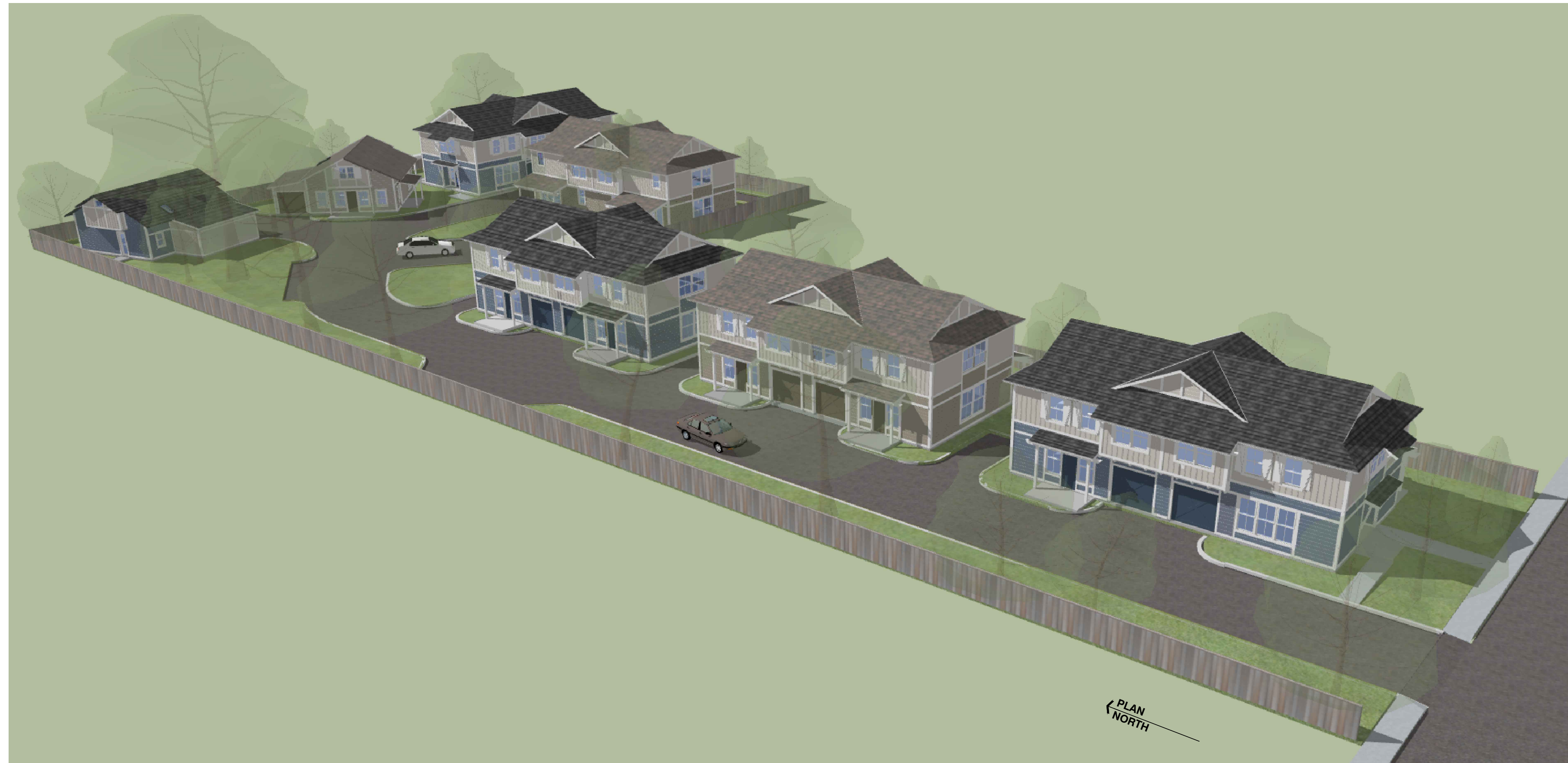




# Rail Town Multi-Family Village

412 6th Street, Roseville



## Design Concept Narrative

### Rail Town Bungalow Village Design Overview

The Rail Town infill bungalow village draws inspiration from Roseville's rich heritage, shaped by its long history with the Southern Pacific Railroad and the vibrant community of workers who supported it. Reflecting the modest architectural character of the surrounding historic neighborhood—dominated by Ranch, Cottage, and Bungalow-style homes—this project pays homage to the past while creating a vibrant, cohesive design for modern living.

The design takes cues from the Southern Pacific Railroad's distinctive "railroad depot style" standards, as seen in the iconic Roseville Depot. This influence is evident in the gable cottage roofs with broad overhangs, **exposed support braces, and smaller-scale exposed beams and trim boards, all of which complement the V-groove horizontal siding and board-and-batten vertical siding.** White double-hung windows and doors reinforce the connection to the depot's architectural language, creating simple yet historically vibrant homes.

To break up the massing and add visual interest, the buildings feature two exterior color variations, randomly distributed throughout the site. This approach emphasizes the intimate, small-scale character of the village. At its heart lies a mature oak grove and a community picnic area, fostering a shared outdoor space that enhances the sense of community. Each unit features fenced backyards, small covered patios, and enclosed single-vehicle garages, with additional parking thoughtfully integrated around the site.

### Design Challenges and Solutions

This 1.1-acre infill site in Old Roseville presented unique design challenges, particularly in preserving the mature native oak trees that define the property. The site layout carefully clusters the duplex homes and community features to maximize tree retention and ensure that the development blends harmoniously with the surrounding neighborhood.

The village driveway is designed with generous setbacks, ensuring privacy and minimizing visual impact on adjacent properties. Two ADU structures are discreetly positioned in the northwest corner of the site, where their low profiles maintain minimal visibility for neighbors. Additionally, **extensive new landscaping includes taller screening shrubs and large trees along the property boundaries, seamlessly integrating the project into its surroundings while providing natural privacy.**

Lighting design prioritizes subtlety, with shielded fixtures and minimized wall-mounted lights at entries and patios to reduce light spill and preserve the serene character of the neighborhood.

### Filling a Critical Housing Need

This project addresses a key gap in residential development: the lack of high-quality, small-scale family rental housing. Unlike denser apartment complexes or for-sale townhomes, Rail Town Bungalow Village is designed to encourage long-term residency and a strong sense of community. Its thoughtful layout, heritage-inspired design, and family-friendly features make it a valuable addition to Old Roseville, honoring the area's history while meeting contemporary housing needs.



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### PROJECT

Rail-Town Multi  
Family Village

## Title Sheet Project Data

ADDRESS  
412 6th Street  
Roseville, CA 95678

OWNER Bhavnarayanan  
& Chandana Avula

APN  
014-062-018

DATE  
02-27-2025

REVISIONS

SCALE

DRAWING NUMBER

# SA-1

## Project Team

### Architect / Landscape Architect / Site Planner

Company: ORR Design Office, Inc.  
Address: 2319 K Street, Suite 200  
City, State, ZIP: Sacramento, CA 95816  
Contact Person: Kevin Gardner  
E-mail: kevin@orrdesign.com  
Tel: (916) 441-4500 ext. 205

### Civil Engineer

Company: Peabody Tsumura Engineering  
Address: 1700 Alhambra Blvd  
City, State, ZIP: Sacramento, CA 95816  
Contact Person: Mirann Tsumura-Hughes, PE, QSD  
E-mail: mtsumura@peabodytsumuraeng.com  
Tel: (916) 502-4272

### Consulting Arborist

Company: Walter Warriner, ISA #WE-407 AM  
Address: 625 Esplanade #34  
City, State, ZIP: Redondo Beach, CA 90277  
Contact Person: Walter Warriner  
E-mail: wwca621@aol.com  
Tel: (310) 378-1764

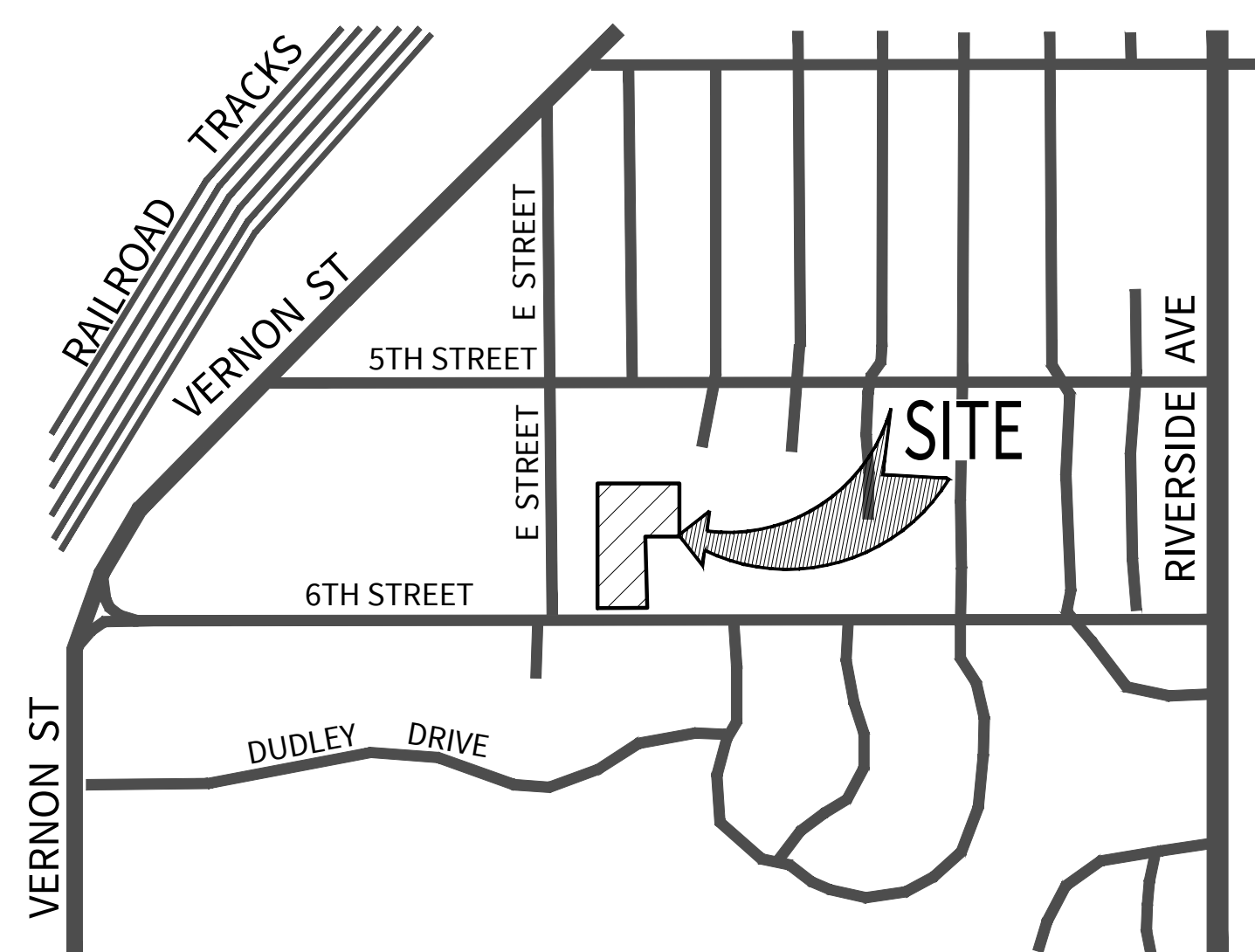
### Geotechnical Engineer

Company: Allerion Consulting Group, Inc.  
Address: 1050 Melody Lane, Suite 160  
City, State, ZIP: Roseville, CA 95678  
Contact Person: Curtis "Ed" Hendrick, PE, GE, RG, CEG  
E-mail: ehendrick@allerionconsulting.com  
Tel: (530) 885-5107

### Land Surveyor

Company: Giuliani & Kull-Auburn, Inc.  
Address: PO Box 786  
City, State, ZIP: Auburn, CA 95604  
Contact Person: Patrick R. Druding, PLS  
E-mail: ~  
Tel: (530) 885-5107

## Vicinity Map



## Project Density

Medium Density Residential Neighborhood Infill

City of Roseville

General Plan allows: 11.1 units per acre  
+ 2 additional ADU units.

Total Units Allowed: 11 + 2 ADU units = 13 Total Units

Buildings Proposed:

(5) Duplex Buildings- (10-units 1541 SF, 1- vehicle garage)  
(2) ADU Buildings - (2-units 1200 SF, 1-vehicle garage)

Total Units Proposed: DUP (10) + ADU (2) = 12 Units Total

## Code Compliance

The 2022 CBC is the basis of design for both the Architectural and Structural portions of this project.

All work for this project shall conform to the following codes as amended by the State of California and as adopted by the local governing authorities:

2022 California Building Code [CBC]  
2022 California Residential Building Code  
2022 California Electrical Code [CEC]  
2022 California Plumbing Code [CPC]  
2022 California Mechanical Code [CMC]  
2022 California Energy Code [CENC]  
2022 California Green Building [CALGreen Code]  
2022 California Reference Standards Code  
Current City of Sacramento Codes & Ordinances

## Project Data

ZONING: MDR-R3 - MEDIUM DENSITY RESIDENTIAL-  
NEIGHBORHOOD INFILL

LOT AREA: 46,609 SF / 1.1 Acres

APN: 014-062-018

CONST. TYPE: V-B

SETBACKS: (Building projections 2' max. allowed)

Front: 6th Street, 20'  
Sides: 6th Street, 20'  
Sides: Interior, 5'  
Rear: Interior, 20'  
ADU: All Sides, 4'  
PATIO COVERS & TRELLIS (allowed in set-back areas)

BUILDING HEIGHT: 35' Duplex Allowed, Actual Ht: ±27'-6"  
18' ADU Allowed, Actual Ht: ±18'-0"

TENANT PARKING:

1 space per ADU, 1 in each garage = 2 ADU spaces  
2 spaces per (2-Bdrm) Duplex,  
(1 in garage & 1 on site) = 20 Duplex spaces

GUEST PARKING: 1 on site (HC accessible)  
= 1 per 10 required spaces

TOTAL PARKING: 23 Parking Spaces total

EV PARKING:

(40% of Garages to have EV chargers,  
10% of Garages to be EV Ready)

DRIVEWAY: 20' width (red curbs-no parking)

TRASH: Individual Roller Bins in Each units Garage

## Sheet Index

SA-1 Title Sheet:  
Sheet Index, Project Data,  
Scope of Work, Current Codes  
SA-2 Site Plan  
SA-3 Building Exterior Elevations  
SA-4 Floor Plans & Roof Plans  
SA-5 Site Landscape & Planting Plan  
SA-6 Color & Material Sample Board  
SA-7 Lighting Plan  
SV-1 Site Survey  
D.1 Prelim. Site Demo Plan  
G.1 Prelim. Site Grading Plan  
U.1 Prelim. Site Utility Plan

## Attachments

01 Title Report  
02 Geotechnical Report  
03 Arborist Report  
04 Drywell Drainage Guide



# Rail Town

## Multi-Family Village

412 6th Street, Roseville

### Symbols Legend

- (E) OAK TREE (TYPICAL)

### Tree Removals

Number	Condition	Specie
#4593	FAIR	OAK
#4588	POOR	OLIVE
#4585	POOR	PECAN
#4581	FAIR	OAK
#4571	FAIR	OAK
#4570	FAIR	OAK
#4569	FAIR	OAK
#4568	FAIR	OAK
#4582	POOR	ALMOND
#4578	POOR	ALMOND
#4591	FAIR	OAK
#4583	POOR	OAK

NOTE: TREES TO BE REMOVED ARE MARKED ON SHEET D1.



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415-842-8988  
800-647-4782

PROJECT NAME:

Rail Town  
Multi-Family Village

SHEET NAME:

Site Plan

PROJECT ADDRESS:

412 6th Street  
Roseville, CA 95678

OWNER NAME:

Owner: Bhavnnarayana  
& Chandana Avula

PARCEL NUMBER:

APN: 014-062-018

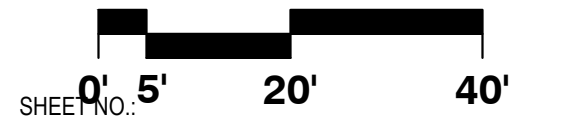
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05-07-2025

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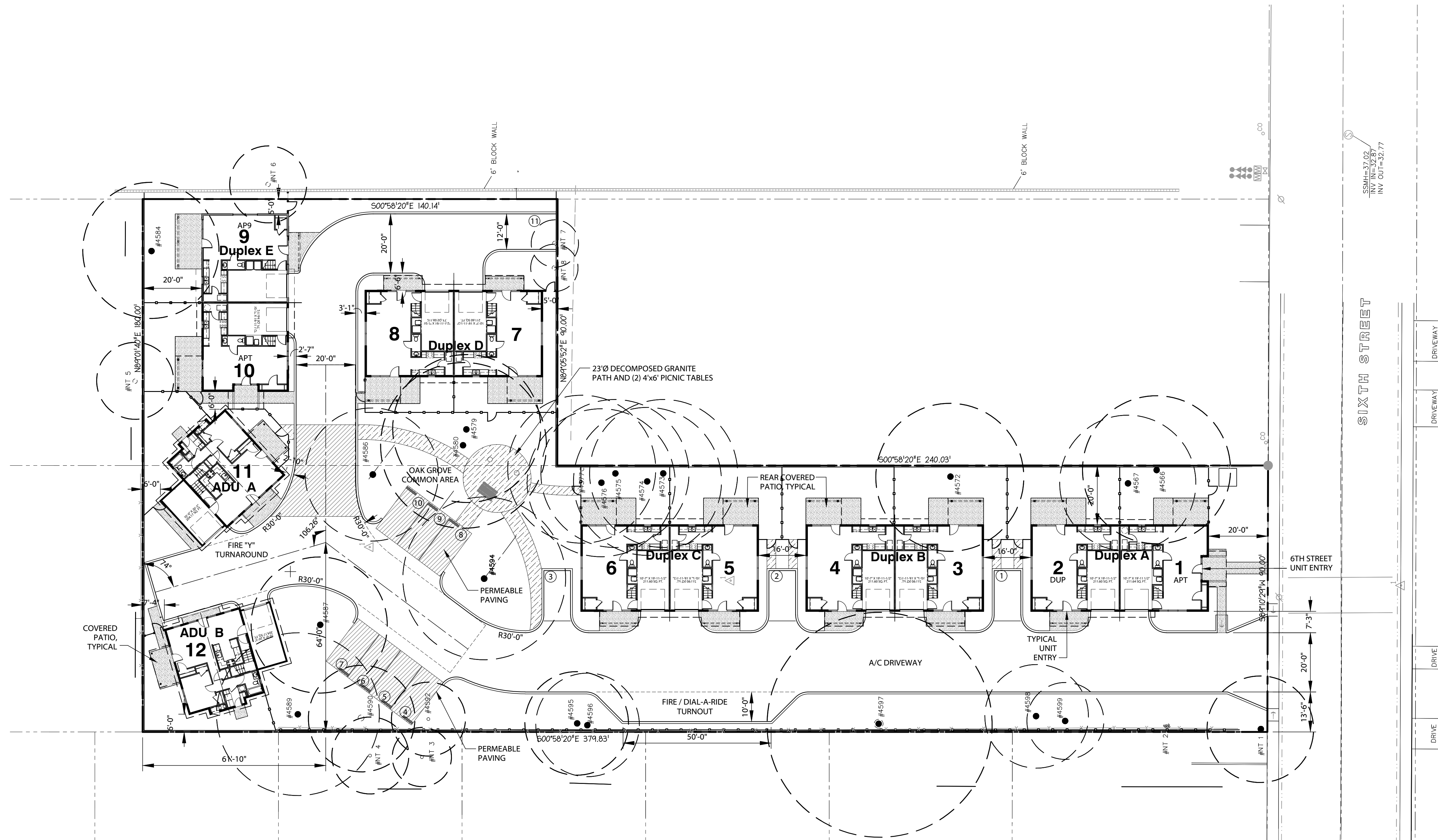
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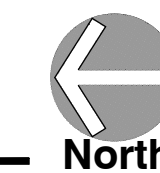


SHEET NO.

SA-2



Site Plan





# Rail Town

## Multi-Family Village

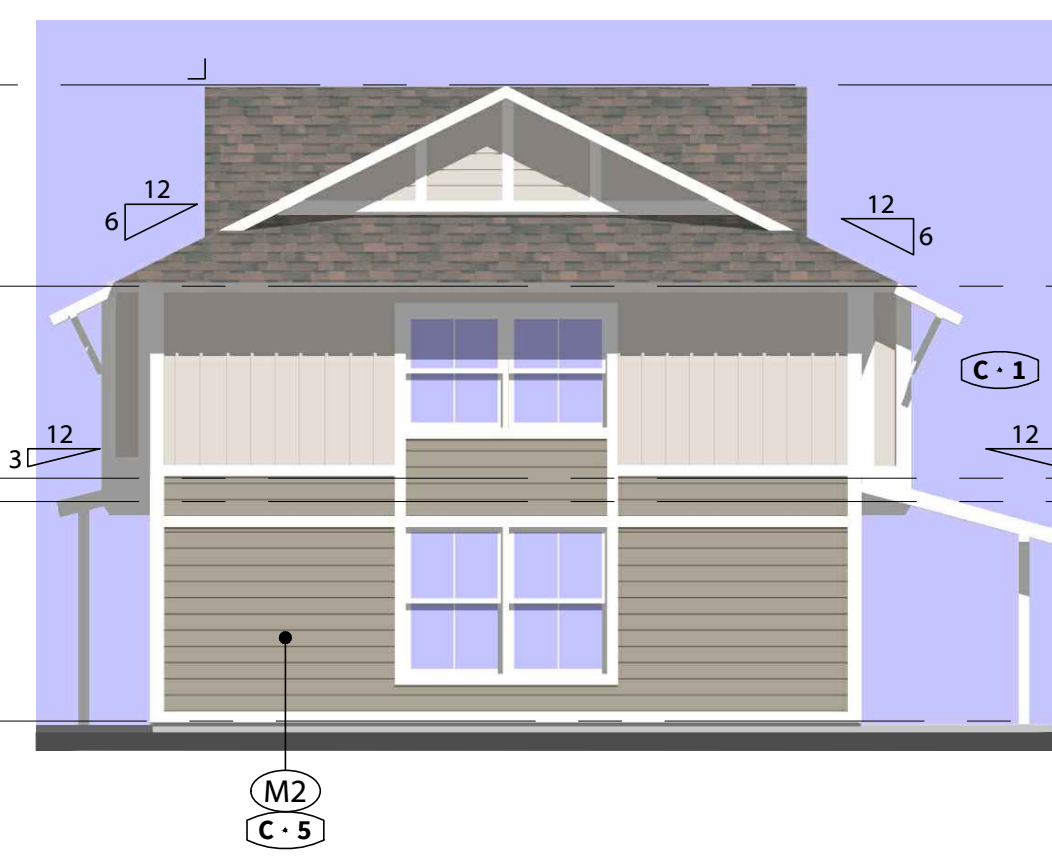
412 6th Street, Roseville

ELEVATION SYMBOL	Material Legend		
(M1)	HARDI PANELS AND HARDI BATTEN BOARDS	(M10)	VINYL PATIO DOORS
(M2)	V-GROOVE HARDI ARTISAN SIDING	(M11)	ENTRY DOOR
(M3)	HARDI TRIM & FASCIA	(M12)	HVAC ACCESS DOOR
(M4)	4X4 ROOF RAFTERS & 6X8 BRACKETS	(M13)	OVER HEAD GARAGE DOOR
(M5)	6X8 BRACKETS WITH SHAPED ENDS	(M14)	COMPOSITION ROOF SHINGLES
(M6)	4 X 12 BEAMS WITH SHAPED ENDS	(M15)	GUTTERS (NOT SHOWN)
(M7)	4X4 OR 6X6 POSTS	(M16)	RAIN WATER LEEDERS (NOT SHOWN)
(M8)	4X8, 6X8 OR 6X12 BEAMS WITH SHAPED ENDS	(M17)	SKY LIGHTS
(M9)	VINYL WINDOWS	(M18)	EXTERIOR LIGHT FIXTURE



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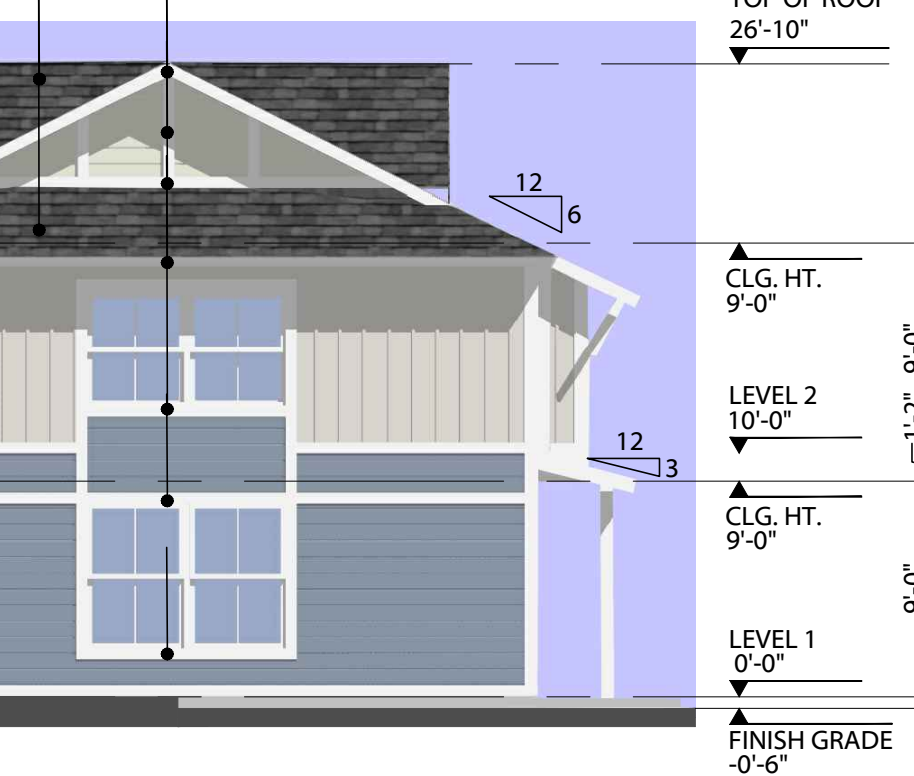
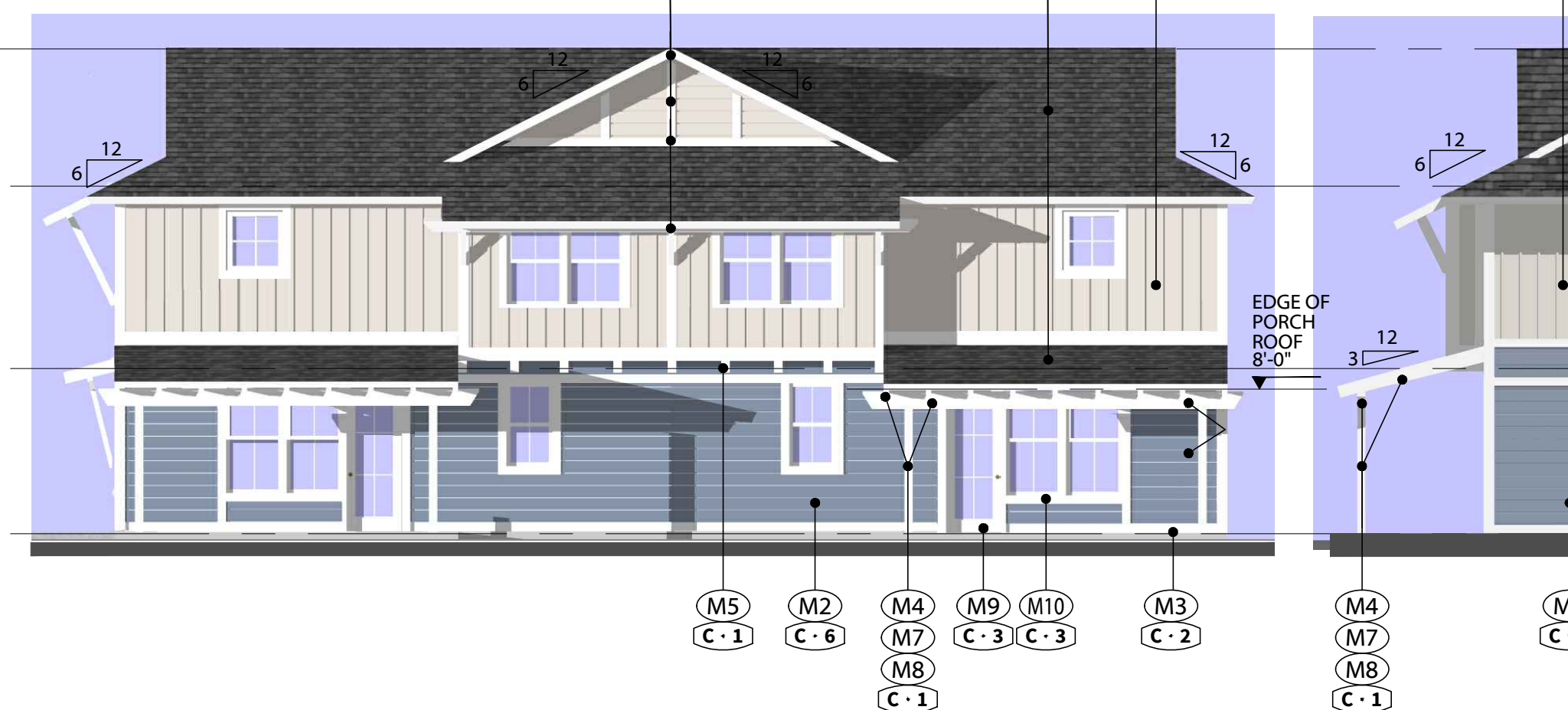
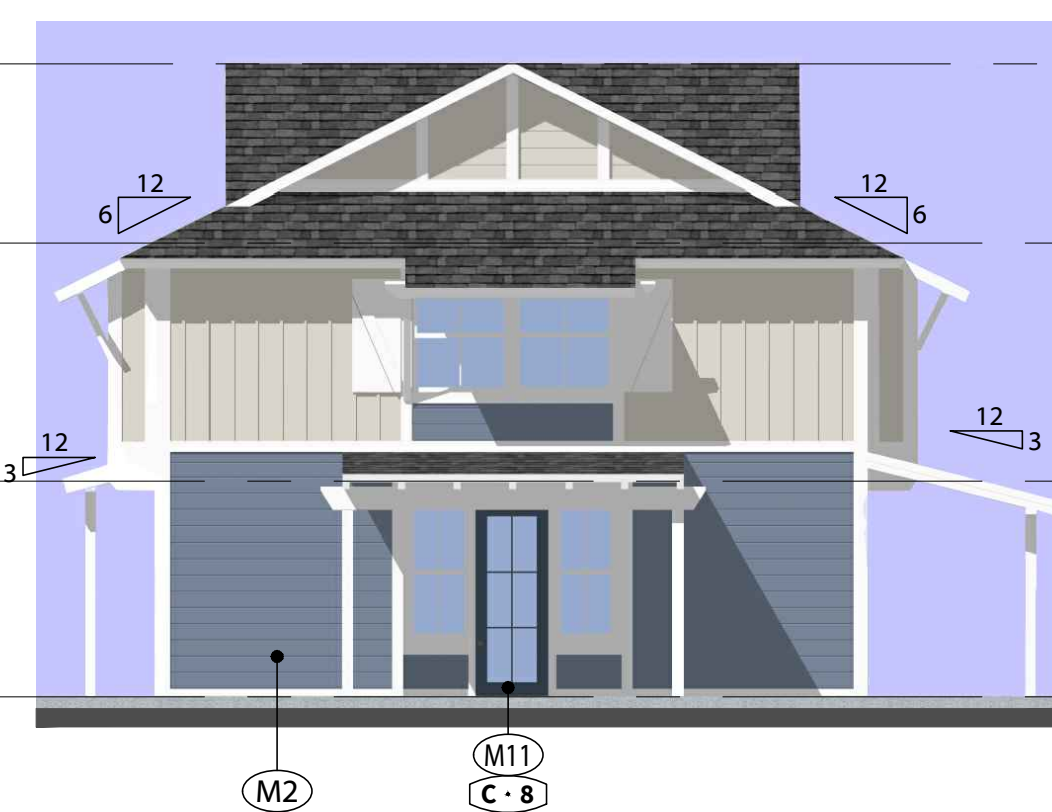
ELEVATION SYMBOL	BROWN SCHEME	BLUE SCHEME	COLOR
(C-1)	(C-1)	(C-1)	COLOR 1: SAME AS "ARCTIC WHITE" POSTS, BEAMS, BRACKETS & SHUTTERS, GUTTERS, RAIN WATER LEEDERS
(C-2)	(C-2)	(C-2)	COLOR 2: "ARCTIC WHITE" HARDI TRIM - VERT. & HORZ. TRIM, FASCIAS, & BELLY BANDS
(C-3)	(C-3)	(C-3)	COLOR 3: WHITE WINDOWS & PATIO DOORS
(C-4)	(C-4)	(C-4)	COLOR 4: "NAVAHO BEIGE" HARDI PANEL SIDING AND HARDI TRIM BATTEN BOARDS
(C-5)	(C-5)	(C-5)	COLOR 5: "MONTEREY TAUPE" V-GROOVE HARDI ARTISAN SIDING
(C-6)	(C-6)	(C-6)	COLOR 6: "BOOTHBAY BLUE" V-GROOVE HARDI ARTISAN SIDING
(C-7)	(C-7)	(C-7)	COLOR 7: SAME AS "TIMBER BARK" ENTRY AND GARAGE DOOR
(C-8)	(C-8)	(C-8)	COLOR 8: SAME AS "EVENING BLUE" ENTRY AND GARAGE DOOR
(C-9)	(C-9)	(C-9)	COLOR 9: HEATHER BLEND CERTAINTED LANDMARK SOLARIS
(C-10)	(C-10)	(C-10)	COLOR 9: MOIRE BLACK CERTAINTED LANDMARK SOLARIS
(C-11)	(C-11)	(C-11)	COLOR 10: BLACK SKY LIGHTS ON ADU ROOFS

**DUPLEX UNITS 3 & 4, 7 & 8 (BROWN COLOR SCHEME)**  
Front Elevation

Side Elevation

Back Elevation

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

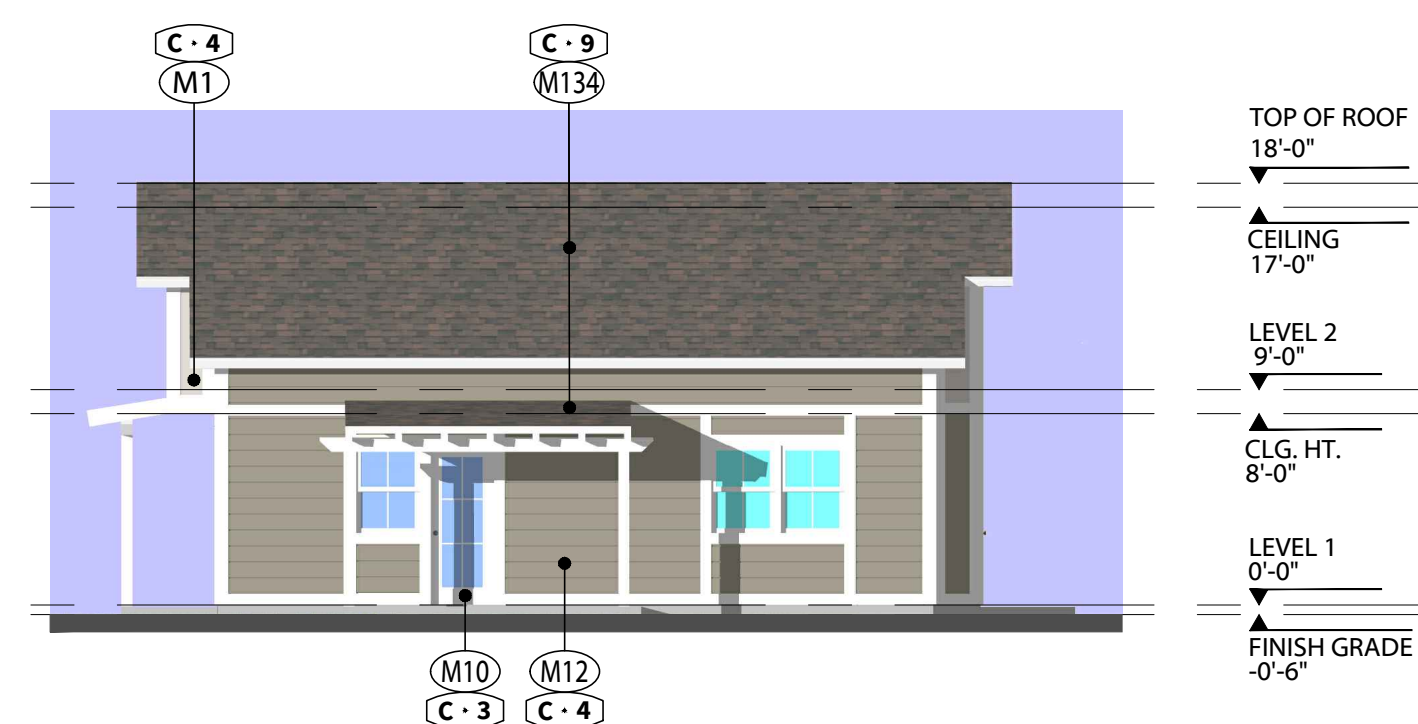
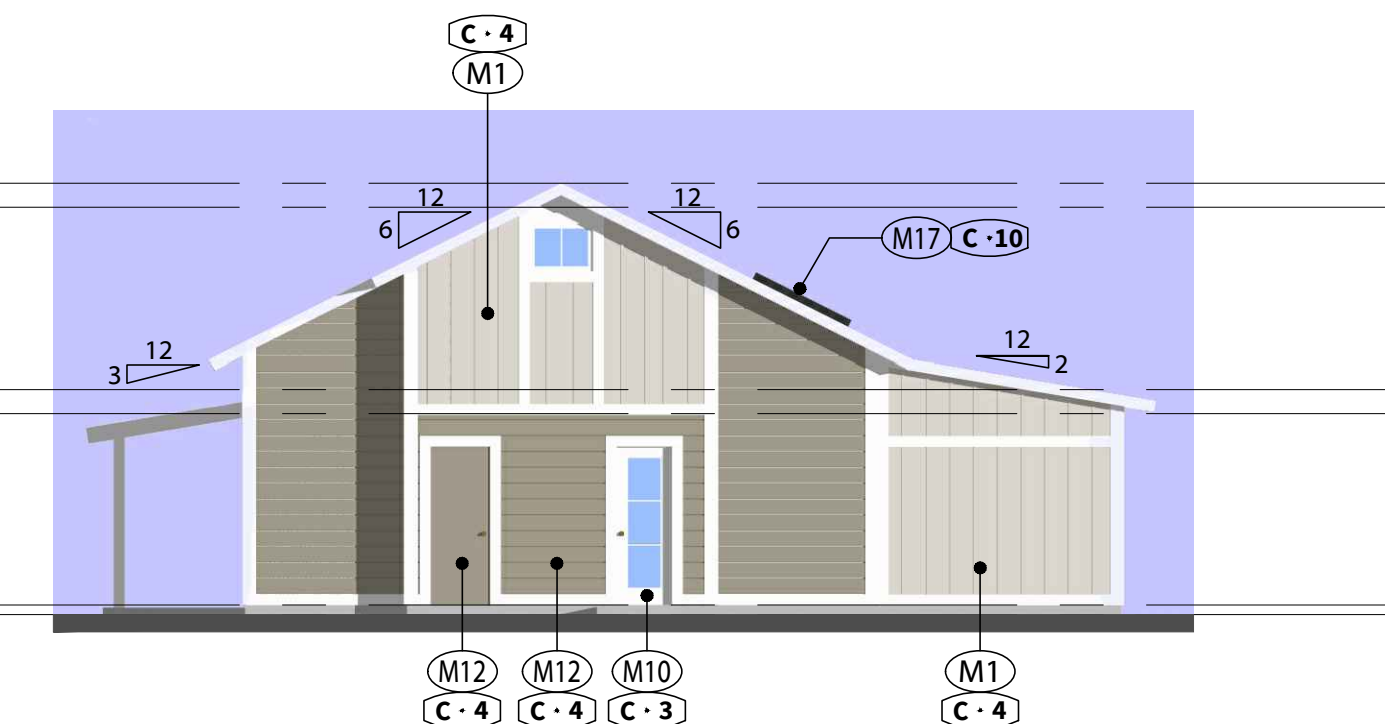
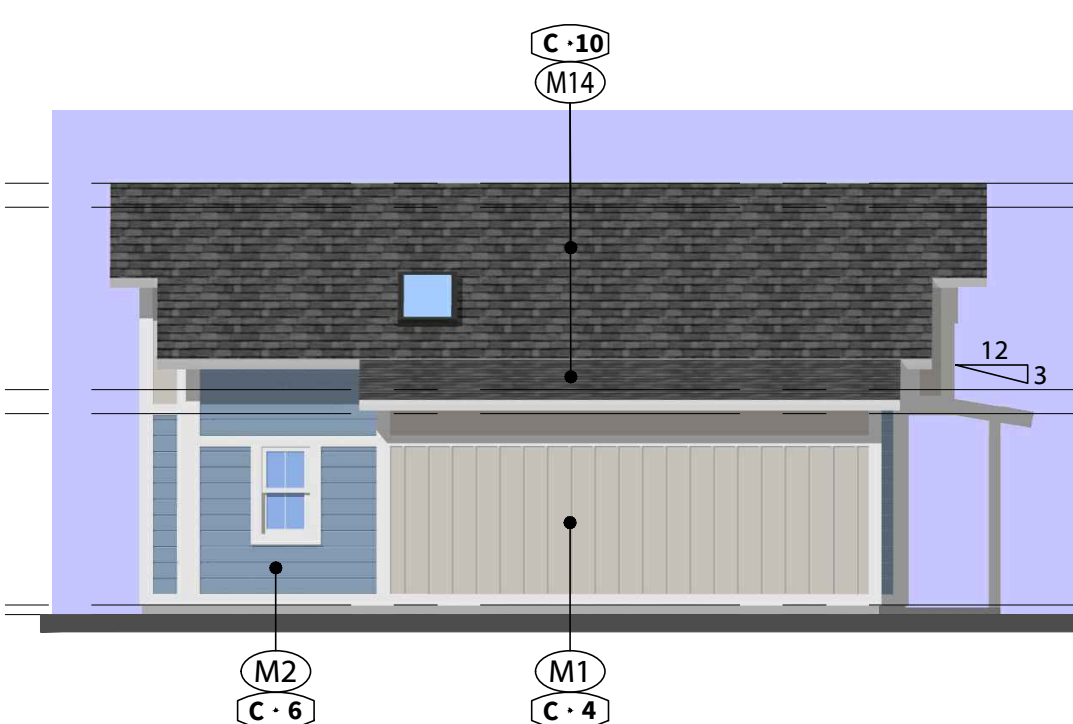
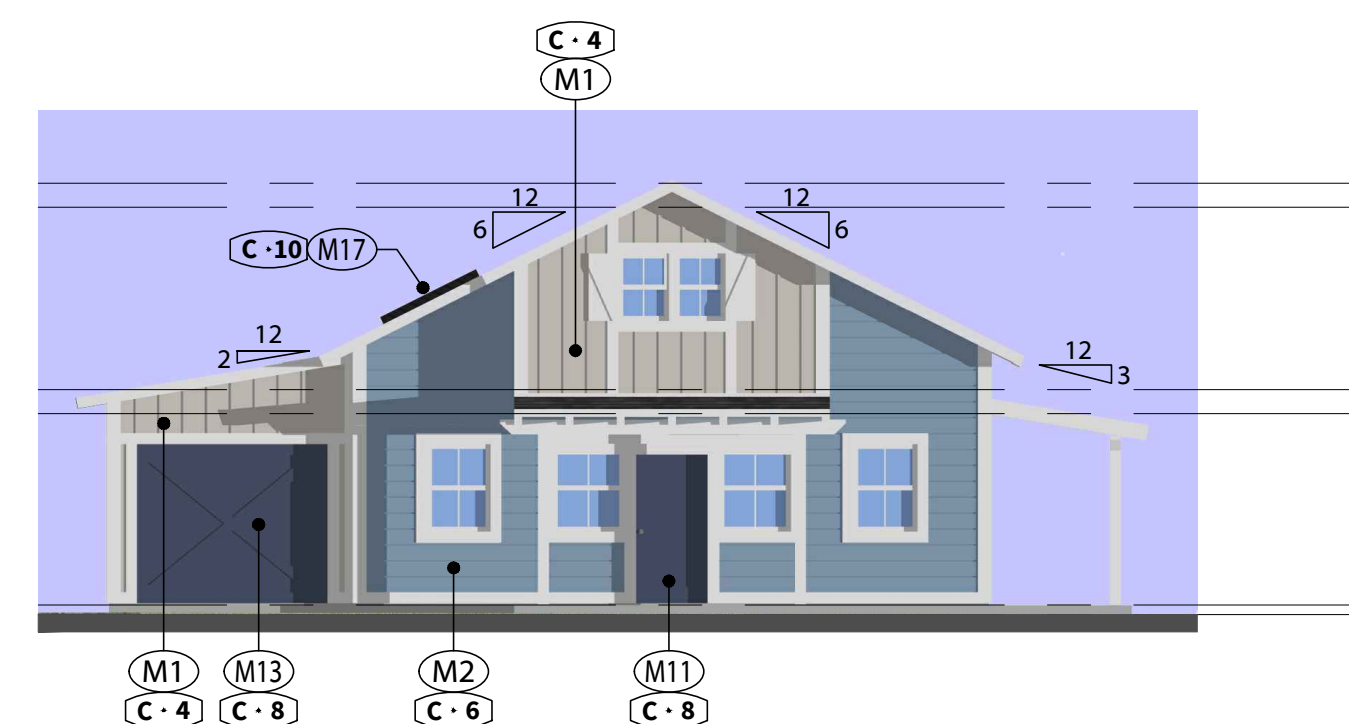


**DUPLEX - Units 1 & 2, 5 & 6, 9 & 10 (BLUE COLOR SCHEME)**  
Front Elevation

End Elevation with Entry

Front Elevation

End Elevation



**ADU - Unit 12 (BLUE COLOR SCHEME)**  
Front Elevation

Left Side Elevation

**ADU - Unit 11 (BROWN COLOR SCHEME)**  
Rear Elevation

Right Side Elevation

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

PROJECT NAME:  
**Rail Town  
Multi-Family Village**

SHEET NAME:  
**Schematic  
Elevations**

PROJECT ADDRESS:  
412 6th Street  
Roseville, CA 95678

OWNER NAME:  
Owner: Bhavnnarayana  
& Chandana Avula

PARCEL NUMBER:  
**APN: 014-062-018**

SUBMITTAL SET DATE:  
02-27-2025

SHEET PRINT DATE:  
02-27-2025

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

SHEET NO.:  
**SA-3**



# Rail Town

## Multi-Family Village

412 6th Street, Roseville



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**PROJECT**

Rail-Town Multi Family Village

**Unit Floor Plans & Roof Plans**

**ADDRESS**

412 6th Street  
Roseville, CA 95678

**OWNER** Bhavnnarayana & Chandana Avula

**APN** 014-062-018

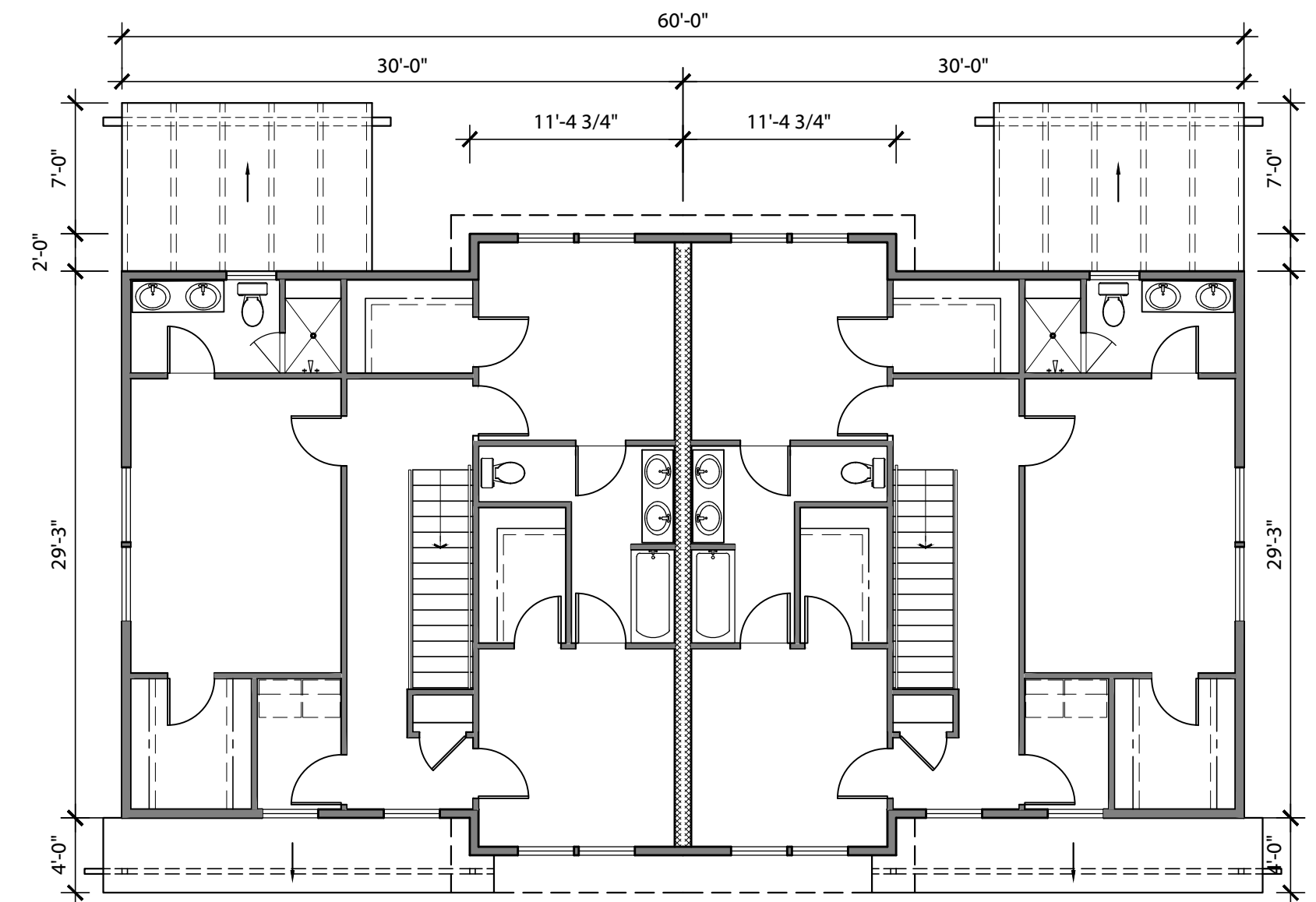
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**REVISIONS**

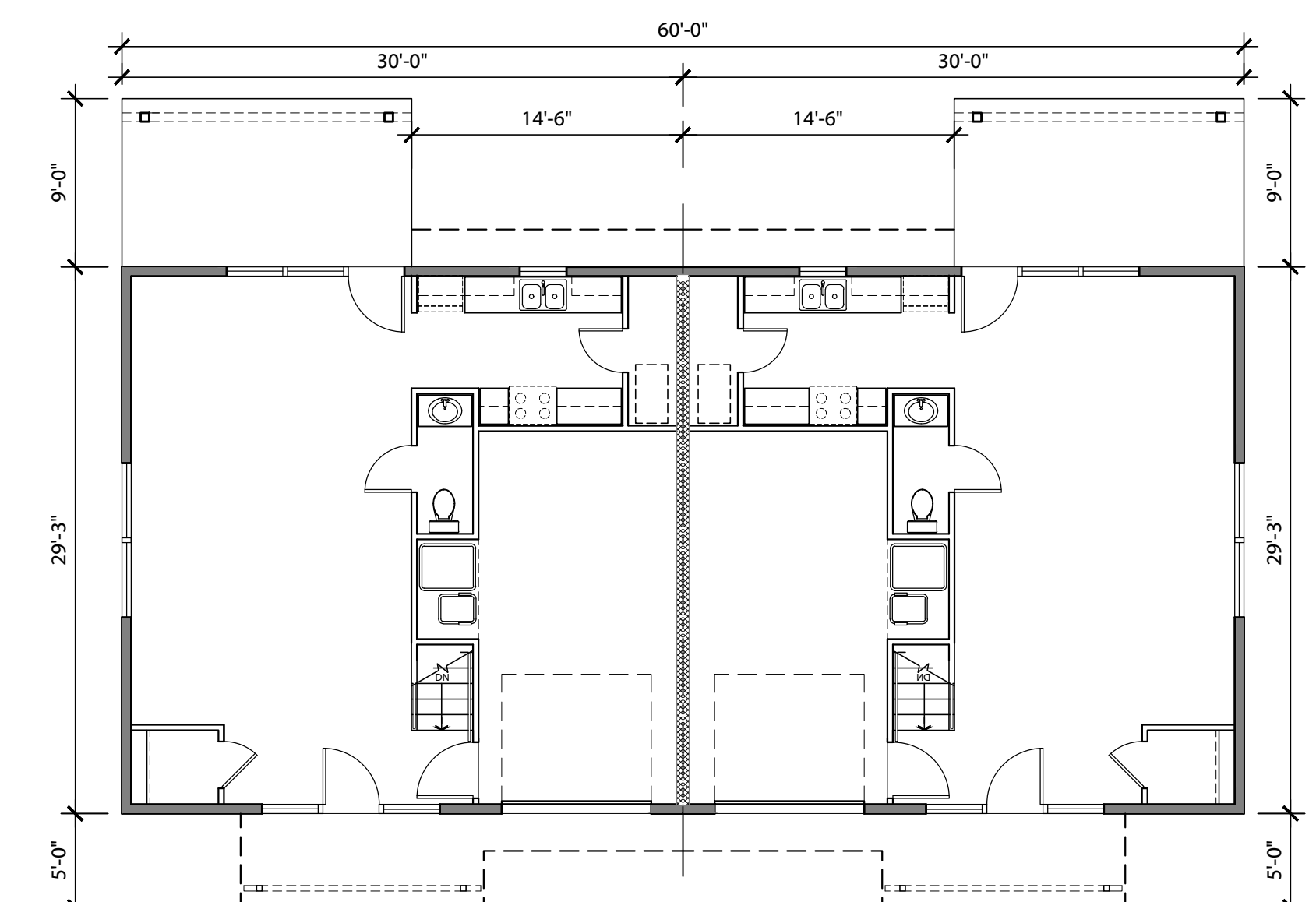
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**DRAWING NUMBER**

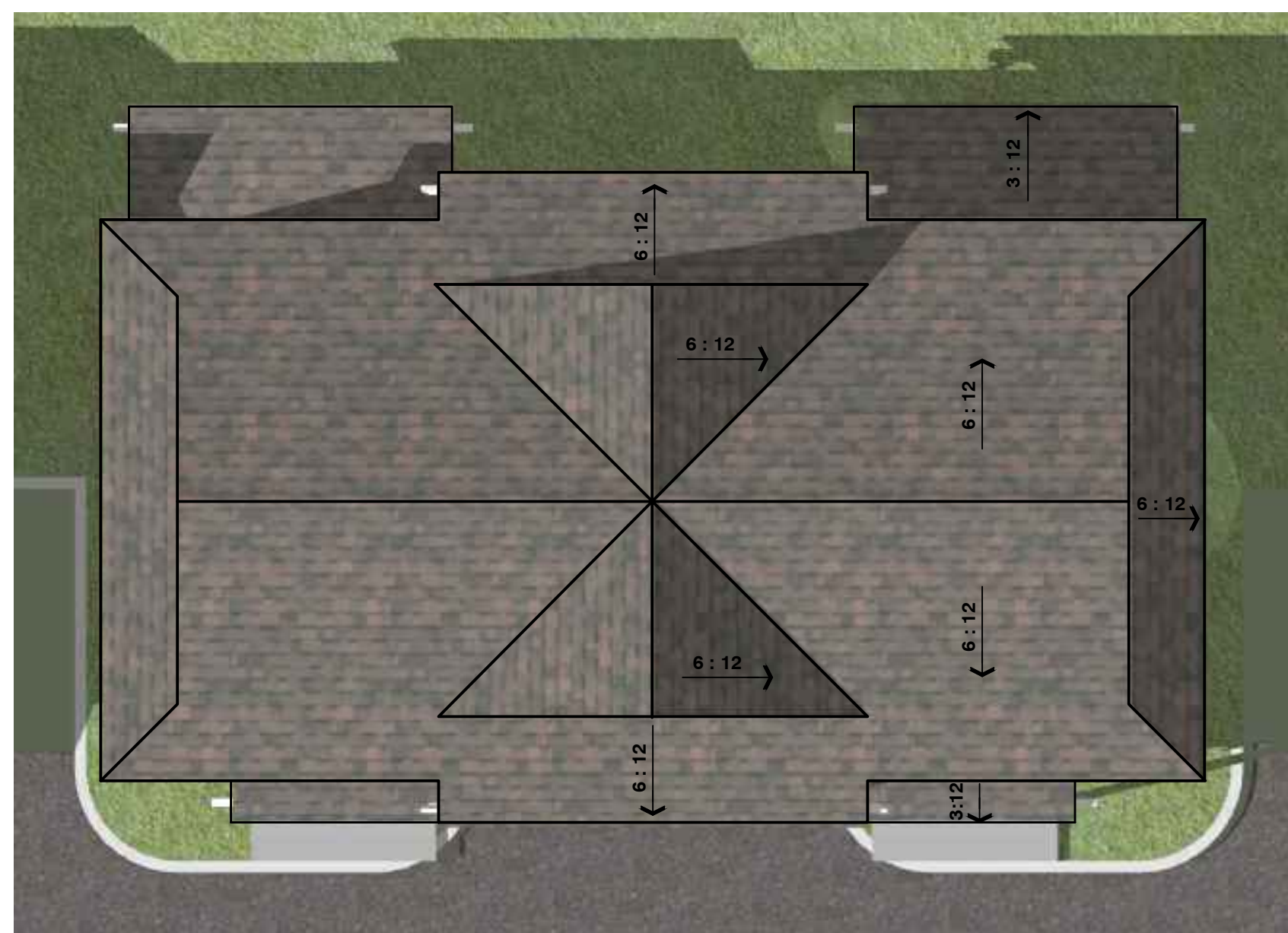
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**DUP 2nd Floor**



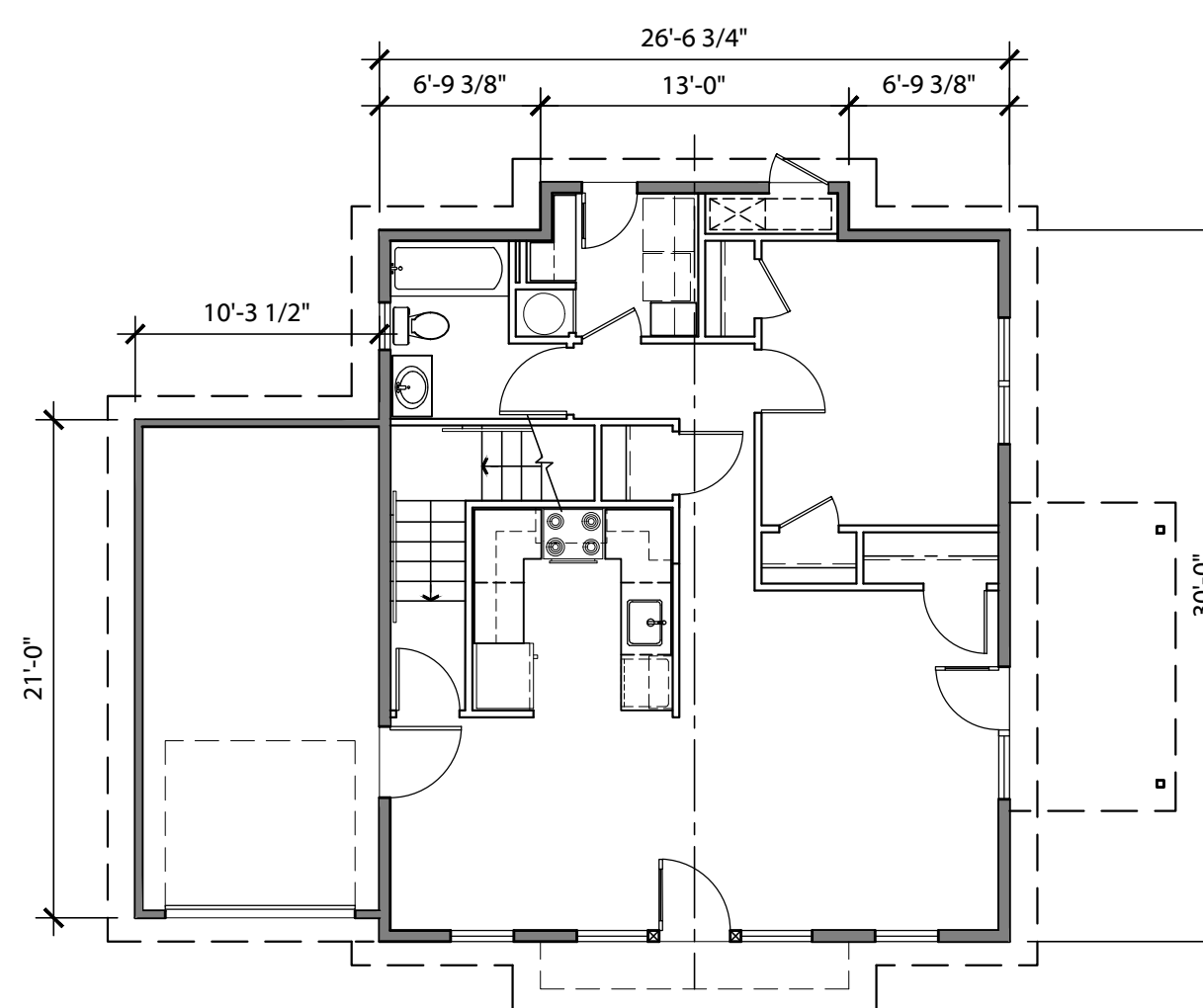
**DUP 1st Floor**



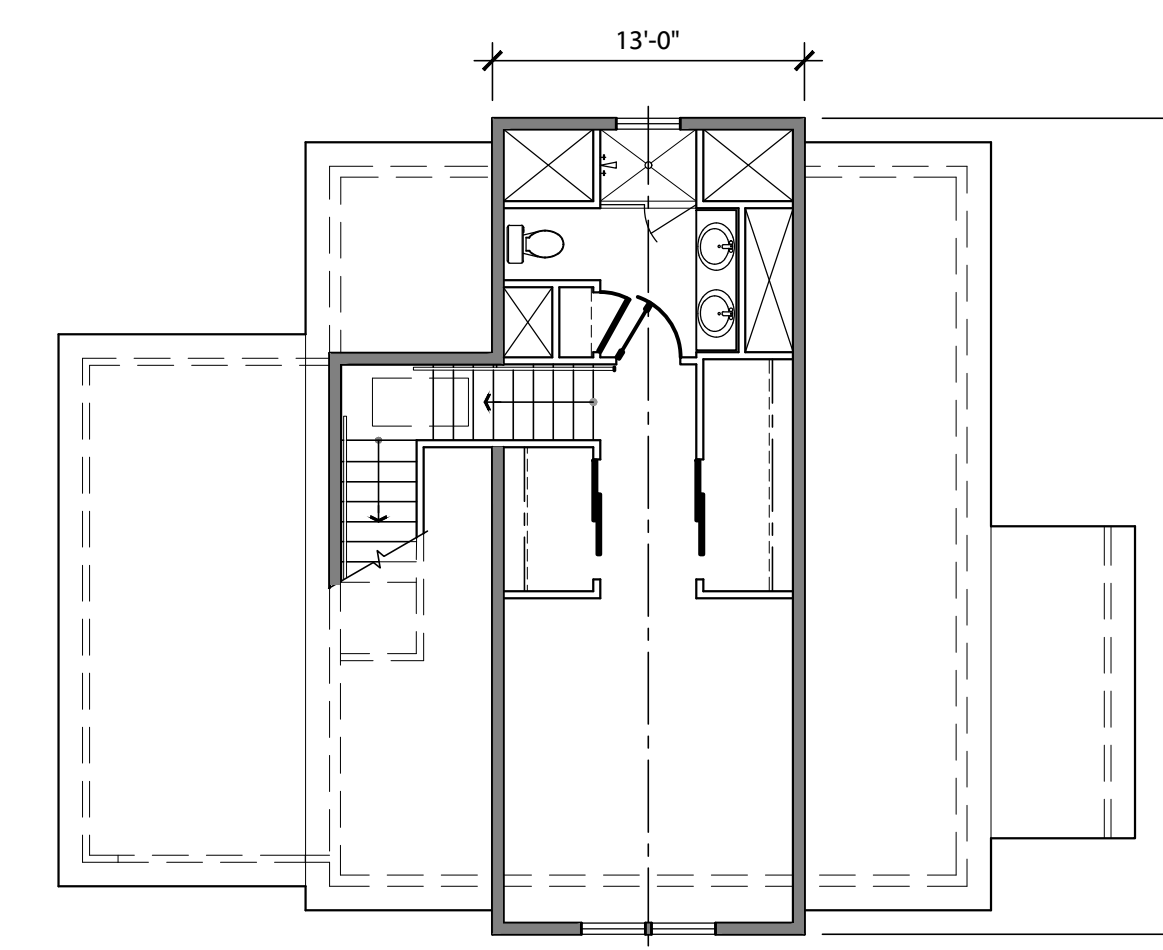
**DUP Roof Plan**



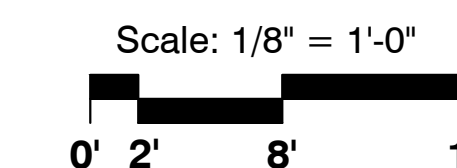
**ADU Roof Plan**



**ADU 1st Floor**



**ADU 2nd Floor**



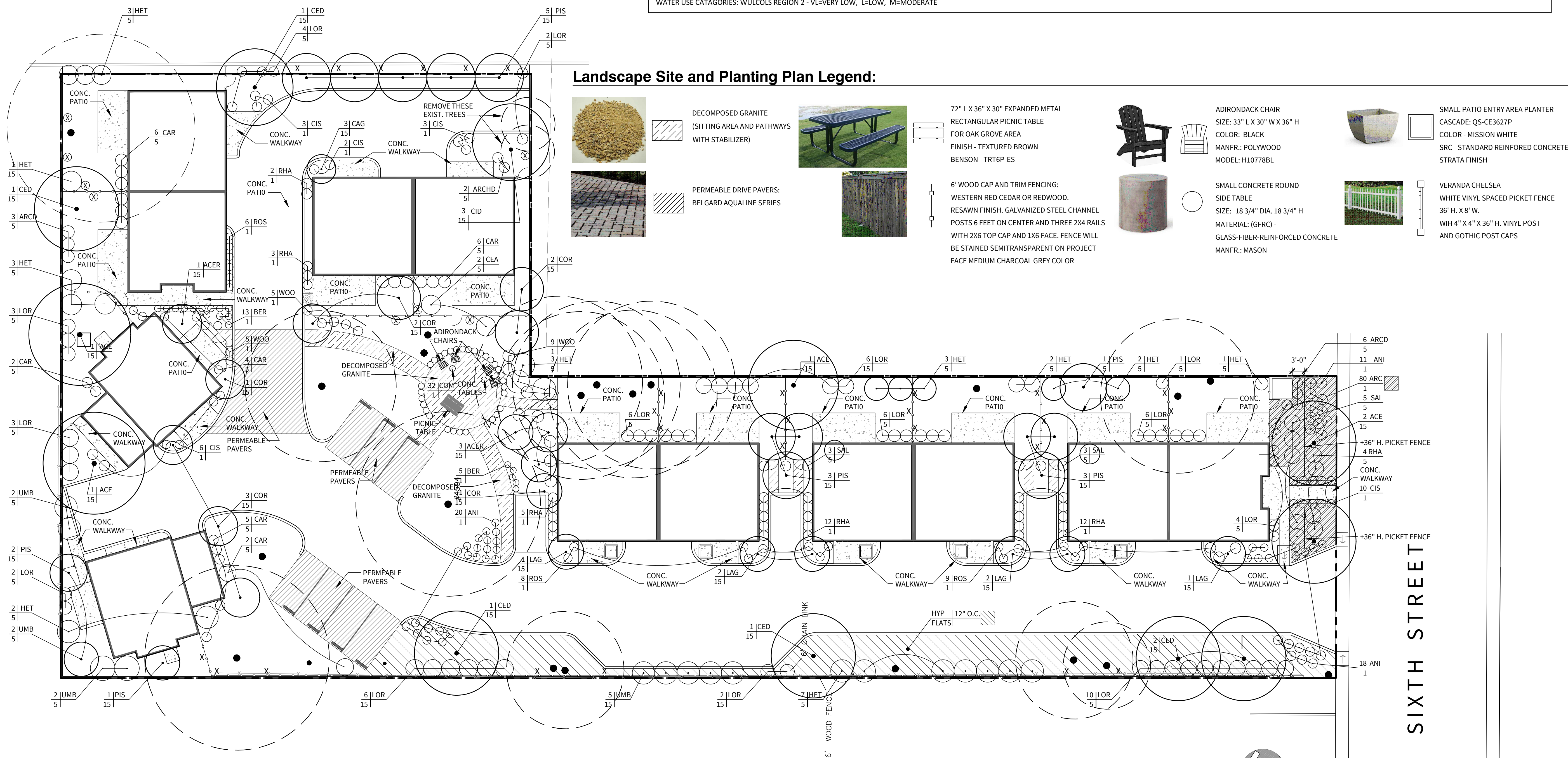


# Rail Town Multi-Family Village

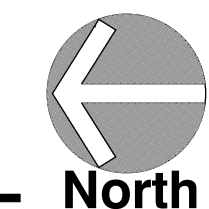
412 6th Street, Roseville

Plan Sym.	Water Usage	Key	Botanical - Common Name	Qty.	Size	Plan Sym.	Water Usage	Key	Botanical - Common Name	Qty.	Size
<b>Trees (Large)</b>						<b>Shrubs (Med / Large)</b>					
M	ACE		ACER X FREEMANII (RUBRUM) 'OCTOBER GLORY' - OCTOBER GLORY MAPLE	5	15	L	ARCD		ARCTOSTAPHYLOS DENSIFLORA - 'HOWARD MCMINN' MCMINN MANZANITA	11	5
L	CED		CEDRUS DEODARA - DEODAR CALIFORNIA CEDAR	7	15	L	CAR		CARPENTERIA CALIFORNICA 'ELIZABETH' - WHITE FLOW BUSH ANEMONE	41	5
<b>Trees (Medium)</b>						<b>Grasses / Narrow Blade Leaves</b>					
L	LAG		LAGERSTROEMIA INDICA 'NATCHEZ WHITE' - WHITE SEMI-DWARF CREPE MYRTLE	6	15	L	CEA		CEANOTHUS 'CONCHA' - CONCHA CALIFORNIA LILAC	4	5
L	PIS		PISTACIA X 'RED PUSH' - RED PUSH PISTACHE	15	15	L	CIS		CISTUS LADANIFERUS MACULATUS - CRIMSON-SPOT ROCKROSE	24	1
M	UMB		UMBELLULARIA CALIFORNICA - CALIFORNIA BAY	9	15	VL	HET		HETERMOMELES ARBUTA-FOLIA - CALIFORNIA TOYON	24	5
<b>Trees (Small)</b>						<b>Vines</b>					
M	ACER		ACER PALMATUM 'BLOODGOOD' - BLOODGOOD JAPANESE MAPLE	4	15	M	LOR		LOROPETALUM - CHINESE FRINGE FLOWER	42	5
M	COR		CORNUS NUTTALLII - PACIFIC WHITE DOGWOOD	9	15	M	RHA		RHAPHILOLEPIS INDICA 'BALLERINA' - BALLERINA INDIAN HAWTHORN	34	1
<b>Ground Covers / Low Shrubs</b>						<b>Grasses / Narrow Blade Leaves</b>					
L	ARC		ARCTOSTAPHYLOS 'EMERALD CARPET' - DWARF MANZANITA	80	1	L	ANI		ANIGOZANTHOS 'BIG RED' - RED KANGAROO PAW	49	1
L	BER		BERBERIS AQUIFOLIUM COMPACTA - DWARF OREGON GRAPE	18	1	L	COM		COMANDRA LONGIFOLIA 'BREEZE' - DWARF MAT RUSH	32	1
L	HYP		HYPERICUM X MOSERIANUM - ST. JOHN'S WART	FLATS	12" O.C.	<b>Vines</b>					
L	ROSA		ROSA CALIFORNICA - CALIFORNIA WILD ROSE	23	1	M	CLE		CLECLEMATIS - HYBRID 'RAPSODY' - BLUE CLEMATIS	25	1
M	WOO		WOODWARDIA FRIMBRIATA - GIANT CHAIN FERN	19	1	M	BIG		BIGNONIA CAPREOLATA 'TANGERINE BEAUTY' - CROSS VINE	6	1

WATER USE CATEGORIES: WULCOLS REGION 2 - VL=VERY LOW, L=LOW, M=MODERATE



## Site Landscape and Planting Plan



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**PROJECT**  
Rail-Town Multi Family Village

## Site Landscape and Planting Plan

**ADDRESS**  
412 6th Street  
Roseville, CA 95678

**OWNER** Bhavnarayanan & Chandana Avula

**APN** 014-062-018

**DATE** 02-27-2025

**REVISIONS**

**SCALE** 1/16" = 1'-0"

**DRAWING NUMBER**  
**SA-5**

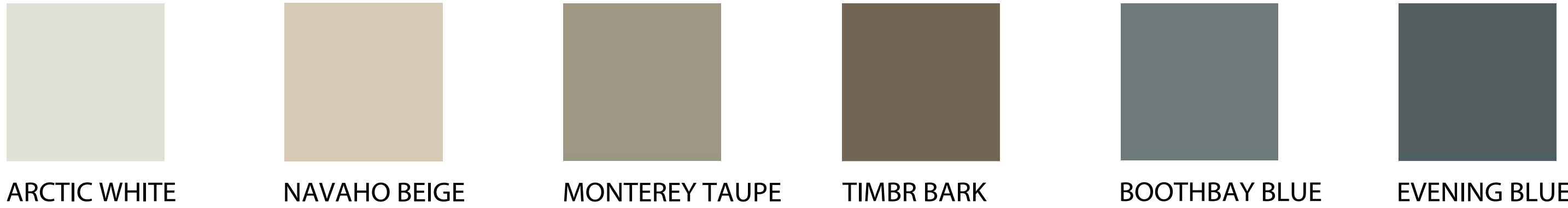


# Rail Town

## Multi-Family Village

412 6th Street, Roseville

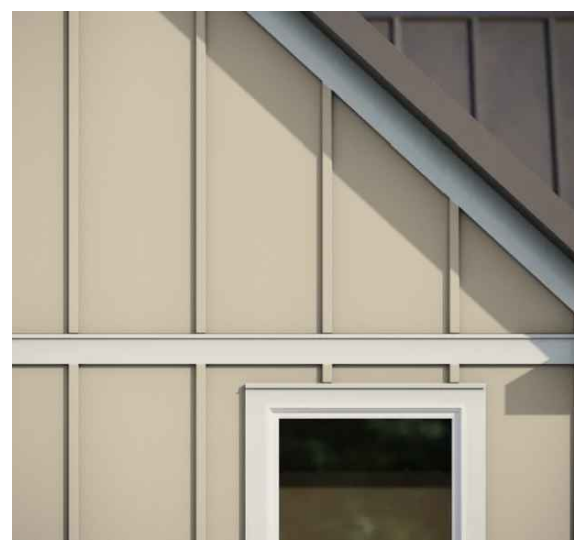
### Colors



### Materials

ELEVATION SYMBOL	Material Legend	
(M1)	HARDI PANELS AND HARDI BATTEN BOARDS	(M10) VINYL PATIO DOORS
(M2)	V-GROOVE HARDI ARTISAN SIDING	(M11) ENTRY DOOR
(M3)	HARDI TRIM & FASCIA	(M12) HVAC ACCESS DOOR
(M4)	4X4 ROOF RAFTERS & 6X8 BRACKETS	(M13) OVER HEAD GARAGE DOOR
(M5)	6X8 BRACKETS WITH SHAPED ENDS	(M14) COMPOSITION ROOF SHINGLES
(M6)	4 X 12 BEAMS WITH SHAPED ENDS	(M15) GUTTERS (NOT SHOWN)
(M7)	4X4 OR 6X6 POSTS	(M16) RAIN WATER LEEDERS (NOT SHOWN)
(M8)	4X8, 6X8 OR 6X12 BEAMS WITH SHAPED ENDS	(M17) SKY LIGHTS
(M9)	VINYL WINDOWS	(M18) EXTERIOR LIGHTING

ELEVATION SYMBOL	Color Legend			
BROWN SCHEME	BLUE SCHEME	COLOR	(C-5)	COLOR 5: "MONTEREY TAUPE" V-GROOVE HARDI ARTISAN SIDING
(C-1)	(C-1)	COLOR 1: SAME AS "ARCTIC WHITE" POSTS, BEAMS, BRACKETS & SHUTTERS, GUTTERS, RAIN WATER LEEDERS	(C-6)	COLOR 5: "BOOTHBAY BLUE" V-GROOVE HARDI ARTISAN SIDING
(C-2)	(C-2)	COLOR 2: "ARCTIC WHITE" HARDI TRIM - VERT. & HORZ. TRIM, FASCIAS, & BELLY BANDS	(C-7)	COLOR 6: SAME AS "TIMBR BARK" ENTRY AND GARAGE DOOR
(C-3)	(C-3)	COLOR 3: WHITE WINDOWS & PATIO DOORS	(C-8)	COLOR 7: SAME AS "EVENING BLUE" ENTRY AND GARAGE DOOR
(C-4)	(C-4)	COLOR 4: "NAVAHO BEIGE" HARDI PANEL SIDING AND HARDI TRIM BATTEN BOARDS	(C-9)	COLOR 8: HEATHER BLEND CERTAINTEED LANDMARK SOLARIS
			(C-10)	COLOR 9: MOIRE BLACK CERTAINTEED LANDMARK SOLARIS
			(C-11)	COLOR 10: BLACK SKY LIGHTS ON ADU ROOFS



**(M1) SIDING:**  
HARDI PANEL WITH  
HARDI TRIM BATTEN BOARDS



**(M2) SIDING:**  
HARDI PANEL  
V-GROOVE ARTISAN BOARD



**(M3) TRIM & FASCIA**  
HARDI TRIM  
V-GROOVE ARTISAN BOARD



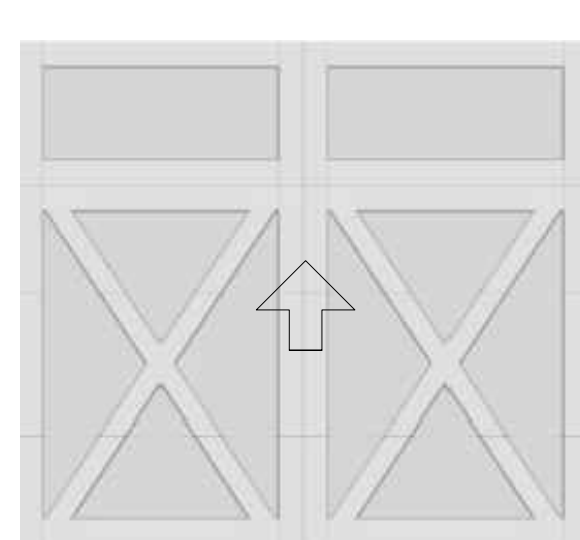
**(M9) WINDIOWS**  
MILGARD V250 SERIES  
WHITE VINYL



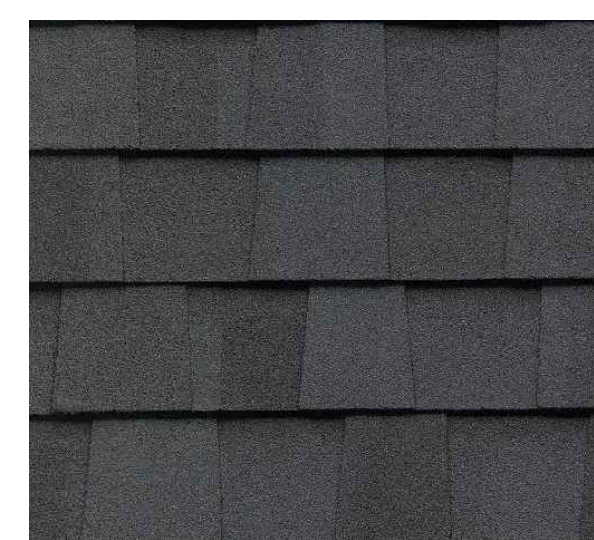
**(M10) PATIO DOORS**  
MMI DOOR - 36 IN X 96 IN  
6 - LITE WHITE VINYL



**(M11) ENTRY DOORS**  
JELD-WEN 36 IN X 96 IN  
2-PANEL CRAFTSMAN



**(M13) GARAGE DRs.**  
CLOPAY 8 FT X 8 FT  
O.H. GARAGE DOOR



**(M14) ROOFING**  
CERTANTEED  
LANDMARK PRO SOLARIS  
MAX DEF MOIRE BLACK



**(M14) ROOFING**  
CERTANTEED  
LANDMARK PRO SOLARIS  
MAX DEF RESAWN SHAKE



**(M15) GUTTERS**  
OG ALUMINUN SHEET  
METAL GUTTER - WHITE



**(M17) SKYLIGHTS**  
VELLUX 22 IN. X 45 3/4 IN.  
FIXED SKYLIGHT D06  
ON ADU ROOFS - BLACK



**(M18) LIGHTING**  
MERIDIAN 10-INCH OUTDOOR  
WALL LIGHT  
OIL RUBBED BRONZE

### Project Design Criteria



ROSEVILLE SOUTHERN PACIFIC TRAIN STATION  
AS DESCRIBED IN "SOUTHERN PACIFIC LINES STANDARD-DESIGN DEPOTS"



ROSEVILLE SOUTHERN PACIFIC TRAIN STATION  
EXTERIOR WAITING AREA



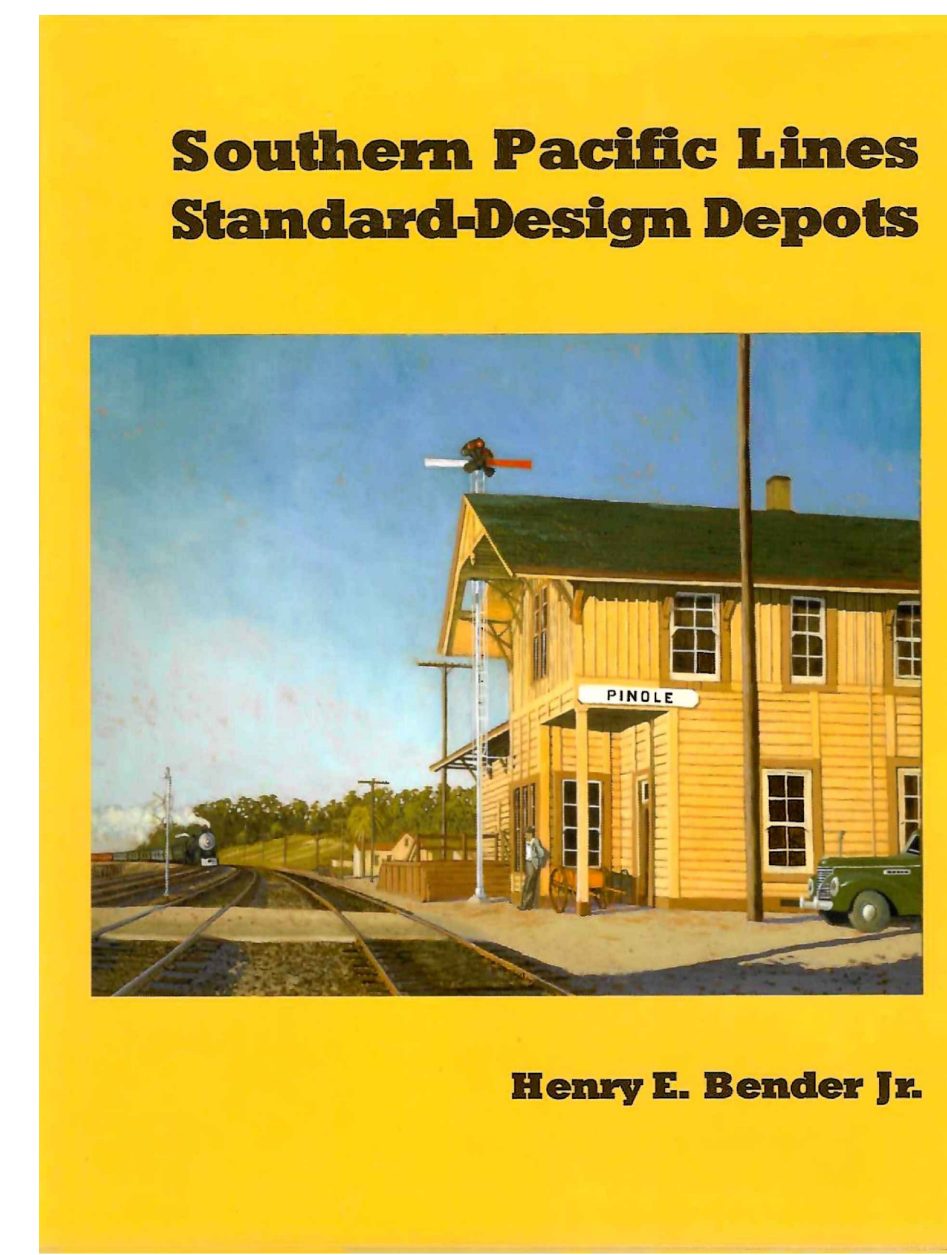
NORTH UNITS



DRIVEWAY VIEW - NORTH EAST



ADU AND DUPLEX - NORTH WEST CORNER OF PROPERTY



**Southern Pacific Lines  
Standard-Design Depots**

Henry E. Bender Jr.



DRIVEWAY VIEW - WEST



Cohesive  
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design of buildings,  
interiors & landscape  
architecture  
since 1995

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Foothills • Sierras  
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1701 North California Blvd.  
Walnut Creek, CA 94596  
925-587-4200  
916-441-4500  
415-842-8988  
800-647-4782

PROJECT NAME:  
**Rail Town  
Multi-Family Village**

SHEET NAME:  
**Color & Material  
Sample Board**

PROJECT ADDRESS:  
412 6th Street  
Roseville, CA 95678

OWNER NAME:  
Owner: Bhavnnarayana  
& Chandana Avula

PARCEL NUMBER:  
**APN: 014-062-018**

SUBMITTAL SET DATE:  
12-19-2024  
SHEET PRINT DATE:  
02-27-2025

SHEET NO.:



# Rail Town Multi-Family Village

412 6th Street, Roseville



Cohesive  
WHOLE-VISION  
design of buildings,  
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since 1995

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415-842-8988  
800-647-4782

Landscape Lighting Fixture Schedule											
SYMBOL	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	FIXTURE FINISH	LAMP TYPE	LAMP WATTS	BEAM SPREAD	INCAND. LAMP COMPARISON	LUMENS	LAMP COLOR	ACCESSORY & MOUNTING NOTES
○	WALL MOUNTED AREA LIGHT	MERIDIAN	PRODUCT: P2358632 MODEL: MS00180RB	OIL RUBBED BRONZE	MERIDIAN	-	-	60 WATTS	-	-	(PHOTOCELL) INCANDESCENT EQUIVALENT
●	WALL MOUNTED AREA LIGHT	MERIDIAN	PRODUCT: P2358632 MODEL: MS00180RB	OIL RUBBED BRONZE	MERIDIAN	-	-	60 WATTS	-	-	(SWITCHED) INCANDESCENT EQUIVALENT
⬆	COMPACT SPOT UPLIGHT	VOLT	VAL-2007-BBZ SPARK NARROW SPOTLIGHT	AGED BRASS PATINA	2-WATT LED MR-8	2 WATTS	38 DEGREES	15 WATT	175	2700 K	
▽	MEDIUM FLOOD UPLIGHT	VOLT	VAL-3000-BBZ INFINITI 30 G4 SPOTLIGHT	AGED BRASS PATINA	INTEGRATED LED	6 WATTS	60 DEGREES	30 WATT	350	2700 K	WHERE LOCATED ON TOP OF ENTRY COVER ROOF, MOUNT ON CROSS BEAM TOP -AIM TOWARD BUILDING. MOUNT -BBZ BASE -SM1 WITH VOLT VAC
◡	PATH DOWN SIDELIGHT	VOLT	VPL-1043-4-BBZ MODERNELLE PATH	AGED BRASS PATINA	LED G4 BI-PIN	2 WATTS	LOW WIDE CUT-OFF	15 WATT	200	2700 K	MOUNT WITH LAMP L EDGE EVEN WITH EDGE OF PAVING
T	TRANSFORMERS 1, 2, 3, 4, 5.	VOLT	300-WATT CLAMP-CONNECT MULTI-TAP TRANSFORMER								VOLT VTR-300 WITH VAC - PTIMERS PHOTOCELL AND TIMER WITH PHOTOCELL EXTENSION KIT VAC PCCCLXT3 TIMER AND TRANSFORMER MOUNTED INSIDE BUILDING
—	WIRE	VOLT									WIRE SIZE #14, #12 & #10 PER PLAN

ALL STANDARD DIRECT BURIAL WIRE IS #12 U.N.O. ALL FIXTURES WHERE APPLICABLE TO USE VOLT 13" HAMMER STAKE VOLT VAC -STK-13

## Low Voltage Light Notes

- This plan is intended for landscape lighting purposes only. Installation Contractor shall be LITE Certified. All lighting fixtures and transformers shall be installed per manufacturer specifications. It is contractor's responsibility to maintain compliance with the National Electrical Code (current edition) and all local building safety codes and ordinances.
- Fixtures are shown in approximate locations. Contractor shall field verify actual placement of each fixture upon completion of landscape installation.
- All path lights to be installed at a minimum of 18" from any sidewalk or structure.
- All hubs shall be labeled and installed primarily in planter areas 2" above finish grade; or in readily accessible areas that do not obstruct pathways, drainage swales or common areas.
- All "Home Run" wire shall be labeled and installed at a minimum depth of 8". All fixture lead wires shall be installed at a minimum depth of 8".
- In order to minimize future disturbance, all wire runs shall be installed parallel and adjacent to hardscape surfaces such as sidewalks, driveways and walls.
- Installing contractor shall be responsible for installing sleeves under hardscape surfaces, using a minimum 1-1/2" PVC pipe.
- Contractor shall not cut the wire leads from the fixtures. Leave excess wire at the fixture with a minimum of 2' at each hub.
- All underground splices shall be installed in approved in-ground hubs with water-tight connections.
- All exterior 120-Volt electrical outlets shall be GFI protected per the National Electrical Code.
- All transformers plugged into a water resistant receptacle shall have an "in use" cover. Contractor shall install Taymac type covers at all outlets.
- All plug-in transformers shall have a "Drip Loop" in the power cord.
- All exposed conduits shall be painted to match surroundings.
- All wire shall conform to ASTM B-49 and B-115 standards: 99% pure PVC plastic mixed with the latest in UV inhibitors, 99.5% pure copper.
- All exposed wires shall be protected and painted.
- Installing contractor shall be responsible for adjusting fixtures at night to help eliminate glare and to ensure optimum lighting effect.
- Upon completion of installation Contractor shall verify all fixtures are properly volted per manufacturer standards.
- Upon completion of installation Contractor shall verify all transformers are within the maximum allowable amperage load per manufacturer standards.

### COPYRIGHT

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### PROJECT

Rail-Town Multi Family Village

### Lighting Plan

### ADDRESS

412 6th Street  
Roseville, CA 95678

OWNER Bhavnarayanan  
& Chandana Avula

### APN

014-062-018

### DATE

02-27-2025

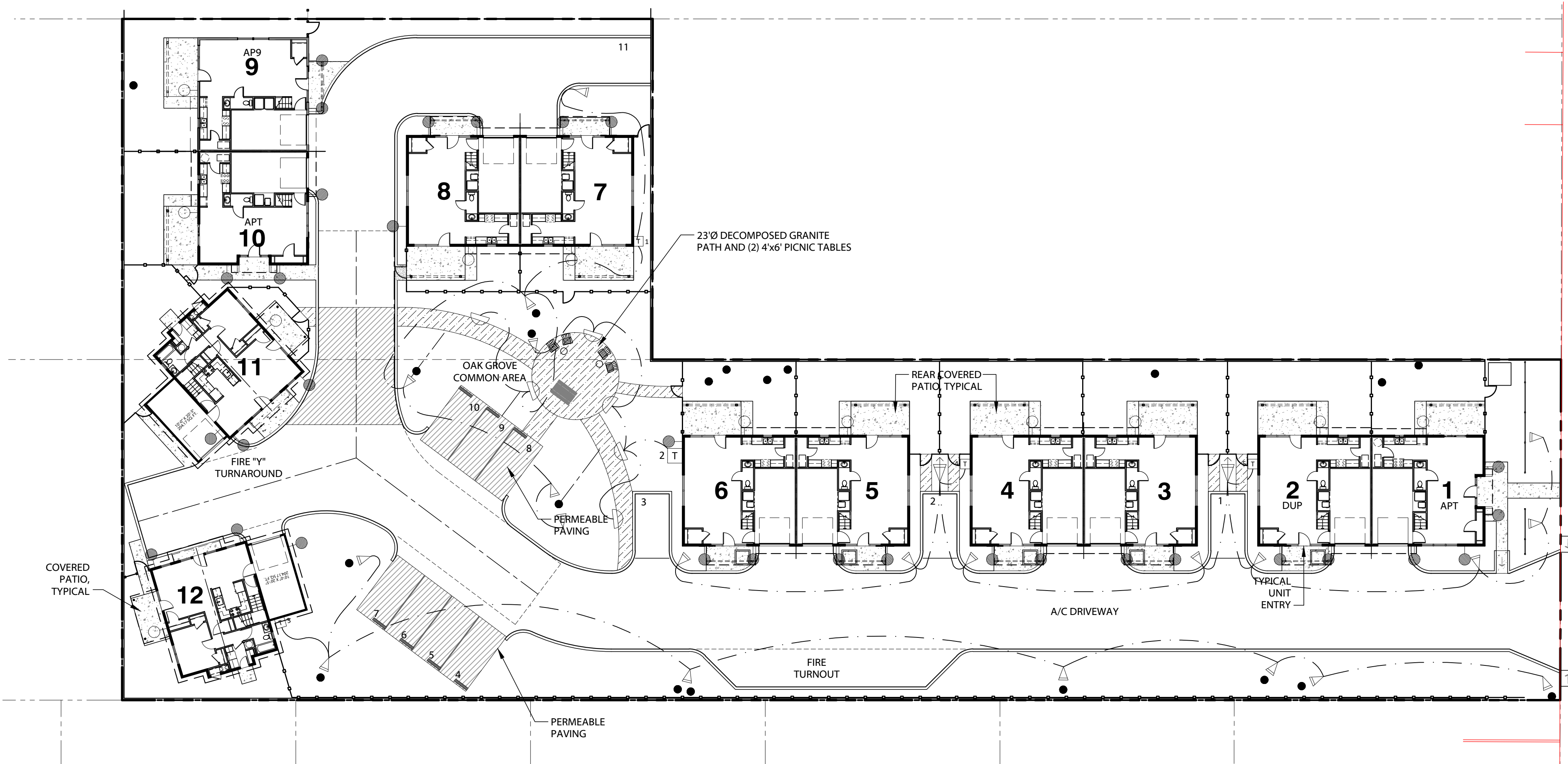
### REVISIONS

### SCALE

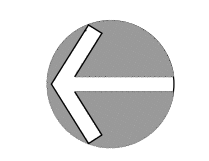
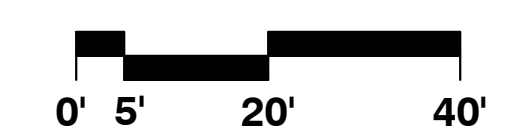
1" = 20'

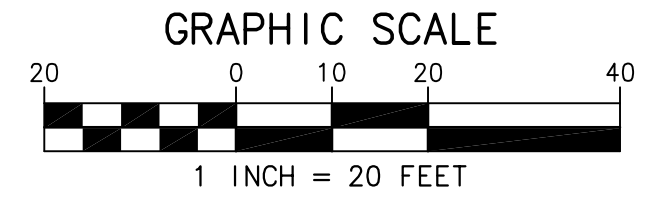
### DRAWING NUMBER

SA-7



## Lighting Plan





**TOPOGRAPHY NOTES:**

1. TOPOGRAPHY PREPARED BY GIULIANI AND KULL-AUBURN, INC., FIELD SURVEY CONDUCTED MAY 30, 2024
2. PROPERTY LINES SHOWN ON THESE DRAWINGS ARE COMPILED FROM RECORD DATA. PURSUANT TO THE CLIENTS DIRECTION, A BOUNDARY SURVEY WAS NOT PERFORMED AT THIS TIME WHICH MAY HAVE DETERMINED THE ACTUAL PROPERTY LINES. THE PROPERTY LINES SHOWN HEREON ARE THE BEST GRAPHICAL FIT BETWEEN RECORD INFORMATION AND THE TOPOGRAPHICAL FEATURES SURVEYED AND ARE FOR REFERENCE ONLY, AND SHOULD NOT BE RELIED UPON OR USED FOR ANY OTHER PURPOSES.
3. SURVEY DATUM:  
HORIZONTAL STATE PLANE COORDINATE 0402 CALIFORNIA VERTICAL NAVD88  
BY STATIC OBSERVATION
4. THE EXISTENCE, LOCATION AND ELEVATION OF ALL EXISTING UNDER AND ABOVE GROUND UTILITIES ARE SHOWN IN A GENERAL WAY AND MAY NOT BE A COMPLETE INVENTORY OF ALL EXISTING UTILITIES EFFECTED THIS SITE.
5. ALL TREE DRIP LINES SHOWN ARE APPROXIMATE.

E STREET

PARCEL "C"  
15 PM 70

**PROPERTY INFORMATION**

**OWNER/APPLICANT:**  
BHAVNNARAYANA AVULA  
CHANDANA AVULA  
10354 COLBY AVENUE  
CUPERTINO, CALIFORNIA 95014

**LAND SURVEYOR:**  
PATRICK R. DRUDING, PLS  
GIULIANI & KULL-AUBURN, INC.  
PO BOX 786  
AUBURN, CA 95604  
(530) 885-5107

**SITE ADDRESS:**  
412 6TH STREET  
ROSEVILLE, CALIFORNIA 95678

**ASSESSOR'S PARCEL #:**  
014-062-018-000

**LEGEND**

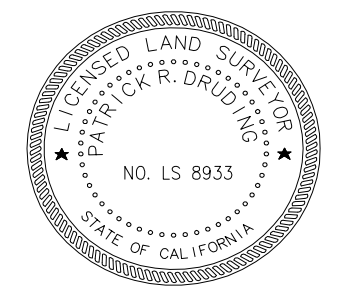
LINE/SYMBOL	DESCRIPTION/ABBREVIATION
---	PROPERTY LINE
- - - -	ADJACENT PROPERTY LINE
- · - · -	EASEMENT (AS NOTED)
CL	CENTERLINE (CL)
---1000---	MAJOR ELEVATION CONTOUR
---998---	MINOR ELEVATION CONTOUR
●	FOUND MONUMENT (AS NOTED)
---	EDGE OF PAVEMENT
---	EDGE OF CONCRETE PAVEMENT
---	GUTTER
---	CURB
---	SIDEWALK
---	FENCE LINE
---	BUILDING FACE/LINE
---	IRRIGATION LINE
---	RETAINING WALL
---	ROCK / ROCK WALL
---	CONCRETE PAVEMENT (CONC)
□	STORM DRAIN INLET
○	LIGHT POLE
WV	WATER VALVE
WM	WATER METER
FH	FIRE HYDRANT
EL	UTILITY - ELECTRIC METER/BOX
TC	UTILITY - TELECOMM
IR	IRRIGATION VALVE(S)
○	TREE
○	TREE DESCRIPTOR
○	DRIPLINE RADIUS (FEET)
○	TREE TYPE
○	TRUNK DIAMETER (INCHES)

SCALE	1"=20'
DRAWN BY	PD
DESIGNED BY	PD
CHECKED BY	PD
REVISIONS	
DATE	

**GIULIANI & Kull Auburn, Inc.**  
Engineers • Planners • Surveyors  
Post. Box 786, Auburn, CA 95604  
(530) 885-5107 Fax (530) 885-5157  
Auburn • San Jose • Oakdale • Sacramento

**LANDS OF BHAVNNARAYANA**  
**412 6TH STREET**  
ROSEVILLE  
PLACER COUNTY  
CALIFORNIA

**BASE TOPOGRAPHY**







CLIENT  
**BHAVA AVULA**

P.O. BOX 2132

PROJECT TITLE  
**6th Street Multi  
Family Complex**

412 6th Street  
ROSEVILLE  
CALIFORNIA

SHEET TITLE

**PRELIMINARY  
GRADING &  
DRAINAGE PLAN**

DATE	REVISION	DATE

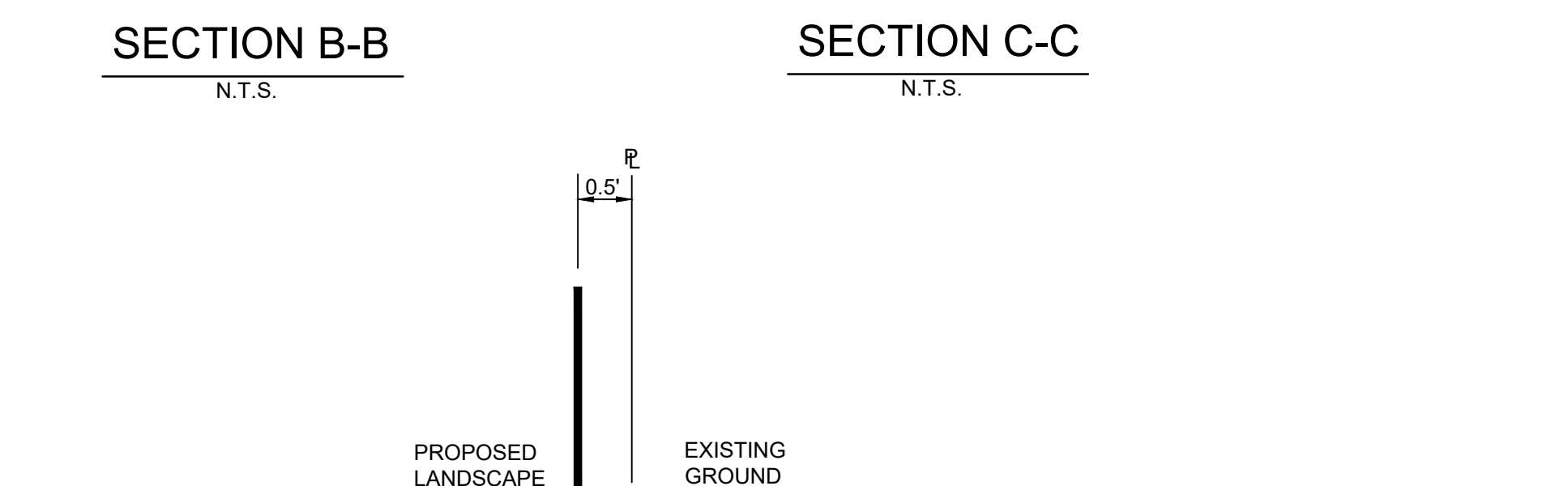
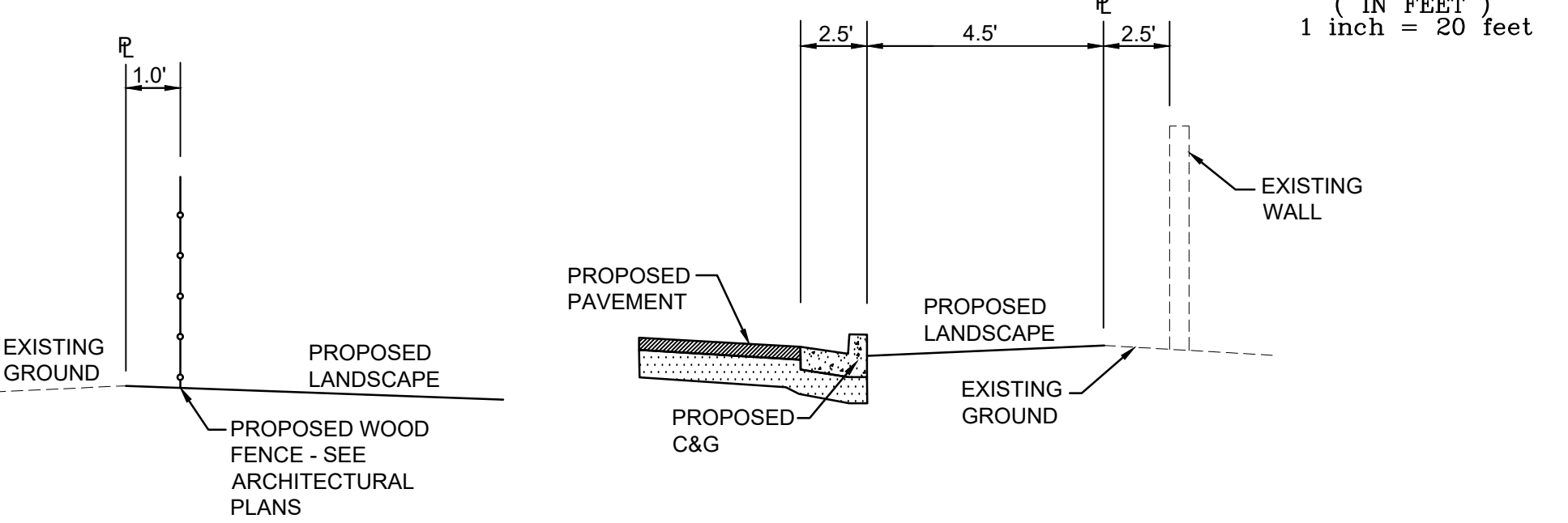
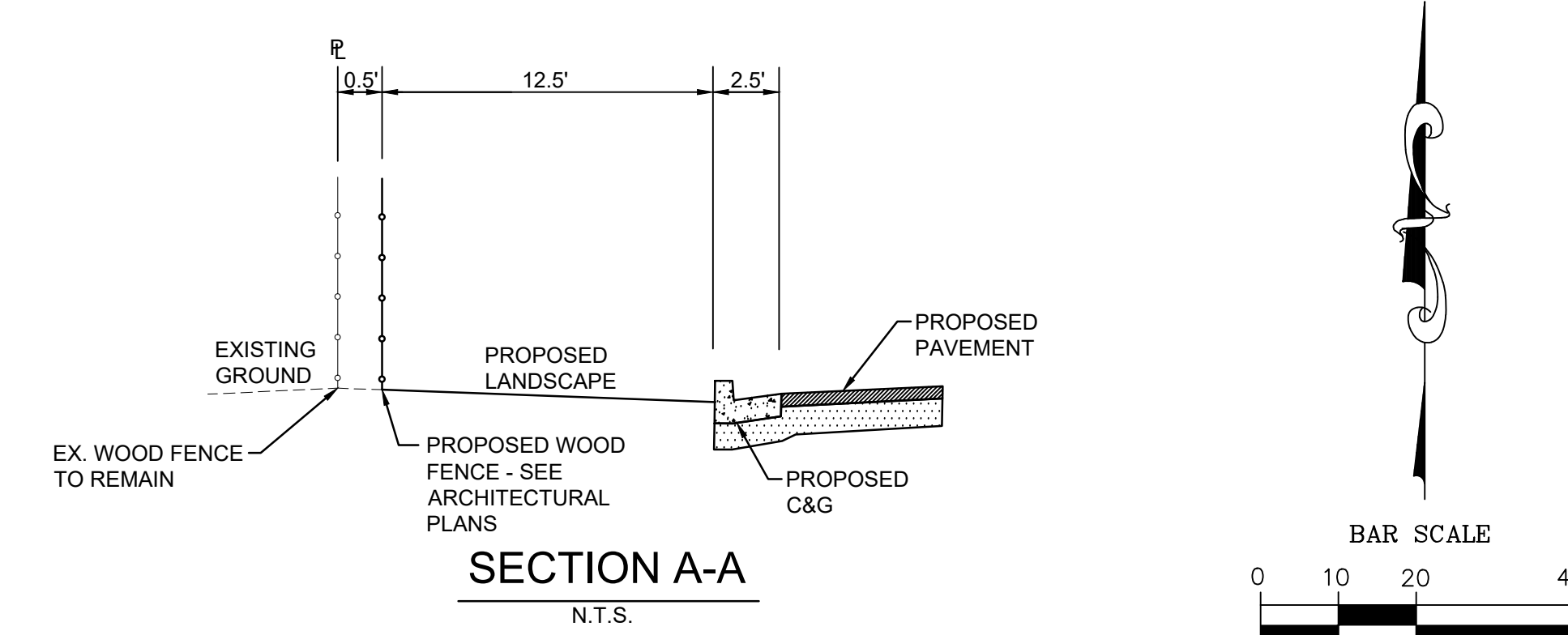
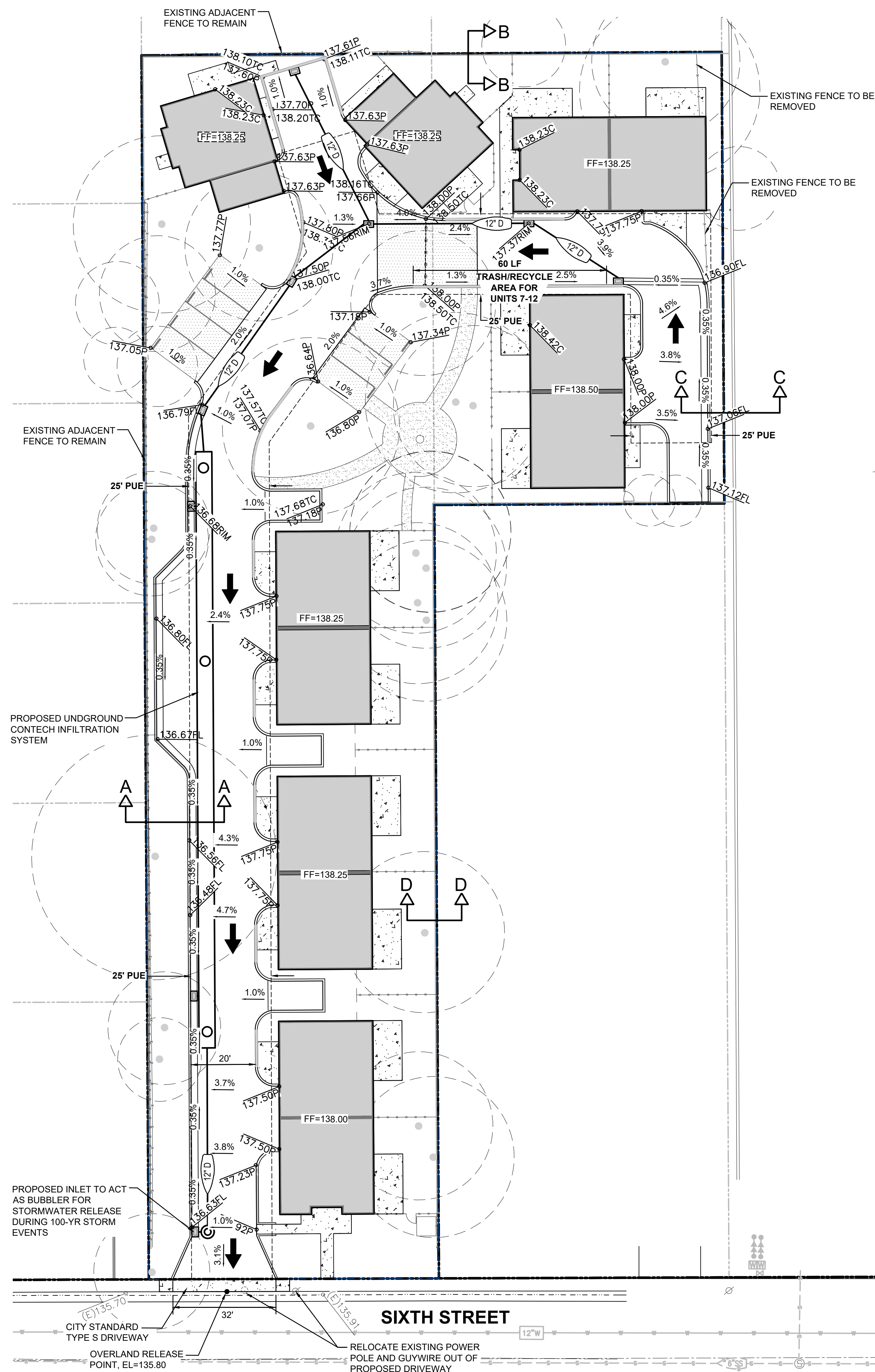
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DATE: 4/7/2025

JOB NO.: 1509.001

SHEET NUMBER

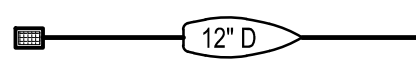
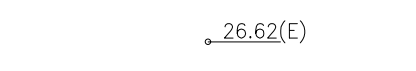
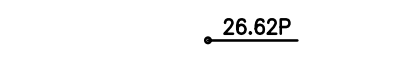
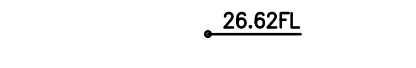
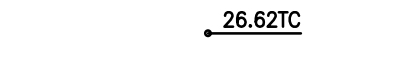
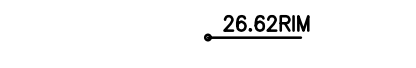
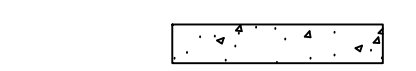
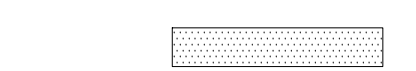
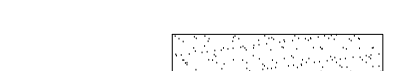
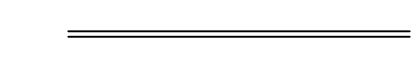
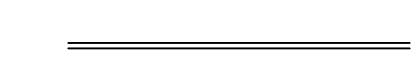

**G.1**



**PROJECT STORAGE VOLUMES:**  
PRE-PROJECT VOLUME = 5,227 CF  
POST-PROJECT VOLUME = 10,018 CF  
REQUIRED STORAGE VOLUME = 10,018 CF - 5,227 CF  
= 4,791 CF

CONTECH INFILTRATION  
SYSTEM VOLUME PROVIDED = 4,797 CF

**AREA BREAKDOWN (1 TOTAL SHED):**  
EXISTING PERVIOUS: 1.0 AC.  
EXISTING IMPERVIOUS: 0 AC.  
PROPOSED PERVIOUS: 0.43  
PROPOSED IMPERVIOUS: 0.57

- LEGEND:**
-  NEW DRAIN INLET ON NEW DRAIN LINE
  -  EXISTING PAVEMENT GRADE
  -  PROPOSED PAVEMENT GRADE
  -  PROPOSED GUTTER FLOWLINE GRADE
  -  PROPOSED TOP OF CURB GRADE
  -  PROPOSED DRAIN INLET RIM GRADE
  -  PROPOSED CONCRETE WALK
  -  PROPOSED PERMEABLE PAVEMENT
  -  PROPOSED DG WALKWAY
  -  PROPOSED POURED IN PLACE CURB
  -  PROPOSED CURB & GUTTER
  -  CURB PAINTED RED WITH WHITE LETTERING "NO PARKING - FIRE LANE"

ASPHALT PAVEMENT AND PERMEABLE PAVEMENT SECTIONS SHALL BE DESIGNED PER GEOTECHNICAL REPORT PREPARED BY ALLERION CONSULTING GROUP, PROJECT NO. 05-24063GP.

PER FEMA FLOOD INSURANCE STUDY 06061C1031H, THIS PROJECT SITE IS WITHIN FLOOD ZONE X.

ALL GRADES SHOWN ON THIS PLAN ARE ON NAVD 88 DATUM.

**NOTE:** EMERGENCY VEHICLE ACCESS SHALL BE DESIGNED PER CITY OF ROSEVILLE FIRE DEPARTMENT FIRE & LIFE SAFETY STANDARDS.

**PRELIMINARY GRADING & DRAINAGE PLAN**

SCALE: 1"= 20'



# PROJECT SUMMARY

## CALCULATION DETAILS

- LOADING = HS20/HS25
- APPROX. LINEAR FOOTAGE = 185 LF

## STORAGE SUMMARY

- STORAGE VOLUME REQUIRED = 4,791 CF
- PIPE STORAGE VOLUME = 3,632 CF
- BACKFILL STORAGE VOLUME = 1,165 CF
- TOTAL STORAGE PROVIDED = 4,797 CF
- STONE VOID = 40%

## PIPE DETAILS

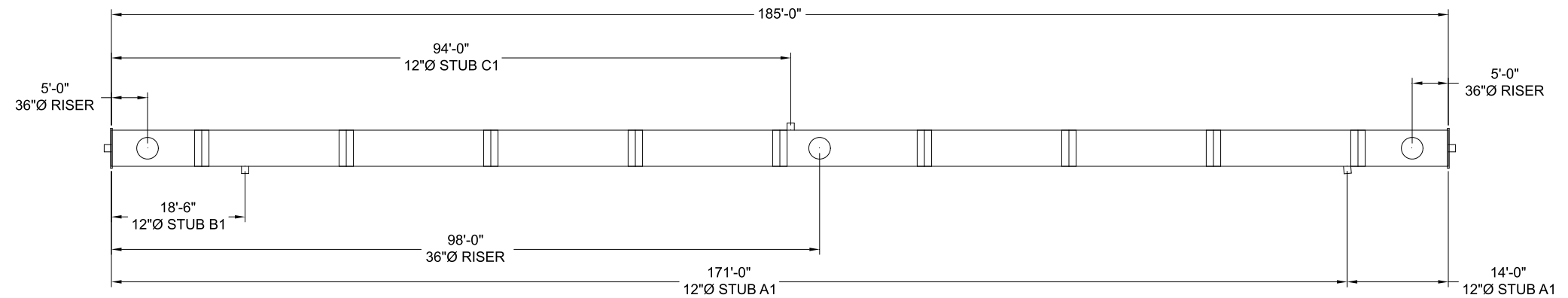
- DIAMETER = 60"
- CORRUGATION = 5x1
- GAGE = 16
- COATING = ALT2
- WALL TYPE = PERFORATED
- BARREL SPACING = 30"

## BACKFILL DETAILS

- WIDTH AT ENDS = 12"
- ABOVE PIPE = 0"
- WIDTH AT SIDES = 12"
- BELOW PIPE = 0"

## NOTES

- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE. ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE 2<sup>2</sup>/<sub>3</sub>" x 1<sup>1</sup>/<sub>2</sub>" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- BAND TYPE TO BE DETERMINED UPON FINAL DESIGN.
- THE PROJECT SUMMARY IS REFLECTIVE OF THE DYODS DESIGN, QUANTITIES ARE APPROX. AND SHOULD BE VERIFIED UPON FINAL DESIGN AND APPROVAL. FOR EXAMPLE, TOTAL EXCAVATION DOES NOT CONSIDER ALL VARIABLES SUCH AS SHORING AND ONLY ACCOUNTS FOR MATERIAL WITHIN THE ESTIMATED EXCAVATION FOOTPRINT.
- THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.



**ASSEMBLY**  
SCALE: 1" = 20'

C:\EXPORT\TEMPLATES\CMP\_V10.DWG 10/18/2019 10:02 AM

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DATE	REVISION DESCRIPTION	BY

DATE	REVISION DESCRIPTION	BY

**CONTECH**  
ENGINEERED SOLUTIONS LLC  
www.ContechES.com  
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069  
800-338-1122 513-645-7000 513-645-7993 FAX

**CONTECH**  
CMP DETENTION SYSTEMS  
CONTECH  
**DYODS**  
DRAWING

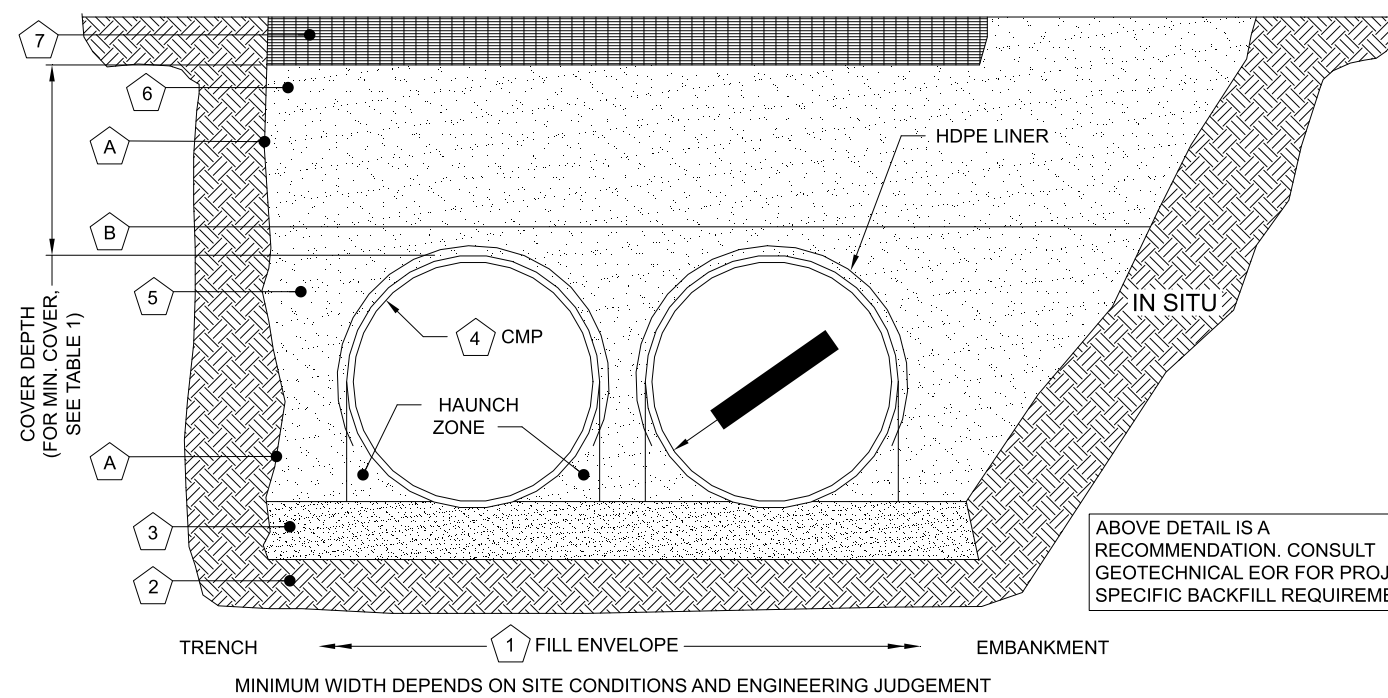
DYO65311 829933 - 6th St Multi  
60" CMP - Perforated - SEQ 10  
Roseville, CA  
DETENTION SYSTEM

PROJECT No.: 46461	SEQ. No.: 65311	DATE: 12/26/2024
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: Drywell-1		1

TABLE 1:

DIAMETER, D	MIN. COVER	CORR. PROFILE
6"-10"	12"	1 1/2" x 1/4"
12"-48"	12"	2 2/3" x 1/2"
>48"-96"	12"	3" x 1", 5" x 1"
>96"	D/8	3" x 1", 5" x 1"

- STRUCTURAL BACKFILL MUST EXTEND TO LIMITS OF THE TABLE
- TOTAL HEIGHT OF COMPACTED COVER FOR CONVENTIONAL HIGHWAY LOADS IS MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF RIGID PAVEMENT.



INSTALLATION NOTES

1. WHEN PLACING THE FIRST LIFTS OF BACKFILL IT IS IMPORTANT TO MAKE SURE THAT THE BACKFILL IS PROPERLY COMPACTED UNDER AND AROUND THE PIPE HAUNCHES.
2. OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS, AS APPROVED BY SITE ENGINEER.
3. AN HDPE MEMBRANE LINER WILL BE PLACED ON THE CROWN OF EACH PIPE TO PROVIDE AN IMPERMEABLE BARRIER AGAINST ENVIRONMENTAL CHANGES THAT MAY ADVERSELY AFFECT THE SYSTEM OVER TIME. PLEASE REFER TO THE CORRUGATED METAL PIPE DETENTION DESIGN GUIDE FOR ADDITIONAL TECHNICAL DETAILS.

TABLE 2: PERFORATED STANDARD

CMP RETENTION STANDARD BACKFILL SPECIFICATIONS			
	MATERIAL LOCATION	MATERIAL SPECIFICATION	DESCRIPTION
1	FILL ENVELOPE WIDTH	PER ENGINEER OF RECORD	MINIMUM TRENCH WIDTH MUST ALLOW ROOM FOR PROPER COMPACTION OF HAUNCH MATERIALS UNDER THE PIPE. THE SUGGESTED MINIMUM TRENCH WIDTH, OR EOR RECOMMENDATION: PIPE ≤ 12": D + 16" PIPE > 12": 1.5D + 12"  MINIMUM EMBANKMENT WIDTH (IN FEET) FOR INITIAL FILL ENVELOPE: PIPE < 24": 3.0D PIPE 24" - 144": D + 4'0" PIPE > 144": D + 10'0"
2	FOUNDATION	AASHTO 26.5.2 - PER ENGINEER OF RECORD	PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND FOUNDATION BROUGHT BACK TO GRADE WITH A FILL MATERIAL APPROVED BY THE ENGINEER OF RECORD.
3	BEDDING	AASHTO M 43: 3, 357, 4, 467, 5, 56, 57	ENGINEER OF RECORD TO DETERMINE IF BEDDING IS REQUIRED. PIPE MAY BE PLACED ON THE TRENCH BOTTOM OF A RELATIVELY LOOSE, NATIVE SUITABLE WELL GRADED GRANULAR MATERIAL THAT IS ROUGHLY SHAPED TO FIT THE BOTTOM OF THE PIPE, 2" MIN DEPTH. THE BEDDING MATERIAL MAY BE SUITABLE OPEN GRADED GRANULAR BEDDING CONFORMING TO AASHTO SOIL CLASSIFICATIONS A1, A2, OR A3 WITH MAXIMUM PARTICLE SIZE OF 3" PER AASHTO 26.3.8.1
4			CORRUGATED METAL PIPE
5	BACKFILL	FREE-DRAINING, ANGULAR, NATURALLY OCCURRING WASHED-STONE PER AASHTO M 43: 3, 357, 4, 467, 5, 56, 57 OR APPROVED EQUAL *	HAUNCH ZONE MATERIAL SHALL BE HAND SHOVELED OR SHOVEL SLICED INTO PLACE TO ALLOW FOR PROPER COMPACTION WITHOUT SOFT SPOTS. BACKFILL SHALL BE PLACED IN 8" +/- LOOSE LIFTS AND COMPACTED TO 90% STANDARD PROCTOR PER AASHTO T 99. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO LIFT (16") DIFFERENTIAL BETWEEN ANY OF THE PIPES AT ANY TIME DURING THE BACKFILL PROCESS. THE BACKFILL SHOULD BE ADVANCED ALONG THE LENGTH OF THE SYSTEM TO AVOID DIFFERENTIAL LOADING. WHERE CONVENTIONAL COMPACTION TESTING IS NOT PRACTICAL, THE MATERIAL SHALL BE MECHANICALLY COMPACTED UNTIL NO FURTHER YIELDING OF MATERIAL IS OBSERVED UNDER THE COMPACTOR. AREAS WITH HIGH WATER TABLE FLUCTUATIONS THAT INTERACT WITH THE PIPE ZONE, CONSIDER INSTALLING A GEOTEXTILE SEPARATION LAYER TO PREVENT SOIL MIGRATION. **IN
6	COVER MATERIAL	UP TO MIN. COVER - AASHTO M 145: A-1, A-2, A-3 ABOVE MIN. COVER - PER ENGINEER OF RECORD	COVER MATERIAL MAY INCLUDE NON-BITUMINOUS, GRANULAR ROADBASE MATERIAL WITHIN MIN COVER LIMITS
7	RIGID OR FLEXIBLE PAVEMENT (IF APPLICABLE)	PER ENGINEER OF RECORD	FLEXIBLE PAVEMENT SHOULD NOT BE COUNTED AS PART OF THE FILL HEIGHT OVER THE CMP. FINAL BACKFILL MATERIAL SELECTION AND COMPACTION REQUIREMENTS SHALL FOLLOW THE PROJECT PLANS AND SPECIFICATIONS PER THE ENGINEER OF RECORD.
A	OPTIONAL SIDE GEOTEXTILE	NONE	GEOTEXTILE LAYER IS RECOMMENDED ON SIDES OF EXCAVATION TO PREVENT SOIL MIGRATION.
B	GEOTEXTILE BETWEEN LAYERS	NONE	IF SOIL TYPES DIFFER AT ANY POINT ABOVE PIPE INVERT, A GEOTEXTILE LAYER IS RECOMMENDED TO BE PLACED BETWEEN THE LAYERS TO PREVENT SOIL MIGRATION.

NOTES:

- FOR MULTIPLE BARREL INSTALLATIONS, THE RECOMMENDED STANDARD SPACING BETWEEN PARALLEL PIPE RUNS SHALL BE THE PIPE DIAMETER /2 BUT NO LESS THAN 12" FOR DIAMETERS <72". FOR 72" AND LARGER DIAMETERS, THE MINIMUM SPACING IS 36". CONTACT YOUR CONTECH REPRESENTATIVE FOR NONSTANDARD SPACING.
- \* APPROVED REGIONAL EQUIVALENTS FOR SECTION 5 INCLUDE CA-7, MIDOT 6AA, 6A, OR 5G, PROVIDED THEY MEET THE PARTICLE SIZES INDICATED.

MANUFACTURER RECOMMENDED BACKFILL

NOT TO SCALE

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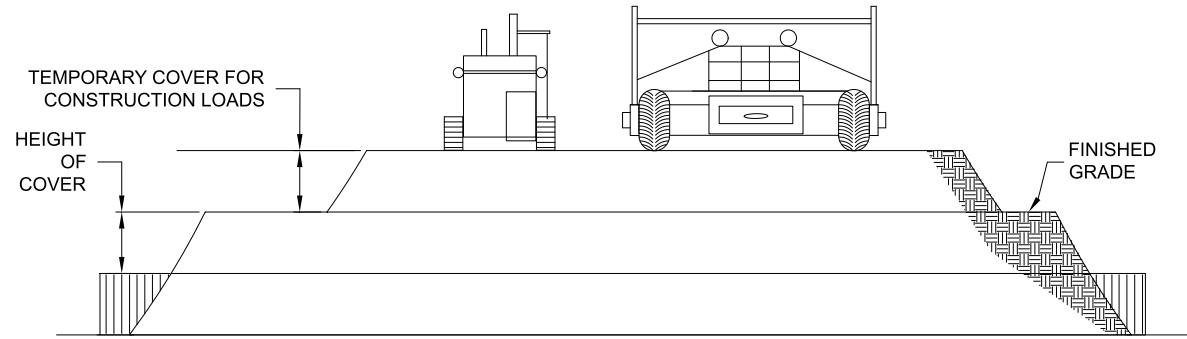
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ENGINEERED SOLUTIONS LLC  
www.ContechES.com  
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069  
800-338-1122 513-645-7000 513-645-7993 FAX

**CONTECH**  
CMP DETENTION SYSTEMS  
CONTECH  
DYODS  
DRAWING

DY065311 829933 - 6th St Multi  
60" CMP - Perforated - SEQ 10  
Roseville, CA  
DETENTION SYSTEM

PROJECT No.: 46461	SEQ. No.: 65311	DATE: 12/26/2024
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: <b>Drywell-2</b> 1		



**CONSTRUCTION LOADS**

FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
	MINIMUM COVER (FT)			
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

\*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

**CONSTRUCTION LOADING DIAGRAM**

SCALE: N.T.S.

**SPECIFICATION FOR DESIGNED DETENTION SYSTEM:**

**SCOPE**

THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE DESIGNED DETENTION SYSTEM DETAILED IN THE PROJECT PLANS.

**MATERIAL**

THE MATERIAL SHALL CONFORM TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-274 OR ASTM A-92.

THE GALVANIZED STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-218 OR ASTM A-929.

THE POLYMER COATED STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-246 OR ASTM A-742.

THE ALUMINUM COILS SHALL CONFORM TO THE APPLICABLE OF AASHTO M-197 OR ASTM B-744.

**CONSTRUCTION LOADS**

CONSTRUCTION LOADS MAY BE HIGHER THAN FINAL LOADS. FOLLOW THE MANUFACTURER'S OR NCSPE GUIDELINES.

**PIPE**

THE PIPE SHALL BE MANUFACTURED IN ACCORDANCE TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINIZED TYPE 2: AASHTO M-36 OR ASTM A-760

GALVANIZED: AASHTO M-36 OR ASTM A-760

POLYMER COATED: AASHTO M-245 OR ASTM A-762

ALUMINUM: AASHTO M-196 OR ASTM B-745

**APPLICABLE**

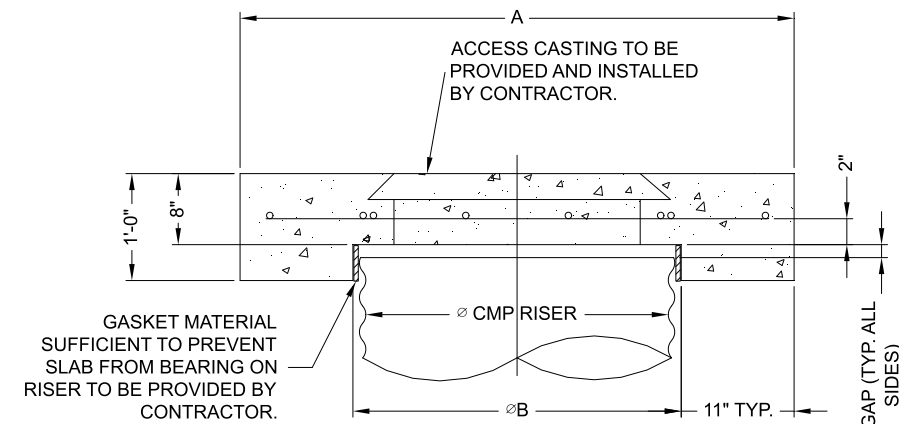
**HANDLING AND ASSEMBLY**

SHALL BE IN ACCORDANCE WITH NCSP'S (NATIONAL CORRUGATED STEEL ASSOCIATION) FOR ALUMINIZED TYPE 2, GALVANIZED OR POLYMER COATED STEEL. SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR ALUMINUM PIPE.

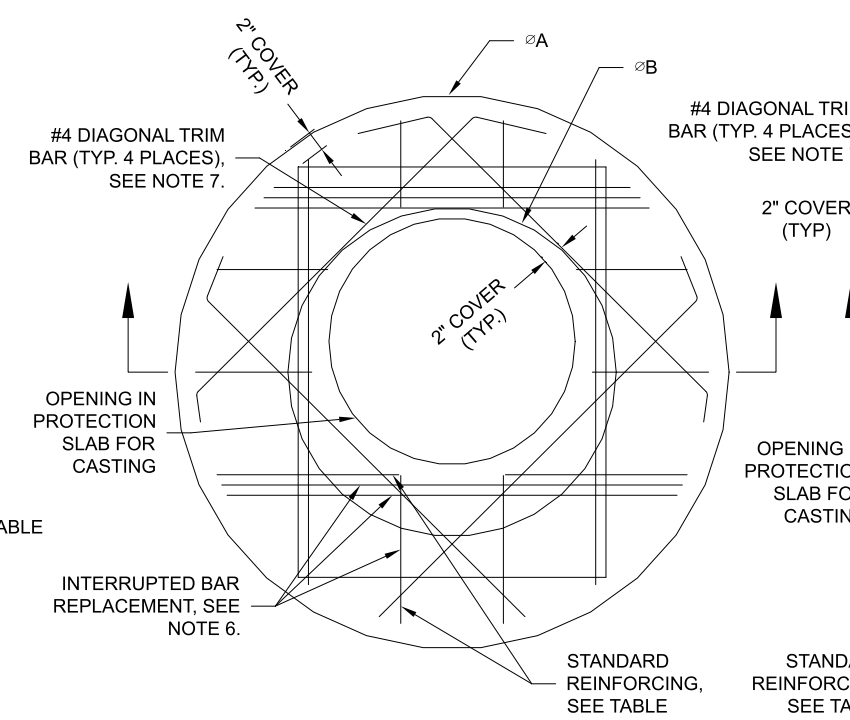
**INSTALLATION**

SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II DIVISION II OR ASTM A-798 (FOR ALUMINIZED TYPE 2, GALVANIZED OR POLYMER COATED STEEL) OR ASTM B-788 (FOR ALUMINUM PIPE) AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER.

IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.



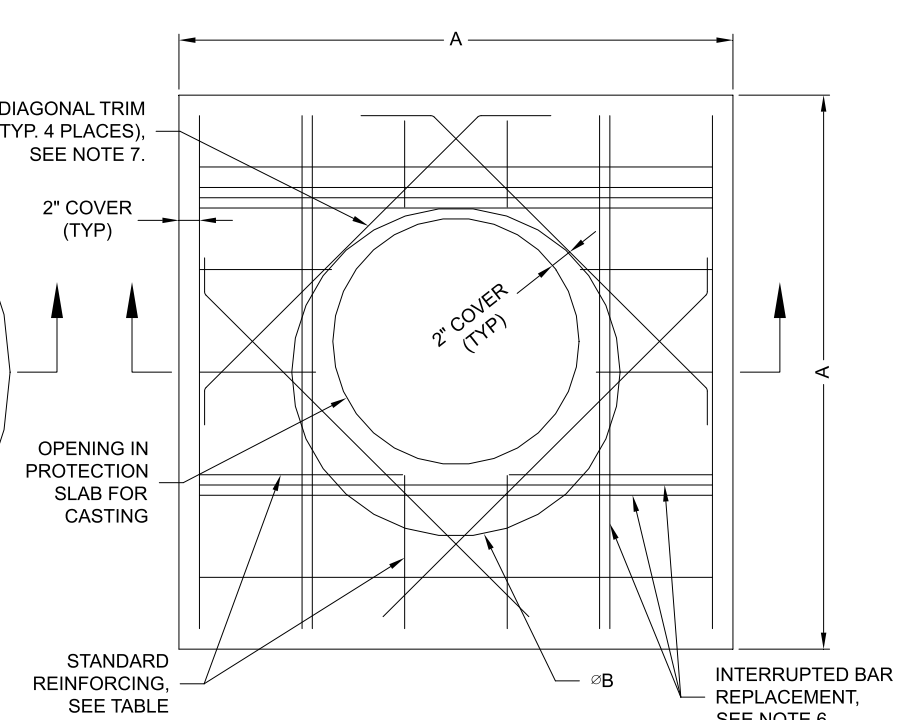
**SECTION VIEW**



**ROUND OPTION PLAN VIEW**

REINFORCING TABLE				
Ø CMP RISER	A	Ø B	REINFORCING	**BEARING PRESSURE (PSF)
24"	Ø 4' 4'X4'	26"	#5 @ 12" OCEW #5 @ 12" OCEW	2,410 1,780
30"	Ø 4'-6" 4'-6" X 4'-6"	32"	#5 @ 12" OCEW #5 @ 12" OCEW	2,120 1,530
36"	Ø 5' X 5'	38"	#5 @ 10" OCEW #5 @ 10" OCEW	1,890 1,350
42"	Ø 5'-6" 5'-6" X 5'-6"	44"	#5 @ 10" OCEW #5 @ 9" OCEW	1,720 1,210
48"	Ø 6' X 6'	50"	#5 @ 9" OCEW #5 @ 8" OCEW	1,600 1,100

\*\* ASSUMED SOIL BEARING CAPACITY



**SQUARE OPTION PLAN VIEW**

**NOTES:**

- DESIGN IN ACCORDANCE WITH AASHTO, 17th EDITION.
- DESIGN LOAD HS25.
- EARTH COVER = 1' MAX.
- CONCRETE STRENGTH = 3,500 psi
- REINFORCING STEEL = ASTM A615, GRADE 60.
- PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS EQUAL TO THE BARS INTERRUPTED, HALF EACH SIDE. ADDITIONAL BARS TO BE IN THE SAME PLANE.
- TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING, BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
- PROTECTION SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
- DETAIL DESIGN BY DELTA ENGINEERING, BINGHAMTON, NY.

**MANHOLE CAP DETAIL**

SCALE: N.T.S.

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**CONTECH**  
ENGINEERED SOLUTIONS LLC  
www.ContechES.com  
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069  
800-338-1122 513-645-7000 513-645-7993 FAX

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DY065311 829933 - 6th St Multi  
60" CMP - Perforated - SEQ 10  
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