONDARY SLOT SHALL BE FOUR. CONTACT THE ELECTRIC UTILITY PROJECT ENGINEER FOR DESIGN WITH MORE THAN FOUR SECONDARY.
18. GROUND ROD AND CLAMP, 5/8"X8'. SEE CPA STANDARD DRAWING #DT-SS-U-1001.
19. TRANSFORMER ANCHORS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S INSTRUCTIONS. EXPANSION BOLT SHALL BE "PARABOLT" BY MOLY OR APPROVED EQUAL. MINIMUM EMBEDMENT LENGTH AND EDGE DISTANCE SHALL MEET THE MANUFACTURER'S REQUIREMENTS.
20. A MINIMUM OF 8 FEET CLEARANCE SHALL BE MAINTAINED FROM THE FRONT SIDE OF THE PAD. A MINIMUM OF 3 FEET CLEARANCE SHALL BY MAINTAINED ON UNOPERABLE SIDES AND BACK. ALL MEASUREMENTS ARE TAKEN FROM THE PAD.

OTHER NOTES

1. EASEMENTS MUST BE GRANTED TO THE CITY OF PALO ALTO FOR SWITCH, TRANSFORMERS, AND CONDUIT ON-SIITE.
2. ELECTRIC METERS MUST BE IN AN AREA READILY ACCESSIBLE TO CAPU DURING ALL HOURS.
3. UTILITY VAULTS, TRANSFORMERS, UTILITY CABINETS, CONCRETE BASES, OR OTHER STRUCTURES CAN NOT BE PLACED OVER EXISTING WATER, GAS OR WASTEWATER MAIN/SERVICES. MAINTAIN 1' HORIZONTAL CLEAR SEPARATION FROM THE VAULT/CABINET/CONCRETE BASE TO EXISTING UTILITIES AS FOUND IN THE FIELD. IF THERE IS A CONFLICT WITH EXISTING UTILITIES, CABINETS/VAULTS/BASES SHALL BE RELOCATED FROM THE PLAN LOCATION AS NEEDED TO MEET FIELD CONDITIONS.

GENERAL NOTES:

1. JOINT TRENCH MUST BE INSTALLED ENTIRELY WITHIN AN EASEMENT. EASEMENTS FOR JOINT TRENCH SERVICE LATERALS WITHIN PROJECT ON PRIVATE PROPERTY ARE AT THE DISCRETION OF THE UTILITY COMPANIES.
2. ALL DEPTHS AND RESULTING COVER REQUIREMENTS ARE MEASURED FROM FINAL GRADE.
3. COVER, CLEARANCES, AND SEPARATION SHALL BE AS GREAT AS PRACTICABLE UNDER THE CIRCUMSTANCES, BUT UNDER NO CIRCUMSTANCES SHALL BE LESS THAN THE MINIMUM COVER, CLEARANCE, AND SEPARATION REQUIREMENTS SET FORTH IN GENERAL ORDER 128 AND 49CFR 192.321 , 49CFR 192.325, AND 49CFR 192.327. ALL FACILITIES SHALL BE ANCHORED IN PLACE PRIOR TO COMPACTION, OR OTHER MEANS SHALL BE TAKEN TO ENSURE NO MOTION OF THE FACILITIES. DIMENSIONAL REQUIREMENTS FOR SHADING, LEVELING, AND BACKFILLING SHALL BE DETERMINED SUBSEQUENT TO COMPACTION.
4. TRENCH DIMENSIONS SHOWN ARE TYPICAL. TRENCH SIZES AND CONFIGURATIONS MAY VARY DEPENDING UPON OCCUPANCY AND/OR FIELD CONDITIONS. TRENCH SIZE AND CONFIGURATION MUST AT ALL TIMES BE CONSTRUCTED IN A MANNER THAT ENSURES PROPER CLEARANCES AND COVER REQUIREMENTS ARE MET. ANY "CHANGE" TO THE TRENCH WIDTH AND CONFIGURATIONS AS SHOWN IN THIS EXHIBIT MUST BE DESIGNED TO ENSURE THIS REQUIREMENT.
5. IT IS PREFERRED TO HAVE NON-CPA OWNED STREETLIGHTS AT A LEVEL OTHER THAN THE GAS OR ELECTRIC LEVEL. NON-CPA OWNED STREETLIGHTS MAY BE AT THE ELECTRIC LEVEL OF THE TRENCH AS LONG AS MINIMUM CLEARANCES ARE PROVIDED AND COMPLY WITH ALL SPECIAL NOTES FOR A JOINT TRENCH WITH A SECOND ELECTRIC UTILITY.
6. NON-UTILITY FACILITIES ARE NOT ALLOWED IN ANY JOINT UTILITY TRENCH, E.G., IRRIGATION CONTROL LINES, BUILDING FIRE ALARM SYSTEMS, PRIVATE TELEPHONE SYSTEMS, OUTDOOR ELECTRICAL CABLE, ETC.
7. PROVIDE SEPARATION FROM TRENCH WALL AND OTHER FACILITIES SUFFICIENT TO ENSURE PROPER COMPACTION.
8. MAINTAIN PROPER SEPARATION BETWEEN CPA FACILITIES AND "WET" UTILITY LINES AS DESCRIBED IN CITY OF PALO ALTO STANDARDS.
9. SEPARATIONS SHALL BE MAINTAINED AT ABOVEGROUND TERMINATION POINTS.
10. PROCEDURES FOR APPROVING NATIVE BACKFILL FOR SHADING OF CPA GAS FACILITIES:
    - RANDOM SOIL SAMPLES SHALL BE TAKEN FROM A MINIMUM OF 3 LOCATIONS PER 1,000' OF TRENCH. 100% OF THE SAMPLE MUST PASS THROUGH A 1/2" SIEVE AND 75% MUST PASS THROUGH A #4 SCREEN. ADDITIONAL SAMPLES MUST BE TAKEN IF EXISTING SOIL CONDITIONS CHANGE AND ARE TO BE TAKEN AT THE DISCRETION OF THE CPA REPRESENTATIVE ON SITE.
    - THE SOILS MUST NOT CONTAIN ANY ROCKS THAT HAVE SHARP EDGES OR THAT MAY OTHERWISE BE ABRASIVE.
    - THE SOILS MUST NOT CONTAIN CLODS LARGER THAN 1/2" IF TO BE USED AS SHADING, BEDDING, OR LEVELING MATERIALS.
    - COMPACTION REQUIREMENTS MUST MEET ANY APPLICABLE CPA, FEDERAL, STATE, COUNTY, OR LOCAL REQUIREMENTS.
    - AT NO TIME SHALL THE OVER SATURATION OF NATIVE SOILS BE USED TO ACHIEVE THESE REQUIREMENTS.

    THE SIEVES AND SCREENS SHALL BE:
    - 1/2" SIEVE: 8" DIAMETER BY 2" DEEP, STAINLESS STEEL MESH SCREEN.
    - #4 SCREEN: 8" DIAMETER BY 2" DEEP, STAINLESS STEEL MESH SCREEN.
11. PROCEDURES FOR APPROVING NATIVE BACKFILL FOR SHADING AT CPA ELECTRIC FACILITIES:
    - RANDOM SOIL SAMPLES SHALL BE TAKEN FROM A MINIMUM OF 3 LOCATIONS PER 1,000' OF TRENCH. ADDITIONAL SAMPLES MUST BE TAKEN IF EXISTING SOIL CONDITIONS CHANGE AND ARE TO BE TAKEN AT THE DISCRETION OF THE CPA REPRESENTATIVE ON SITE.
    - SHADING MATERIAL CONTAINING LARGE ROCK, PAVING MATERIAL, CINDERS, SHARPLY ANGULAR SUBSTANCES, OR CORROSIVE MATERIAL SHALL NOT BE PLACED IN THE TRENCH WHERE SUCH MATERIAL MAY DAMAGE THE CONDUITS AND/OR PREVENT PROPER COMPACTION OVER OR AROUND THE CONDUITS.
    - NATIVE SOILS CONTAINING CLODS NOT TO EXCEED 6" IN DIAMETER MAY BE INCLUDED IN THE SHADING MATERIAL PROVIDED THE CLODS ARE READILY BREAKABLE BY HAND.

    NOTE: SOILS CONSISTING PRIMARILY OF ADOBE, HARD COMPACT (DENSE) CLAY, AND BAY MUDS SHALL NOT BE USED AS SHADING MATERIAL.
    - AT NO TIME SHALL THE OVER SATURATION OF NATIVE SOILS BE USED TO ACHIEVE THESE REQUIREMENTS.
    - REFER TO ENGINEERING DOCUMENT 062288, ITEM 13 ON PAGE 2.
12. COMPETENT NATIVE SOILS ARE PREFERRED TO BE USED FOR SHADING, BEDDING, AND BACKFILLING THROUGHOUT THE TRENCH.
    - WHERE NATIVE SOILS EXCEED 1/2" MINUS AND/OR WHERE GAS IS TO BE PLACED AT THE BOTTOM OF A TRENCH IN AREAS THAT EXCEED 1/2" MINUS SOIL CONDITIONS, OR WHERE THE BOTTOM OF A TRENCH IS CONSIDERED TO CONSIST OF HARD PAN, CPA APPROVED 1/2" MINUS IMPORT MATERIAL SHALL BE USED FOR SHADING AND/OR BEDDING OF GAS FACILITIES.
    - CPA APPROVED IMPORT MATERIAL IS PER CCT ENGINEERING GUIDELINE 4123.
    - IF A LEVELING COURSE IS REQUIRED FOR GAS FACILITIES, THE USE OF NATIVE SOILS IS PREFERRED, BUT IF 1/2" MINUS CONDITIONS ARE NOT ATTAINABLE WITH THE NATIVE SOILS, THEN THE USE OF CPA APPROVED IMPORT MATERIALS IS REQUIRED. BEDDING UNDER GAS FACILITIES WILL BE A MINIMUM OF 2" OF COMPACTED 1/2" MINUS NATIVE SOILS OR CPA APPROVED IMPORT MATERIAL.
    - FOR ELECTRIC FACILITIES, REFER TO NOTE 12. THIS APPLIES TO LEVELING COURSES AS WELL AS SHADING.
    - THE MINIMUM CPA APPROVED BEDDING MATERIAL MAY BE INCREASED AT THE DISCRETION OF CPA WHEN WARRANTED BY EXISTING FIELD CONDITIONS (E.G., ROCKY SOILS, HARD PAN, ETC.).
    - THE USE OF ANY IMPORTED MATERIAL FOR BACKFILLING PURPOSES SHALL BE LIMITED TO THOSE SITUATIONS WHEN NATIVE SOILS DO NOT ALLOW FOR REQUIRED COMPACTION.
13. THE APPLICANT IS RESPONSIBLE FOR THE REMOVAL OF EXCESS SPOIL AND ASSOCIATED COSTS.
14. SERVICE SADDLES ARE THE PREFERRED SERVICE FITTINGS FOR USE THROUGHOUT THE JOINT TRENCH PROJECT. ALL PROJECTS WILL BE DESIGNED AND ESTIMATED USING SERVICE SADDLES. HOWEVER, SERVICE TEES MAY BE USED IF ALL CLEARANCES, SEPARATION, AND COVERAGE REQUIREMENTS ARE MAINTAINED.
15. ELECTRIC GENERATION EQUIPMENT IS NOT PART OF RADIUS SCOPE. ALL RELATED DESIGNS, APPLICATIONS, AND COORDINATION WITH INTERCONNECTION/NET METERING DEPARTMENT SHALL BE HANDLED BY THE EQUIPMENT VENDOR OR OTHERS.

UTILITY APPROVALS

UTILITY	APPROVED BY	DATE
AT&T (PHONE)		
COMCAST (CATV)		

FOR RADIUS USE ONLY
QA REVIEW

	INITIALS	REVIEW DATE
INTENT		
COMPOSITE		
PRE-CON		
PRE-CON		

DEVELOPER:
KSH ARCHITECTS
349 SUTTER STREET
SAN FRANCISCO, CA 94108
AMANDA BORDEN
(415) 954-1960
ABORDEN@KSHA.COM

SHEET INDEX

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PALO ALTO, CA 94301

KSH ARCHITECTS
KORTH SUNSERI HAGEY

RADIUS DESIGN LLC
UTILITY DESIGN CONSULTANTS & ENGINEERS
1460 MARIA LANE, SUITE 420, WALNUT CREEK, CA 94596
Tel (925) 269-4575

ISSUES AND REVISIONS

NO.	DATE	DESCRIPTION
	12.01.21	PLANNING SUBMITTAL
	05.13.22	PLANNING RESUBMITTAL #1
	08.15.22	PLANNING RESUBMITTAL #2
	11.02.22	PLANNING RESUBMITTAL #3
	08.28.23	PLANNING RESUBMITTAL #4
	10.31.23	PLANNING RESUBMITTAL #5
	12.21.23	PLANNING RESUBMITTAL #6
	02.07.24	PLANNING RESUBMITTAL #7

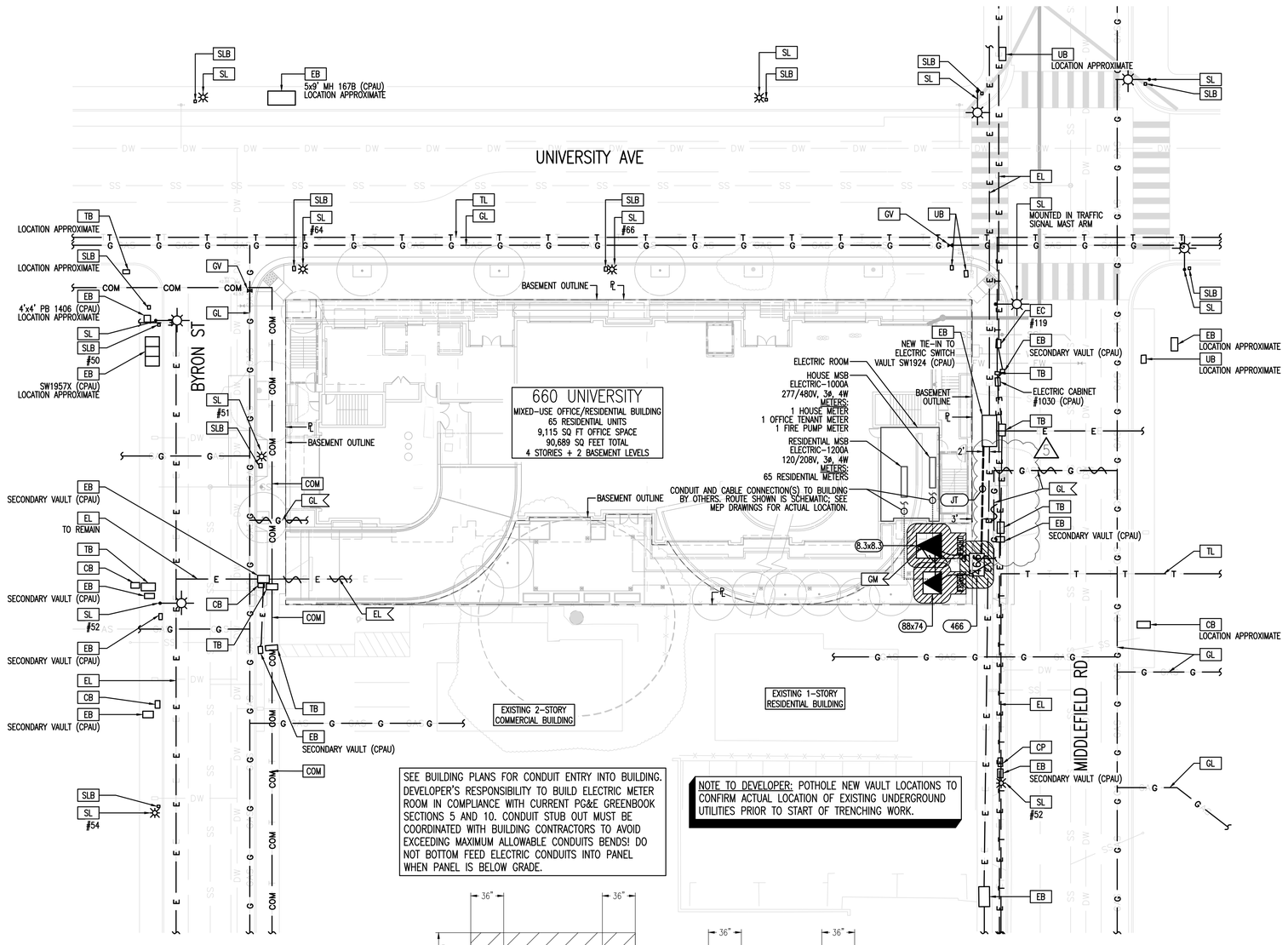
PROJECT NUMBER
21003

SHEET TITLE
JOINT TRENCH TITLE SHEET

SCALE
N.T.S

PROJ NORTH
TN

SHEET NUMBER
JT-1



NOTE TO CONTRACTOR:

FOR CONTRACTOR'S WORK RESPONSIBILITY, REFER TO JOINT TRENCH TITLE SHEET (JT–1)

LEGEND:

NEW

- JT — JOINT TRENCH
- 8.3x8.3 — 100" x 100" TRANSFORMER PAD (CPAU). WORKING SPACE SHOWN. MAINTAIN 30' UNOBSTRUCTED OVERHEAD CLEARANCE OVER PAD.
- 88x74 — 88" x 74" TRANSFORMER PAD (CPAU). WORKING SPACE SHOWN. MAINTAIN 30' UNOBSTRUCTED OVERHEAD CLEARANCE OVER PAD.
- 466 — 78" x 48" x 60" JUNCTION BOX (CPAU) WORKING SPACE SHOWN MAINTAIN 20' UNOBSTRUCTED OVERHEAD CLEARANCE OVER ENCLOSURE

EXISTING – TO REMAIN

- EL — E — ELECTRIC LINE
- UB — UTILITY BOX
- CP — CATV PEDESTAL
- CB — CATV BOX
- TB — PHONE BOX
- TL — T — PHONE LINE
- COM — COM — COMMUNICATIONS LINE
- GV — GAS VALVE
- GL — G — GAS LINE
- TSL — TRAFFIC SIGNAL LIGHT
- SLB — STREET LIGHT BOX
- SL — STREET LIGHT

EXISTING – TO BE REMOVED OR RELOCATED

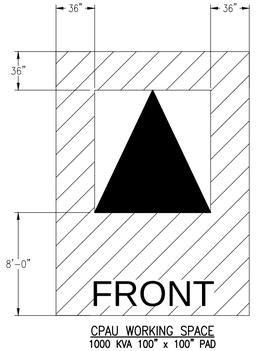
- GL — G — GAS LINE TO BE REMOVED
- GM — GAS METER TO BE REMOVED
- EL — E — ELECTRIC LINE TO BE REMOVED

NOTE TO DEVELOPER: POTHOLE TO DETERMINE THE ACTUAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES DURING DESIGN PHASE. POTHOLE SUBSTRUCTURE LOCATIONS TO CONFIRM THE ACTUAL LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO THE START OF TRENCHING WORK.

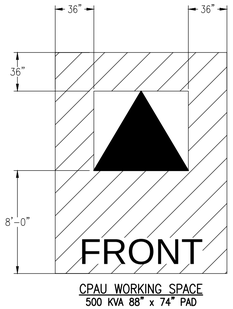
SUBSTRUCTURE LOCATIONS MUST BE STAKED BY A LICENSED SURVEYOR PRIOR TO CONSTRUCTION. SEE CONSTRUCTION NOTES ON JOINT TRENCH TITLE SHEET (JT–1) REGARDING EXISTING CONDITIONS.

REFER TO PG&E DOCUMENT 094683 FOR SMART METER ANTENNA CONSTRUCTION REQUIREMENTS.

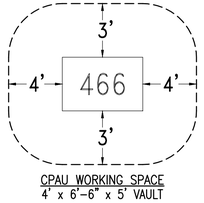
NOTE FOR UNDERGROUND ELECTRIC INSTALLATION: USE OF PVC DB–120 IS NO LONGER APPROVED BY PG&E FOR ANY CONDUIT SIZES, BENDS, AND FITTINGS. RIGID PVC SCHEDULE 40 MUST BE USED IN PLACE OF PVC DB–120 CONDUIT. FOR ALL APPROVED CONDUITS, BENDS, AND FITTINGS, SEE PG&E DOCUMENT 062288.



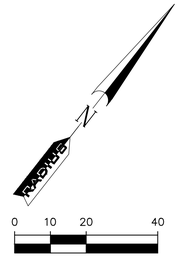
CPAU WORKING SPACE
1000 KVA 100" x 100" PAD



CPAU WORKING SPACE
500 KVA 88" x 74" PAD



CPAU WORKING SPACE
4' x 6'–6" x 5' VAULT



SHEET INDEX

JT–1	JOINT TRENCH TITLE SHEET
JT–2	JOINT TRENCH INTENT

REGISTERED PROFESSIONAL ENGINEER
DAVID B. VOORHIES
No. 26429
Exp. 03–31–24
CIVIL
STATE OF CALIFORNIA

JT–2

SMITH DEVELOPMENT

660 UNIVERSITY
PALO ALTO, CA 94301

KSH ARCHITECTS
KORTH SUNSERI HAGEY

RADIUS DESIGN LLC
UTILITY DESIGN CONSULTANTS & ENGINEERS
1460 MARIA LANE, SUITE 420, WALNUT CREEK, CA 94596
Tel (925) 269-4575

ISSUES AND REVISIONS

NO.	DATE	DESCRIPTION
	12.01.21	PLANNING SUBMITTAL
	05.13.22	PLANNING RESUBMITTAL #1
	08.15.22	PLANNING RESUBMITTAL #2
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	08.28.23	PLANNING RESUBMITTAL #4
1	10.31.23	PLANNING RESUBMITTAL #5
	12.21.23	PLANNING RESUBMITTAL #6
	02.07.24	PLANNING RESUBMITTAL #7

PROJECT NUMBER
21003

SHEET TITLE
JOINT TRENCH INTENT

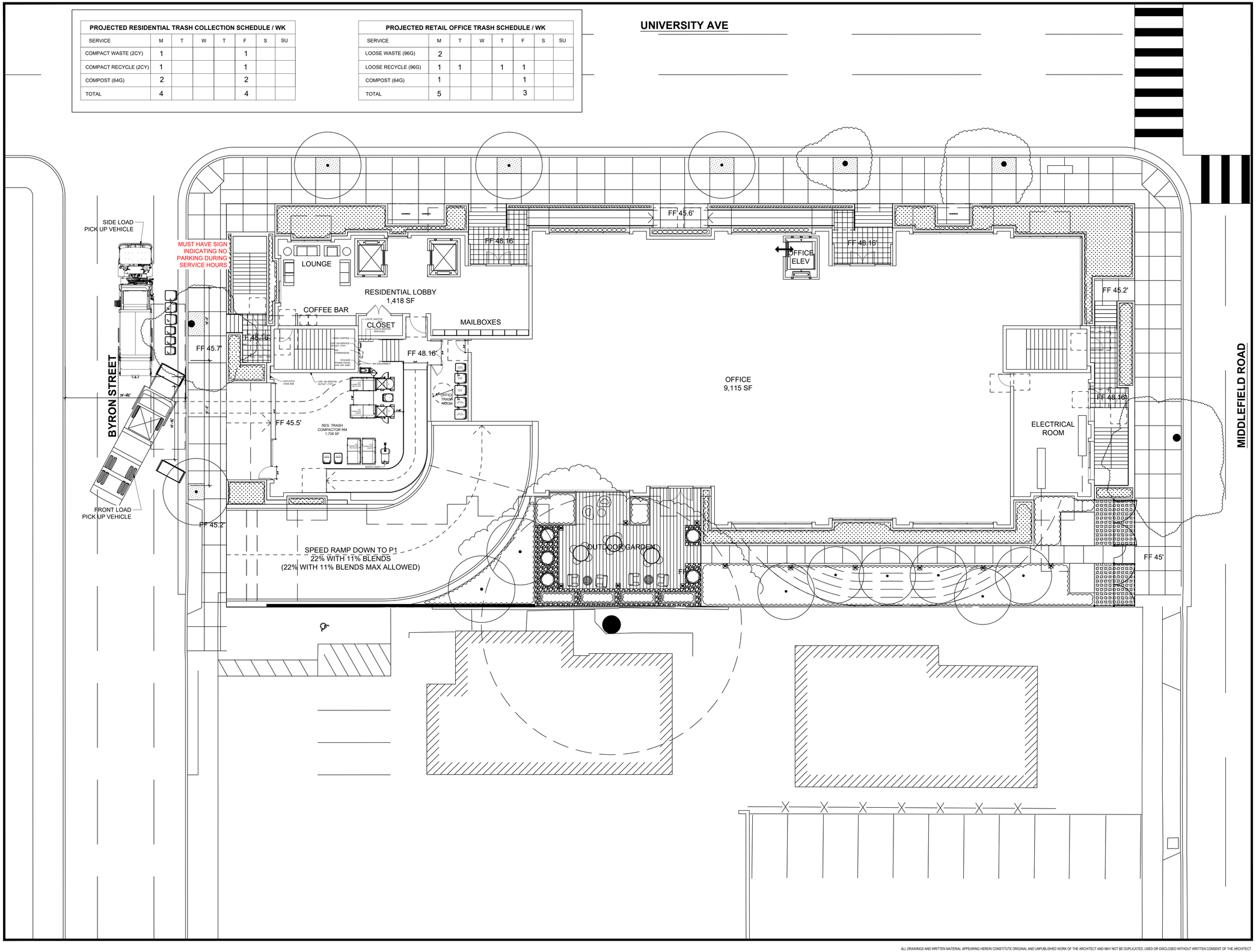
SCALE
1' = 20"

PROJ NORTH
TN

SHEET NUMBER

PROJECTED RESIDENTIAL TRASH COLLECTION SCHEDULE / WK							
SERVICE	M	T	W	T	F	S	SU
COMPACT WASTE (2CY)	1				1		
COMPACT RECYCLE (2CY)	1				1		
COMPOST (64G)	2				2		
TOTAL	4				4		

PROJECTED RETAIL OFFICE TRASH SCHEDULE / WK							
SERVICE	M	T	W	T	F	S	SU
LOOSE WASTE (96G)	2						
LOOSE RECYCLE (96G)	1	1		1	1		
COMPOST (64G)	1				1		
TOTAL	5				3		



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EMERYVILLE, CALIFORNIA 94608
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F: 415.292.5410
CONSULTINGPROJECTS@TRASHMANAGE.COM

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	02.07.24	PLANNING RESUBMITTAL #7

PROJECT NUMBER
21003

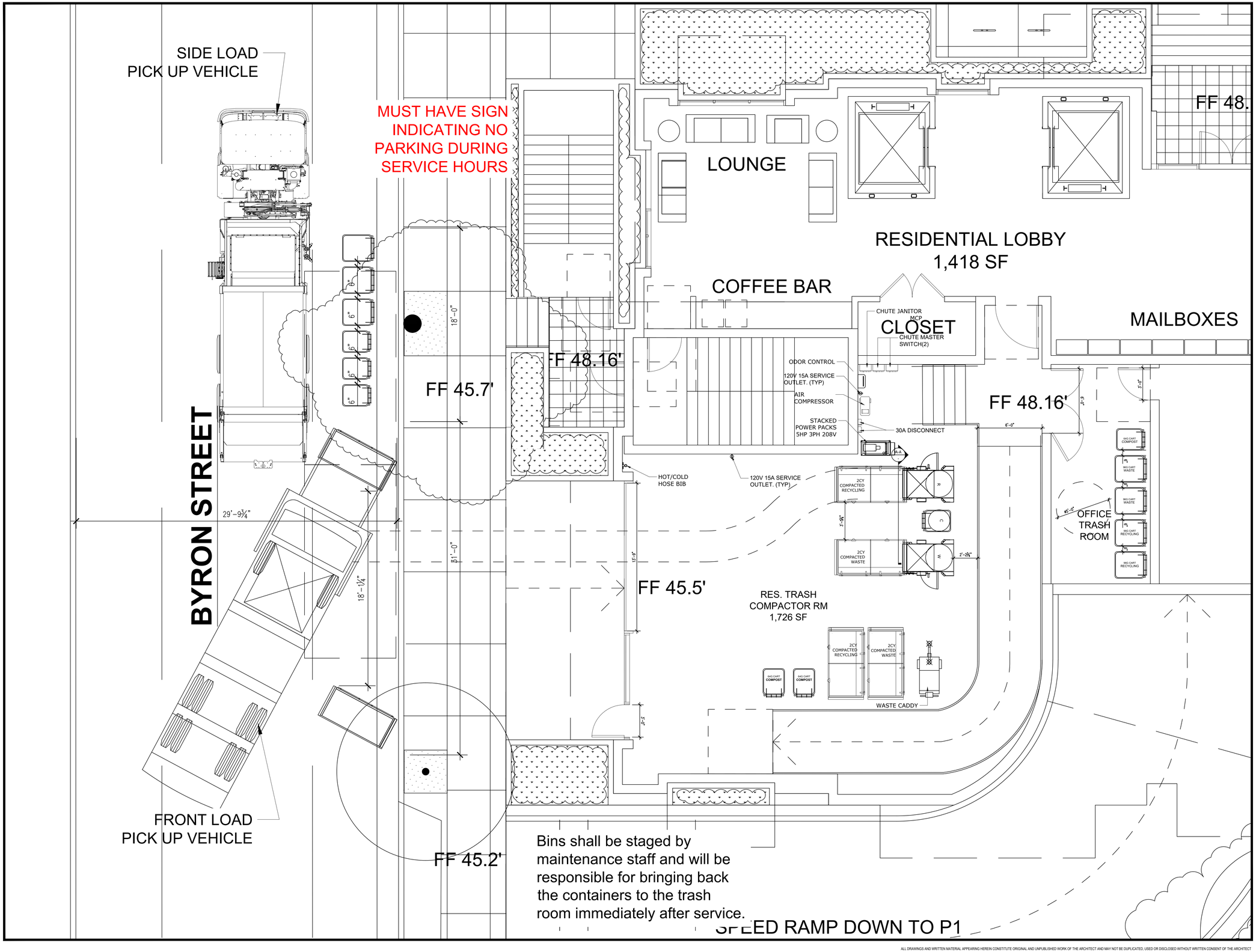
SHEET TITLE
OVERALL SITE PLAN LEVEL 1

SCALE
3/32" = 1'-0"

PROJ NORTH
TN

0 10'-8" 21'-4"

SHEET NUMBER
TR0.1



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	02.07.24	PLANNING RESUBMITTAL #7

PROJECT NUMBER
21003

SHEET TITLE
STAGING & BIN PATH

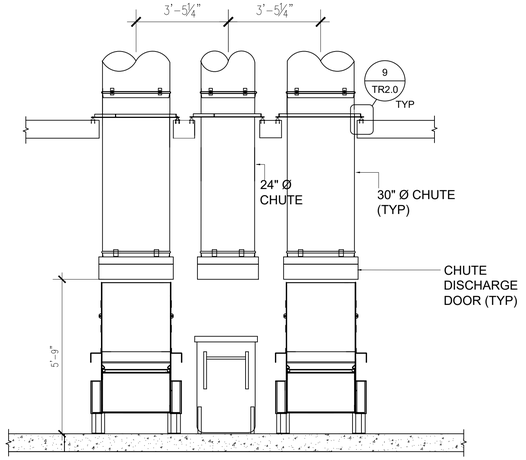
SCALE
1/4" = 1'-0"

PROJ NORTH
TN

0 4'-0" 8'-0"

SHEET NUMBER

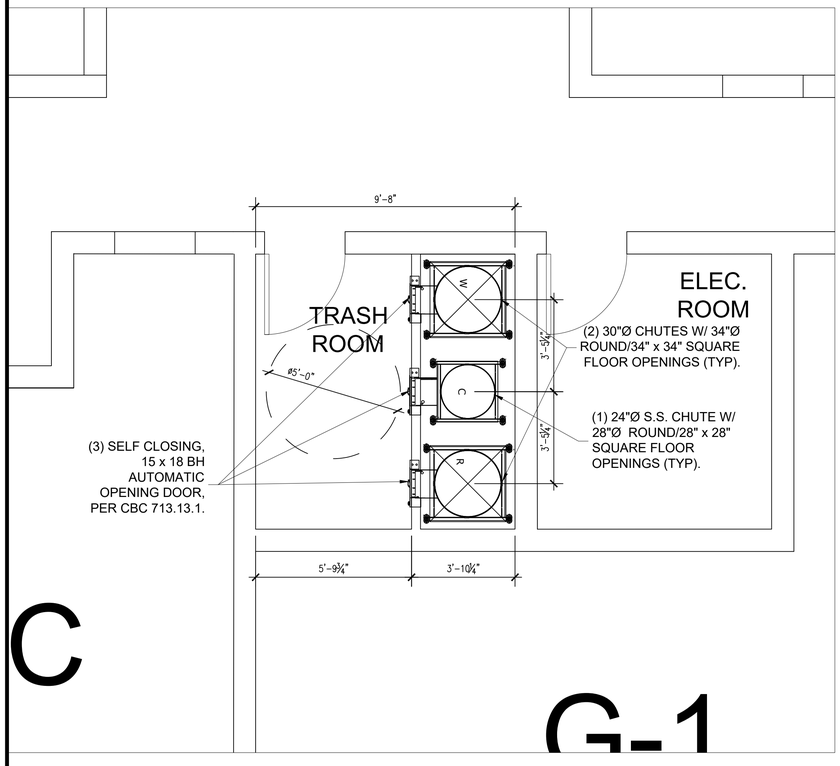
TR0.2



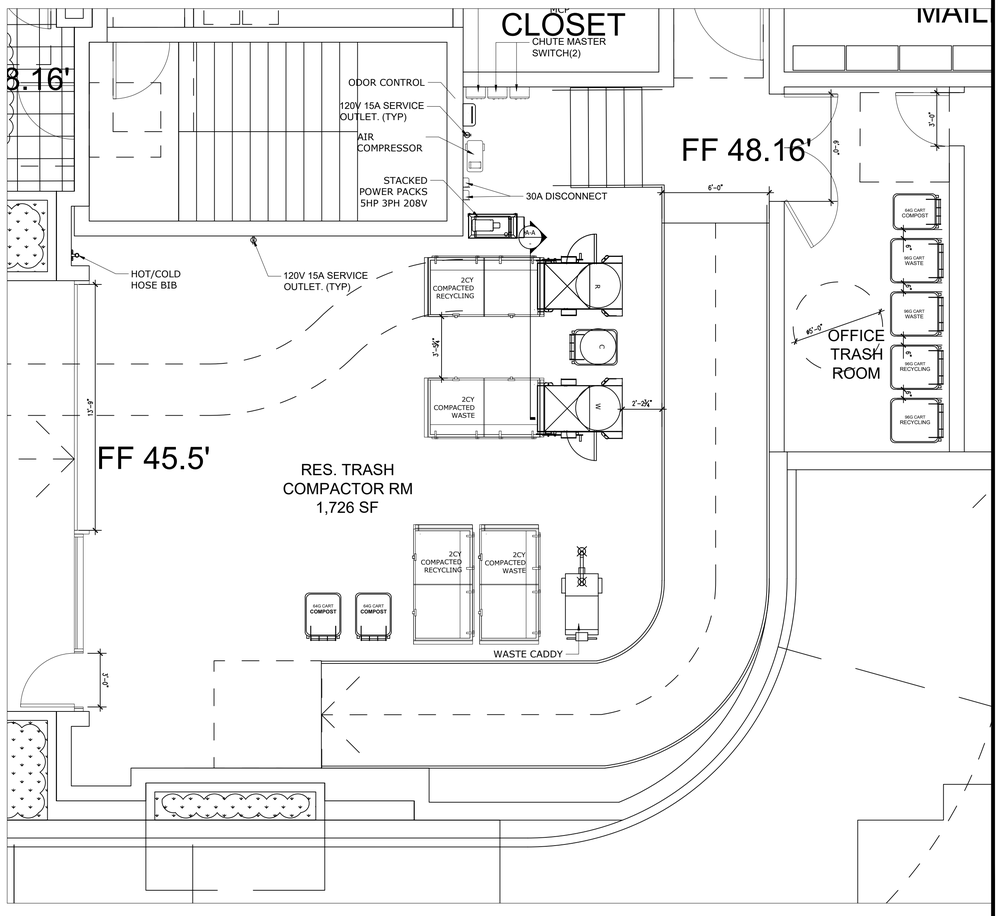
SECTION A-A

PROJECTED RESIDENTIAL TRASH COLLECTION SCHEDULE / WK							
SERVICE	M	T	W	T	F	S	SU
COMPACT WASTE (2CY)	1				1		
COMPACT RECYCLE (2CY)	1				1		
COMPOST (64G)	2				2		
TOTAL	4				4		

PROJECTED RETAIL OFFICE TRASH SCHEDULE / WK							
SERVICE	M	T	W	T	F	S	SU
LOOSE WASTE (96G)	2						
LOOSE RECYCLE (96G)	2				2		
COMPOST (64G)	1				1		
TOTAL	5				3		



1 RESIDENTIAL TRASH VESTIBULES | UPPER LEVELS
3/8" = 1'-0"



2 TRASH COLLECTION AND CHUTE TERMINATION ROOMS | GROUND LEVEL
1/4" = 1'-0"

C

G-1

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PROJECT NUMBER
21003

SHEET TITLE
TRASH COLLECTION ROOM DETAILS

SCALE
3/8" = 1'-0"

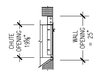
PROJ NORTH
TN

0 2'-8" 5'-4"

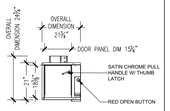
SHEET NUMBER
TR1.0

NOTES:
1. INTAKE DOOR AND TRIM SHALL BE REMOVED FOR DOOR MAINTENANCE.
2. BOTTOM HINGED DOORS ARE SELF-CLOSING, NOISELESS, AND SELF-LATCHING. UL CLASSIFIED 90 MINUTE FIRE-RATED DOOR AND FRAME ASSEMBLY AND A TEMPERATURE RISE OF 250° F MAX IN 30 MINUTES.
3. MAX OPENING FOR INTAKE DOOR IS 14" FROM FACE OF FINISHED WALL.
4. 2019 CBC - 11B-308.2.1(FORWARD) & 11B-308.3.1(SIDE) HEIGHT: CONTROLS AND OPERATING MECHANISMS SHALL BE LOCATED NO HIGHER THAN 44 INCHES AND NO LOWER THAN 15 INCHES ABOVE THE FINISHED FLOOR MEASURED TO THE CENTER OF THE PUSH BUTTON.
5. 2019 CBC - 11B-309.4 OPERATION: CONTROLS AND OPERATING MECHANISMS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE CONTROLS AND OPERATING MECHANISMS SHALL BE NO GREATER THAN 5 POUNDS.

- **18x18 AIR ASSIST ACCESS DOOR IS LARGEST DOOR THAT ATM WILL DESIGN FOR CHUTE INTAKE.**
- **ATM WILL NEVER DESIGN A 24X24 INTAKE DOOR AS THESE DOOR SIZES HAVE LED TO FATALITIES.**

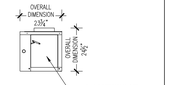


SIDE VIEW



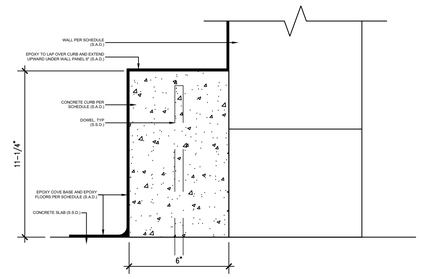
FRONT VIEW

PLAN VIEW



TRIM VIEW

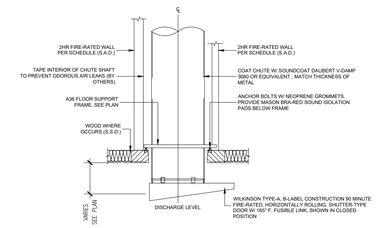
1 CHUTE INTAKE DOOR



3 WALL PROTECTION CONCRETE CURB

SCALE: NTS

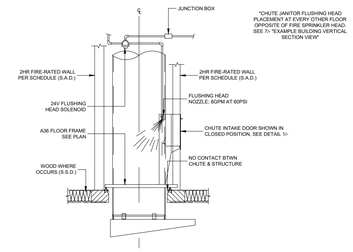
NOTES:
1. CHUTE SHAFT SHALL NOT BE ERECTED UNTIL CHUTE HAS BEEN INSTALLED. FOR SOUND PROOFING PURPOSES, DOUBLE STUD WALLS ARE REQUIRED ADJACENT TO OCCUPIED SPACES. INTERIOR OF SHAFT SHALL BE TAPED TO PREVENT ODOROUS AIR LEAKING INTO OCCUPIED SPACES (BY OTHERS).
2. INTAKE DOOR NOT SHOWN FOR CLARITY.



5 CHUTE AIR AND SOUND ISOLATION

SCALE: 3/" = 1'-0"

NOTES:
1. SEE DETAIL 7/- FOR D & S UNIT ABOVE, AT HIGHEST INTAKE.



6 TRASH CHUTE JANITOR

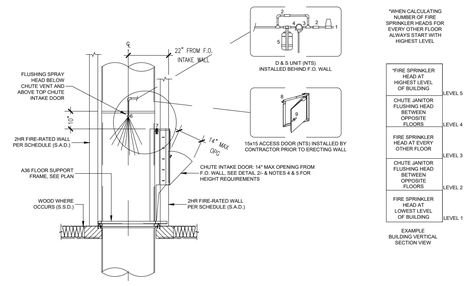
ABOVE FIRST INTAKE

SCALE: 3/" = 1'-0"

NOTES:
1. PROVIDE HIGH PRESSURE CHUTE WASHDOWN NOZZLE.
2. FILL SANITATION TANK WITH CONCENTRATED DISINFECTING SOLUTION. THE SYPHON HOSE SHOULD REACH THE BOTTOM OF THE SOLUTION CONTAINER. TO FLUSH WITH CLEAR WATER, TURN HANDLE TO THE ON POSITION. FACTORY SETTING FOR FLUSH CYCLE IS 30 SECONDS. ADJUST FLOW RATE AT FLOW CONTROL VALVE.
3. NOTE THAT THE ACCESS DOOR AND D & S UNIT ARE SHOWN OUTSIDE OF CHUTE SHAFT FOR CLARITY. ALL WASHDOWN EQUIPMENT WILL BE INSTALLED WITHIN CHUTE SHAFT, ABOVE THE HIGHEST INTAKE. (1) D & S UNIT PER CHUTE.
4. 2019 CBC - 11B-308.2.1(FORWARD) & 308.3.1(SIDE) HEIGHT: CONTROLS AND OPERATING MECHANISMS SHALL BE LOCATED NO HIGHER THAN 44 INCHES AND NO LOWER THAN 34 INCHES ABOVE THE FINISHED FLOOR MEASURED TO THE CENTER OF THE PUSH BUTTON.
5. 2019 CBC - 11B-309.4 OPERATION: CONTROLS AND OPERATING MECHANISMS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE CONTROLS AND OPERATING MECHANISMS SHALL BE NO GREATER THAN 5 POUNDS.
6. SUPPLIED BY CHUTE VENDOR - INSTALLED BY PLUMBER.

PLUMBING SCHEMATIC LEGEND:

1. ¾"Ø DOMESTIC HOT WATER INLET WITH VACUUM BREAKER. **(SUPPLIED/INSTALLED BY PLUMBING SUBCONTRACTOR)**
2. QUARTER-TURN GATE VALVE (SHUT-OFF AND BYPASS), (2) TOTAL. **(SUPPLIED/INSTALLED BY PLUMBING SUBCONTRACTOR)**
3. PLUMBING DESIGN, MATERIALS, AND INSTALLATION BY OTHERS. **(SUPPLIED/INSTALLED BY PLUMBING SUBCONTRACTOR)**
4. 24-VDC SOLENOID VALVE (OPTIONAL). NOT NEEDED FOR MANUAL OPERATION. **(NOT USED HERE)**
5. D & S UNIT: 1-GALLON CONTAINER, MOUNTING BRACKET, AND PROPORTIONAL VALVE AT REMOTE LOCATION. **(SUPPLIED/MOUNTED BY CHUTE SUBCONTRACTOR. PLUMBED BY PLUMBING SUBCONTRACTOR)**
6. FLUSHING SPRAY HEAD BELOW CHUTE VENT. **(SUPPLIED/MOUNTED BY CHUTE SUBCONTRACTOR. PLUMBED BY PLUMBING SUBCONTRACTOR)**
7. FIRE SPRINKLER HEAD AT HIGHEST INTAKE, LOWEST INTAKE, AND EVERY OTHER FLOOR BETWEEN, TO BE STARTED FROM HIGHEST INTAKE - CONNECTION BY OTHERS. **(SUPPLIED/MOUNTED BY CHUTE SUBCONTRACTOR. PLUMBED BY FIRE SPRINKLER SUBCONTRACTOR)**
8. SIDE-HINGED, UL RATED 90 MINUTE B-LABEL ACCESS DOOR. **(SUPPLIED BY CHUTE SUBCONTRACTOR. INSTALLED BY FRAMING SUBCONTRACTOR OR GC)**
9. SATIN CHROME PULL-HANDLE. **(SUPPLIED/INSTALLED BY CHUTE MANUFACTURE)**



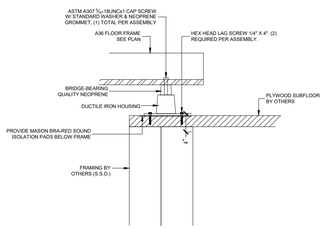
*WHEN CALCULATING NUMBER OF FIRE SPRINKLER HEADS FOR EVERY OTHER FLOOR ALWAYS START WITH HIGHEST LEVEL

7 FIRE SPRINKLER DETAILS AND CHUTE SANITATION UNIT

AT HIGHEST INTAKE

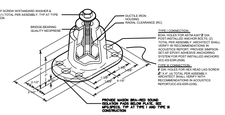
SCALE: 3/" = 1'-0"

NOTES:
1. REFER TO MANUFACTURER SPECIFICATIONS FOR ALL OTHER INFORMATION NOT LISTED.



TYPE III & V FLOOR CONNECTION

NOTES:
1.ALL HARDWARE PLATED
2.REFER TO MANUFACTURERS SPECIFICATIONS FOR ALL OTHER INFORMATION NOT INCLUDED



MASON BRA-RED MOUNT

9 FLOOR SUPPORT FRAME ANCHORING

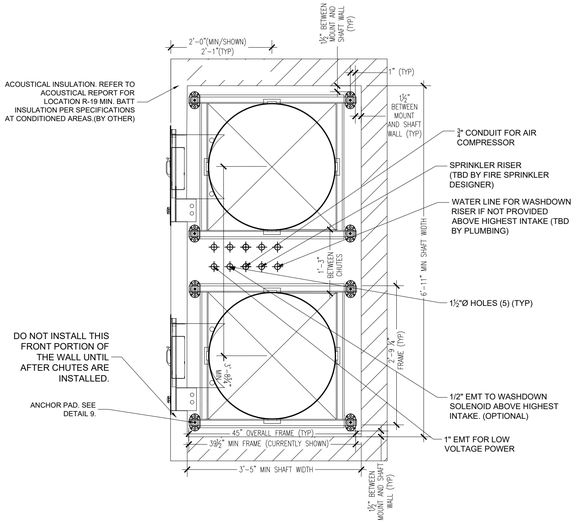
SECTION VIEWS

SCALE: 6" = 1'-0"

NOTES:
1. SEE DETAIL 1/- FOR CHUTE INTAKE DOOR INFORMATION.
2. SEE DETAIL 9/- FOR ADDITIONAL FLOOR SUPPORT FRAME ANCHORING INFORMATION.
3. ANCHOR FLOOR SUPPORT FRAME AT ONE END AS SHOWN. OTHER SIDE OF FRAME TO REST ON TOP OF FLOOR AT INTAKE WALL. SEE PLAN FOR LAYOUT OF CHUTE SHAFT.

SOUND CONSULTANT TO VERIFY DETAILS AND UPDATE AS NECESSARY

THIS IS AN EXAMPLE SHAFT. CURRENT SHAFT CONDITIONS MAY VARY.

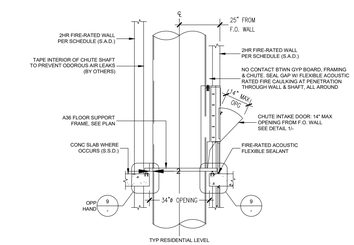


EXAMPLE MINIMUM SHAFT DETAILS

SHEET NOTES: 30"Ø CHUTE DETAILS
1. CHUTE MATERIAL: GALVANIZED OR GALVANEAL 16G STEEL
2. ALL WALL ASSEMBLIES ENCASING THE CHUTE SHAFT SHALL BE 2HR FIRE-RATED.
3. SEE ARCHITECTURAL AND/OR STRUCTURAL DRAWINGS TO VERIFY ALL INFORMATION NOT RELATED TO ATM'S SCOPE OF WORK PER AGREEMENT.

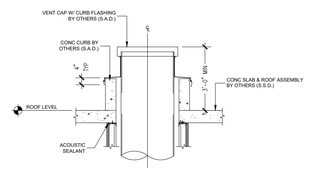
GENERAL NOTES:
1. ANY DESIGNS OR SOLUTIONS SHOWN IN DRAWING, EITHER DIRECT OR IMPLIED, ARE HEREBY CLARIFIED AS EXAMPLES AND SHALL NOT BE CONSIDERED COMPLETE DESIGNS FOR CONSTRUCTION. THESE DRAWINGS ARE INTENDED TO SUPPLEMENT THE SUBMITTAL PACKAGE FROM ARCHITECT.
2. ANY PARTIAL INFORMATION, OMISSIONS, OR INACCURATE DESCRIPTIONS OF WORK SHOWN IN DRAWINGS, WHICH ARE NECESSARY TO PERFORM THE SCOPE OF WORK, SHALL NOT RELIEVE THE CONTRACTOR FROM COMPLETION OF WORK. ALL WORK SHALL BE PERFORMED TO SATISFY THE MINIMUM REQUIREMENTS OF THE CURRENT APPLICABLE BUILDING CODES.
3. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO START OF CONSTRUCTION. THE ARCHITECT SHALL BE PROMPTLY NOTIFIED OF ANY INCONSISTENCIES AND/OR DISCREPANCIES.

NOTES:
1. ATTACHMENT OF ALL BLOCKING, CURBS, AND OTHER ROOF COMPONENTS SHALL BE DESIGNED AND INSTALLED TO MEET THE MINIMUM REQUIREMENTS OF MANUFACTURER.
2. SEE ARCHITECTURAL AND/OR STRUCTURAL DRAWINGS FOR ALL WORK BY OTHERS.



10 CHUTE SHAFT AT INTAKE

SCALE: 3/" = 1'-0"



11 CHUTE VENT

AT ROOF LEVEL

SCALE: 3/" = 1'-0"

12 FLOOR SUPPORT FRAME ANCHORING

PLAN VIEWS

SCALE: 1½" = 1'-0"

SMITH DEVELOPMENT

660 UNIVERSITY
PALO ALTO, CA 94301

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ISSUES AND REVISIONS

NO.	DATE	DESCRIPTION
	12.01.21	PLANNING SUBMITTAL
	05.13.22	PLANNING RESUBMITTAL #1
	08.15.22	PLANNING RESUBMITTAL #2
	11.02.22	PLANNING RESUBMITTAL #3
	08.28.23	PLANNING RESUBMITTAL #4
	10.31.23	PLANNING RESUBMITTAL #5
	12.21.23	PLANNING RESUBMITTAL #6
	02.07.24	PLANNING RESUBMITTAL #7

PROJECT NUMBER
21003

SHEET TITLE
CHUTE DETAILS

SCALE
NTS

PROJ NORTH
TN

SHEET NUMBER
TR2.0

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Smith Development
660 University
Palto Alto, CA
Trash Management Plan

Task: Design a waste and recycling system for a mixed-use project consisting of 70 residential units and 9,115 square feet of office space that minimizes costs, staffing requirements, and environmental impacts, while providing convenient trash disposal for the building's residents. Please note the word "trash" when used in this plan covers both waste and recycling.

Waste and Recycling Removal: The City of Palo Alto has granted GreenWaste of Palo Alto a license to provide residential and commercial Waste and Recycling services to residents and businesses located within the city and county. This license is a de facto exclusive franchise for trash removal for any property located within city limits. GreenWaste provides three types of service: waste, commingled recycling, and compost collection.

The City Council has approved the Recycling and Composting Ordinance. Starting January 1, 2017 businesses generating 2 or more cubic yards of garbage per week will be required to subscribe to recycling and compost services, as well as sort all waste into the appropriate containers. Currently, commercial customers generating 8 or more cubic yards of garbage per week, multifamily buildings, and food service establishments are already composting and recycling under the Ordinance.

Palo Alto Municipal Code 5.20.030 (b) states that "all persons shall separate their refuse according to its characterization as solid waste, compostable materials or recyclable materials."

Additionally, Palo Alto has a noise ordinance, 9.10.030 Residential Property Noise Limits that states (a) No person shall produce, suffer or allow to be produced by any machine, animal device, or any combination of same, on residential property, a noise level more than six dB above the local ambient at any point outside of the property plane.

(b) No person shall produce, suffer, or allow to be produced by any machine, animal, or device, or any combination of same, on multi-family residential property, a noise level more than six dB above the local ambient three feet from any wall, floor, or ceiling inside any dwelling unit on the same property, when the windows and doors of the dwelling unit are closed, except within the dwelling unit in which the noise source or sources may be located.
(Ord. 4634 § 2 (part), 2000)

NOTE: While Palo Alto has this noise ordinance given the data we have on trash truck noise, every location in the city with trash collection violates this rule.

State and Local Recycling Mandates: Statewide the passage of AB341 (July 1st, 2012) and subsequent AB1826 & SB 1383 required all businesses that have more than 5 residential units or generate more than 4 cubic yards of municipal solid waste to separate recyclable and compostable materials from the waste stream. This law directs local jurisdictions to implement recycling and composting regulations and programs.

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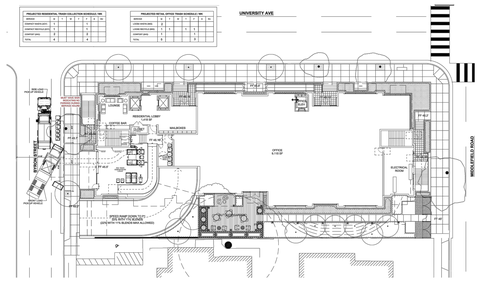
Site Plan



Project Summary:

First, **local ordinance requires the collection of trash in three separate streams: waste, mixed recycling, and compost**.

Second, **a three-chute design as designed will be used for the residential trash collection room.** The compost chute should be 24" in diameter and must be 304 stainless steel with an automated wash-down system to minimize the problem of chute collection of compost. The waste and recycling chutes can be galvaneal steel, but we recommend increasing the diameter of the waste and recycling chute to 30". CBC minimum required 24" chutes have a higher probability of chute jams due to large objects (super-size pizza boxes, Costco boxes, ironing boards, crutches, etc.) being thrown down the chute.

Third, due to the projected residential trash volumes, **waste and recycling will be collected in chute-fed compactors with 2CY bins.** Compactors will reduce the number of trash bins the project will need to store, reduce the development's trash bill, and reduce the number of trash truck trips to the property. Compost will be collected in 64G Toter carts under the chute.

Fourth, **commercial retail tenants will be responsible for handling their own trash. A dedicated trash room has been designed for trash collection.**

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Fifth, **staging will occur on Byron St. Front-load** bins require 25' vertical clearance which is typically used in a project of this size. Bins must be moved by staff to this location so the trash bins to be emptied by Green Waste with minimal impact on the residents and the project's neighbors.

Sixth, **add 1 CFM/SF mechanical ventilation per CBC, floor drain, hose bib, and odor control to the trash collection rooms.**

Projected Residential Waste and Recycling Levels: The following metrics were used to project residential waste and recycling levels:

Residential Waste: 0.16 Cubic Yard (32 gallon) per week/unit. **NOTE: This is the equivalent of 2.5 large kitchen garbage cans per unit week (3 - 13 gallon bags).**

Residential Recycling: 0.16 Cubic Yard (32 gallon) per week/unit. **NOTE: This is the equivalent of almost 2 large kitchen garbage cans per unit week (2 - 13 gallon bags).**

Residential Compost: 0.012 Cubic Yard (2.4 gallon) per week/unit. **NOTE: This is the equivalent of small compost pail per unit week.**

Residential LOOSE Trash Volume Projections. See detailed analysis on page 20.

Units	Projected Waste Volume CY/ WK	Projected Recycle Volume CY/WK	Projected Compost Volume CY/WK	Total # of Loose 3CY Waste Bins/ WK	Total # of Loose 3CY Recycle Bins/ WK	Total # of Loose 96G Compost Carts/WK
70	11.2	11.2	0.8	4	4	3

Residential COMPACTED Trash Volume Projections. See detailed analysis on page 20.

Units	Projected Waste Volume CY/ WK	Projected Recycle Volume CY/WK	Projected Compost Volume CY/WK	Total # of Compacted 2CY Waste Bins/WK	Total # of Compacted 2CY Recycle Bins/WK	Total # of Loose 96G Compost Carts/WK
70	2.8	2.8	0.8	2	2	3

Commercial Office Trash Volume Projections:

Studies cited by CalRecycle estimate office building trash generation at 5.44 lb. of trash per 1000 SF, nearly 70% of which can be diverted. Although past studies had low diversion rates for office buildings, more recent evidence points to large increases in diversion, as firms and their employees become more active recyclers. (This is supported both by outside studies and ATM's data). It is assumed, therefore, that comparable diversion rates for this office space will hold.

Using these metrics, the following levels of waste, recyclables, and compost are projected for the office space in this project.

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	SF	Loose Waste Volume CY/WK	Loose Recycle Volume CY/WK	Loose Compost Volume CY/WK	Total # of Loose 96G Compost Carts/WK	Total # of Loose 96G Compost Carts/WK	Total # of Loose 64G Compost Carts/WK
Office	9,115	0.9	1.5	0.4	2	4	2

Residential Trash Handling System

To comply with City ordinances, residential trash will be collected in 3 different streams: waste, mixed recyclables (paper, cardboard & containers), and compost.

Chutes. The project will have 2 - 30" diameter trash chutes with 15x18 intake doors in each trash chute core: one for waste, and the other for mixed recycling. The chutes shall be made of 16 gauge galvaneal steel. The project will have a 1-24" diameter trash chute with 15x18 intake doors in each trash chute core for compost. The chute shall be made of 304 stainless steel. All materials will be collected at the ground level of the building.

Increasing the chute size for waste and recycling to 30" above the 24" minimum required by CBC will slightly increase the chute system cost but it will reduce the possibility of chute jams due to large objects (e.g., super size pizza, Amazon, and Costco boxes) being thrown down the chute. This will reduce ongoing maintenance costs while increasing tenant convenience.

The waste and recycling chutes should be 16 gauge galvaneal or aluminized steel and be isolated from the building structure using Mason BRA-Read mounts or equivalent. The chute should be coated with a sound-dampening compound (Soundcoat GP-1 or equivalent) equal to the thickness of the metal.

The compost chute must be 304 stainless steel with an automated wash-down system to minimize the problem of chute collection of compost.

NOTE: We recommend limiting the chute intake doors to 15"x18" to minimize residents putting large, bulky items down the trash chute. Based on input from property managers, tenants have been known to dispose of ironing boards, ficus trees, chairs, and crutches down chutes. The recommended 15"x18" intake door will easily handle large kitchen trash bags while discouraging potentially problematic bulky items.

Compactors. Waste and recycling will be collected in 2CY chute-fed compactors. Compactors will reduce space requirements, staffing needs, and disposal fees, while minimizing truck traffic, thereby lowering the project's operational costs and overall environmental impact. All compactor bins will have locks on the lids and other openings to reduce access by vagrants. We recommend compactor bins be moved using a Waste Caddy.

Example of savings from compactors:

Service	Compaction Ratio	Monthly Fee
(1) 3-CY loose bin 4 times per week	N/A	$1,864.39

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Service	Compaction Ratio	Monthly Fee
(1) 2-CY compacted bin 2 times per week	4:1	$1,269.56

Note: Analysis for waste stream.

Lower Waste Disposal costs. Front-load compaction is less expensive than front-load loose waste services. (See cost-benefit analysis on page 20).

Compaction and Recyclables. The City of Palo Alto does not charge for loose or compacted recycling. Even though there will be no trash bill savings with compacted recycling we still recommend compaction for this project due to the automated handling of materials, its lower space requirements, and lower environmental impact (noise and litter) even though there is less savings.

Lower labor costs: A 3-cubic yard loose waste bin serviced Monday through Sunday must be moved from the trash chute to the trash service location 4x per week. Comparable compacted service a single 2-cubic yard bin picked up 2x per week. That represents 50% fewer times to move the bin from the trash area to the street for pickup. (See cost-benefit analysis on page 20).

Compost. Compost will be collected in loose 64-gallon carts under the chute.

NOTE: The compostable waste chute system creates unique sanitation issues, so a 304 stainless steel chute is recommended (to prevent corrosion), as is a special wash-down system to minimize the sanitation and odor problems that will arise from loose food waste being disposed down the chute.

ATM does not normally recommend collecting apartment compostable materials using gravity chutes due to sanitation issues, collection issues, the corrosive properties of the material, and the odorous nature of putrefying household food waste, which is the primary component of organic waste from apartments. The compostable materials will adhere to the sides of the chutes and require frequent chute washdowns. This will increase the project's water usage and sewage loads. The acidic nature of fermenting compost will cause the chute to rust prematurely unless they are made of 304 stainless steel. It is important that proper sanitation protocols are followed since the compostable material that will adhere to the chute wall is an excellent medium to grow fruit flies, maggots, molds, fungus, yeast, and bacteria which can cause insect infestations, allergic reactions, and malodors.

Cardboard. Due to the number of units, this project is projected to generate ~245 cardboard boxes per day. While diverting cardboard will not result in any direct disposal savings at this time, it can help reduce the number of large boxes creating chute jams. We recommend providing a space adjacent to the trash rooms for residents to place their large, flattened cardboard boxes. These boxes will need to be moved by building staff daily into a spare recycling bin.

Odor Control. To mitigate malodors in the trash room(s), a four-pronged approach is recommended including cleaning, proper ventilation, and installing a deodorizer system.

1. Mechanical Exhaust of Trash Collection Room. The mechanical ventilation required rate is 1 CFM/SF, however, ATM recommends increasing this rate as needed, especially in areas with a warmer climate. Exhaust should vent through the roof. ATM does not recommend a chilled/refrigerated trash room. A cooled space will not delay decomposition and will have minimal impacts on odorous trash.

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2. Cleaning the Trash Room. Trash rooms should be swept clean of debris on a weekly basis. Trash room wash-downs should be scheduled quarterly. These should include cleaning any trash equipment such as compactors, as well as floors and walls. If possible, bins or compactor receiver containers should be cleaned at the same time, assuming the containers are empty. (Bins should be cleaned by onsite staff. If hauler-provided dumpsters become especially dirty, they should be replaced by the hauler.)
3. Cleaning the Trash Chute. Almost all trash chutes are equipped with deodorizing and sanitizing (D&S) units, located on the top floor behind an access door. These should be operated on a WEEKLY basis, for ~5 minutes. Trash chutes that are designed for a high level of food waste often also have a "Chute Janitor" built-in wash-down system. These should be operated less often, such as 1x per month. When turned on, they should be allowed to run through their normal Rinse-Wash-Rinse cycle. Even with the presence of the D&S and Chute Janitor systems, all trash chutes should be pressure washed at least once a year to clean materials that adhere to the sides of the chutes. In areas with a warmer climate, we recommend quarterly washdowns. The chute wash-down service should include cleaning the trash discharge room, specifically the floors, walls, and the trash compactor.
4. Odor Control Systems. Odor control systems can be helpful in controlling odors, but most have limited effectiveness or create other problems. Popular low-cost systems that spray a masking agent into the air, only serve to hide odors in the trash room and not eliminate them. Ozone generators are more effective, but the odor-destroying product they create — ozone — can have a deleterious effect on human health and can also destroy compactor hoses and seals. One odor control system that avoids these problems is the Piian Mini Vaporizer. It creates a very fine 50-micron mist that bonds with — and ultimately destroys — odor-causing molecules. And unlike ozone, the entirely natural blend of plant extracts, essential oils, and emulsifiers which is safe and does not damage equipment.

Residential Trash System Equipment

Below is a summary of the recommended trash system equipment.

Compacted Service

Gravity Chutes	Diameter	Chute Material	Compactor Count	Bin Type	# of Bins	Bin Size Cubic Yards
3	2-30" 1-24"	2-16 gauge galvaneal steel 1-304 SS	2	Front Load	2 waste 2 recycle 2 compost	2CY waste & recycling 64G compost

-odor control, Waste Caddy for bin moving

SMITH DEVELOPMENT

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	02.07.24	PLANNING RESUBMITTAL #7

PROJECT NUMBER
21003

SHEET TITLE

TRASH MANAGEMENT PLAN

SCALE

N.T.S.

SHEET NUMBER

TR3.1

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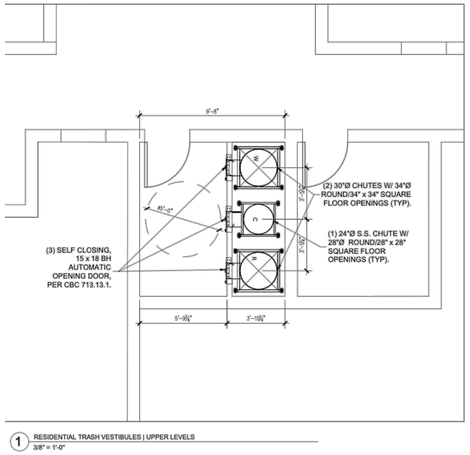
Residential Trash Chute Vestibule Layout



1 RESIDENTIAL TRASH VESTIBULES | UPPER LEVELS
3/8" = 1'-0"

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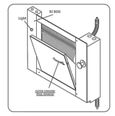
Trash Chute Intake Doors

ATM standard is to specify pneumatic (automatic) opening in order to meet all accessibility requirements per 2019 CBC Section 1138A.4.4, which states that: "Controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching or twisting of the wrist. The force required to activate controls and operating mechanisms shall be no greater than 5 pounds."

Air Assist Chute Intake Door	Manual Chute Intake Door
	

Chute Intake Doors and the Americans with Disabilities Act of 1990 (ADA)
This is a summary of the current state as we understand it. This is not intended to be legal advice and should not be relied upon without seeking the advice of an ADA expert and your legal counsel.

Per most building codes and FHA requirements, "common use" building areas and building elements, such as trash rooms and trash chutes are required to be accessible. Specifically, the trash chute door is required to comply with accessibility requirements:

- Clear floor space for a wheelchair at the chute door
- Chute door hardware within reach range
- Chute door hardware complying with operability requirements.

The operability requirements mandate that the chute door hardware must not involve any of the following:

- Two-handed operation (such as depressing a button while turning a door handle)
- Tight grasping or pinching
- Twisting of the wrist
- Force to activate the hardware that exceeds 5.0 pounds.

The majority of manual chute intake chute door installations do not comply with the accessibility requirements. Lower-quality chute doors require grasping, twisting of the wrist, and more than 5 pounds of force to open the chute door. Regardless of what has been installed for the chute door, the chute door is still required by both Code and FHA requirements to comply with accessibility requirements. In the cases where non-compliant chutes have been installed, the building Owner has made a management decision to handle the accessibility requirement using other means.

Residential and other buildings are subject to the progressively revised provisions of Federal and Local ADA laws and regulations. To meet the current ADA Standards as they apply to Gravity Trash Chute Intake Doors, the person using the door must not have to grasp, twist, or pinch the control mechanism in

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order to operate the intake door. ADA Standards also limit the maximum operating force required to open an interior door (without specificity to size) to 5 pounds of force. Under CBC 2016 the maximum allowable mounting height of the operating mechanisms (ie door handle, etc.) of an ADA-compliant device is 44". The minimum allowable height is 34". The maximum allowable projection of an ADA-compliant device is 4" off the projection surface of the wall.

The Wilkinson Signature Series and IDC-2000 Recycling Manually operated doors require the person operating the door to push a membrane selector switch (waste, recycling, or compost) grasp the u-shaped handle, push down on the thumb latch with a finger, and pull open the door. This type of intake door meets the mounting height, the projection, the twist, and the pinch requirements but it does not meet the pulling force or the grasp requirement.

Lower-quality manual chute intake doors from other manufacturers all use a T-handle or L-handle operating mechanism. These doors fail on 3 counts. They do not meet the pulling force, grasp, and twist requirements. These doors are especially hard to operate for persons with arthritis due to the required simultaneous grasping, twisting, and pulling motion.

The Wilkinson Signature Series and IDC 2000 Pneumatic Assist door meet all the above requirements since it is operated by pushing a palm button which opens the door automatically. The door closes after a set time and latches so it meets all the current fire code requirements. The air assist mechanism is designed to preclude the need to grasp, twist, or pinch the control mechanism in order to operate the intake door. The push button meets the height, projection, and force requirements too. It is conceivable, however, that certain disabled persons will still not be able to operate this type of door. ADA law requires one to accommodate all persons with disabilities.

The supra-majority of all new construction within the US still uses manually operated chute intake doors due to the extra upfront (~ $900 per floor) and higher maintenance costs of the Pneumatic Assist Chute Intake type of doors. Many building owners have chosen to only install the pneumatic assist doors in facilities with a high senior or disabled population and in order to meet the above ADA requirements make it their policy to provide a staff person to assist any individual with disabilities who need assistance in operating the manually operated door.

Trash chute systems have been designed to meet the fire and life safety found within Building Codes. All trash chute intake doors are required to be behind a rated fire-barrier and any door in these walls is required to be a fire-rated door.

This fire-rated door is required to be self-closing (or automatic-closing upon the detection of smoke), so it has a closer mechanism and positive latch. Because this door is designated as a "fire door", per most codes and accessibility standards (including ANSI A117.1 used for FHA compliance), the door opening force for this door is exempt from typical accessibility requirements (maximum 5 pounds) and allowed to have a minimum opening force allowed by the authority having jurisdiction (typically a maximum of 15 pounds). The opening force for the required fire-rated doors in front of trash chute intake doors routinely exceeds 5 pounds and is more typically in the 14-18 pound range.

Requiring the chute intake door to meet accessibility requirements while allowing the fire-rated door in front of the trash chute intake door to not meet the pull force and grasp requirements is illogical. If an individual with accessibility needs cannot open the fire door in front of the trash chute intake then they will not be able to access the non-compliant chute. Owners should always have a policy in place to provide assistance to any person who can not access the trash chute (with or without automatic opening doors).

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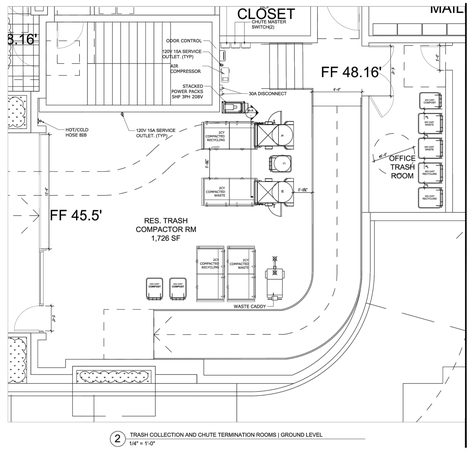
Residential Trash Collection Room Layout



2 TRASH COLLECTION AND CHUTE TERMINATION ROOMS | GROUND LEVEL
1/4" = 1'-0"

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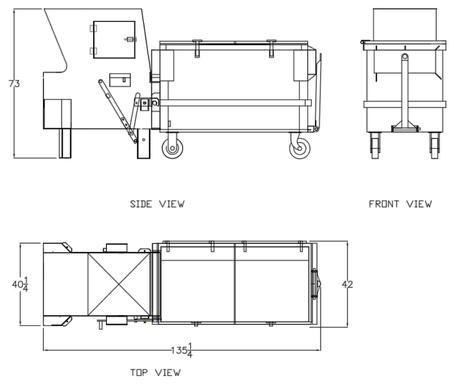
Equipment: Chute and hand-fed 2CY Bin



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Commercial Trash Handling System:

To comply with City ordinances, the project residential trash will be collected in 3 different streams: Waste, Mixed Recyclables (paper, cardboard & containers), and Compost (food & organic materials).

A dedicated office trash room has been designed. Waste, recycling, and compost will be deposited by staff into 96-gallon toter carts. The commercial tenants should be required to follow the Commercial Trash Rules as defined below:

RECOMMENDED RETAIL COMMERCIAL TENANT TRASH RULES

1. Moving Trash: Require commercial tenants who have any wet trash to move all solid waste and recycling in bags 20 gallons or less. The plastic bags which will make it easy for commercial tenants to put their waste and recycling into the communal trash compactors or bins. The use of bags is required to avoid leaks. Virtually all tenants fall into this category since they regularly throw away old partially full drink cups.

2. Cleanup: Tenants will be responsible for keeping the common areas clean. Any sewer blockage will be the responsibility of the tenant. All spills if they do happen must be immediately cleaned up or the property management will fine the tenant and arrange for the clean up at the tenant's expense. No vent hood filters or floor mats will be cleaned on site including the communal trash room.

3. Cooking Oil & Fat Disposal: Tenants producing used cooking oil arrange and pay for a service to collect this used oil. Oil must be stored within the tenant space. No oil can be moved in open containers on the property. All spills if they do happen must be immediately cleaned up or the property management will fine the tenant and arrange for the clean up at the tenant's expense. Used cooking oil cannot be stored in the communal trash room (it stinks and when it is communal you get a mess).

4. Bulky Items: Disposal of any large bulky items that do not easily fit within the communal trash bins must be removed from the property by the tenant at the tenant's expense. (Exclude all non-standard solid waste disposal). Anything that is not typically disposed of on a regular basis (at least every quarter) must be handled directly by the tenant.

5. Hazardous Materials: Tenants are responsible for arranging and paying for the disposal of all Hazardous Materials as defined by law.

SMITH DEVELOPMENT

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PALO ALTO, CA 94301

KSH ARCHITECTS
KORTH SUNSERI HAGEY

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PROJECT NUMBER
21003

SHEET TITLE

TRASH MANAGEMENT PLAN

SCALE

N.T.S.

SHEET NUMBER

TR3.2

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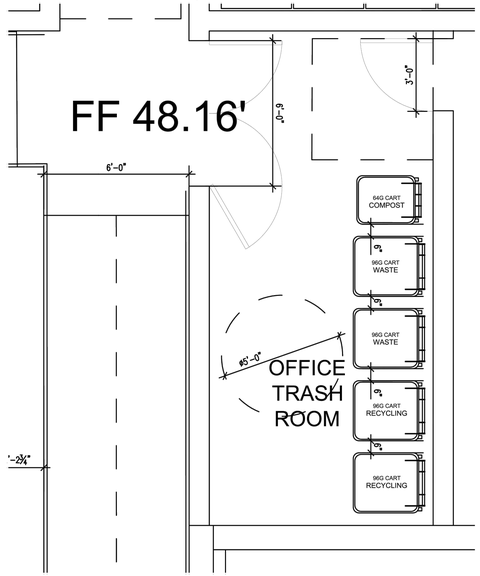
Commercial Trash Collection Room Layout



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Toter Carts for Office Trash and Compost

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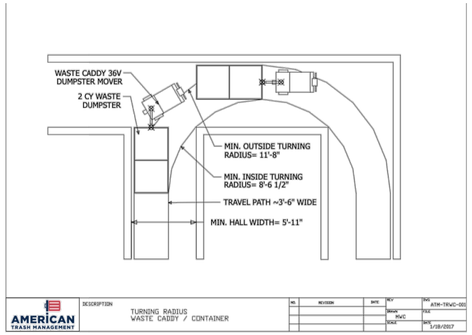
Compactor Bin Moving Turning Radius



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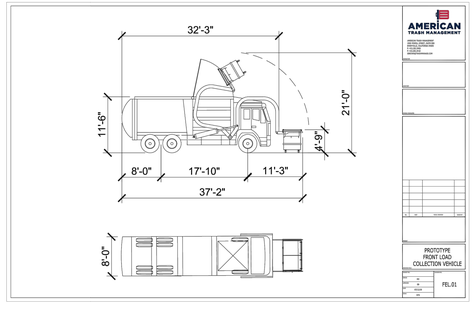
Trash Service Location:

Staging will occur on Byron Street. This will have minimal impact on the operations of the building and the project's neighbors. We recommend all residential compacted bins be moved by building staff using a Waste Caddy to the trash staging area.

Front-load service front-load bins require 25' Clear height (no lights, sprinklers, or other items within the service area.

Noise Levels

Location	Decibel Levels
Banging on Bins when Emptying	100
Behind Garbage Truck (while compacting)	89



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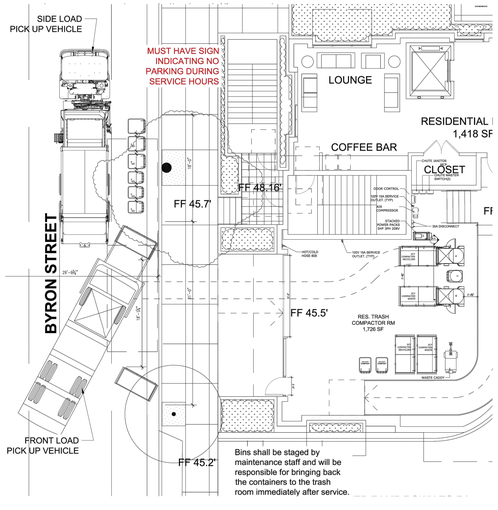
Staging Area

Please note that maintenance staff will stage the bins in the staging area and will bring back the containers to the trash room immediately after service.



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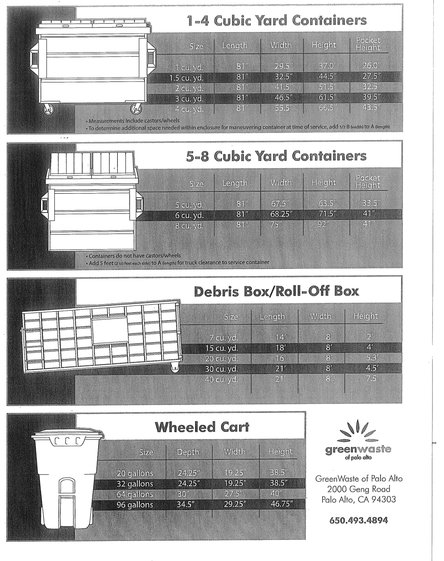

greenwaste of palo alto
GreenWaste of Palo Alto
2000 Geng Road
Palo Alto, CA 94303
650.493.4894

SMITH DEVELOPMENT

660 UNIVERSITY
PALO ALTO, CA 94301

KSH ARCHITECTS
KORTH SUNSERI HAGEY

ISSUES AND REVISIONS

NO.	DATE	DESCRIPTION
	12.01.21	PLANNING SUBMITTAL
	05.13.22	PLANNING RESUBMITTAL #1
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	10.31.23	PLANNING RESUBMITTAL #5
	12.21.23	PLANNING RESUBMITTAL #6
	02.07.24	PLANNING RESUBMITTAL #7

PROJECT NUMBER
21003

SHEET TITLE

TRASH MANAGEMENT PLAN

SCALE

N.T.S.

SHEET NUMBER

TR3.3

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Sample Residential Bin Moving Schedule. (Actual schedule to be determined by building management and hauler)

Residential - Compacted Service

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Compacted 2CY Waste	1				1		
Compacted 2CY Recycle	1				1		
Compost 64G					4		
Total	**2**	**0**	**0**	**0**	**6**	**0**	**0**

Commercial Office - Loose Service

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
96G Loose Waste	2						
96G Loose Recycle	2				2		
64G Loose Compost	1				1		
Total	**5**	**0**	**0**	**0**	**3**	**0**	**0**

TRASH SYSTEM SPECIFICATIONS: Provided separately.

1. Section 14 91 00 - Trash Chutes & Intake Doors
2. Section 44 31 00 - Odor Control
3. Section 44 53 62 - Waste & Recycling Compactors
4. Section 41 63 23 - Waste Caddy for Bin Moving

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Volume Projections and Analysis Below is a comparative analysis of the disposal costs and labor costs of handling waste and recycling in loose bins or compacted bins. Please note that the projections below are estimates derived from actual audits of comparable multifamily complexes in the San Francisco Bay area. They are not guaranteed. They are to be used for planning purposes only and may be higher or lower than projected.

TOTAL RESIDENTIAL WASTE AND RECYCLING ANALYSIS

ASSUMPTIONS:	**UNITS:** 70		**GALLONS**
Volume Waste:	0.16	cubic yard/week/unit	**32**
Volume Recycling:	0.16	cubic yard/week/unit	**32**
Volume Compost:	0.012	cubic yard/week/unit	**2**
Compaction Ratio	4	to 1	
Staff Labor Rate	$21.00	per hour - 1 person	
Time move bins	0.25	hr to move to unloading area & back	
Rake-Rotate bins	0.15	hr to go to each bin rake or rotate	
# of Trash Rooms	1		
Compacted Waste Service	2	cubic yard front load bins	
Compacted Recycle Service	2	cubic yard front load bins	
Loose Waste Service	3	cubic yard front load bins	
Loose Recycling Service	3	cubic yard front load bins	
Loose Compost Service	0.32	cubic yard carts (64 G Toter Carts)	

COST BENEFIT CALCULATION	PROJECTED	PROJECTED	PROJECTED
SERVICE-Waste	Loose	Compacted	Compacted
SERVICE-Recycling	Loose	Loose	Compacted
Loose Waste Volume - CY	11.2		
Compacted Waste Volume - CY		2.8	2.8
Loose Recycling Volume - CY	11.2	11.2	
Compacted Recycling Volume - CY			2.8
Loose Compost Volume - CY	0.8	0.8	
Compacted Compost Volume - CY			0.2
Waste Bins/week	4	2	2
Recycling Bins/week	4	4	2
Compost Bins/week	3	3	1
Containers/week/trash room	11	9	5
SYSTEM CAPITAL COST	$0.00	$20,960.00	$41,920.00
WASTE COST/MONTH	$1,864.39	$1,269.56	$1,269.56
RECYCLING COST/MONTH	$0.00	$0.00	$0.00
COMPOST COST/MONTH	$203.26	$203.26	$203.26
TRASH COST/MONTH	$2,067.65	$1,472.82	$1,472.82
COMPACTION SAVINGS/MONT	$0.00	$594.83	$594.83
STAFF LABOR COST/MONTH	$13.69	$11.20	$6.22
STAFF SAVINGS/MONTH	$0.00	$2.49	$7.47
NET MONTHLY TRASH COSTS	$2,081.34	$1,484.02	$1,479.04
Monthly Trash Cost per Unit	$13,008.40	$9,275.15	$9,244.03
PAYBACK-MONTHS	N/A	35	70

RESIDENTIAL CARDBOARD ANALYSIS 245

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OFFICE WASTE AND RECYCLING SYSTEM ANALYSIS

ASSUMPTIONS:		
Square Feet	9,115	
Lbs/day per 1000 SF	5.44	
% waste	30%	
% recycling	50%	
% compost	20%	
waste lb/CY	80	
recycling lb/CY	80	
compost lb/CY	125	
Compaction Ratio	4	to 1
Loose Waste Service	0.475	cubic yard carts (96 G Toter Carts)
Loose Recycling Service	0.475	cubic yard carts (96 G Toter Carts)
Loose Compost Service	0.32	cubic yard carts (64 G Toter Carts)

COST BENEFIT CALCULATION	PROJECTED	PROJECTED
SERVICE-Waste	Loose	Compacted
SERVICE-Recycling	Loose	Compacted
Loose Waste Volume - CY	0.9	
Compacted Waste Volume - CY		0.2
Loose Recycling Volume - CY	1.5	
Compacted Recycling Volume - CY		0.4
Loose Compost Volume - CY	0.4	
Compacted Compost Volume - CY		0.1
Waste Bins/week	2	
Recycling Bins/week	4	
Compost Bins/week	2	
Containers/week/trash room	8	

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WASTE AND RECYCLING RATES (PARTIAL) CURRENT RATES - REFLECT CHANGES EFFECTIVE 7/1/16

City:	Palo Alto	Key Charge	$15.00		
Franchise:	GreenWaste				
Multi-Family/Commercial Loose Front Load Waste Rates:					
Frequency/Size: x/wk-CY Size	2	3	4	64G Cart	
1 x Week	$309.02	$437.20	$581.41	$73.25	
2 x Week	$638.63	$913.31	$1,174.26	$163.66	
3 x Week	$970.54	$1,388.28	$1,825.48	$254.08	
4 x Week	$1,301.30	$1,864.39	$2,448.09	$344.49	
5 x Week	$1,630.91	$2,341.65	$3,068.40	$434.91	
6 x Week	$1,961.67	$2,817.76	$3,689.87	$525.33	
Multi-Family/Commercial Compacted Front Load Waste Rates:					
Frequency/Size: x/wk-CY Size	2	4			
1	$634.78	$1,269.56			
Compost Carts		64-gal cart	96-gal cart	2CY	
1 x Week		$58.60	$87.90	$247.21	
2 x Week		$130.96	$189.53	$510.90	
3 x Week		$203.26	$291.16	$776.43	
4 x Week		$275.60	$392.79	$1,041.04	
5 x Week		$347.93	$494.42	$1,304.73	
6 x Week		$420.26	$596.06	$1,569.34	
Stationary Compactor Cost	$21,360.00	A1000, 1-4CY Towable bins, tax, ship Install			
Stationary Compactor Cost	$24,655.00	A1000, 2-4CY Towable bins, tax, ship Install			
Vertical Compactor Cost	$26,086.00	P200, 1-2CY front load bin-8" penolic casters, tax, ship Install			
Chute Fed Compactor Cost	$20,960.00	A500, 2-2CY Towable bins, tax, ship Install			
Chute Fed Compactor Cost	$23,440.00	A500, 3-2CY Towable bins, tax, ship Install			

SMITH DEVELOPMENT

660 UNIVERSITY
PALO ALTO, CA 94301

KSH ARCHITECTS
KORTH SUNSERI HAGEY

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	02.07.24	PLANNING RESUBMITTAL #7

PROJECT NUMBER
21003

SHEET TITLE

TRASH MANAGEMENT PLAN

SCALE

N.T.S.

SHEET NUMBER

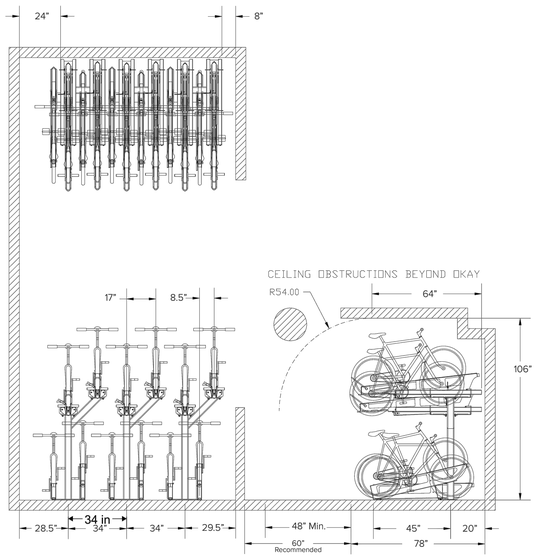
TR3.4

Patent #8,950,592

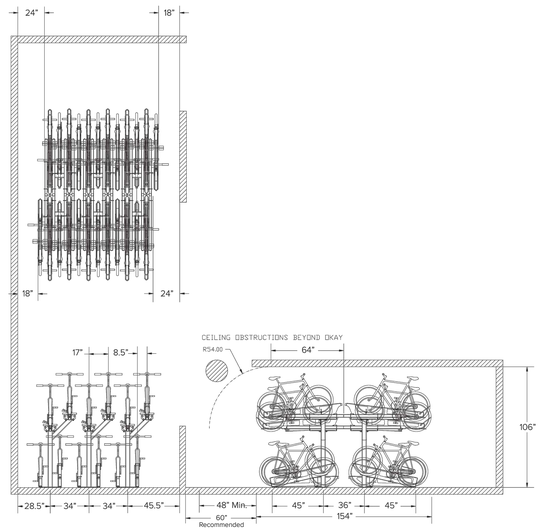
Dero **Decker**

The Dero Decker takes bike parking to the next level – literally. By stacking bikes on a two-tiered system, capacity doubles. Unlike other two-tier systems our lift-assist top trays slide down inches from the ground, thus requiring only minimal lifting of the bike into the tray. The Dero Decker has a front wheel safety locking lever and tray dampers to provide safe lowering of upper trays. The near vertical lowered trays also reduce the required aisle space, giving the Dero Decker the smallest footprint on the market.

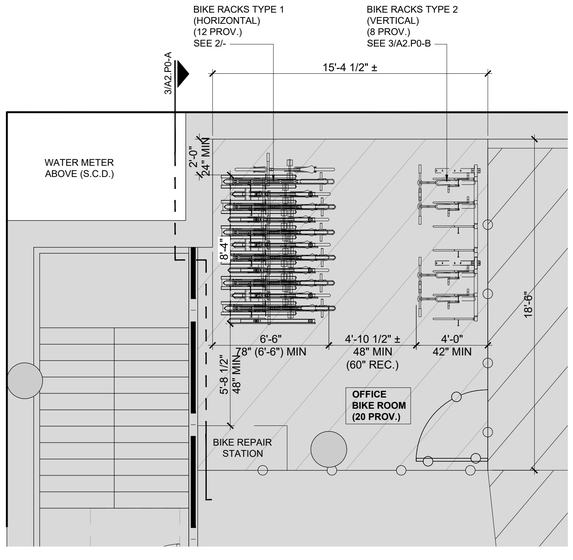
Dero **Decker** **Setbacks** Single Sided



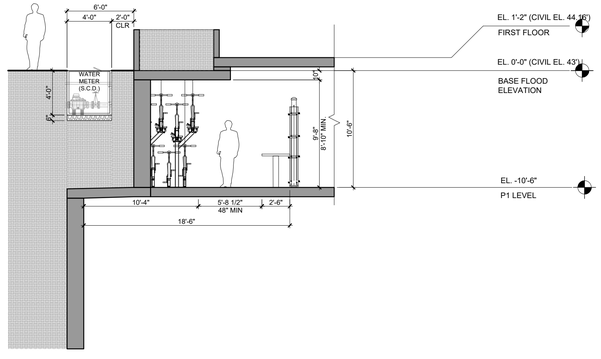
Dero **Decker** **Setbacks** Double Sided



2 HORIZONTAL BIKE RACK CUT SHEETS
N.T.S.



1 ENLARGED OFFICE BIKE ROOM
1/4"=1'-0"



3 ENLARGED OFFICE BIKE ROOM
1/4"=1'-0"

SMITH DEVELOPMENT

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PALO ALTO, CA 94301

KSH
ARCHITECTS
KORTH SUNSERI HAGEY

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	12.21.23	PLANNING RESUBMITTAL #6
	02.07.24	PLANNING RESUBMITTAL #7

PROJECT NUMBER
21003

SHEET TITLE
LONG TERM BIKE STORAGE
PARKING LEVEL P1

SCALE
1/4" = 1'-0"

PROJ NORTH
TN

0 4'-0" 8'-0"

SHEET NUMBER
A2.P0-A

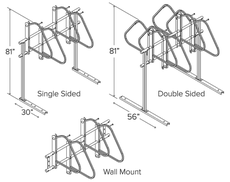
Example shown above is a 4-unit section.
Lengths may vary based on your space.

Ultra Space Saver™ Squared

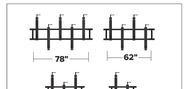
Dero's Ultra Space Saver Squared offers high-security, vertical bike parking. Adjustable sliding arms make it easy for customers to best utilize their space. It also creates flexibility to make sure bike spacing follows city requirements as they evolve. Pipe-cutter resistant squared steel tubing makes the Ultra Space Saver Squared more secure than the original Ultra Space Saver.

Patent D774,441

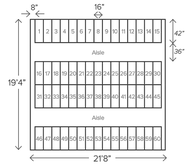
DERO | Ultra Space Saver™ Squared — Submittal Sheet



(Examples above show 62" long crossbar sections)



Ultra Space Saver Squared sections vary in length to fit most spaces. Above are common crossbar lengths for arms spaced 16"OC



As a general guideline, the above space can fit approximately 60 bicycles.

The Ultra Space Saver Squared parks one bike every 16" with a typical bike extending out 42" from the wall.

CAPACITY
Modular construction
1 bike per arm

MATERIALS
Hanger: 1" square tube with steel slider head with tamperproof locking bolts.
Upright: 2" square tube.
Feet: AISI C3 x 4.1 galvanized steel channel.
Crossbeams: 1.25" sched. 40 galvanized pipe.

FINISHES
☒ **Black Powder Coat (Interior Use)**
Our interior powder coat finish assures a high level of adhesion and durability for indoor use by following these steps:
1. Sandblast
2. Final thick TGIC polyester powder coat

☐ **Black Powder Coat (Exterior Use)** Additional Cost
Our exterior powder coat finish assures a high level of adhesion and durability for outdoor or exposed air use by following these steps:
1. Sandblast
2. Epoxy primer electrostatically applied
3. Final thick TGIC polyester powder coat

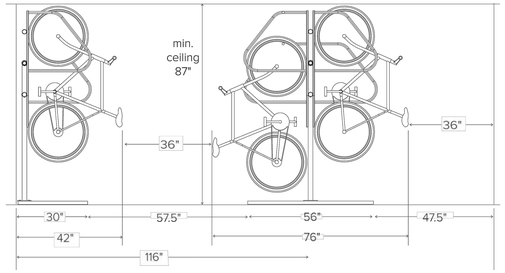
MOUNT OPTIONS
☒ **Floor mount**
Ultra Space Saver Squared have steel channel feet (30" for single sided and 56" for double sided units) which must be anchored to the floor.

☐ **Wall mount**
A wall mounted unit which contains special brackets is also available for CMU or solid concrete walls. Cannot be used on sheetrock without additional support.

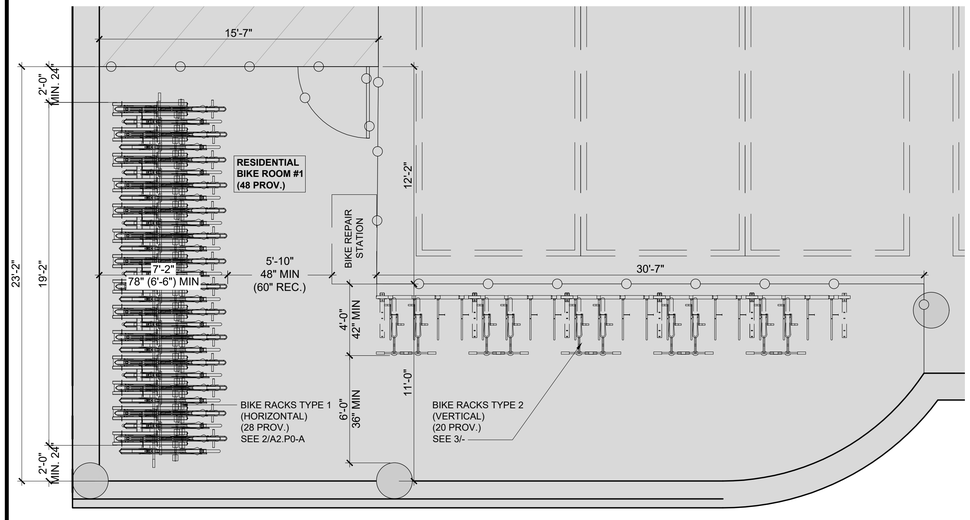
WHEEL STOPS
☐ **Include wheel stops**
Optional wheel stops are available for both floor and wall mounted racks for an additional cost

CANE STOPS
☐ **Include cane stops**
Optional cane-detectable stops are available for both floor and wall mounted racks for an additional cost

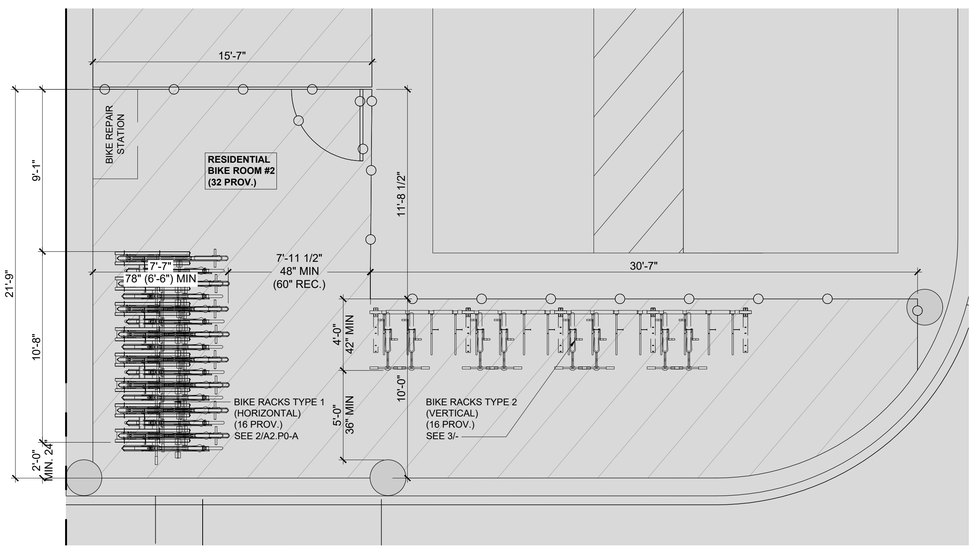
DERO | Ultra Space Saver™ Squared — Setbacks



3 | VERTICAL BIKE RACK CUT SHEETS
N.T.S.



1 | ENLARGED RESIDENTIAL BIKE ROOM #1 PLAN (P2 LEVEL)
1/4"=1'-0"



2 | ENLARGED RESIDENTIAL BIKE ROOM #2 (P1 LEVEL)
1/4"=1'-0"

SMITH DEVELOPMENT

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PALO ALTO, CA 94301

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PROJECT NUMBER
21003

SHEET TITLE
LONG TERM BIKE STORAGE
PARKING LEVEL P1 & P2

SCALE
1/4" = 1'-0"

PROJ NORTH
TN

0 4'-0" 8'-0"

SHEET NUMBER
A2.P0-B

DE PARK

THE NEW EASE OF PARKING

Analogue Parking System on two levels with an Interactive Control

data sheet DE-48

DE-48 is our aesthetically designed, interactively controlled, parking-system with easy access of the parking surface for both car and driver. A2

EASY TO PLAN with space saving construction.

EASY TO INSTALL with minimized parts construction.

EASY TO USE due to barrier free construction.

DE-48 data sheet

~9'-2 1/2"

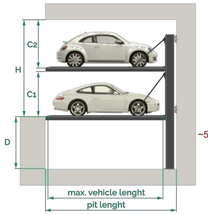
~8'-6 1/2"

1. WIDTH OF PARKING SPACE / SYSTEM (IN CM)

A = system width 1*
B1 = usable parking space width
B2 = parking space width to GaVO (Regs.)

A	B1	B2
250	230	220
260	240	230
270	250	240
280	260	250
290	270	260
300	280	270

1* Tolerance of dimensions on the construction site = 0 to + 3 cm



2. DIMENSIONS (IN CM)

D = pit depth
H = clear height
C1/C2 = vehicle height bottom / top 2*

SUVs range from 5'-6" to 6'-5" ht
Sedans range from 4'-6" to 5'-1" ht

D	C1	H	C2
175 -->	160	315 -->	150
180 -->	155	320 -->	150
185 -->	160	325 -->	150
200 -->	175	340 -->	150
210 -->	180	350 -->	150

~4'-11"

Special dimensions are available upon request

~5'-11"

~11'-6" (~13'-8" provided)

2* The vehicle height with roof rails, antenna and other height increases must not exceed the listed max. vehicle heights.

This allows for 90% of SUVs out there

Allows for (taller) SUVs to be parked on top

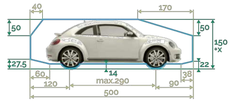
3. TECHNICAL DATA

Maximum vehicle weight
- 2000kg / 500kg wheel load
- 2600kg / 650kg wheel load

Height
In case of larger ceiling height, higher vehicles can be parked on the top platform accordingly.

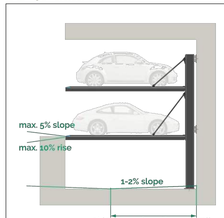
~17'-8 1/2"

Pit length
A pit length of 540 cm is recommended. This enables larger safety distances if new, longer vehicles are purchased.



Dimensions
- All dimensions are minimum finished dimensions in cm.
- Allow for tolerances to VOB Part C (DIN 18330, 18331) and additionally DIN 18202 (+ 30 mm / 0 mm).
- In case of partition walls 15x15 cm opening for hydraulik pipes are necessary in the walls. Do not close the opening after the installation.

DE-48 data sheet

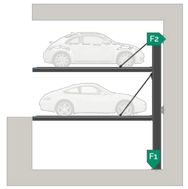


4. ACCESS CONDITIONS

Maximum slope / rise
- Max. 5% slope 3*
- Max. 10% rise 3*

Drainage
- 1-2 % slope on the pit floor

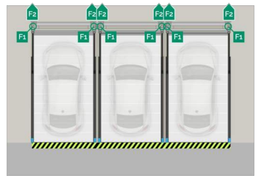
3* In case of higher values, safe access of the vehicle cannot be guaranteed by DE-PARK.



5. FORCES ON THE STRUCTURE

	2000 kg	2600 kg
F1	33 kN	41 kN
F2	33 kN	41 kN

- The forces apply to one pillar.
- If pillars are next to each other the figures double, as both pillarsare fixed in one point.
- The force F2 can also be absorbed via the ceiling (ceiling fixation available upon request).



6. ANCHORING

- Systems are anchored into the floor and rear wall. The hole depth is approx. 13 cm.
- The quality of the concrete in the structure (for the parking system) must be at least C20/25.
- The precise position of the load application points depends on the selected system. For precise values, please contact DE-PARK.

DE-48 data sheet

7. TYPE OF CONTROL

Interactive control unit:
We replaced the dead man's control function from the turning key to a set of two interactive push buttons. This advancement provides additional comfort, security an functionality.

- The push buttons are illuminated so that the control unit can provide information on the system status.
- This new system allows the integration of many custom safety solutions.

8. ELECTRICAL ELEMENTS

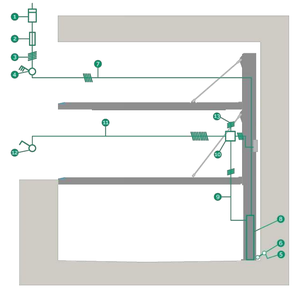
Connected load of unit: 3 kW / 400 V / 50 Hz

Services provided in the system:
- Operator terminal including two interactive push buttons for raising and lowering.
- Emergency stop placed outside of the system's range of movement.

To be provided from customer:

Item	Description
1	Electric meter
2	Fuse or automatic circuit breaker according to DIN VDE 0100 part 430, max. 16 A
3	According to local power supply regulations 3 PH + N + PE
4	Main switch lockable
5	Connection for the protective potential equalization DIN 60204
6	Protective bonding all 10m

All other parts provided by DE-PARK.



DE-48 data sheet

9. SYSTEM-RELATED REQUIREMENTS

Maintenance, cleaning & prevention
- The systems must be serviced and cleaned regularly. This applies more so if the systems and the platforms are exposed to aggressive substances such as salt, water, dirt, operating supplies, sand, etc.
- Adequate drainage must be ensured.

Ventilation
The garage must be adequately ventilated.

10. LEGAL REQUIREMENTS

Marking tape on the edge of the pit
According to EN 14010 / ISO 3864, a 10cm wide, black & yellow warning marking must be attached to the edge of the pit.

Separating elements / Barriers
According to EN ISO 13857, separating elements or barriers must be installed in the pedestrian area / accessible areas around the parking system, including during installation.

Fire safety
The garage design must fulfil the regional fire safety provisions. The requirements can vary. Therefore the situation must be clarified and information obtained in advance by the customer and then agreed and coordinated.

Noise emissions
According to the noise insulation regulations for buildings to DIN 4109, a value of 30dB (A) must be complied with in occupied rooms and spaces. You receive a sound insulation package with the system for the required 30dB (A) insulation of the structure is also necessary. Sound reduction index min. Rw = 57dB.

11. REQUIREMENTS ON SITE

Ambient conditions
Temperature range from -5 to +40 °C. Relative humidity max. 80%.
Please contact DE-PARK in case of different conditions.

Lighting
The parking spaces must be adequately illuminated on site as specified.

12. CE AND CONFORMITY

The systems conform to ...
- EN 14010-2009-12 Safety of Machinery - Equipment for power driven parking of motor vehicles
- Machinery Directive 2006/42/EC

CE

Design changes
We reserve the right to continuously develop our product on the basis of technical progress and to make changes and/or modifications to parts, assemblies or overall, to processes and to standards with no advance notice.

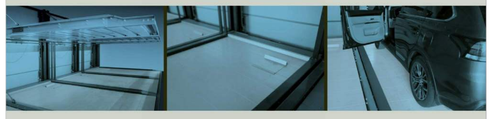
DE-PARK IS MAKING YOUR LIFE EASY:

GERMAN MADE WITH A SLIM & MODULAR DESIGN
EASY PLANNING AND SETUP

LOW MAINTENANCE CONSTRUCTION
EASY TO USE WITH LOW NOISE EMISSIONS

NO PILLARS IN THE ENTRY AND PEDESTRIAN AREA
EASY MANOEUVERING AND SENSORLESS POSITIONING

FLAT & CONTINUOUS PLATFORM
EASY TO CLEAN AND COMFORTABLE TO WALK ON



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NOTE:
ALL PROPOSED STACKER STALLS (2 EA. STACKER) TO INCORPORATE EV CHARGER OR BE PROVIDED WITH AN EV CHARGER READY OUTLET, TYP. AT ALL P2 LEVEL STALLS AS REQUIRED. IMAGE ABOVE IS AN EXAMPLE OF A SIMILAR INSTALLATION. DETAILS & CONFIGURATION WILL BE PROVIDED IN THE FUTURE BUILDING PERMIT SUBMITTAL.

SMITH DEVELOPMENT

660 UNIVERSITY
PALO ALTO, CA 94301

KSH ARCHITECTS
KORTH SUNSERI HAGEY

ISSUES AND REVISIONS

NO.	DATE	DESCRIPTION
	05.13.22	PLANNING RESUBMITTAL #1
	08.15.22	PLANNING RESUBMITTAL #2
	11.02.22	PLANNING RESUBMITTAL #3
	08.28.23	PLANNING RESUBMITTAL #4
	10.31.23	PLANNING RESUBMITTAL #5
	12.21.23	PLANNING RESUBMITTAL #6
	02.07.24	PLANNING RESUBMITTAL #7

PROJECT NUMBER
21003

SHEET TITLE
PARKING LIFT CUT SHEETS
PARKING LEVEL P2

SCALE
N.T.S.

SHEET NUMBER
A2.P0-C